



Table of Contents

| | |
|---|------------|
| Introduction | 2 |
| Finding a lamp | 2 |
| Ordering | 2 |
| Formulas | 2 |
| Abbreviations | 2 |
| GE Miniature Lamp Prefixes | 2 |
| GE Miniature Lamp Suffixes | 2 |
| Important Notice | 3 |
| Glossary of Headings | 3 |
| Lamp Locator | 4 |
| Numerical Index | 5-18 |
| Miniature | 5-14 |
| Neon Glow | 14 |
| Sealed Beam | 14-18 |
| European Automotive | |
| Cross Reference | 18 |
| Halogen Cycle Lamps | |
| Information | 19 |
| Design Features | 19 |
| Miniature Lamps | |
| Design Features | 20-21 |
| Filaments & Bases | 22 |
| Specifications | 23-41 |
| Central Discharge Lamps | |
| Specifications | 41 |
| Neon Glow Lamps | |
| Specifications | 42 |
| Festoon Type, Auto & Special Service Lamps | |
| Specifications | 42 |
| Sealed Beam Lamps | |
| Bulbs, Filaments, & Bases | 43 |
| Specifications | 44-49 |
| Safety Notes | 50 |
| International Sales Offices | 51 |
| U.S. Sales Offices | Back Cover |

The Quality Vision

It is the goal of GE lighting to be the world leader in quality - without exception. We can attain this goal by manufacturing and delivering products and services that faithfully conform to our specifications and satisfy the needs and expectations of our customers. Accordingly, we commit ourselves to expect, achieve and accept only those things that are done with excellence.

INTRODUCTION

GE sealed beam and miniature lamps are designed for those applications requiring specific size, long life, and a competitive cost. These lamps are available with a wide variety of filament constructions, bases and wire terminal leads. Most are designed for operation on low-voltage power sources such as battery-generator systems, dry cell or storage batteries, or transformers. Manufacturers and designers of equipment requiring lamps should select lamps of established design whenever possible for maximum economy as well as ease of replacement through regular trade channels.

Finding a lamp

In this catalog, lamps are listed two ways for quick reference. The index lists lamps numerically on pages 5-18. The final section, pages 23-49, groups lamps alphabetically "B" to "T", by bulb size. Lamps are listed in ascending order of design volts within the particular group.

Ordering

Use the order code located in the left columns of the index on pages 5-18 or 23-49. Be sure to order from the correct quantity column, i.e. blister pack, unit pack, bulk pack. Miniature unit packs come in quantities of 10-50 lamps. Sealed beam unit package quantities are 6-12. Bulk standard package quantity is provided to simplify ordering. See Sales Offices for specific information.

Formulas

The following are commonly used formulas to assist any calculations you may need. For further information, contact your GE Lamp Representative.

- Watts = Volts x Amps
- Kelvin = Celsius + 273
- Lumens = 12.57 x Mean Spherical Candlepower
- Footcandles = Candlepower/Distance squared (miniature lamps only)
- Hot Resistance (Ohms) = Volts/Amps

Abbreviations

The abbreviations used in this catalog include:

| | | |
|--|---|----------------------------|
| A Amperes | Fig. Flanged | Sc. Screw |
| ANSI American National Standards Institute | HID High Intensity Discharge | S.C. Single Contact |
| Bay. Bayonet | HIR Halogen Infrared | Spec. Special |
| C.I.M. Construction & Industrial Machinery | LCL Light Center Length | Tel. Telephone |
| C.P. Candlepower | Min. Miniature | Term. Terminals |
| Cand. Candelabra | MOL Maximum Overall Length | V Volts |
| D.C. Double Contact | MSCP Mean Spherical Candlepower | W Watts |
| ECE European Common Market (European Motor Vehicle Standards) | Nom. Nominal | |
| | PAR Parabolic Aluminized Reflector | |
| | Pf. Prefocus | |
| | SAE Society of Automotive Engineers (US Motor Vehicle Standards) | |

GE Miniature Lamp Prefixes

| | |
|---------------------------------------|---|
| DE Double Ended | PR Prefocus Base (E.G., "Flashlight Lamp") |
| H Halogen | Q Quartz Halogen |
| K Krypton Gas | SE Single Ended |
| PC Printed Circuit Application | W,T,R,C,P European Designation |

GE Miniature Lamp Suffixes

| | |
|--|--|
| A Amber | NA Natural Amber (automotive lighting) |
| AF All Frost (on outside) | PSB Pilot Indicator/Short Base |
| AS10 Ages and Selected (for candlepower) | R Red |
| B Blue | SB Silver Bowl (all or some portion of bulb is silver) |
| C1 Refers to a range of current on telephone lamps (A1, B1, D1, E1, etc. used also) | TY Letters after a quartz halogen lamp mean a deviation from the standard lamp - usually refers to the electrical terminals |
| CW Cool White (aircraft lighting) | U Lead wires up or no base, e.g., unbased sealed beam lamp |
| D Lead Wires Down | WW Warm White (aircraft lighting) |
| E Extended Lead Wires | X Indicates some arbitrary deviation from the normal product |
| E-1 Different lead wire material (NI plated) | Y Yellow |
| G Green | -1 Slip on terminals |
| HD Heavy Duty | -2 Represents various deviations |
| HIR Halogen Infrared | -3 Represents deviations (e.g. combination terminal) |
| HO High Output | W European Designation (Watts) |
| K Unique Base | |
| KR Krypton Fill | |
| L, XL, LL Long Life | |
| MB Miniature Bayonet | |

Important Notice

This catalog contains accumulated data to March 2003. Additional information is constantly being uncovered through research and testing, which may modify the data given herein. This is particularly true of newer lamps. Accordingly, SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE. For the latest lamp design data and information, contact your GE Lamp Representative.

The data and suggested applications contained in this catalog, as well as any additional information our representative may be able to furnish, are for general information only and are not intended and should not be taken as representations or warranties as to the suitability of a lamp for any particular application or use in any particular equipment, nor are our representatives authorized to make any such warranties. Applications and conditions of use are many and varied, and beyond our control. We cannot possibly have the same degree of knowledge that the purchaser has with respect to the design of his equipment and the conditions of its use. Therefore, it is up to the purchaser to make his own determination as to the suitability of a lamp for his intended application or use and to assume the responsibility for that determination.

General Electric desires to supply the best possible products at all times. For this reason, General Electric reserves the right to make changes in its products, and to introduce new lamps or discontinue existing ones without notice.

Glossary of Headings

The following glossary of terms can help you when checking lamp specifications and when ordering products.

Approximate Total Spread to 10% Maximum Candlepower: Beam size expressed in degrees vertical and horizontal.

Atmosphere: Indicates whether the lamp is gas filled or vacuum. Gas filled lamps are more efficient than vacuum lamps.

Average Cold Resistance: The average resistance of an unburned lamp.

Base: Bases provide electrical contact to the lamp and, in most cases, also support the lamp in the fixture. (Complete diagrams of miniature bases are located on page 22. Sealed beam base diagrams can be found on page 43.)

Bulb: The prefix letter refers to the bulb shape, and the number is the approximate diameter in eighths of an inch. For example T-2 means approximately $\frac{2}{8}$ th inch or $\frac{1}{4}$ " diameter.

Circuit Volts AC or DC: The operational voltage range.

Design End Foot Candles: The measure of the portion of the total light output of a T-2 lamp that passes through a .250" orifice placed at the end of the lamp.

Design Volts: Voltage at which the lamp is designed to provide the amperes, candlepower and laboratory life characteristics.

Design Watts or Amps: The power consumption (watts) or current rating (amps) at the design voltage. In the case of dual-filament lamps, the values for each filament are given.

Figure Number: Corresponds to the lamp drawing. The drawing shows the correct bulb and base; but not the filament, for the lamp listed.

Filament Designation: Filaments may be straight wire (S), a coil (C) or a coiled coil (CC). The number denotes the arrangement of the filament on the supports. Complete diagrams of miniature filaments are located on page 22. Sealed beam filament diagrams can be found on page 43.

Initial Maximum Beam Candlepower: The maximum light intensity at a point in the beam.

Lamp Number: In nearly all cases lamps are marked with a General Electric Trade Number recorded with the American National Standards Institute. See glossary of prefixes and suffixes on page 2.

Light Center Length: Indicates the location of the filament with reference to the lamp base. The LCL is measured from the geometric center of the light source to a particular point of the base. This point is shown on the lamp drawing.

Line Number: Line number on specified page where the lamp can be found.

Maximum Overall Length: The dimension which includes the bulb and base is designated as the overall length of the lamp. In the case of wire terminal lamps, this dimension applies only to the glass portion.

Mean Spherical Candlepower: Initial mean spherical candlepower at the design voltage. Mean spherical candlepower is the generally accepted method of rating the total light output of miniature lamps. To convert this rating to lumens, multiply it by 12.57 (4 pi).

Nominal Current: This is the average expected current.

Nominal Watts: This is the average expected watts.

Order code: Use this code when ordering to ensure that you receive the exact product you require.

Page Number: Page number on which further specifications/illustrations can be found.

Primary Application: Current major uses of lamp. Lamps may be and are used in many other applications where their designs will permit. This column also lists any unique features of the lamp.

Rated Average Lab Life: Rated average life is that obtained in closely controlled laboratory testing of lamps at their design voltage. It is not necessarily the same as service life; shocks, vibration, voltage fluctuations, temperature, and other environmental influences may result in a shorter service life.

SAE Specifications: Specifications for headlamps (forward lighting) can be found in a SAE Ground Vehicle Lighting Standards Manual SAE HS-34. There are numerous test points in the beam patterns for headlamps in conjunction with minimum and maximum photometry values. Space does not permit these many test points to be included in the light distribution column. Please contact your GE Representative for more detailed information.

Series Resistance: In order to properly control the neon glow lamp current, a ballast resistor must be used. Lamps having screw bases have the necessary resistor built-in. Those having bayonet bases do not have a built in resistor. The tables show the value of the external resistor to be used for normal operation at indicated circuit volts, or the value of the built-in resistor where applicable.

LAMP LOCATOR

The lamps listed here are not to scale. To determine the diameter of a bulb in inches, multiply the bulb number by one-eighth. For example T-2 means approximately $\frac{2}{8}$ " or $\frac{1}{4}$ " diameter.

| Bulb | Page | Bulb | Page | Bulb | Page | Bulb | Page |
|-------------------------------------|-------|-------------------------------------|-------|--------------------------------------|-------|-------------------------------------|-------|
| B-3¹/₂ | 23 | S-8 | 26-30 | TL-2³/₄ | 33 | T-4 | 38 |
| | | | | | | | |
| B-6 | 23 | | 30 | T-3 | 33-34 | T-4¹/₂ | 38 |
| | | | | | | | |
| G-3¹/₂ | 23-24 | T-1 | 31 | | 34 | T-4³/₄ | 38-39 |
| | | | | | | | |
| G-4¹/₂ | 24 | T-1³/₄ | 31 | T-3¹/₄ | 34-37 | T-5 | 39-40 |
| | | | | | | | |
| G-5 | 24 | T-2 | 31 | | | T-7 | 40 |
| | | | | | | | |
| G-6 | 25 | T-2¹/₄ | 31-32 | | | T-8 | 40 |
| | | | | | | | |
| R-12 | 26 | T-2¹/₂ | 32 | | 37 | Elec. Discharge | 41 |
| | | | | | | T-5 | |
| RP-11 | 26 | T-2³/₄ | 32 | | 37 | | |
| | | | | | | Central Discharge | 41 |
| | | | | | | | |
| | | | | | | Neon Glow | 42 |
| | | | | | | | |
| | | | | | | Festoon Type | 42 |
| | | | | | | | |

Sealed Beam drawings can be found on page 43

INDEX – MINIATURE LAMPS

| Order Code | | | Bulk Std. Pkg. Qty. | Lamp No. | Bulb | Base | Design | | Mean Spherical Candlepower (Approx.) | Rated Avg. Lab Life (Hours) | Page No. | Line No. |
|-----------------|--------------|--------------|---------------------------|-----------------|------|----------------------|--------|------------------|--|-----------------------------------|-------------|-------------|
| Blister Pack | Unit Pack | Bulk Pack | | | | | Volts | Watts or Amps | | | | |
| 12327 | 25962 | 16302 | 4000 | 168 | T-3¼ | Wedge | 14.0 | .35A | 3 | 1,500 | 36 | 19 |
| 47827 | | | | 168XL* | T-3¼ | Wedge | 14.0 | .35A | 3 | 3,000 | 36 | 20 |
| | 19553 | 19852 | 4000 | 193 | T-3¼ | Wedge | 14.0 | .33A | 2 | 15,000 | 36 | 15 |
| | | 19921 | 4000 | 193E | T-3¼ | Wedge, Wire Terminal | 14.0 | .33A | 2 | 15,000 | 36 | 16 |
| | | 11807 | 4000 | 193E-1 | T-3¼ | Wedge, Wire Terminal | 14.0 | .33A | 2 | 15,000 | 36 | 17 |
| 12328 | 25965 | 16303 | 4000 | 194 | T-3¼ | Wedge | 14.0 | .27A | 2 | 2,500 | 36 | 6 |
| 12356 | | | | 194B | T-3¼ | Wedge | 14.0 | .27A | 2 | 2,500 | 36 | 7 |
| 12357 | | | | 194G | T-3¼ | Wedge | 14.0 | .27A | 2 | 2,500 | 36 | 8 |
| 12319 | 44859 | 27470 | 4000 | 194NA | T-3¼ | Wedge | 14.0 | .27A | 1.5 | 2,500 | 36 | 9 |
| 47794 | | | | 194NAXL* | T-3¼ | Wedge | 14.0 | .27A | 1.5 | 5,000 | 36 | 10 |
| 12355 | | 21618 | 4000 | 194XR | T-3¼ | Wedge | 14.0 | .27A | 2 | 2,500 | 36 | 11 |
| 25832 | | | | 194XL | T-3¼ | Wedge | 14.0 | .27A | 2 | 12,000 | 36 | 12 |
| | 37983 | 37984 | 500 | 198 | S-8 | D.C. Index | 12.8 | 2.25A | 32 | 1,200 | 29 | 7 |
| | | | | | | | 14.0 | .59A | 3 | 5,000 | | |
| | 37985 | 37986 | 500 | 199 | S-8 | S.C. Bayonet | 12.8 | 2.25A | 32 | 1,200 | 29 | 8 |
| | 25988 | | | 210 | B-6 | D.C. Bayonet | 6.5 | 1.78A | 15 | 100 | 23 | 14 |
| 12673 | 39224 | 11803 | 1000 | 211-2 | T-3 | Miniature Cap | 12.8 | .97A | 12 | 1,000 | 33 | 12 |
| 23220 | | 11806 | 1000 | 212-2 | T-3 | Miniature Cap | 13.5 | .74A | 6 | 2,000 | 33 | 18 |
| 40135 | 39356 | 11804 | 1000 | 214-2 | T-3 | Miniature Cap | 13.5 | .52A | 4 | 1,000 | 33 | 16 |
| | 26008 | | | 222 | TL-3 | Miniature Screw | 2.25 | .25A | – | 5 | 34 | 6 |
| | 26063 | | | 243 | TL-3 | Miniature Screw | 2.33 | .27A | – | 10 | 34 | 7 |
| | 26095 | | | 258 | G-4½ | Miniature Screw | 14.0 | .27A | 1.6 | 500 | 24 | 13 |
| | 26099 | | | 259 | T-3¼ | Wedge | 6.3 | .25A | .65 | 5,000 | 34 | 17 |
| | 44719 | | | 265 | G-3½ | Miniature Bayonet | 28.0 | .08A | .75 | 5,000 | 24 | 4 |
| | 42758 | | | 267 | T-3¼ | Miniature Bayonet | 6.3 | .15A | .33 | 5,000 | 34 | 13 |
| | 32688 | | | 293 | G-4½ | Miniature Bayonet | 14.0 | .33A | 2 | 7,500 | 24 | 15 |
| | 26112 | | | 301 | G-5 | S.C. Bayonet | 28.0 | .17A | 3 | 500 | 24 | 18 |
| | 26120 | | | 302 | G-5 | D.C. Bayonet | 28.0 | .17A | 3 | 500 | 24 | 19 |
| | 26127 | | | 303 | G-6 | S.C. Bayonet | 28.0 | .30A | 6 | 500 | 25 | 20 |
| | 26136 | | | 304 | G-6 | D.C. Bayonet | 28.0 | .30A | 6 | 500 | 25 | 21 |
| | 26143 | | | 305 | S-8 | S.C. Bayonet | 28.0 | .51A | 15 | 300 | 29 | 16 |
| | 26145 | | | 305AF | S-8 | S.C. Bayonet | 28.0 | .51A | – | 300 | 29 | 17 |
| | 26152 | | | 306 | S-8 | D.C. Bayonet | 28.0 | .51A | 15 | 300 | 29 | 18 |
| | 26157 | | | 307 | S-8 | S.C. Bayonet | 28.0 | .67A | 21 | 300 | 30 | 5 |
| | 26161 | | | 307AF | S-8 | S.C. Bayonet | 28.0 | .67A | 21 | 300 | 30 | 6 |
| | 26168 | | | 308 | S-8 | D.C. Bayonet | 28.0 | .67A | 21 | 300 | 30 | 7 |
| | 26171 | | | 308AF | S-8 | D.C. Bayonet | 28.0 | .67A | – | 300 | 30 | 8 |
| | 26175 | | | 309 | S-11 | S.C. Bayonet | 28.0 | .90A | 32 | 300 | 30 | 22 |
| | 26191 | | | 311 | S-11 | S.C. Bayonet | 28.0 | 1.29A | 50 | 300 | 30 | 23 |
| | 26212 | 26214 | 4000 | 313 | T-3¼ | Miniature Bayonet | 28.0 | .17A | 3.5 | 500 | 37 | 4 |
| | 26238 | | | 315 | S-8 | S.C. Bayonet | 28.0 | .90A | 32 | 300 | 30 | 13 |
| | 26243 | | | 316 | T-3¼ | Miniature Bayonet | 6.0 | .70A | 3.4 | 500 | 34 | 10 |
| | 28519 | | | 327 | T-1¾ | S.C. Midget Flanged | 28.0 | .04A | .34 | 4,000 | 31 | 13 |
| | 28546 | | | 328 | T-1¾ | S.C. Midget Flanged | 6.0 | .20A | .34 | 1,000 | 31 | 2 |
| | 28567 | | | 330 | T-1¾ | S.C. Midget Flanged | 14.0 | .08A | .5 | 1,500 | 31 | 6 |
| | 28588 | | | 334 | T-1¾ | Midget Grooved | 28.0 | .04A | .34 | 4,000 | 31 | 14 |
| | 26255 | | | 356 | G-3½ | Miniature Bayonet | 28.0 | .17A | 3.5 | 500 | 24 | 5 |
| | 28653 | | | 381 | T-1¾ | S.C. Midget Flanged | 6.3 | .20A | .4 | 20,000 | 31 | 4 |
| | 28657 | | | 382 | T-1¾ | S.C. Midget Flanged | 14.0 | .08A | .3 | 40,000 | 31 | 7 |
| | 28660 | | | 385 | T-1¾ | S.C. Midget Flanged | 28.0 | .04A | .15 | 10,000 | 31 | 15 |
| | 28662 | | | 386 | T-1¾ | Midget Grooved | 14.0 | .08A | .3 | 40,000 | 31 | 8 |
| | 28664 | | | 387 | T-1¾ | S.C. Midget Flanged | 28.0 | .04A | .3 | 7,000 | 31 | 16 |
| | 28672 | | | 388 | T-1¾ | Midget Grooved | 28.0 | .04A | .3 | 7,000 | 31 | 17 |
| | 38918 | | | 400 | T-3¼ | Wedge | 28.0 | .10A | 1.6 | 1,000 | 37 | 2 |
| | 26354 | | | 425 | G-4½ | Miniature Screw | 5.0 | .50A | 2.3 | 15 | 24 | 7 |

