

MICRO & SUBMINIATURE LAMPS

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CERTIFIED ISO/TS 16949



CERTIFIED ISO 9001



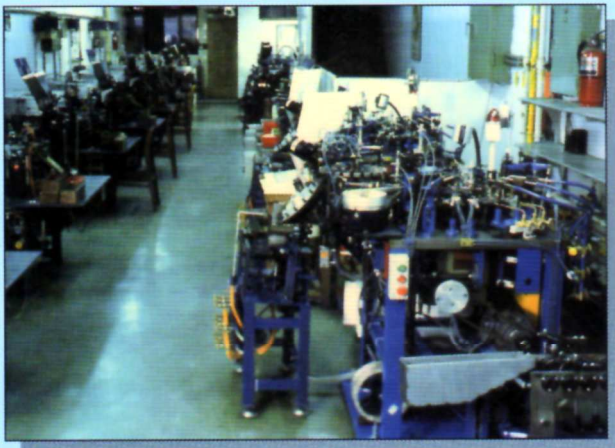
TAIWAN HEAD OFFICE



THAILAND FACTORY I



MACHINE EQUIPMENTS



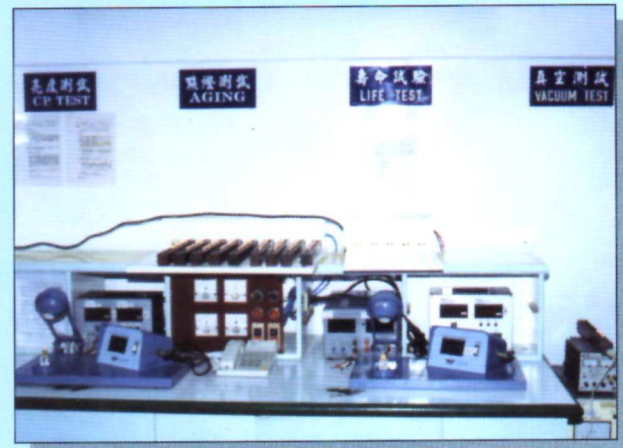
THAILAND FACTORY II



PRODUCTION LINES



TESTING



MICRO & SUBMINIATURE LAMPS

INTRODUCTION

We are the biggest Micro & Sub miniature Lamp's manufacturers in Taiwan since 1978. Years of experience, engineering in R & D plus fully automatic equipments ensure our products of high quality. Our capacity exceeds ten million pieces per month. We offer a wide range of indicate lamps for aircrafts, auto panel, radios, Hi-Fi stereos, LCD watches/clocks, camera panel, computers, meters, switches and etc., and serial lamps for decoration and lamps for other industrial and consumptive products.

BULB SIZES : T3/8, T1/2, T3/4, T1, T1-1/4, T1-3/4, T2, T3, T4 and T5 etc.

BULB DIAMETERS from 1.2mm to 15mm. etc.

Other sizes and diameters and various finishes (bulbs in colour coating or colored filter, frosted bulbs, lens bulbs... etc.) are available to meet your specification requirements.

ELECTRIC DATA

Design volts (V) show the voltage at which a lamp is designed for rated ampere, candlepower and laboratory-life characteristics.

Design amperes (mA) are the current flowing through a lamp when operated at its design voltage. It is subject to nominal manufacturing tolerances $\pm 10\%$.

Mean spherical candle power (MSCP) The MSCP is the generally accepted method used to indicate the brightness of miniature lamps; it is the total value emitted from a lamp placed at the center of a circle having a specified diameter. The standard lamp calibrated by National Bureau of Standards is used in determining this value. MSCP can be converted into lumens by multiplying MSCP by 4π ($12,57 \times \text{MSCP} = \text{lumens}$).

Average laboratory life (h) Lifetime indicated is based upon test data recorded under strictly controlled laboratory conditions. Under normal operating conditions, however, lifetime may be shorter due to factors such as voltage fluctuation, shock, vibration, temperature, and other environmental and operation conditions.

MOL (Maximum Overall Length)

MOL is measured from the bottom of the base (or bottom of glass tip for unbased lamps) to the top of the envelope.

MOD (Maximum Outside Dia.)

MOD is a measurement across the largest part of the envelope.

LCL (Light Center Length)

LCL is a measurement from the geometric center of the filament to: Flange Base – top of flange, Grooved Base – center of groove, Bi-Pin Base – flat bottom, Screw Base – bottom of center contact, Bayonet Base – top of base pin, Wedge Base – center of notch, SC or DC Prefocus Base – bottom of indentations on prefocus collar, Wire Terminal – not specified.

Filament Shapes

The filament is the light emitting portion of the lamp. Its configuration is identified by the prefix letter – S for straight, C for coiled and CC for coiled coil (double coil).

QUALITY CONTROL

The lamp features highly reliable design for life-, vibration-, shock-, drop-, vacuum-, and atmospheric resistance- testing to ensure durability.

Life test

Life time of lamps is generally determined by the following equation.

IEC Specification (International Electrical Commission) "Tungsten Filament Lamps for General Use"
 The equivalent life for rated voltage shall be determined in accordance with the following equation.

$$L_o = L \left(\frac{V}{V_o} \right)^n$$

- L_oLife at rated voltage
- LLife at test voltage
- V_oRated voltage
- VAverage voltage during life test
- n = 13 vacuum lamps; 14 gas filled lamps

IES Specification (Illumination Engineering Society)
 "Lighting Hand Book"

$$L_o = L \left(\frac{V}{V_o} \right)^n$$

- n = 13.5 vacuum lamps; 13.1 gas filled lamps

Vibration test

All specification requirements must be met before and after vibration for 30 minutes. The test condition:

- 1) Frequency cycled : 2,000 rpm.
- 2) Amplitude : 2mm.
- 3) Vibration shall be up and down, forward and backward, right and left with the lamps mounted on a horizontal plane.

Shock test