*New lamp added since last publication. [Turquoise-Halogen Lamps](#)

INDEX – MINIATURE LAMPS

| Order Code | | | Bulk Std. Pkg. Qty. | Lamp No. | Bulb | Base | Design | | Mean Spherical Candlepower (Approx.) | Rated Avg. Lab Life (Hours) | Page No. | Line No. |
|-----------------|--------------|--------------|---------------------------|---------------------|----------|------------------------------|--------|------------------|--|-----------------------------------|-------------|-------------|
| Blister Pack | Unit Pack | Bulk Pack | | | | | Volts | Watts or Amps | | | | |
| | 26441 | | | 456 | G-4 1/2 | Miniature Bayonet | 28.0 | .17A | 2 | 5,000 | 24 | 16 |
| | 39645 | | | 464 | T-3 1/4 | Wedge | 28.0 | .17A | 3 | 1,500 | 37 | 5 |
| | 26460 | | | 502 | G-4 1/2 | Miniature Screw | 5.1 | .15A | .6 | 100 | 24 | 8 |
| | 26485 | | | 509K | G-6 | Candelabra Screw | 24.0 | .18A | 2.8 | 1,000 | 25 | 17 |
| | 44773 | 44774 | 4000 | 555 | T-3 1/4 | Wedge | 6.3 | .25A | .9 | 3,000 | 34 | 18 |
| | 38269 | | | 558 | TL-3 1/4 | Wedge | 13.0 | .33A | — | 500 | 37 | 11 |
| 12358 | 39746 | 11820 | 1000 | 561 | T-3 | Rigid Loop | 12.8 | .97A | 12 | 1,000 | 33 | 13 |
| 23019 | | 11822 | 1000 | 562 | T-3 | Rigid Loop | 13.5 | .74A | 6 | 2,000 | 33 | 19 |
| 26205 | | 11825 | 1000 | 563 | T-3 | Rigid Loop | 13.5 | .52A | 4 | 1,000 | 33 | 17 |
| 12672 | | | | 570 | T-4 3/4 | Rigid Loop | 12.8 | 2.10A | 32 | 600 | 38 | 18 |
| 23020 | | | | 577 | T-4 3/4 | Double End Cap | 12.8 | 1.40A | 21 | 1,000 | 38 | 17 |
| | 18442 | 18439 | 4000 | 590 | T-3 1/4 | Wedge | 13.5 | .37A | 4 | 2,000 | 35 | 23 |
| | 25199 | 25200 | 4000 | 591 | T-3 1/4 | Wedge | 14.0 | .24A | 2 | 3,000 | 36 | 4 |
| | 26549 | | | 605 | G-4 1/2 | Miniature Screw | 6.15 | .50A | 3.4 | 15 | 24 | 9 |
| | 26561 | 26563 | 1000 | 623 | G-6 | S.C. Bayonet | 28.0 | .37A | 6 | 1,000 | 25 | 22 |
| | 26567 | 26568 | 1000 | 624 | G-6 | D.C. Bayonet | 28.0 | .37A | 6 | 1,000 | 25 | 23 |
| 23023 | 26570 | | | 631 | G-6 | S.C. Bayonet | 14.0 | .63A | 6 | 1,000 | 25 | 16 |
| | 38866 | | | 656 | T-3 1/4 | Wedge | 28.0 | .06A | .62 | 2,500 | 36 | 28 |
| | 38196 | | | 657 | T-3 1/4 | Wedge | 28.0 | .08A | .62 | 15,000 | 36 | 30 |
| | 39999 | 40000 | 4000 | 658 | T-3 1/4 | Wedge | 14.0 | .08A | 0.31 | 15,000 | 35 | 26 |
| | | 28706 | 1000 | 685 | T-1 | Sub-Midget Flanged | 5.0 | .06A | .05 | 40,000 | 31 | 1 |
| | 43132 | | | 705 | S-8 | S.C. Bayonet | 28.0 | .51A | 15 | 900 | 29 | 19 |
| | 26591 | | | 755 | T-3 1/4 | Miniature Bayonet | 6.3 | .15A | .33 | 20,000 | 34 | 14 |
| | 26593 | | | 756 | T-3 1/4 | Miniature Bayonet | 14.0 | .08A | .31 | 15,000 | 35 | 27 |
| | 26599 | | | 757 | T-3 1/4 | Miniature Bayonet | 28.0 | .08A | .62 | 15,000 | 37 | 1 |
| | 11014 | | | 767 | T-2 1/4 | Miniature Bayonet | 6.0 | 2.00A | 19 | 50 | 32 | 1 |
| | 11250 | | | 773 | T-2 3/4 | G-4 Two Pin | 12.0 | .67A | 10 | 1,000 | 32 | 16 |
| | 12723 | 12724 | 500 | 774 | T-2 1/4 | G-4 Two Pin | 12.0 | .67A | 13 | 50 | 32 | 4 |
| | | 47618 | 500 | 777 | T-2 1/4 | G-4 Two Pin | 4.0 | 1.20A | 5.5 | 275 | 31 | 28 |
| | 49718 | | | 778 | T-2 3/4 | G-4 Two Pin | 6.0 | 3.33A | 32 | 100 | 32 | 15 |
| | 18344 | | | 780 | T-2 3/4 | G-4 Two Pin | 12.0 | 10W | 12 | 2,000 | 32 | 17 |
| | 44840 | 44841 | 500 | 782 | T-2 3/4 | G-4 Two Pin | 12.0 | 1.66A | 25 | 2,000 | 32 | 19 |
| | 44500 | 44501 | 500 | 783 | T-2 1/4 | G-4 Two Pin | 12.0 | 1.00A | 22 | 50 | 32 | 5 |
| | 43760 | 43761 | 500 | 784 | T-2 1/4 | G-4 Two Pin | 6.0 | 1.00A | 9 | 50 | 31 | 29 |
| | 43762 | 43763 | 500 | 785 | T-2 1/4 | G-4 Two Pin | 6.0 | 1.33A | 13 | 50 | 31 | 30 |
| | 43764 | 43765 | 500 | 786 | T-2 1/4 | G-4 Two Pin | 6.0 | 2.00A | 19 | 50 | 32 | 2 |
| | 43115 | 43116 | 500 | 787 | T-2 1/4 | G-4 Two Pin | 6.0 | 1.67A | 16 | 100 | 31 | 31 |
| | 43117 | 43118 | 500 | 788 | T-2 1/4 | G-4 Two Pin | 6.0 | 3.33A | 32 | 100 | 32 | 3 |
| | 43119 | | | 789 | T-2 3/4 | G-4 Two Pin | 12.0 | 1.17A | 22 | 200 | 32 | 18 |
| | 43121 | 43122 | 500 | 790 | T-2 3/4 | G-4 Two Pin | 14.0 | 1.79A | 42 | 200 | 32 | 23 |
| | 43123 | 43124 | 500 | 791 | T-2 3/4 | G-4 Two Pin | 14.0 | 2.50A | 61 | 200 | 32 | 24 |
| | 20469 | | | 795 | T-4 | S.C. Bayonet | 12.8 | 50W | 108 | 200 | 38 | 3 |
| | 40848 | 14132 | 540 | 862 | T-3 1/4 | Right Angle Prefocus | 12.8 | 2.93A | 60 | 1,900 | 35 | 6 |
| 12320 | | 20904 | 540 | 880 (H27W/1) | T-3 1/4 | Axial Prefocus / PG13 | 12.8 | 2.10A | 43 | 300 | 34 | 23 |
| | | | | | | | 13.5 | 29W | 38 | 150 | | |
| | | 27582 | 540 | 880L* | T-3 1/4 | Axial Prefocus | 12.8 | 2.10A | 43 | 300 | 34 | 24 |
| | | 14694 | 540 | 880X | T-3 1/4 | Axial Prefocus | 12.8 | 2.10A | 43 | 1,000 | 34 | 25 |
| 12334 | | 20905 | 540 | 881 (H27W/2) | T-3 1/4 | Right Angle Prefocus / PGJ13 | 12.8 | 2.10A | 43 | 300 | 35 | 1 |
| | | | | | | | 13.5 | 29W | 38 | 150 | | |
| | | 27583 | 540 | 881L* | T-3 1/4 | Right Angle Prefocus | 12.8 | 2.10A | 43 | 1,000 | 35 | 2 |
| | | 11646 | 540 | 881X | T-3 1/4 | Right Angle Prefocus | 12.8 | 2.10A | 43 | 300 | 35 | 3 |
| | 13158 | 13161 | 1000 | 882 | T-2 1/4 | Printed Circuit Socket | 12.8 | .35A | 3.8 | 2,000 | 32 | 6 |
| | 18167 | 16772 | 500 | 882X | T-2 1/4 | G-4 Two Pin | 12.8 | .35A | 3.8 | 2,000 | 32 | 7 |
| 12335 | | 20907 | 540 | 885 | T-3 1/4 | Axial Prefocus | 12.8 | 3.90A | 100 | 200 | 35 | 14 |
| 14689 | | 20909 | 540 | 886 | T-3 1/4 | Right Angle Prefocus | 12.8 | 3.90A | 100 | 200 | 35 | 15 |

*New lamp added since last publication. Turquoise—Halogen Lamps

INDEX – MINIATURE LAMPS

| Order Code | | | Bulk Std. Pkg. Qty. | Lamp No. | Bulb | Base | Design | | Mean Spherical Candlepower (Approx.) | Rated Avg. Lab Life (Hours) | Page No. | Line No. |
|-----------------|--------------|--------------|---------------------------|----------------|-------|----------------------|--------|------------------|--|-----------------------------------|-------------|-------------|
| Blister Pack | Unit Pack | Bulk Pack | | | | | Volts | Watts or Amps | | | | |
| | | 25639 | 540 | 887 | T-3¼ | Axial Prefocus | 12.8 | 3.90A | 95 | 400 | 35 | 16 |
| | | 25703 | 540 | 888 | T-3¼ | Right Angle Prefocus | 12.8 | 3.90A | 95 | 400 | 35 | 17 |
| 12336 | | 20910 | 540 | 889 | T-3¼ | Right Angle | 12.8 | 2.10A | 43 | 300 | 35 | 4 |
| 12337 | | 20911 | 540 | 890 | T-3¼ | Axial | 12.8 | 2.10A | 43 | 300 | 35 | 5 |
| 12308 | 15246 | 15248 | 500 | 891 | T-2¼ | G-4 Two Pin | 12.8 | .63A | 11 | 500 | 32 | 9 |
| | 16481 | | | 892 | T-3¼ | Axial | 12.8 | 1.25A | 28 | 300 | 34 | 22 |
| 12338 | | 20913 | 540 | 893 | T-3¼ | Axial Prefocus | 12.8 | 2.93A | 75 | 200 | 35 | 7 |
| | | 12727 | 540 | 893X | T-3¼ | Axial Prefocus | 12.8 | 2.93A | 75 | 200 | 35 | 8 |
| 22112 | 20238 | 18455 | 540 | 894 | T-3¼ | Right Angle Prefocus | 12.8 | 2.93A | 75 | 200 | 35 | 9 |
| | | 26345 | 540 | 894X* | T-3¼ | Right Angle Prefocus | 12.8 | 2.93A | 75 | 200 | 35 | 10 |
| 22113 | | 20914 | 540 | 896 | T-3¼ | Right Angle Prefocus | 12.8 | 2.93A | 75 | 200 | 35 | 11 |
| | | 12271 | 540 | 898 | T-3¼ | Right Angle Prefocus | 12.8 | 2.93A | 60 | 1,900 | 35 | 12 |
| 22111 | | 12272 | 540 | 899 | T-3¼ | Axial Prefocus | 12.8 | 2.93A | 60 | 1,900 | 35 | 13 |
| 14273 | | 14007 | 1000 | 901 | T-5 | Wedge | 12.8 | .31A | 2.9 | 500 | 39 | 16 |
| 40675 | | | | 901A* | T-5 | Wedge | 12.8 | .31A | - | 500 | 39 | 17 |
| 23024 | 40462 | 40463 | 1000 | 904 | T-5 | Wedge | 13.5 | .69A | 4 | 5,000 | 40 | 3 |
| 12366 | 40289 | 40290 | 1000 | 906 | T-5 | Wedge | 13.0 | .69A | 6 | 1,000 | 39 | 25 |
| | | 48505 | 1000 | 906A* | T-5 | Wedge | 13.0 | .69A | - | 1,000 | 39 | 26 |
| | | 44754 | 1000 | 908 | T-5 | Wedge | 6.0 | 1.50A | 12 | 50 | 39 | 14 |
| | | 44756 | 1000 | 909 | T-5 | Wedge | 6.0 | .62A | 3 | 50 | 39 | 11 |
| 12365 | 40504 | 40505 | 1000 | 912 | T-5 | Wedge | 12.8 | 1.00A | 12 | 1,000 | 39 | 21 |
| | | 44769 | | 914 | T-5 | Wedge | 4.0 | .90A | 3.5 | 50 | 39 | 9 |
| | | 44771 | 1000 | 915 | T-5 | Wedge | 12.0 | .75A | 11 | 50 | 39 | 15 |
| 23025 | 16289 | 16288 | 1000 | 916 | T-5 | Wedge | 13.5 | .54A | 2 | 10,000 | 40 | 2 |
| 23026 | 21860 | | | 916NA | T-5 | Wedge | 13.0 | .54A | 1.5 | 10,000 | 39 | 24 |
| 40179 | 17837 | 14008 | 2000 | 918 | T-5 | Wedge | 12.8 | .56A | 6.5 | 500 | 39 | 18 |
| 26199 | | | | 920 | T-5 | Wedge | 12.8 | 1.20A | 10 | 1,200 | 39 | 22 |
| 12307 | 43374 | 11743 | 1000 | 921 | T-5 | Wedge | 12.8 | 1.40A | 21 | 500 | 39 | 23 |
| 23027 | 13274 | 13275 | 1000 | 922 | T-5 | Wedge | 12.8 | .98A | 15 | 200 | 39 | 20 |
| 40180 | | | | 923 | T-5 | Wedge | 12.8 | .91A | 12.5 | 500 | 39 | 19 |
| | | 13483 | | 926 | T-5 | Wedge | 4.0 | 1.80A | 7.5 | 50 | 39 | 10 |
| | | 13485 | 1000 | 927 | T-5 | Wedge | 6.0 | 1.20A | 8 | 50 | 39 | 13 |
| | | 16975 | 1000 | 939 | T-5 | Wedge | 6.0 | .90A | 5.4 | 50 | 39 | 12 |
| 12367 | 26709 | | | 1003 | B-6 | S.C. Bayonet | 12.8 | .94A | 15 | 200 | 23 | 15 |
| 47800 | | | | 1003KR* | B-6 | S.C. Bayonet | 12.8 | .94A | 15 | 400 | 23 | 16 |
| 12373 | 26726 | 26728 | 500 | 1004 | B-6 | D.C. Bayonet | 12.8 | .94A | 15 | 200 | 23 | 17 |
| | 26775 | | | 1034 | S-8 | D.C. Index | 12.8 | 1.80A | 32 | 200 | 27 | 20 |
| | | | | | | | 14.0 | .59A | 3 | 5,000 | | |
| | | 32147 | | 1062 | RP-11 | D.C. Bayonet | 40.0 | .92A | 50 | 100 | 26 | 8 |
| 40134 | 26838 | | | 1073 | S-8 | S.C. Bayonet | 12.8 | 1.80A | 32 | 200 | 27 | 21 |
| | 26854 | | | 1076 | S-8 | D.C. Bayonet | 12.8 | 1.80A | 32 | 200 | 27 | 22 |
| | 37169 | | | 1096 | S-8 | D.C. Pf. (S) | 6.0 | 4.50A | 30 | 500 | 26 | 12 |
| | 26872 | | | 1129 | S-8 | S.C. Bayonet | 6.4 | 2.63A | 21 | 200 | 27 | 1 |
| | 26885 | | | 1133 | RP-11 | S.C. Bayonet | 6.2 | 3.91A | 32 | 200 | 26 | 5 |
| 12346 | 26903 | 26905 | 500 | 1141 | S-8 | S.C. Bayonet | 12.8 | 1.44A | 21 | 1,000 | 27 | 15 |
| 47802 | | | | 1141KR* | S-8 | S.C. Bayonet | 12.8 | 1.44A | 21 | 2,000 | 27 | 16 |
| | 26917 | 26919 | 500 | 1142 | S-8 | D.C. Bayonet | 12.8 | 1.44A | 21 | 1,000 | 27 | 17 |
| | 26945 | | | 1152 | S-8 | D.C. Bayonet | 12.8 | 1.34A | 21 | 500 | 27 | 13 |
| 12297 | | | | 1154 | S-8 | D.C. Index | 6.4 | 2.63A | 21 | 200 | 27 | 2 |
| | | | | | | | 7.0 | .75A | 3 | 1,000 | | |
| | | 26955 | | 1155 | G-6 | S.C. Bayonet | 13.5 | .59A | 4 | 5,000 | 25 | 12 |
| 12344 | 26960 | 26962 | 500 | 1156 | S-8 | S.C. Bayonet | 12.8 | 2.10A | 32 | 1,200 | 27 | 23 |
| 23334 | | 11666 | 500 | 1156KR | S-8 | S.C. Bayonet | 12.8 | 2.10A | 32 | 2,400 | 27 | 24 |
| 21028 | 20248 | | | 1156NA | S-8 | S.C. Bayonet | 12.8 | 2.10A | 24 | 1,200 | 27 | 25 |

*New lamp added since last publication. [Turquoise-Halogen Lamps](#)

INDEX – MINIATURE LAMPS

| Order Code | | | Bulk Std. Pkg. Qty. | Lamp No. | Bulb | Base | Design | | Mean Spherical Candlepower (Approx.) | Rated Avg. Lab Life (Hours) | Page No. | Line No. |
|-----------------|--------------|--------------|---------------------------|------------------|---------|-------------------|--------|------------------|--|-----------------------------------|-------------|-------------|
| Blister Pack | Unit Pack | Bulk Pack | | | | | Volts | Watts or Amps | | | | |
| 12294 | 26969 | 26971 | 500 | 1157 | S-8 | D.C. Index | 12.8 | 2.10A | 32 | 1,200 | 27 | 26 |
| | | | | | | | 14.0 | .59A | 3 | 5,000 | | |
| 23337 | | | | 1157KR | S-8 | D.C. Index | 12.8 | 2.10A | 32 | 2,400 | 27 | 27 |
| | | | | | | | 14.0 | .59A | 3 | 10,000 | | |
| 12310 | 26975 | 26976 | 500 | 1157NA | S-8 | D.C. Index | 12.8 | 2.10A | 24 | 1,200 | 27 | 28 |
| | | | | | | | 14.0 | .59A | 2.2 | 5,000 | | |
| 47798 | | | | 1157NAKR* | S-8 | D.C. Index | 12.8 | 2.10A | 24 | 2,400 | 27 | 29 |
| | | | | | | | 14.0 | .59A | 2.2 | 10,000 | | |
| | 27004 | | | 1176 | S-8 | D.C. Bayonet | 12.8 | 1.34A | 21 | 300 | 27 | 14 |
| | | | | | | | 14.0 | .59A | 6 | 1,500 | | |
| | 27021 | 27023 | 500 | 1195 | RP-11 | S.C. Bayonet | 12.5 | 3.00A | 50 | 300 | 26 | 6 |
| | 27026 | | | 1196 | RP-11 | D.C. Bayonet | 12.5 | 3.00A | 50 | 300 | 26 | 7 |
| | 27032 | | | 1203 | S-8 | S.C. Bayonet | 28.0 | .71A | 21 | 400 | 30 | 9 |
| | 27044 | | | 1224 | G-6 | D.C. Bayonet | 34.0 | .16A | 3.8 | 500 | 25 | 24 |
| | 39904 | | | 1229 | S-8 | D.C. Bayonet | 40.0 | .38A | 15 | 400 | 30 | 20 |
| | 27092 | | | 1251 | G-6 | S.C. Bayonet | 28.0 | .23A | 3 | 2,000 | 25 | 18 |
| | 27097 | | | 1252 | G-6 | D.C. Bayonet | 28.0 | .23A | 3 | 2,000 | 25 | 19 |
| 41755 | 22523 | | | 1295NA | S-8 | S.C. Bayonet | 12.5 | 3.00A | 37 | 200 | 27 | 10 |
| | 12824 | | | 1308 | B-6 | S.C. Bayonet | 28.0 | .56A | 16 | 2,000 | 23 | 20 |
| | 27118 | | | 1309 | B-6 | S.C. Bayonet | 28.0 | .52A | 15 | 300 | 23 | 19 |
| | 32098 | | | 1315 | G-5 | S.C. Bayonet | 2.5 | 1.00A | 1.75 | 20 | 24 | 17 |
| | 34265 | | | 1317 | B-6 | S.C. Bayonet | 6.00 | .51A | 3.4 | 100 | 23 | 13 |
| | 27150 | | | 1383 | R-12 | S.C. Bayonet | 13.0 | 20W | – | 300 | 26 | 1 |
| | 27154 | | | 1385 | R-12 | S.C. Bayonet | 28.0 | 20W | – | 300 | 26 | 3 |
| | 27159 | | | 1388 | R-12 | D.C. Bayonet | 24.0 | 20W | – | 500 | 26 | 2 |
| | 27179 | | | 1408 | T-3 1/4 | Miniature Bayonet | 10.0 | .13A | .85 | 250 | 34 | 21 |
| | 27193 | | | 1434 | T-5 | S.C. Bayonet | 3.7 | 2.75A | 11 | 100 | 39 | 8 |
| 12329 | 27207 | 27209 | 4000 | 1445 | G-3 1/2 | Miniature Bayonet | 14.4 | .135A | .7 | 2,000 | 24 | 2 |
| | | | | | | | 18.0 | .15A | 1.5 | 250 | | |
| | 27252 | | | 1449 | G-3 1/2 | Miniature Screw | 14.0 | .20A | 2 | 250 | 23 | 26 |
| | 27263 | | | 1450 | G-3 1/2 | Miniature Bayonet | 24.0 | .035A | .23 | 3,000 | 24 | 3 |
| | 28310 | | | 1460 | S-8 | D.C. Pf. (A) | 6.5 | 2.75A | 23 | 100 | 27 | 3 |
| | 37342 | 37343 | 500 | 1460X | S-8 | D.C. Pf. (A) | 6.5 | 2.75A | 23 | 100 | 27 | 4 |
| | 27305 | | | 1468 | S-8 | D.C. Pf. (S) | 6.0 | 4.50A | 30 | 500 | 26 | 13 |
| | 42677 | | | 1468X | S-8 | D.C. Pf. (S) | 6.0 | 4.50A | 30 | 500 | 26 | 14 |
| | 27356 | | | 1487 | T-3 1/4 | Miniature Screw | 14.0 | .20A | 1.4 | 3,000 | 36 | 1 |
| | 27382 | | | 1493 | S-8 | D.C. Bayonet | 6.5 | 2.75A | 23 | 100 | 27 | 5 |
| | 27392 | | | 1495 | T-4 1/2 | Miniature Bayonet | 28.0 | .30A | 6 | 500 | 38 | 15 |
| | 44842 | | | 1495X | T-4 1/2 | Miniature Bayonet | 28.0 | .30A | 6 | 500 | 38 | 16 |
| | 27431 | | | 1561 | S-11 | S.C. Pf. (B) | 6.3 | 4.00A | 24 | 1,500 | 30 | 21 |
| | 40943 | | | 1591 | S-8 | S.C. Bayonet | 28.0 | .61A | 15 | 1,000 | 29 | 20 |
| | 40945 | | | 1591AF | S-8 | S.C. Bayonet | 28.0 | .61A | – | 1,000 | 29 | 21 |
| | 27439 | | | 1594 | S-8 | D.C. Bayonet | 6.0 | 5.00A | 36 | 250 | 26 | 15 |
| | 27461 | | | 1612 | S-8 | D.C. Bayonet | 5.4 | 1.90A | 10 | 1,000 | 26 | 9 |
| | 27472 | | | 1619 | S-8 | S.C. Bayonet | 6.7 | 1.90A | 15 | 500 | 27 | 8 |
| | 27488 | 27489 | 500 | 1630 | S-8 | D.C. Pf. (A) | 6.5 | 2.75A | 23 | 100 | 27 | 6 |
| | 27491 | | | 1631X | S-8 | D.C. Pf. (A) | 6.5 | 2.75A | 23 | 100 | 27 | 7 |
| | 27496 | | | 1634 | S-8 | D.C. Pf. (A) | 20.0 | 1.00A | 24 | 200 | 29 | 15 |
| | 27504 | | | 1638 | S-8 | D.C. Bayonet | 28.0 | 1.02A | 32 | 500 | 30 | 18 |
| | 27529 | 27530 | 500 | 1662 | S-8 | D.C. Index | 28.0 | .93A | 32 | 400 | 30 | 14 |
| | | | | | | | 28.0 | .34A | 6 | 1,000 | | |
| | 27532 | | | 1665 | S-8 | S.C. Bayonet | 28.0 | .80A | 21 | 1,000 | 30 | 11 |
| | 27533 | | | 1665AF | S-8 | S.C. Bayonet | 28.0 | .80A | – | 1,000 | 30 | 12 |
| | 27548 | | | 1680 | S-8 | S.C. Bayonet | 6.0 | 4.10A | 32 | 300 | 26 | 10 |
| | 33995 | | | 1680X | S-8 | S.C. Bayonet | 6.0 | 4.10A | 32 | 300 | 26 | 11 |

*New lamp added since last publication. [Turquoise–Halogen Lamps](#)

INDEX – MINIATURE LAMPS

| Order Code | | | Bulk Std. Pkg. Qty. | Lamp No. | Bulb | Base | Design | | Mean Spherical Candlepower (Approx.) | Rated Avg. Lab Life (Hours) | Page No. | Line No. |
|-----------------|--------------|--------------|---------------------------|---------------|------|----------------------|--------|------------------|--|-----------------------------------|-------------|-------------|
| Blister Pack | Unit Pack | Bulk Pack | | | | | Volts | Watts or Amps | | | | |
| | 27557 | | | 1683 | S-8 | S.C. Bayonet | 28.0 | 1.02A | 32 | 500 | 30 | 19 |
| | 27566 | | | 1691 | S-8 | S.C. Bayonet | 28.0 | .61A | 15 | 1,000 | 29 | 22 |
| | 27568 | | | 1691AF | S-8 | S.C. Bayonet | 28.0 | .61A | — | 1,000 | 29 | 23 |
| | 27571 | | | 1692 | S-8 | D.C. Bayonet | 28.0 | .61A | 15 | 1,000 | 30 | 1 |
| | 27630 | | | 1777 | S-8 | S.C. Bayonet | 12.8 | 1.52A | 26 | 400 | 27 | 18 |
| | 27667 | | | 1813 | T-3¼ | Miniature Bayonet | 14.4 | .10A | .86 | 1,000 | 36 | 23 |
| | 27677 | 27679 | 4000 | 1815 | T-3¼ | Miniature Bayonet | 14.0 | .20A | 1.4 | 3,000 | 36 | 2 |
| 12359 | 27688 | | | 1816 | T-3¼ | Miniature Bayonet | 13.0 | .33A | 3 | 1,000 | 35 | 21 |
| | 27707 | | | 1818 | T-3¼ | Miniature Bayonet | 24.0 | .17A | 3.3 | 250 | 36 | 25 |
| | 27711 | 27712 | 1000 | 1819 | T-3¼ | Miniature Bayonet | 28.0 | .04A | .34 | 2,500 | 36 | 27 |
| | 27727 | | | 1820 | T-3¼ | Miniature Bayonet | 28.0 | .10A | 1.6 | 1,000 | 37 | 3 |
| | 27749 | | | 1822 | T-3¼ | Miniature Bayonet | 36.0 | .10A | 2.1 | 1,000 | 37 | 8 |
| | 27772 | | | 1828 | T-3¼ | Miniature Bayonet | 37.5 | .05A | .65 | 3,000 | 37 | 9 |
| | 27776 | | | 1829 | T-3¼ | Miniature Bayonet | 28.0 | .07A | 1 | 1,000 | 36 | 29 |
| | 27804 | | | 1835 | T-3¼ | Miniature Bayonet | 55.0 | .05A | 1.1 | 5,000 | 37 | 10 |
| | 27816 | | | 1843 | T-3¼ | Miniature Bayonet | 28.0 | .022A | .2 | 3,000 | 36 | 26 |
| | 27819 | | | 1847 | T-3¼ | Miniature Bayonet | 6.3 | .15A | .38 | 5,000 | 34 | 15 |
| | 27833 | | | 1850 | T-3¼ | Miniature Bayonet | 5.0 | .09A | .25 | 1,500 | 34 | 9 |
| | 27862 | 27863 | 1000 | 1864 | T-3¼ | Miniature Bayonet | 28.0 | .17A | 3 | 1,500 | 37 | 6 |
| | 27868 | | | 1866 | T-3¼ | Miniature Bayonet | 6.3 | .25A | .65 | 5,000 | 34 | 19 |
| | 40383 | | | 1873 | T-3¼ | Miniature Bayonet | 28.0 | .20A | 3 | 7,000 | 37 | 7 |
| | 27889 | | | 1876 | T-5 | S.C. Bayonet | 3.5 | 2.50A | 6.5 | 2,000 | 39 | 7 |
| | 27907 | | | 1889 | T-3¼ | Miniature Bayonet | 14.0 | .27A | 2 | 2,000 | 36 | 13 |
| 12331 | 27917 | | | 1891 | T-3¼ | Miniature Bayonet | 14.0 | .24A | 2 | 500 | 36 | 5 |
| | 27927 | | | 1892 | T-3¼ | Miniature Bayonet | 14.4 | .12A | .75 | 1,000 | 36 | 24 |
| 12332 | 27935 | 27937 | 4000 | 1893 | T-3¼ | Miniature Bayonet | 14.0 | .33A | 2 | 7,500 | 36 | 18 |
| 12330 | 27945 | 27948 | 4000 | 1895 | G-4½ | Miniature Bayonet | 14.0 | .27A | 2 | 2,000 | 24 | 14 |
| | 34021 | | | 1939X | T-7 | S.C. Bayonet | 28.0 | 1.79A | 70 | 300 | 40 | 12 |
| | 28008 | | | 1940 | T-7 | S.C. Bayonet | 14.0 | 3.57A | 75 | 300 | 40 | 10 |
| | 37034 | | | 1944 | T-7 | S.C. Bayonet | 14.0 | 3.57A | 75 | 300 | 40 | 11 |
| | 18617 | | | 1946 | T-3 | Two Pin with Leads | 28.0 | 250W | 660 | 50 | 34 | 4 |
| | 28011 | | | 1958 | T-4 | Tab | 28.0 | 150W | 250 | 300 | 38 | 11 |
| | 39641 | | | 1962B | T-3 | Wire Terminal | 8.5 | 62W | 110 | 50 | 33 | 4 |
| | | 12859 | 100 | 1962BG | T-3 | Wire Terminals | 8.5 | 62W | 110 | 50 | 33 | 5 |
| | | 37947 | 100 | 1962DX | T-3 | Wire Terminals | 8.5 | 62W | 80 | 150 | 33 | 6 |
| | 44152 | | | 1962DZ | T-3 | Wire Terminals | 8.5 | 62W | 80 | 150 | 33 | 7 |
| | 13667 | | | 1962TY | T-3 | Wire Terminals | 8.5 | 62W | 110 | 50 | 33 | 8 |
| | 28034 | | | 1968 | T-3 | Double Slide | 28.0 | 25W | 15 | 500 | 33 | 20 |
| | 28036 | | | 1970 | T-3 | Special Sleeve | 28.0 | 100W | 150 | 1,000 | 34 | 1 |
| | 41938 | | | 1970X | T-3 | Special Sleeve | 28.0 | 100W | 140 | 1,000 | 34 | 2 |
| | 32780 | | | 1974 | T-3 | Wire Terminals | 6.0 | 20W | 10 | 10,000 | 33 | 2 |
| | 38545 | | | 1978X | T-3 | Special | 10.0 | 100W | 130 | 2,000 | 33 | 9 |
| | 38627 | | | 1982 | T-3 | S.C. Bayonet | 28.0 | 75W | 110 | 1,000 | 33 | 22 |
| | 21061 | | | 1982SP | T-3 | S.C. Bayonet | 28.0 | 75W | 107 | 2,000 | 33 | 23 |
| | 39718 | | | 1983 | T-4 | Two Pin | 10.0 | 100W | 130 | 2,000 | 38 | 1 |
| | 44717 | | | 1986 | T-4 | Wire Terminal | 28.0 | 250W | 600 | 100 | 38 | 13 |
| | | | | | | S.C. Prefocus Collar | | | | | | |
| | 47695 | | | 1987 | T-4 | D.C. Bayonet | 28.0 | 150W | 240 | 700 | 38 | 12 |
| | 38535 | | | 1988 | T-3 | Special Wire Leads | 10.0 | 100W | 130 | 2,000 | 33 | 10 |
| 12326 | 19280 | | | 2040 | T-2¼ | Wedge | 12.8 | .625A | 10.5 | 500 | 32 | 8 |
| 12296 | 44760 | 18620 | 500 | 2057 | S-8 | D.C. Index | 12.8 | 2.10A | 32 | 1,200 | 28 | 1 |
| | | | | | | | 14 | .48A | 2 | 5,000 | | |
| 23339 | | 10018 | 500 | 2057KR | S-8 | D.C. Index | 12.8 | 2.10A | 32 | 2,400 | 28 | 2 |
| | | | | | | | 14.0 | .48A | 2 | 10,000 | | |

*New lamp added since last publication. Turquoise-Halogen Lamps

INDEX – MINIATURE LAMPS

| Order Code | | | Bulk Std. Pkg. Qty. | Lamp No. | Bulb | Base | Design | | Mean Spherical Candlepower (Approx.) | Rated Avg. Lab Life (Hours) | Page No. | Line No. |
|-----------------|--------------|--------------|---------------------------|----------------------|-------|-------------------------------|--------|------------------|--|-----------------------------------|-------------|-------------|
| Blister Pack | Unit Pack | Bulk Pack | | | | | Volts | Watts or Amps | | | | |
| 12312 | 44763 | 44764 | 500 | 2057NA | S-8 | D.C. Index | 12.8 | 2.10A | 24 | 1,200 | 28 | 3 |
| | | | | | | | 14.0 | .48A | 1.5 | 5,000 | | |
| 47799 | | | | 2057NAKR* | S-8 | D.C. Index | 12.8 | 2.10A | 24 | 2,400 | 28 | 4 |
| | | | | | | | 14.0 | .48A | 1.5 | 10,000 | | |
| | | 12899 | 600 | 2058U | S-8 | Wire Terminals | 12.8 | 2.10A | 32 | 1,200 | 28 | 5 |
| | | | | | | | 14.0 | .48A | 2 | 5,000 | | |
| | 26697 | | | 2059* | T-2½ | Miniature Bayonet | 12.0 | .833A | 9.1 | 4,000 | 32 | 10 |
| | 26698 | | | 2059X* | T-2½ | Miniature Bayonet | 12.0 | .833A | 8 | 4,000 | 32 | 11 |
| | 21494 | | | 2074 | T-3 | Wire Terminals | 7.0 | 25W | 24 | 2,700 | 33 | 3 |
| | | 28085 | 600 | 2144 | S-8 | Wire Terminals | 12.8 | 2.10A | 32 | 1,200 | 28 | 6 |
| | | 32701 | 500 | 2155 | S-8 | Wire Terminals | 28.0 | .93A | 32 | 400 | 30 | 15 |
| | | | | | | | 28.0 | .34A | 6 | 1,000 | | |
| | 34763 | | | 2232 | S-8 | S.C. Bayonet | 28.0 | .643A | 18 | 2,000 | 30 | 2 |
| | 26702 | | | 2232LL* | S-8 | S.C. Bayonet | 28.0 | .643A | 18 | 4,000 | 30 | 3 |
| | 43134 | | | 2232SB | S-8 | S.C. Bayonet | 28.0 | .643A | – | 2,000 | 30 | 4 |
| | 36906 | | | 2233 | S-8 | S.C. Bayonet | 28.0 | .766A | 21 | 2,000 | 30 | 10 |
| | | 44964 | 1000 | 2286D | T-3¼ | Wire Term Down | 14.0 | .35A | 2.7 | 1,500 | 36 | 21 |
| | 28100 | | | 2331 | RP-11 | D.C. Pf. (S) | 5.9 | 4.66A | 32 | 400 | 26 | 4 |
| | | | | | | | 6.2 | 4.49A | 32 | 400 | | |
| 12298 | 16291 | 16290 | 500 | 2357 | S-8 | D.C. Index | 12.8 | 2.20A | 40 | 400 | 28 | 16 |
| | | | | | | | 14.0 | .59A | 3 | 5,000 | | |
| 12299 | 15698 | 15699 | 500 | 2357NA | S-8 | D.C. Index | 12.8 | 2.20A | 30 | 400 | 28 | 17 |
| | | | | | | | 14.0 | .59A | 2.2 | 5,000 | | |
| | 18047 | | | 2396 | S-8 | S.C. Bayonet | 12.8 | 2.23A | 40 | 400 | 28 | 18 |
| 27560 | | | | 2397* | S-8 | D.C. Index | 12.8 | 2.23A | 40 | 400 | 28 | 19 |
| | | | | | | | 14.0 | .48A | 2 | 5,000 | | |
| | | 19792 | 100 | 2556 | T-3 | Two Pin | 28.0 | 200W | 525 | 50 | 34 | 3 |
| | | 19566 | 100 | 2586 | T-4 | Two Pin with Insulation Leads | 28.0 | 250W | 600 | 100 | 38 | 14 |
| | 43805 | | | 2604X | TL-2¾ | G-4 Two Pin | 5.0 | 2.00A | – | 5,000 | 33 | 1 |
| | 36508 | | | 3011 | S-11 | S.C. Bayonet | 28.0 | 1.29A | 44 | 1,000 | 30 | 24 |
| 12305 | 18389 | | | 3057 | S-8 | Plastic Wedge | 12.8 | 2.10A | 32 | 1,200 | 28 | 7 |
| | | | | | | | 14.0 | .48A | 2 | 5,000 | | |
| 26378 | | | | 3057KR | S-8 | Plastic Wedge | 12.8 | 2.10A | 32 | 2,000 | 28 | 8 |
| | | | | | | | 14.0 | .48A | 2 | 10,000 | | |
| 12313 | 18391 | | | 3057NA | S-8 | Plastic Wedge | 12.8 | 2.10A | 24 | 1,200 | 28 | 9 |
| | | | | | | | 14.0 | .48A | 1.5 | 5,000 | | |
| | 14689 | | | 3078* | T-3 | Special | 10.0 | 100W | 95 | 4,500 | 33 | 11 |
| 23028 | | | | 3155 | S-8 | Plastic Wedge | 12.8 | 1.60A | 21 | 1,500 | 27 | 19 |
| 12351 | 21863 | | | 3156 | S-8 | Plastic Wedge | 12.8 | 2.10A | 32 | 1,200 | 28 | 10 |
| 27565 | | | | 3156KR* | S-8 | Plastic Wedge | 12.8 | 2.10A | 32 | 2,000 | 28 | 11 |
| 12306 | 17172 | | | 3157 | S-8 | Plastic Wedge | 12.8 | 2.10A | 32 | 1,200 | 28 | 12 |
| | | | | | | | 14.0 | .59A | 3 | 5,000 | | |
| 26377 | | | | 3157KR | S-8 | Plastic Wedge | 12.8 | 2.10A | 32 | 2,000 | 28 | 13 |
| | | | | | | | 14.0 | .59A | 3 | 10,000 | | |
| 12314 | 17173 | | | 3157NA | S-8 | Plastic Wedge | 12.8 | 2.10A | 24 | 1,200 | 28 | 14 |
| | | | | | | | 14.0 | .59A | 2.2 | 5,000 | | |
| 26380 | | | | 3157NAKR | S-8 | Plastic Wedge | 12.8 | 2.10A | 24 | 2,000 | 28 | 15 |
| | | | | | | | 14.0 | .59A | 2.2 | 10,000 | | |
| 14387 | 22525 | | | 3357/3457 | S-8 | Plastic Wedge | 12.8 | 2.23A | 40 | 400 | 29 | 1 |
| | | | | | | | 14.0 | .59A | 3 | 5,000 | | |
| 26379 | | | | 3357KR/3457KR | S-8 | Plastic Wedge | 12.8 | 2.23A | 40 | 800 | 29 | 2 |
| | | | | | | | 14.0 | .59A | 3 | 10,000 | | |
| 14388 | 22526 | | | 3357NA/3457NA | S-8 | Plastic Wedge | 12.8 | 2.23A | 30 | 400 | 29 | 3 |
| | | | | | | | 14.0 | .59A | 2.2 | 5,000 | | |

*New lamp added since last publication. **Turquoise–Halogen Lamps**

INDEX – MINIATURE LAMPS

| Order Code | | | Bulk Std. Pkg. Qty. | Lamp No. | Bulb | Base | Design | | Mean Spherical Candlepower (Approx.) | Rated Avg. Lab Life (Hours) | Page No. | Line No. |
|-----------------|--------------|--------------|---------------------------|-------------------|------|-------------------------------|--------|------------------|--|-----------------------------------|-------------|-------------|
| Blister Pack | Unit Pack | Bulk Pack | | | | | Volts | Watts or Amps | | | | |
| 25834 | | | | 3496 | T-7 | D.C. Index | 12.8 | 2.10A | 43 | 600 | 40 | 6 |
| | | | | | | | 14.0 | .59A | 3 | 5,000 | | |
| 25835 | | | | 3497 | T-7 | S.C. Bayonet | 12.8 | 2.10A | 45 | 600 | 40 | 7 |
| 25837 | | | | 3652 | T-3¼ | Wedge | 13.5 | .37A | 6 | 700 | 35 | 24 |
| 15657 | | | | 4157KR* | S-8 | Plastic Wedge | 12.8 | 2.23A | 32 | 3,600 | 29 | 5 |
| | | | | | | | 14.0 | .59A | 3 | 10,000 | | |
| 47458 | | | | 4157NAKR* | S-8 | Plastic Wedge | 12.8 | 2.23A | 24 | 3,600 | 29 | 6 |
| | | | | | | | 14.0 | .59A | 2.2 | 10,000 | | |
| | 28154 | | | 5004CW | T-5 | Miniature Pinless | A.C. | 4W | – | 7,500 | 41 | 1 |
| | 28155 | | | 5004WW | T-5 | Miniature Pinless | A.C. | 4W | – | 7,500 | 41 | 2 |
| | 28160 | | | 5008CW | T-5 | Miniature Pinless | A.C. | 8W | – | 7,500 | 41 | 7 |
| | 28163 | | | 5008WW | T-5 | Miniature Pinless | A.C. | 8W | – | 7,500 | 41 | 8 |
| | 28168 | | | 5013CW | T-5 | Miniature Pinless | A.C. | 13W | – | 7,500 | 41 | 11 |
| | 28169 | | | 5013WW | T-5 | Miniature Pinless | A.C. | 13W | – | 7,500 | 41 | 12 |
| | 27367 | | | 5104CW* | T-5 | Miniature Bi-Pin | A.C. | 4W | – | 7,500 | 41 | 3 |
| | 28173 | | | 5104WW | T-5 | Miniature Bi-Pin | A.C. | 4W | – | 7,500 | 41 | 4 |
| | 12774 | | | 5106CW | T-5 | Miniature Bi-Pin | A.C. | 6W | – | 7,500 | 41 | 5 |
| | 33612 | | | 5106WW | T-5 | Miniature Bi-Pin | A.C. | 6W | – | 7,500 | 41 | 6 |
| | 27466 | | | 5108CW* | T-5 | Miniature Bi-Pin | A.C. | 8W | – | 7,500 | 41 | 9 |
| | 28175 | | | 5108WW | T-5 | Miniature Bi-Pin | A.C. | 8W | – | 7,500 | 41 | 10 |
| | 12775 | | | 5113CW | T-5 | Miniature Bi-Pin | A.C. | 13W | – | 7,500 | 41 | 13 |
| | 28178 | | | 5113WW | T-5 | Miniature Bi-Pin | A.C. | 13W | – | 7,500 | 41 | 14 |
| | 28926 | | | 7387 | T-1¾ | Bi-Pin M-23 | 28.0 | .04A | .3 | 7,000 | 31 | 18 |
| 26200 | | | | 7440 | T-7 | Wedge / 103 x 16DQ | 13.5 | 1.85 | 37 | 300 | 40 | 8 |
| 26201 | | 10014 | 1000 | 7443 | T-7 | Wedge / 103 x 16DQ | 13.5 | 1.85 | 35 | 500 | 40 | 9 |
| | | | | | | | 13.5 | 0.4 | 3 | 1,000 | | |
| 22432 | 22389 | 14542 | 200 | 9003/HB2 | T-4¾ | P43T-38 | 12.8 | 67W | 119 | 150 | 39 | 5 |
| | | | | | | | 12.8 | 60W | 72 | 800 | | |
| 45470 | | | | 9003SB* | T-4¾ | P43T-38 | 12.8 | 67W | 119 | 80 | 39 | 6 |
| | | | | | | | 12.8 | 60W | 72 | 150 | | |
| 18508 | 13382 | 18699 | 250 | 9004/HB1 | T-4¾ | Axial Plastic Prefocus | 12.8 | 65W | 95 | 150 | 38 | 19 |
| | | | | | | | 12.8 | 45W | 55 | 320 | | |
| 27561 | | | | 9004HO* | T-4¾ | Axial Plastic Prefocus | 12.8 | 65W | 95 | 150 | 38 | 20 |
| | | | | | | | 12.8 | 42W | 56 | 640 | | |
| 45471 | | | | 9004SB* | T-4¾ | Axial Plastic Prefocus | 12.8 | 65W | 95 | 40 | 38 | 21 |
| | | | | | | | 12.8 | 45W | 56 | 200 | | |
| 13993 | 11249 | 20559 | 250 | 9004XL | T-4¾ | Axial Plastic Prefocus | 12.8 | 65W | 95 | 150 | 38 | 22 |
| | | | | | | | 12.8 | 47W | 55 | 850 | | |
| 18509 | 13384 | 14710 | 200 | 9005/HB3 | T-4 | Right Angle Plastic, Prefocus | 12.8 | 65W | 135 | 800 | 38 | 8 |
| 45472 | | | | 9005SB* | T-4 | Right Angle Plastic, Prefocus | 12.8 | 65W | 135 | 150 | 38 | 9 |
| 45866 | | | | 9005XSLL* | T-4 | Axial Plastic Prefocus | 12.8 | 65W | 135 | 700 | 38 | 10 |
| 18510 | 13397 | 14711 | 200 | 9006/HB4 | T-4 | Right Angle Plastic, Prefocus | 12.8 | 55W | 80 | 850 | 38 | 4 |
| 47640 | | | | 9006HO* | T-4 | Right Angle Plastic, Prefocus | 12.8 | 55W | 80 | 1,000 | 38 | 5 |
| 45473 | | | | 9006SB* | T-4 | Right Angle Plastic, Prefocus | 12.8 | 55W | 80 | 320 | 38 | 6 |
| 45868 | | | | 9006XSLL* | T-4 | Axial Plastic Prefocus | 12.8 | 55W | 80 | 2,000 | 38 | 7 |
| 22388 | 20551 | | | 9007/HB5 | T-4¾ | Axial Plastic Prefocus | 12.8 | 65W | 107 | 150 | 39 | 1 |
| | | | | | | | 12.8 | 55W | 79 | 1,100 | | |
| 47642 | | | | 9007HO* | T-4¾ | Axial Plastic Prefocus | 12.8 | 65W | 107 | 150 | 39 | 2 |
| | | | | | | | 12.8 | 53W | 80 | 320 | | |
| | | 10209 | 250 | 9007LL | T-4¾ | Axial Plastic Prefocus | 12.8 | 65W | 107 | 150 | 39 | 3 |
| | | | | | | | 12.8 | 55W | 79 | 1,450 | | |
| 45474 | | | | 9007SB* | T-4¾ | Axial Plastic Prefocus | 12.8 | 65W | 107 | 110 | 39 | 4 |
| | | | | | | | 12.8 | 58W | 80 | 250 | | |
| | | 14776 | 360 | 9011 | T-3¼ | PX20D | 12.8 | 65W | 183 | 150 | 35 | 19 |
| | | 47327 | 900 | 9011X HIR* | T-3¼ | PX20D | 12.8 | 65W | 183 | 150 | 35 | 20 |

*New lamp added since last publication. [Turquoise-Halogen Lamps](#)

INDEX – MINIATURE LAMPS

| Order Code | | | Bulk Std. Pkg. Qty. | Lamp No. | Bulb | Base | Design | | Mean Spherical Candlepower (Approx.) | Rated Avg. Lab Life (Hours) | Page No. | Line No. |
|--------------|-----------|-----------|------------------------|-----------------------------|---------|------------------------|--------|---------------|--|-----------------------------------|----------|----------|
| Blister Pack | Unit Pack | Bulk Pack | | | | | Volts | Watts or Amps | | | | |
| | | 41495 | 360 | 9012 (HIR2)* | T-3 1/4 | PX 22D | 12.8 | 55W | 135 | 900 | 35 | 18 |
| 40843 | | 37735 | 200 | 9145 (H10)* | T-4 | PY20D | 12.8 | 45W | 65 | 1,500 | 38 | 2 |
| 40336 | 27328 | 32376 | 300 | 50310/1 (H1-55) | T-3 1/2 | P14.5S | 13.2 | 62W | 123 | 225 | 37 | 17 |
| | 27569 | | | 50320/1 (H1-70/28V) | T-3 1/2 | P14.5S | 28.0 | 80W | 151 | 600 | 37 | 27 |
| 12339 | 27331 | 22132 | 400 | 50340 (H3-55) | T-3 1/2 | PK22S | 13.2 | 62W | 115 | 225 | 37 | 18 |
| | | 23445 | 400 | 50340HD (H3-55) | T-3 1/2 | PK22S | 13.2 | 62W | 111 | 600 | 37 | 19 |
| | | 35044 | 400 | 50340LL (H3-55) | T-3 1/2 | PK22S | 13.2 | 64W | 106 | 2,000 | 37 | 21 |
| | 27332 | 23438 | 400 | 50350 (H3-70/28V) | T-3 1/2 | PK22S | 28.0 | 75W | 135 | 225 | 37 | 26 |
| | | 23442 | 400 | 50390 (H3-35) | T-3 1/2 | PK22S | 13.2 | 40W | 60 | 200 | 37 | 12 |
| | 27330 | 22130 | 400 | 50410 (H2-55) | T-3 1/2 | X511 | 13.2 | 62W | 143 | 225 | 37 | 20 |
| 18132 | 27334 | 22133 | 200 | 50440 (H4-60/55) | T-5 | P43T-38 | 13.2 | 71W | 138 | 225 | 40 | 1 |
| | | | | | | | 13.2 | 66W | 80 | 900 | | |
| | 27342 | 30833 | 200 | 50450 (H4-75/70/28V) | T-5 | P43T-38 | 28.0 | 80W | 151 | 150 | 40 | 5 |
| | | | | | | | 28.0 | 73W | 95 | 300 | | |
| 12341 | | | | 52130 (H3-100) | T-3 1/2 | PK22S | 13.2 | 92W | 187 | 100 | 37 | 23 |
| | 27329 | | | 52140 (H1-100)* | T-3 1/2 | P14.5S | 13.2 | 100W | 219 | 100 | 37 | 24 |
| | | 23428 | 400 | 52590HD (H3-65/28V) | T-3 1/2 | PK22S | 28.0 | 66W | 102 | 1,000 | 37 | 25 |
| 45591 | | | | 56110* | T-3 | Miniature Bayonet | 13.2 | 1.83A | 40 | 100 | 33 | 14 |
| 26374 | | 35755 | 200 | 58520 (H7-55) | T-3 1/2 | PX26D | 13.2 | 56.5W | 115 | 500 | 37 | 16 |
| 47461 | | | | 58540* | T-3 | Miniature Bayonet | 13.5 | .37A | 63 | 240 | 33 | 15 |
| | 26696 | | | A-103* | T-3 | Special | 28.0 | 50W | 60 | 1,000 | 33 | 21 |
| 23312 | | 30872 | | C5W | T-3 1/2 | SV8.5/8 | 13.5 | .37A | 3.6 | 450 | 42 | 4 |
| | | 16124 | 144 | D2R* | T-3 | P32d-2 | 85 | 35W | 114 | 1,000 | 41 | 15 |
| | | 15999 | 144 | D2S* | T-3 | P32d-2 | 85 | 35W | 254 | 1,000 | 41 | 16 |
| 25323 | | | | DE3021 | T-2 1/4 | SV7MM | 14.0 | .24A | 2 | 1,000 | 42 | 5 |
| 12353 | | | | DE3022 | T-2 1/4 | SV7MM | 13.0 | .38A | 3 | 1,000 | 42 | 6 |
| 12354 | 12084 | | | DE3175 | T-3 1/4 | SV8.5MM | 13.0 | .77A | 9.55 | 400 | 42 | 7 |
| | 12085 | | | DE3425 | T-4 | SV8.5MM | 13.0 | .77A | 9.55 | 400 | 42 | 8 |
| 23324 | | | | DE7576 | T-3 1/2 | SV8.5/8 | 13.5 | .74A | 9.8 | 200 | 42 | 9 |
| | | 15765 | 300 | H8* | T-3 1/2 | PGJ19-1 | 13.2 | 40W | 64 | 400 | 37 | 13 |
| | | 15827 | 300 | H9* | T-3 1/2 | PGJ19-5 | 13.2 | 65W | 167 | 125 | 37 | 22 |
| | | 15828 | 300 | H11* | T-3 1/2 | PGJ19-2 | 13.2 | 55W | 107 | 550 | 37 | 14 |
| | | 15963 | 300 | H11LL* | T-3 1/2 | PGJ19-2 | 13.2 | 55W | 107 | 1,400 | 37 | 15 |
| 22961 | | | | KPR102 | B-3 1/2 | S.C. Miniature Flanged | 2.4 | .70A | 1.3 | 15 | 23 | 4 |
| 23151 | | | | KPR104 | B-3 1/2 | S.C. Miniature Flanged | 2.2 | .47A | .47 | 15 | 23 | 1 |
| 23153 | | | | KPR113 | B-3 1/2 | S.C. Miniature Flanged | 4.8 | .75A | 4.1 | 20 | 23 | 9 |
| 23154 | | | | KPR118 | B-3 1/2 | S.C. Miniature Flanged | 7.2 | .55A | 5.2 | 15 | 23 | 11 |
| | 12571 | | | ML20/ OF-28 | T-8 | Disk | 28.0 | 20W | — | 500 | 40 | 13 |
| 23306 | | 11601 | 1000 | P21W (P25-1) | S-8 | S.C. Bayonet | 13.5 | 1.85A | 36.6 | 250 | 29 | 12 |
| | | 38655 | 1000 | P21W LL* | S-8 | S.C. Bayonet | 13.5 | 1.85A | 36.6 | 300 | 29 | 13 |
| 27561 | | 30857 | 1000 | P21/4W* | S-8 | D.C. Index | 13.5 | 1.85A | 35 | 100 | 29 | 9 |
| | | | | | | | 13.5 | .37A | 1.19 | 100 | | |
| 23303 | | 11604 | 1000 | P21/5W (P25-2) | S-8 | D.C. Index | 13.5 | 1.85A | 35 | 250 | 29 | 10 |
| | | | | | | | 13.5 | .44A | 2.78 | 1,000 | | |
| | | 92475 | 1000 | P21/5W LL* | S-8 | D.C. Index | 13.5 | 1.85A | 35 | 600 | 29 | 11 |
| | | | | | | | 13.5 | .44A | 2.78 | 3,000 | | |
| | 40778 | | | P21W 24V* | S-8 | S.C. Bayonet | 28.0 | 1.00A | 36.6 | 150 | 30 | 17 |
| | | 30856 | 1000 | P21/5W* | S-8 | D.C. Index | 28.0 | 1.00A | 35 | 150 | 30 | 16 |
| | | | | | | | 28.0 | .36A | 3.18 | 1,500 | | |
| | | 23036 | 1000 | PC161 | T-3 1/4 | Printed Circuit Socket | 14.0 | .19A | 1 | 4,000 | 35 | 29 |
| | 27222 | 23037 | 1000 | PC168 | T-3 1/4 | Printed Circuit Socket | 14.0 | .35A | 3 | 1,500 | 36 | 22 |
| | 72221 | 23021 | 1000 | PC194 | T-3 1/4 | Printed Circuit Socket | 14.0 | .27A | 2 | 2,500 | 36 | 14 |
| 12675 | 25181 | | | PR2 | B-3 1/2 | S.C. Miniature Flanged | 2.38 | .50A | .8 | 15 | 23 | 3 |

*New lamp added since last publication. [Turquoise-Halogen Lamps](#)

INDEX – MINIATURE LAMPS

| Order Code | | | Bulk Std. Pkg. Qty. | Lamp No. | Bulb | Base | Design | | Mean Spherical Candlepower (Approx.) | Rated Avg. Lab Life (Hours) | Page No. | Line No. |
|-----------------|--------------|--------------|---------------------------|----------------|------|------------------------|--------|------------------|--|-----------------------------------|-------------|-------------|
| Blister Pack | Unit Pack | Bulk Pack | | | | | Volts | Watts or Amps | | | | |
| 12676 | 25193 | | | PR3 | B-3½ | S.C. Miniature Flanged | 3.57 | .50A | 1.5 | 15 | 23 | 6 |
| 12677 | | | | PR4 | B-3½ | S.C. Miniature Flanged | 2.33 | .27A | .4 | 10 | 23 | 2 |
| | 25222 | | | PR6 | B-3½ | S.C. Miniature Flanged | 2.47 | .30A | .45 | 30 | 23 | 5 |
| | 25235 | | | PR7 | B-3½ | S.C. Miniature Flanged | 3.70 | .30A | .9 | 30 | 23 | 7 |
| 12680 | 25252 | | | PR12 | B-3½ | S.C. Miniature Flanged | 5.95 | .50A | 3.1 | 15 | 23 | 10 |
| 12681 | 25262 | | | PR13 | B-3½ | S.C. Miniature Flanged | 4.75 | .50A | 2.2 | 15 | 23 | 8 |
| | 25289 | | | PR18 | B-3½ | S.C. Miniature Flanged | 7.20 | .55A | 5.5 | 3 | 23 | 12 |
| 41370 | | 32648 | 500 | PY21W* | S-8 | S.C. Bayonet | 13.5 | 1.85A | 22.3 | 250 | 29 | 14 |
| 23314 | | 30859 | 2000 | R5W LL | G-6 | S.C. Bayonet | 13.5 | 5W | 4.0 | 500 | 25 | 15 |
| 23322 | | 35417 | 2000 | R10W LL | G-6 | S.C. Bayonet | 13.5 | 10W | 10.0 | 400 | 25 | 14 |
| 23318 | | | | T4W | T-2¾ | Miniature Bayonet | 13.5 | .30A | 2.8 | 450 | 32 | 20 |
| 27562 | | 35030 | 2000 | W3W | T-3¼ | Wedge | 13.5 | 3W | 1.75 | 1,000 | 35 | 22 |
| 27563 | | 37640 | 2000 | W5W | T-3¼ | Wedge | 13.5 | 5W | 4 | 300 | 35 | 25 |
| | | 26353 | 1000 | W16W | T-5 | Wedge | 13.5 | 1.44A | 24.6 | 250 | 40 | 4 |

INDEX – NEON GLOW LAMPS

| Order Code | | | Bulk Std. Pkg. Qty. | Lamp No. | Bulb | Base | Design | | Rated Avg. Lab Life (Hours) | Page No. | Line No. |
|-----------------|--------------|--------------|---------------------------|---------------------|------|-------------------|---------|------------------|-----------------------------------|-------------|-------------|
| Blister Pack | Unit Pack | Bulk Pack | | | | | Volts | Watts or Amps | | | |
| | 12064 | | | B1A (NE-51) | T-3¼ | Miniature Bayonet | 105-125 | .0003A | 15,000 | 42 | 1 |
| | 12065 | | | B2A (NE-51H) | T-3¼ | Miniature Bayonet | 105-125 | .0012A | 25,000 | 42 | 2 |
| | 31675 | | | B7A (NE-45) | T-4½ | Candelabra Screw | 105-125 | .002A | 7,500 | 42 | 3 |

INDEX – SEALED BEAM LAMPS

| Order Code | | | Bulk Std. Pkg. Qty. | Lamp No. | Bulb | Base | Design | | Mean Spherical Candlepower (Approx.) | Rated Avg. Lab Life (Hours) | Page No. | Line No. |
|-----------------|--------------|--------------|---------------------------|----------------|-------|-------------------|--------|------------------|--|-----------------------------------|-------------|-------------|
| Blister Pack | Unit Pack | Bulk Pack | | | | | Volts | Watts or Amps | | | | |
| | 18511 | | | 4000 | PAR46 | 3 Contact Lugs | 12.8 | 37.5W | SAE | 200 | 47 | 34 |
| | | | | | | | 12.8 | 60W | | 320 | | |
| | 18516 | 24231 | 672 | 4001 | PAR46 | 2 Contact Lugs | 12.8 | 37.5W | SAE | 300 | 47 | 35 |
| | 24327 | | | 4013 | PAR46 | Screw Terminals | 6.4 | 25W | 800 | 300 | 47 | 24 |
| | 24339 | | | 4014 | PAR36 | Screw Terminals | 6.4 | 18W | 1,500 | 200 | 45 | 24 |
| | 24369 | | | 4019 | PAR46 | Screw Terminals | 6.2 | 30W | 1,200 | 300 | 47 | 23 |
| | 38418 | | | 4040 | PAR46 | 3 Contact Lugs | 12.8 | 37.5W | SAE | 300 | 47 | 36 |
| | | | | | | | 12.8 | 60W | | 500 | | |
| | 39585 | 39586 | 60 | 4042 | PAR36 | Screw Terminals | 6.4 | 12W | 1,100 | 150 | 45 | 23 |
| | 40588 | 40589 | 60 | 4044 | PAR36 | Screw Terminals | 12.0 | 12W | 1,100 | 150 | 45 | 29 |
| | 10540 | 10541 | 60 | 4044-1 | PAR36 | Slip-on Terminals | 12.0 | 12W | 1,100 | 150 | 45 | 30 |
| | 25051 | | | 4313 | PAR36 | Screw Terminals | 13.0 | 250W | 140,000 | 25 | 47 | 1 |
| | 39366 | 39367 | 60 | 4340 | PAR36 | Slip-on Terminals | 48.0 | 80W | 2,500 | 400 | 47 | 22 |
| | 39362 | 39363 | 60 | 4350 | PAR36 | Slip-on Terminals | 36.0 | 60W | 2,100 | 400 | 47 | 21 |
| | 12961 | | | 4402A | PAR36 | Screw Terminals | 28.0 | 50W | 1,000 | 400 | 47 | 4 |
| | 24425 | 24423 | 60 | 4405 | PAR36 | Screw Terminals | 12.8 | 30W | 50,000 | 100 | 46 | 5 |
| | 24430 | 24428 | 60 | 4406 | PAR36 | Screw Terminals | 12.8 | 35W | 600 | 300 | 46 | 11 |
| | 24439 | | | 4410 | PAR36 | Screw Terminals | 12.8 | 35W | 600 | 300 | 46 | 12 |
| | 24448 | 24443 | 60 | 4411 | PAR36 | Screw Terminals | 12.8 | 35W | 3,000 | 300 | 46 | 13 |
| | 37889 | | | 4411-1 | PAR36 | Slip-on Terminals | 12.8 | 35W | 3,000 | 300 | 46 | 14 |
| | | 48032 | 60 | 4411-3* | PAR36 | Combination | 12.8 | 35W | 3,000 | 300 | 46 | 15 |
| | 24454 | 24453 | 24 | 4412 | PAR46 | Screw Terminals | 12.8 | 35W | 11,000 | 300 | 47 | 28 |
| | 24460 | 24459 | 24 | 4412A | PAR46 | Screw Terminals | 12.8 | 35W | 8,800 | 300 | 47 | 29 |
| | 22981 | 24464 | 24 | 4413 | PAR46 | Screw Terminals | 12.8 | 35W | 1,100 | 300 | 47 | 30 |
| | 24478 | 24477 | 60 | 4414 | PAR36 | Screw Terminals | 12.8 | 18W | 1,500 | 300 | 46 | 1 |
| | 24487 | | | 4414R | PAR36 | Screw Terminals | 12.8 | 18W | 275 | 300 | 46 | 2 |
| | 22982 | | | 4415 | PAR36 | Screw Terminals | 12.8 | 35W | 9,000 | 300 | 46 | 16 |
| | 24499 | 24497 | 60 | 4415A | PAR36 | Screw Terminals | 12.8 | 35W | 7,000 | 300 | 46 | 17 |
| | 22983 | 24503 | 60 | 4416 | PAR36 | Screw Terminals | 12.8 | 30W | 35,000 | 300 | 46 | 6 |
| | | 34901 | 60 | 4416-1 | PAR36 | Slip-on Terminals | 12.8 | 30W | 35,000 | 300 | 46 | 7 |

*New lamp added since last publication. [Turquoise-Halogen Lamps](#)

INDEX – SEALED BEAM LAMPS

| Order Code | | | Bulk Std. Pkg. Qty. | Lamp No. | Bulb | Base | Design | | Mean Spherical Candlepower (Approx.) | Rated Avg. Lab Life (Hours) | Page No. | Line No. |
|-----------------|--------------|--------------|---------------------------|----------------|-------|---------------------|--------|------------------|--|-----------------------------------|-------------|-------------|
| Blister Pack | Unit Pack | Bulk Pack | | | | | Volts | Watts or Amps | | | | |
| | 24506 | | | 4416A | PAR36 | Screw Terminals | 12.8 | 30W | 26,000 | 300 | 46 | 8 |
| | 24513 | | | 4416R | PAR36 | Screw Terminals | 12.8 | 30W | 4,000 | 300 | 46 | 9 |
| | 24531 | 24525 | 24 | 4419 | PAR46 | Screw Terminals | 12.8 | 35W | 1,600 | 300 | 47 | 31 |
| | 24539 | 24541 | 24 | 4421 | PAR46 | Slip-on Terminals | 13.0 | 100W | 23,000 | 300 | 48 | 11 |
| | 24542 | | | 4422 | PAR36 | Screw Terminals | 12.8 | 35W | 600 | 300 | 46 | 18 |
| | 24572 | | | 4434A | PAR46 | Screw Terminals | 12.8 | 40W | 1,000 | 100 | 47 | 38 |
| | 24577 | 24576 | 24 | 4435 | PAR46 | Screw Terminals | 12.8 | 30W | 75,000 | 100 | 47 | 27 |
| | 24582 | | | 4436 | PAR46 | Screw Terminals | 12.8 | 35W | 60,000 | 300 | 47 | 32 |
| | 39932 | 39933 | 60 | 4440X | PAR36 | 3 Contact Lugs | 12.8 | 40W | 6,000 | 320 | 46 | 23 |
| | | | | | | | 12.8 | 40W | 4,500 | 320 | | |
| | 39748 | | | 4440X-1 | PAR36 | 3 Slip-on Terminals | 12.8 | 40W | 6,000 | 320 | 46 | 24 |
| | | | | | | | 12.8 | 40W | 4,500 | 320 | | |
| | 37046 | 37047 | 60 | 4446 | PAR36 | Screw Terminals | 12.8 | 25W | 400 | 300 | 46 | 4 |
| | 40176 | | | 4460X | PAR36 | 3 Screw Terminals | 12.8 | 40W | 6,500 | 320 | 46 | 25 |
| | | | | | | | 12.8 | 40W | 5,000 | 320 | | |
| | 24592 | | | 4461 | PAR36 | Screw Terminals | 12.8 | 60W | 6,000 | 300 | 46 | 31 |
| | 24596 | | | 4466 | PAR36 | Screw Terminals | 12.8 | 60W | 1,000 | 300 | 46 | 32 |
| | 24613 | | | 4478 | PAR46 | 2 Contact Lugs | 13.0 | 60W | 1,600 | 800 | 48 | 8 |
| | 24627 | | | 4502 | PAR36 | Screw Terminals | 28.0 | 50W | 10,000 | 400 | 47 | 5 |
| | 24640 | 24638 | 60 | 4505 | PAR36 | Screw Terminals | 28.0 | 50W | 45,000 | 400 | 47 | 6 |
| | 24650 | 24649 | 60 | 4509 | PAR36 | Screw Terminals | 13.0 | 100W | 110,000 | 25 | 46 | 34 |
| | 41503 | | | 4509X | PAR36 | Screw Terminals | 13.0 | 100W | 110,000 | 25 | 46 | 35 |
| | 11524 | | | 4509Y | PAR36 | Screw Terminals | 13.0 | 100W | — | 25 | 46 | 36 |
| | 24654 | 24653 | 60 | 4510 | PAR36 | Screw Terminals | 6.4 | 25W | 800 | 300 | 45 | 25 |
| | 24663 | 24661 | 60 | 4511 | PAR36 | Screw Terminals | 6.2 | 30W | 2,300 | 300 | 45 | 21 |
| | 24673 | 24671 | 60 | 4515 | PAR36 | Screw Terminals | 6.4 | 30W | 55,000 | 100 | 45 | 26 |
| | 24678 | | | 4516 | PAR36 | Screw Terminals | 6.2 | 30W | 45,000 | 300 | 45 | 22 |
| | 24690 | | | 4519 | PAR36 | Screw Terminals | 13.0 | 100W | 30,000 | 25 | 46 | 37 |
| | 24700 | | | 4522 | PAR46 | Screw Terminals | 13.0 | 250W | 290,000 | 25 | 48 | 15 |
| | 24721 | | | 4530 | PAR46 | Screw Terminals | 26.0 | 5.3A | 100,000 | 50 | 48 | 18 |
| | 24726 | | | 4531 | PAR46 | Screw Terminals | 12.5 | 40W | 30,000 | 400 | 47 | 26 |
| | 19628 | | | 4532 | PAR46 | Screw Terminals | 28.0 | 250W | 75,000 | 100 | 48 | 25 |
| | | | | | | | 28.0 | 150W | 14,500 | 100 | | |
| | 24735 | 24733 | 24 | 4535 | PAR46 | Screw Terminals | 6.4 | 30W | 95,000 | 100 | 47 | 25 |
| | 24742 | | | 4537 | PAR46 | Screw Terminals | 13.0 | 100W | 200,000 | 25 | 48 | 12 |
| | 40822 | 40823 | 24 | 4537-2 | PAR46 | Screw Terminals | 13.0 | 100W | 200,000 | 25 | 48 | 13 |
| | 39022 | | | 4537X | PAR46 | Screw Terminals | 13.0 | 100W | 200,000 | 25 | 48 | 14 |
| | 24756 | | | 4541 | PAR56 | Screw Terminals | 28.0 | 450W | 470,000 | 25 | 49 | 10 |
| | 24764 | | | 4543 | PAR56 | Screw Terminals | 12.5 | 100W | 250,000 | 50 | 49 | 3 |
| | 24768 | | | 4545 | PAR56 | Screw Terminals | 12.0 | 100W | 225,000 | 100 | 49 | 2 |
| | 24780 | 24783 | 60 | 4546 | PAR36 | Screw Terminals | 4.7 | .5A | 6,300 | 100 | 45 | 8 |
| | 24770 | 24775 | 60 | 4546-1 | PAR36 | Slip-on Terminals | 4.7 | .5A | 6,300 | 100 | 45 | 9 |
| | 24788 | | | 4547 | PAR36 | Screw Terminals | 4.75 | 1.25A | 20,000 | 100 | 45 | 10 |
| | 24795 | | | 4551 | PAR46 | Screw Terminals | 28.0 | 250W | 75,000 | 25 | 48 | 26 |
| | 40576 | | | 4552 | PAR64 | Screw Terminals | 28.0 | 250W | 500,000 | 25 | 49 | 11 |
| | 24799 | | | 4553 | PAR46 | Screw Terminals | 28.0 | 250W | 300,000 | 25 | 48 | 27 |
| | 24802 | | | 4554 | PAR46 | Screw Terminals | 28.0 | 450W | 90,000 | 25 | 48 | 29 |
| | 40583 | | | 4555 | PAR64 | Screw Terminals | 115.0 | 1,000W | 600,000 | 25 | 49 | 19 |
| | 40581 | | | 4557 | PAR64 | 3 Screw Terminals | 28.0 | 1,000W | 540,000 | 25 | 49 | 17 |
| | | | | | | | 28.0 | 400W | 100,000 | 100 | | |
| | 40578 | | | 4559 | PAR64 | Screw Terminals | 28.0 | 600W | 600,000 | 25 | 49 | 12 |
| | 24828 | | | 4570 | PAR46 | Screw Terminals | 28.0 | 150W | 32,000 | 300 | 48 | 22 |
| | 24830 | | | 4571 | PAR46 | Screw Terminals | 28.0 | 150W | 7,000 | 300 | 48 | 23 |
| | 24833 | | | 4572 | PAR46 | Screw Terminals | 28.0 | 150W | 4,500 | 300 | 48 | 24 |
| | 25005 | 25007 | 24 | 4578 | PAR46 | 2 Contact Lugs | 28.0 | 60W | 1,600 | 800 | 48 | 19 |

*New lamp added since last publication. [Turquoise—Halogen Lamps](#)

INDEX – SEALED BEAM LAMPS

| Order Code | | | Bulk Std. Pkg. Qty. | Lamp No. | Bulb | Base | Design | | Mean Spherical Candlepower (Approx.) | Rated Avg. Lab Life (Hours) | Page No. | Line No. |
|-----------------|--------------|--------------|---------------------------|-----------------|-------|----------------------|--------|------------------|--|-----------------------------------|-------------|-------------|
| Blister Pack | Unit Pack | Bulk Pack | | | | | Volts | Watts or Amps | | | | |
| | 25009 | 25011 | 24 | 4579 | PAR46 | 3 Contact Lugs | 28.0 | 80W | 24,000 | 400 | 48 | 21 |
| | 24859 | | | 4580 | PAR46 | Screw Terminals | 28.0 | 60W | 11,000 | 400 | 48 | 30 |
| | 24862 | | | 4581 | PAR46 | Screw Terminals | 28.0 | 450W | 400,000 | 10 | 48 | 31 |
| | 24853 | | | 4582 | PAR46 | Screw Terminals | 28.0 | 450W | 20,000 | 10 | 48 | 32 |
| | 24867 | | | 4587 | PAR36 | Screw Terminals | 28.0 | 250W | 40,000 | 25 | 47 | 19 |
| | 24873 | 24871 | 60 | 4589 | PAR36 | Screw Terminals | 28.0 | 50W | 5,000 | 400 | 47 | 7 |
| | | 23509 | 60 | 4589-1 | PAR36 | Slip-on Terminals | 28.0 | 50W | 5,000 | 400 | 47 | 8 |
| | 24882 | | | 4591 | PAR36 | Screw Terminals | 28.0 | 100W | 90,000 | 25 | 47 | 12 |
| | 24887 | | | 4593 | PAR36 | Screw Terminals | 28.0 | 50W | 1,500 | 400 | 47 | 9 |
| | 24891 | | | 4594 | PAR36 | Screw Terminals | 28.0 | 100W | 70,000 | 300 | 47 | 13 |
| | 24892 | | | 4595 | PAR36 | Screw Terminals | 28.0 | 100W | 60,000 | 300 | 47 | 14 |
| | 24898 | | | 4596 | PAR36 | Screw Terminals | 28.0 | 250W | 150,000 | 25 | 47 | 20 |
| | 24964 | | | 4626 | PAR36 | Screw Terminals | 28.0 | 150W | 25,000 | 300 | 47 | 17 |
| | 24966 | | | 4627 | PAR36 | Screw Terminals | 28.0 | 100W | 3,000 | 300 | 47 | 15 |
| | 33284 | | | 4635 | PAR46 | Screw Terminals | 16.5 | 450W | 325,000 | 25 | 48 | 17 |
| | 19632 | 16407 | 672 | 4636-3 | PAR46 | Combination | 14.0 | 80W | 90,000 | 200 | 48 | 16 |
| | 18517 | 41861 | 576 | 4651 | 165mm | 2 Contact Lugs | 12.8 | 50W | SAE | 200 | 44 | 21 |
| | 18518 | | | 4652 | 165mm | 3 Contact Lugs | 12.8 | 40W | SAE | 200 | 44 | 17 |
| | | | | | | | 12.8 | 60W | | 320 | | |
| | 39906 | 39907 | 60 | 4700 | PAR36 | 3 Screw Terminals | 13.0 | 100W | 100,000 | 25 | 46 | 38 |
| | | | | | | | 13.0 | 100W | 50,000 | 25 | | |
| | 45427 | | | 4713 | PAR36 | Screw Terminals | 28.0 | 150W | 4,200 | 300 | 47 | 18 |
| | 44724 | | | 4752 | PAR36 | Screw Terminals | 28.0 | 60W | 2,000 | 800 | 47 | 11 |
| | 24973 | | | 4800 | PAR56 | 3 Contact Lugs | 28.0 | 50W | SAE | 400 | 49 | 9 |
| | | | | | | | 28.0 | 40W | | 400 | | |
| | 24980 | | | 4811 | PAR36 | 3 Contact Lugs | 28.0 | 110W | SAE | 400 | 47 | 16 |
| | | | | | | | 28.0 | 55W | | 400 | | |
| | 24981 | 24982 | 60 | 4825R | PAR36 | 3 Screw Terminals | 28.0 | 50W | 200 | 200 | 47 | 10 |
| | | | | | | | 28.0 | 18W | 40 | 200 | | |
| | 24995 | | | 4880 | PAR46 | 2 Contact Lugs | 28.0 | 60W | 6,000 | 800 | 48 | 20 |
| | 45110 | 45111 | 576 | 4912-1 | 165mm | Slip-on Terminals | 12.8 | 50W | 14,000 | 300 | 44 | 22 |
| | | 45113 | 16 | 4913-1 | 165mm | Slip-on Terminals | 12.8 | 50W | 1,350 | 400 | 44 | 23 |
| | 45116 | 16195 | 576 | 4921-1 | 165mm | Slip-on Terminals | 13.0 | 100W | 25,000 | 300 | 45 | 2 |
| | 11639 | | | 5001* | PAR46 | 2 Contact Lugs | 12.8 | 50W | SAE | 300 | 48 | 1 |
| | 16152 | | | 5557 | PAR64 | 3 Screw Terminals | 28.0 | 1,000W | 540,000 | 50 | 49 | 18 |
| | | | | | | | 28.0 | 400W | 100,000 | 100 | | |
| | 25114 | | | 6006 | PAR56 | 3 Contact Lugs | 6.1 | 50W | SAE | 300 | 49 | 1 |
| | | | | | | | 6.2 | 40W | | 500 | | |
| | 18519 | | | 6014 | PAR56 | 3 Contact Lugs | 12.8 | 60W | SAE | 320 | 49 | 5 |
| | | | | | | | 12.8 | 50W | | 150 | | |
| | 38416 | 38607 | 432 | 6015 | PAR56 | 3 Contact Lugs | 12.8 | 50W | SAE | 300 | 49 | 4 |
| | | | | | | | 12.8 | 50W | | 500 | | |
| | 25153 | | | 6045 | PAR56 | Screw Terminals | 26.0 | 170W | 230,000 | 100 | 49 | 8 |
| | 18521 | | | 6052 | 200mm | 3 Contact Lugs | 12.8 | 65W | SAE | 150 | 45 | 3 |
| | | | | | | | 12.8 | 55W | | 320 | | |
| | 40190 | 40191 | 60 | 7400 | PAR36 | Slip-on Terminals | 12.8 | 35W | 33,000 | 300 | 46 | 19 |
| | | 42385 | 60 | 7400-1 | PAR36 | Screw Terminals | 12.8 | 35W | 33,000 | 300 | 46 | 20 |
| | 39987 | 39988 | 60 | 7414Y | PAR36 | Screw Terminals | 12.8 | 18W | 1,000 | 300 | 46 | 3 |
| | 41865 | 41866 | 60 | 7613 | PAR36 | Screw Terminals | 6.0 | 8W | 400 | 50 | 45 | 13 |
| | 45101 | 45102 | 60 | 7613-1 | PAR36 | Slip-on Terminals | 6.0 | 8W | 400 | 50 | 45 | 14 |
| | 11421 | 11422 | 60 | 7672-1 | PAR36 | Slip-on Terminals | 6.0 | 7.2W | 350 | 50 | 45 | 12 |
| | 22386 | | | H4351 | 140mm | Right Angle, Plastic | 12.8 | 55W | SAE | 500 | 44 | 3 |
| | 10211 | | | H4351LH* | 140mm | Right Angle, Plastic | 12.8 | 55W | – | 500 | 44 | 4 |
| | 22387 | | | H4352 | 140mm | Right Angle, Plastic | 12.8 | 65W | SAE | 150 | 44 | 5 |

*New lamp added since last publication. **Turquoise–Halogen Lamps**

INDEX – SEALED BEAM LAMPS

| Order Code | | | Bulk Std. Pkg. Qty. | Lamp No. | Bulb | Base | Design | | Mean Spherical Candlepower (Approx.) | Rated Avg. Lab Life (Hours) | Page No. | Line No. |
|-----------------|--------------|--------------|---------------------------|-----------------|-------|--------------------|--------|------------------|--|-----------------------------------|-------------|-------------|
| Blister Pack | Unit Pack | Bulk Pack | | | | | Volts | Watts or Amps | | | | |
| | | 18350 | 48 | H4360 | 140mm | 2 Right Angle Lugs | 12.8 | 37.5W | 2,000 | 320 | 44 | 1 |
| | 15129 | | | H4405 | PAR36 | Screw Terminals | 12.8 | 30W | 66,000 | 100 | 46 | 10 |
| | | 17674 | 60 | H4460X | PAR36 | 3 Screw Terminals | 12.8 | 40W | 11,000 | 320 | 46 | 26 |
| | | | | | | | 12.8 | 40W | 8,500 | 320 | | |
| | 15133 | | | H4515 | PAR36 | Screw Terminals | 6.4 | 30W | 67,000 | 100 | 45 | 27 |
| | 18532 | 45027 | 576 | H4651 | 165mm | 2 Contact Lugs | 12.8 | 50W | SAE | 200 | 44 | 24 |
| | 46375 | | | H4651SB* | 165mm | 2 Contact Lugs | 12.8 | 50W | SAE | 200 | 44 | 25 |
| | 18533 | 49810 | 576 | H4656 | 165mm | 3 Contact Lugs | 12.8 | 35W | SAE | 200 | 44 | 16 |
| | | | | | | | 12.8 | 35W | | 320 | | |
| | 14753 | | | H4656HO | 165mm | 3 Contact Lugs | 12.8 | 40W | SAE | 200 | 44 | 18 |
| | | | | | | | 12.8 | 55W | | 700 | | |
| | 45475 | | | H4656SB* | 165mm | 3 Contact Lugs | 12.8 | 40W | SAE | 75 | 44 | 19 |
| | | | | | | | 12.8 | 55W | | 200 | | |
| | 18535 | 22879 | 576 | H4666 | 165mm | 3 Contact Lugs | 12.8 | 65W | SAE | 150 | 44 | 29 |
| | | | | | | | 12.8 | 55W | | 320 | | |
| | 18536 | 48533 | 480 | H4701 | 150mm | 2 Lugs | 12.8 | 65W | SAE | 150 | 44 | 15 |
| | 18538 | 48534 | 480 | H4703 | 150mm | 2 Lugs | 12.8 | 55W | SAE | 320 | 44 | 14 |
| | 18522 | | | H5001 | PAR46 | 2 Contact Lugs | 12.8 | 50W | SAE | 200 | 48 | 2 |
| | 18523 | | | H5006 | PAR46 | 3 Contact Lugs | 12.8 | 35W | SAE | 200 | 47 | 33 |
| | | | | | | | 12.8 | 35W | | 320 | | |
| | 19428 | 19559 | 432 | H5024 | PAR56 | 3 Contact Lugs | 12.8 | 65W | SAE | 400 | 49 | 6 |
| | | | | | | | 12.8 | 42W | | 2,000 | | |
| | 19411 | 19556 | 576 | H5051 | 165mm | 2 Contact Lugs | 12.8 | 50W | SAE | 500 | 44 | 26 |
| | 19429 | 19558 | 448 | H5054 | 200mm | 3 Contact Lugs | 12.8 | 65W | SAE | 400 | 45 | 4 |
| | | | | | | | 12.8 | 42W | | 2,000 | | |
| | 19412 | 19557 | 576 | H5062 | 165mm | 3 Contact Lugs | 12.8 | 40W | SAE | 400 | 44 | 20 |
| | | | | | | | 12.8 | 55W | | 2,000 | | |
| | | 41453 | 48 | H5360* | 140mm | 2 Right Angle Lugs | 12.8 | 37.5W | 2,000 | 900 | 44 | 2 |
| | 18525 | | | H6024 | PAR56 | 3 Contact Lugs | 12.8 | 65W | SAE | 150 | 49 | 7 |
| | | | | | | | 12.8 | 35W | | 320 | | |
| | 18534 | 11545 | 448 | H6054 | 200mm | 3 Contact Lugs | 12.8 | 65W | SAE | 150 | 45 | 5 |
| | | | | | | | 12.8 | 35W | | 320 | | |
| | 14752 | | | H6054HO | 200mm | 3 Contact Lugs | 12.8 | 65W | SAE | 150 | 45 | 6 |
| | | | | | | | 12.8 | 55W | | 700 | | |
| | 45477 | | | H6054SB* | 200mm | 3 Contact Lugs | 12.8 | 65W | SAE | 75 | 45 | 7 |
| | | | | | | | 12.8 | 55W | | 200 | | |
| | 43561 | 43562 | 60 | H7550 | PAR36 | Screw Terminals | 6.0 | 8W | 25,000 | 50 | 45 | 15 |
| | | 23541 | 60 | H7550-1 | PAR36 | Slip-on Terminals | 6.0 | 8W | 25,000 | 50 | 45 | 16 |
| | 43564 | 43565 | 60 | H7551 | PAR36 | Screw Terminals | 6.0 | 8W | 550 | 50 | 45 | 17 |
| | 43567 | | | H7552 | PAR36 | Screw Terminals | 6.0 | 10W | 650 | 50 | 45 | 18 |
| | 43570 | 43571 | 60 | H7553 | PAR36 | Screw Terminals | 6.0 | 12W | 850 | 50 | 45 | 19 |
| | | 43574 | 60 | H7554 | PAR36 | Screw Terminals | 6.0 | 20W | 1,400 | 50 | 45 | 20 |
| | 44642 | 44643 | 60 | H7555 | PAR36 | Screw Terminals | 12.0 | 8W | 550 | 50 | 45 | 28 |
| | 44924 | 44925 | 60 | H7556 | PAR36 | Screw Terminals | 6.0 | 6W | 400 | 50 | 45 | 11 |
| | 12720 | 12721 | 60 | H7557 | PAR36 | Screw Terminals | 12.0 | 12W | 850 | 50 | 45 | 31 |
| | 42841 | 42842 | 60 | H7600 | PAR36 | Screw Terminals | 12.8 | 37.5W | 60,000 | 300 | 46 | 21 |
| | 43576 | 43577 | 60 | H7604 | PAR36 | Screw Terminals | 12.8 | 50W | 100,000 | 100 | 46 | 27 |
| | 14616 | 43580 | 60 | H7606 | PAR36 | Screw Terminals | 12.8 | 50W | 1,000 | 400 | 46 | 28 |
| | | 17672 | 60 | H7607 | PAR36 | Screw Terminals | 12.8 | 65W | 1,500 | 600 | 46 | 33 |
| | 14617 | 43583 | 24 | H7609 | PAR46 | Screw Terminals | 12.8 | 50W | 2,200 | 400 | 48 | 3 |
| | 14618 | 43586 | 60 | H7610 | PAR36 | Screw Terminals | 12.8 | 50W | 5,200 | 400 | 46 | 29 |
| | 49695 | | | H7612 | PAR46 | Screw Terminals | 12.8 | 37.5W | 15,000 | 450 | 47 | 37 |
| | 49731 | 49732 | 60 | H7614 | PAR36 | Screw Terminals | 12.8 | 50W | 2,000 | 100 | 46 | 30 |
| | 42838 | 42839 | 60 | H7616 | PAR36 | Screw Terminals | 12.8 | 37.5W | 70,000 | 300 | 46 | 22 |
| | 14619 | 43589 | 24 | H7619 | PAR46 | Screw Terminals | 12.8 | 50W | 6,000 | 400 | 48 | 4 |

*New lamp added since last publication. Turquoise—Halogen Lamps

INDEX – SEALED BEAM LAMPS

| Order Code | | | Bulk Std. Pkg. Qty. | Lamp No. | Bulb | Base | Design | | Mean Spherical Candlepower (Approx.) | Rated Avg. Lab Life (Hours) | Page No. | Line No. |
|-----------------|--------------|--------------|------------------------|--------------------|-------|--------------------|--------|------------------|--|-----------------------------------|-------------|-------------|
| Blister Pack | Unit Pack | Bulk Pack | | | | | Volts | Watts or Amps | | | | |
| | | 45058 | 24 | H7621-1 | PAR46 | Slip-on Terminals | 12.8 | 50W | 20,000 | 200 | 48 | 5 |
| | 43591 | 43592 | 24 | H7635 | PAR46 | Screw Terminals | 12.8 | 50W | 160,000 | 100 | 48 | 6 |
| | | 18022 | 24 | H7635X | PAR46 | Screw Terminals | 12.8 | 50W | 160,000 | 100 | 48 | 7 |
| | 17894 | 17890 | 24 | H7680HIR | PAR46 | Screw Terminals | 13.0 | 80W | 275,000 | 100 | 48 | 9 |
| | 26694 | 26695 | 24 | H7680X HIR* | PAR46 | Screw Terminals | 13.0 | 80W | 230,000 | 300 | 48 | 10 |
| | | 23250 | 16 | H7913HIR | 165mm | 2 Contact Lugs | 12.8 | 65W | 4,000 | 800 | 45 | 1 |
| | | 13426 | 16 | H7921-1 | 165mm | Slip-on Terminals | 12.8 | 50W | 23,900 | 200 | 44 | 27 |
| | 47460 | 14892 | 16 | H7935-1 | 165mm | Slip-on Terminals | 12.8 | 50W | 175,000 | 100 | 44 | 28 |
| 2 | 15767 | 15763 | 48 | H9405 | 150mm | 2 Right Angle Lugs | 12.8 | 50W | 100,000 | 100 | 44 | 8 |
| | 15769 | 15768 | 48 | H9406 | 150mm | 2 Right Angle Lugs | 12.8 | 50W | 1,350 | 400 | 44 | 9 |
| | 15771 | 15770 | 48 | H9411 | 150mm | 2 Right Angle Lugs | 12.8 | 50W | 5,400 | 400 | 44 | 10 |
| | | 15772 | 48 | H9414 | 150mm | 2 Right Angle Lugs | 12.8 | 50W | 2,700 | 400 | 44 | 11 |
| | 16484 | 16483 | 48 | H9415 | 150mm | 2 Right Angle Lugs | 12.8 | 37.5W | 12,000 | 200 | 44 | 6 |
| | 17988 | | | H9415A | 150mm | 2 Right Angle Lugs | 12.8 | 37.5W | – | 200 | 44 | 7 |
| | 16976 | 16978 | 48 | H9420 | 150mm | 2 Right Angle Lugs | 12.8 | 50W | 47,000 | 200 | 44 | 12 |
| | 16482 | | | H9421 | 150mm | 2 Right Angle Lugs | 12.8 | 50W | 4,000 | 200 | 44 | 13 |
| | 22109 | | | Q4509 | PAR36 | Screw Terminal | 13.0 | 100W | 140,000 | 100 | 46 | 39 |
| | 37706 | | | Q4554 | PAR46 | Screw Terminals | 28.0 | 450W | 65,000 | 100 | 48 | 33 |
| | 40579 | | | Q4559 | PAR64 | Screw Terminals | 28.0 | 600W | 600,000 | 100 | 49 | 13 |
| | 42552 | | | Q4559X | PAR64 | Screw Terminals | 28.0 | 600W | 765,000 | 100 | 49 | 14 |
| | 41097 | | | Q4566 | PAR46 | Screw Terminals | 28.0 | 450W | 150,000 | 1,000 | 48 | 34 |
| | 37372 | | | Q4597 | PAR46 | Screw Terminals | 28.0 | 450W | 16,000 | 1,000 | 48 | 35 |
| | 40577 | | | Q4629 | PAR64 | Screw Terminals | 28.0 | 600W | 20,000 | 1,000 | 49 | 15 |
| | 34537 | | | Q4631 | PAR36 | Screw Terminals | 13.0 | 250W | 80,000 | 500 | 47 | 2 |
| | 39112 | | | Q4632 | PAR36 | Screw Terminals | 13.0 | 250W | 75,000 | 500 | 47 | 3 |
| | 36271 | | | Q4681 | PAR46 | Screw Terminals | 28.0 | 450W | 310,000 | 50 | 48 | 36 |
| | 41452 | | | Q5551* | PAR46 | Screw Terminals | 28.0 | 250W | 60,000 | 100 | 48 | 28 |
| | 16784 | | | Q5559* | PAR64 | Screw Terminals | 28.0 | 600W | 650,000 | 200 | 49 | 16 |

*New lamp added since last publication. Turquoise–Halogen Lamps

EUROPEAN AUTOMOTIVE CROSS-REFERENCE

In Europe, exterior automotive lamps are regulated by ECE Regulation 37, and other regulations particular to the application. Many other countries have adapted the ECE regulations. GE's global facilities produce a full line of ECE types in 6, 12, and 24 volts. Due to demand, not all types are currently stocked in North America; therefore, some types are not included in this catalogue. Call your GE sales office for further information.

In Europe, manufacturers do not have a common lamp number. Below is a cross reference of the most common 12 volt ECE types.

12V ECE REGULATION 37 TYPES

| Application | ECE Type | Manufacturer Numbers | | | |
|----------------------|--------------------|----------------------|-----------|-------|---------|
| | | GE US | GE Europe | Osram | Philips |
| Headlamps & Foglamps | H1 | 50310/1 | 50310/1 | 64150 | 12258 |
| | H2 | 50410 | 50410 | 64173 | 12311 |
| Fog lamps | H3 | 50340 | 50340 | 64151 | 12336 |
| | H4 | 50440 | 50440 | 64193 | 12342 |
| | H7 | H7 | 58520 | 64210 | |
| Signaling | H27W/1 | 880 | | | |
| | H27W/2 | 881 | | | |
| | R2 | | 1931 | 7951 | 12620 |
| | P21W ¹ | P25-1 | 1057 | 7506 | 12498 |
| | P21/5W | P25-2 | 1077 | 7528 | 12499 |
| | P21/4W | | 1122 | 7225 | 12594 |
| | PY21W ² | | 1056 | 7507 | 12496 |
| | R5W ¹ | R5W | 2619 | 5007 | 12821 |
| | R10W ¹ | R10W | 2641 | 5008 | 12814 |
| | T4W | T4W | 2662 | 3893 | 12929 |
| C5W | C5W | 7546 | 6418 | 12844 | |
| W3W | W3W | 5304 | 2821 | 12256 | |
| W5W | W5W | 5307 | 2825 | 12961 | |
| W16W | W16W | | | | |

¹With SC Bayonet (Ba15s) Base

²With (BAV 15s) Base

Many trucks built in Europe use 24 volt systems. Below is a cross reference of the most common 24 volt ECE types. Usage of these vehicles in North America is limited.

24V ECE REGULATION 37 TYPES

| Application | ECE Type | Manufacturer Numbers | | | |
|----------------------|-------------------|----------------------|-----------|-----------|---------|
| | | GE US | GE Europe | Osram | Philips |
| Headlamps & Foglamps | H1 | 50320/1 | 50320/1 | 64155 | 13258 |
| | H2 | | 50420 | 64175 | 13311 |
| Fog lamps | H3 | 50350 | 50350 | 64156 | 13336 |
| | H4 | 50450 | 50450 | 64196 | 13342 |
| Signaling | R2 | | 1937 | 7952 | 13620 |
| | P21W ¹ | 1060 | 1060 | 7511 | 13498 |
| | P21/5W | | 1078 | 7537 | 13499 |
| | R5W ¹ | 2627 | 2627 | 5627 | 13821 |
| | R10W ¹ | | 2643 | 5637 | 13814 |
| | T4W | | 2661 | 9930/3930 | 13929 |
| | C5W | | 7552 | 6423 | 13844 |

¹With SC Bayonet (Ba15s) Base

HIGH OUTPUT HALOGEN-CYCLE LAMP INFORMATION

Benefits of halogen-cycle lamps:

Higher Light Output from Less Energy and a Smaller Lamp Package

- Typical halogen-cycle miniature lamp rated at 45 watts produces as much light as a standard 60-watt household bulb... yet the halogen-cycle lamp is $\frac{1}{6}$ the size of the household lamp.

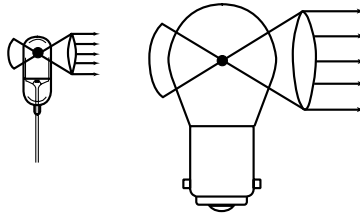
Higher Maintained Light Output Over Life

- Can be operated at high wattages without sacrificing the light output over life.
- Most halogen-cycle lamps produce 85 to 95% of their initial light output at 70% of their life expectancy.
- Bulb blackening due to tungsten deposits on the bulb wall virtually eliminated.

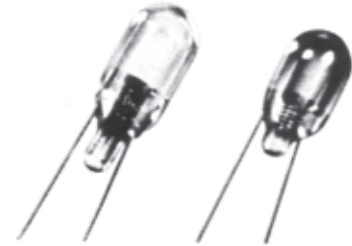
Available in Full Range of Types and Sizes

- GE halogen-cycle lamps are available in voltages ranging from 4 to 32.
- Candlepower ranges from 3.8 to 660.
- Lamp sizes range from 7.5mm subminiature to 16mm miniature diameters.
- Sockets for GE halogen-cycle lamps are commercially available from a number of manufacturers.*

* For Halogen Lamp Types see "Turquoise Lamp Number" in Miniature & Sealed Beam Lamp Specifications.



Halogen-cycle lamp versus conventional incandescent lamp of equivalent wattage. Note the smaller size of the halogen lamp on the left.



Halogen-cycle lamp versus vacuum incandescent lamp at 70% lamp of life. Note the bulb blackening of the incandescent lamp on the right.

HALOGEN LAMPS & SEALED BEAM - DESIGN FEATURES

GE Manufactures Four Types of Halogen-Cycle Lamps:

Glass Halogen Miniature Lamps

- Increased range in candlepower and wattages of these halogen-cycle lamps allows for many new and current design applications.
- Lamp design consists of a hemispherical bulb top with more uniform light output than a top-tipped halogen lamp.
- Sturdy nickel-plated iron leads in two-pin types allow for positive electrical connection, minimizing voltage drops due to intermittent connections.
- Although these lamps can be damaged by thermal shock, they are not subject to devitrification.
- Electrical connections to lamps offered with molybdenum leads can be made by crimping or welding.

Quartzline® Fused-Quartz Miniature Lamps

- Normally used in special applications, but can also be used in many general applications if the designer chooses.
- Can withstand thermal shock - i.e. it will not crack or break even when suddenly exposed to water or ice.

Glass Halogen and Quartzline® Fused-Quartz Sealed Beam Lamps

- Designated in this catalog by the prefixes "H" and "Q".
- Can be used in many applications to take advantage of their higher light output compared with standard incandescent sealed beam lamps.
- Standard PAR36, PAR46, PAR56, PAR64 & rectangle 140mm, 150mm, 165mm & 200 mm sizes allow possible use in existing housings.
- Several different beam patterns are available for a variety of applications.

Consider These Factors When Selecting GE Halogen-Cycle and High Wattage Lamps:

Lamp Efficacy and Operating Precautions.

Many lamps listed in this catalog are filled to high internal gas pressures to maximize lamp efficacy (candlepower or lumens per watt). Because both lamp bulb material and pressure vary by lamp design, different SAFETY notices apply. Be sure to read the appropriate notice(s) for the lamp(s) you select.

High Operating Temperatures

Because operating temperatures (watts plus environment) are critical to the effectiveness of the self-cleaning properties of halogen-cycle lamps, bulb wall temperatures should not go below 250°C. Hot spots on the bulb wall itself can go as high as 700°C in normal operation. Substantial heat is generated in all halogen-cycle lamps, so allowances should be made for the dissipation of excessive heat in equipment design. Certain lamps and extremely confined fixtures may require additional ventilation or heat sinking to ensure proper operation of the halogen cycle and prevent damage to the fixture. It is a good practice to test the lamp in the operating environment early in the design cycle to ensure adequate performance. Precautions must be taken in the selection of materials for lampholders, reflectors, and lamp housings because the 700°C bulb wall temperature is greater than the kindling temperatures of many materials. Lamp base temperatures should not exceed 350°C because, above that point, lead wires may deteriorate and the basing cement may loosen, causing premature lamp failure.

Distribution of Spectral Radiation

Halogen-cycle lamps offer great amounts of visible and infrared energy from a small light source, with about 90% of the energy in the infrared. Some GE lamps can be used for special applications where small amounts of ultraviolet energy are required.

DESIGN FEATURES - MINIATURE LAMPS

Consider These Factors When Selecting GE Miniature Lamps:

Light Quantity and Quality

Where an object or surface is to be illuminated, the quantity of light required depends upon the size of the object, the brightness desired, the contrast with its background, and the time available for seeing.

Where light must be projected, either a separate reflector and lamp or a reflectorized lamp may be required. Consideration should be given to beam candlepower and beam spread.

The spectral quality of color of light can be modified by external filters or coatings applied to the bulb.

Light, Life, and Voltage

For any particular lamp, the light output and life depend upon the voltage at which a lamp is operated. For instance, as approximations, the light output varies as the 3.6 power of the voltage and the life varies inversely as the 12th power of the voltage. Chart I and Table I illustrate the effect of overvoltage or undervoltage applied to a lamp on its current, life, and light (candlepower) output. Indicated values (except for long-life lamps) are reasonably valid, between 95% and 110% rated volts. Beyond that, indicated characteristics may not be realized because of the increasing influence of factors which cannot be incorporated into the chart. The chart applies only to D.C. or sine-wave A.C. current, considering the applicable footnotes pertaining to published life. The data, particularly for lamp life, do not apply accurately for lamp operation on half-wave rectified voltage, semi-conductor dimming devices, and constant-current operation.

Mechanical Strength

Low-voltage, high-current incandescent lamps are best suited for operation under conditions of shocks and vibration. Other factors affecting strength are the resonant frequency of lead wires and filament form. Where rough service conditions are encountered, screw base lamps should be avoided since they may loosen in their sockets. Higher voltage lamps of similar light output and life have longer, thinner filaments which are more prone to shock and vibration failures.

Power Sources

In battery applications, the mean effective voltage delivered is generally higher than the average volts. The mean effective voltage, therefore, should be the design voltage of the lamp. Design voltages for flashlight lamps have been determined by extensive tests.

Filament lamp ratings are predicated on operation at a constant voltage. When operated from a higher-than-rated voltage in series with a dropping resistor, the effect is the same as operating at a constant current. Since the lamp resistance changes with operating life, the voltage drop across the lamp will increase; hence, the lamp life experienced will generally be about one half that resulting from constant-voltage operation.

When selecting a transformer or resistor, consideration should be given to lamp ampere tolerances and the regulation characteristics of the component.

Since integrated circuit applications are operated on D.C. and, in general, constant current, lamps used with them offer less life than applications where A.C. voltage and higher current can be tolerated. This is because the D.C. notching phenomenon occurs in greater percentage on low-current lamps, and the life is approximately 50% under constant current than that under controlled voltage. This half-life on constant current occurs because the filament is evaporating and becoming smaller as the lamp is operating, gradually increasing in resistance and requiring a rise in voltage to maintain a constant current value. This, in turn, increases the wattage and the filament temperature, causing an increase in the efficiency of the lamp.

Space

Tolerances of bulb diameters, light center lengths, and overall lengths should be carefully considered by designers when specifying lamp housings. These tolerances and more-detailed drawings are available from your local GE Lamp Representative.

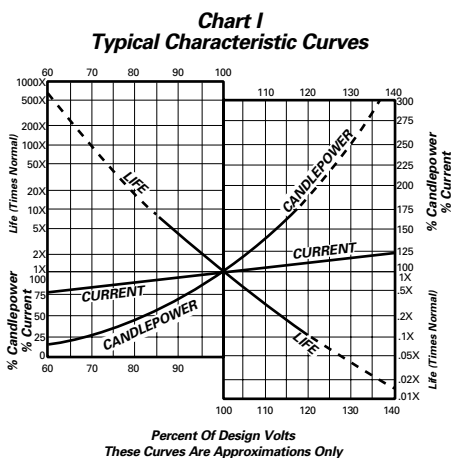


Table I

| Underrated Bulb Voltages (100%<=) | | | | Overrated Bulb Voltages (100%>=) | | | |
|-----------------------------------|--------|--------|--------|----------------------------------|--------|--------|--------|
| Volts % | Amps % | MSCP % | Life % | Volts % | Amps % | MSCP % | Life % |
| 99 | 99.4 | 96.5 | 112.8 | 101 | 100.5 | 103.5 | 88.7 |
| 98 | 98.9 | 93.2 | 127.4 | 102 | 101.1 | 107.2 | 78.8 |
| 97 | 98.3 | 89.9 | 144.1 | 103 | 101.6 | 110.9 | 70.1 |
| 96 | 97.8 | 86.7 | 163.2 | 104 | 102.2 | 114.7 | 62.5 |
| 95 | 97.2 | 83.6 | 185.1 | 105 | 102.7 | 118.6 | 55.7 |
| 90 | 94.4 | 69.2 | 354.1 | 110 | 105.4 | 139.6 | 31.9 |
| 85 | 91.4 | 56.6 | 703.0 | 115 | 108.0 | 163.1 | 18.7 |
| 80 | 88.5 | 45.8 | 1455.2 | 120 | 110.5 | 189.3 | 11.2 |
| 75 | 85.4 | 36.5 | 3156.9 | 125 | 113.1 | 218.4 | 6.9 |
| 70 | 82.2 | 28.7 | 7224.8 | 130 | 115.5 | 250.5 | 4.3 |

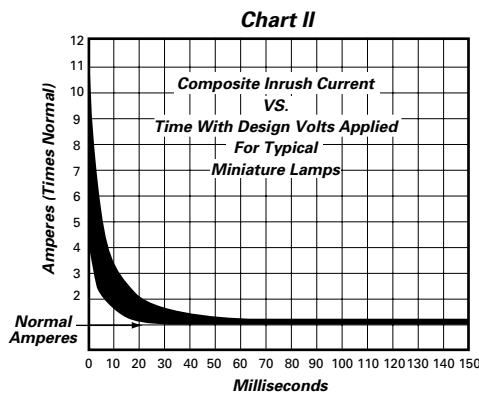
NOTE: Calculations of characteristics shown in Chart I and Table I are approximate only between 95% and 110% of rated voltage for lamp types with 5,000 hours life or less. Certain lamp types will vary widely from calculated values. This chart will not apply to lamps with lives in excess of 5,000 hours or to halogen-cycle lamps. Consult your local GE Lamp Representative for application information.

Ambient Temperature

It is important to consider the lamp housing from the standpoints of radiation, absorption, and ventilation. Normal variations in ambient temperature do not affect the performance of miniature lamps. Above 175°C (350°F), the solder on conventional lamps may soften, deform, or melt, and the basing cement may loosen. All-glass wedge base lamps can be operated in lamp ambient temperatures of up to 230°C (450°F).

Inrush Current

The initial current through a filament is called the inrush current. Cold resistance of a filament is generally considered to be that of room temperature, while the hot resistance depends upon the temperature of the filament (which varies with lamp size). Inrush current can be approximately 12 times as great as the normal operating current. This maximum value is seldom reached because the impedance in the circuit reduces it. However, equipment designers should take both inrush current and resistance into consideration when selecting a lamp. Chart II displays the general range of inrush current versus time after voltage is applied to a cold lamp. Inrush current can be reduced by applying a low value of pre-heat voltage.



Tungsten filaments are more fragile at temperatures below the 250°C brittle-ductile region. This fragility can be reduced by using a keep-alive voltage or current in the off condition. A general recommendation for keep-alive requirements is 25% of the design voltage or current. This will reduce the inrush current from approximately 12 times to 4 times, depending upon the lamp type.

Incandescence and Nigrescence

The rate of rise and decay time depends upon the mass of the filament to be heated. In general, the incandescence (rise time) to 90% brightness is about 100 to 300 milliseconds, and the nigrescence (decay time) is about 40 to 100 milliseconds. These values vary with each lamp type. The times are directly related to the lamp current; therefore, low-current lamps have the fastest response times.

Flashing and Pulsing

Incandescent lamps have been used successfully in flashing and pulsing circuits. However, this may affect lamp life in some cases. For more information, contact your local GE Lamp Representative.

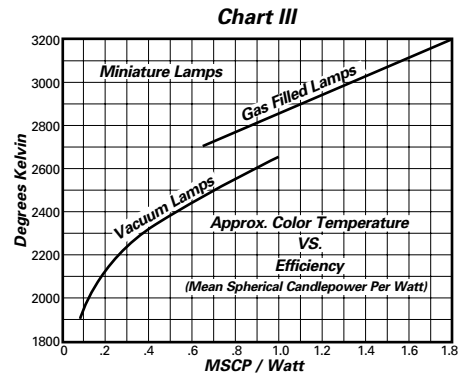
Redundant System Philosophy

Two-filament lamps with filaments connected in parallel for additional reliability are not new. Experience has shown, however, that in many cases, the second filament has failed by the time it is needed. Thus, these lamps have never become very popular.

A more reliable system would be to use two or more lamps operating at the same time. Since they are physically separated from each other, it is easy to see when one has failed. This lamp can be replaced immediately, prior to the failure of the second lamp.

Color Temperature

The radiation from tungsten filaments used in General Electric lamps is similar to that from a "black body" at specific temperatures. This can be determined approximately from Chart III. Use the published lamp ratings (or estimated derated values) in this catalog. The catalog indicates whether a lamp is vacuum or gas-filled.



Lamp Life

Rated average life is that obtained in closely controlled laboratory testing of lamps on 60 Hertz Alternating Current at their design voltage. Certain lamps are tested with Direct Current and are footnoted accordingly. Very long life lamps are generally rated on the basis of extrapolated laboratory test data. Service conditions such as shocks, vibration, voltage fluctuations, temperature, etc., may contribute to a shorter average service life.

Ordinarily, for still-rack operation, normal tungsten filament evaporation is the basic force or mechanism controlling incandescent lamp life. Where normal filament evaporation is the dominant failure mechanism, lamps should reach their design-predicted lifetimes.

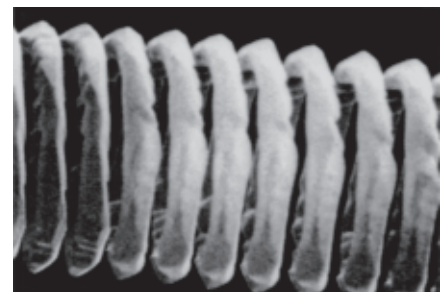
Another filament mechanism has been identified which may reduce life to one-half or much less of its design-predicted value. It is commonly referred to as "filament notching." Notching is the appearance of step-like or sawtooth irregularities, appearing on all or part of the tungsten filament surface, after extensive (e.g. 3000Hrs) burning.

These notches reduce the filament wire diameter at various points. In some cases, especially in fine-wire diameter lamps, the notching is so severe as to almost penetrate the entire wire diameter. Thus accelerated spot evaporation due to this notching (as well as reduced filament strength) now becomes the dominant mechanism for influencing lamp life. Because of its abnormal evaporation and/or reduced strength effects, lamp lifetimes due to notching are substantially lessened.

Notching has been due to at least three factors:

1. Low-temperature filament operation, less than that for significant normal tungsten evaporation.
2. Small filament-wire sizes, less than one mil (.001") diameter in many cases, typical of low- amperage lamps.
3. Increased use of D.C. voltage operation

Subminiature lamps, those with bulb sizes of T-2 and below, have been the most susceptible candidates for filament notching. Since notching is very difficult to predict, it is recommended that lamps susceptible to this phenomenon be easily replaceable in their applications.



An example of filament notching.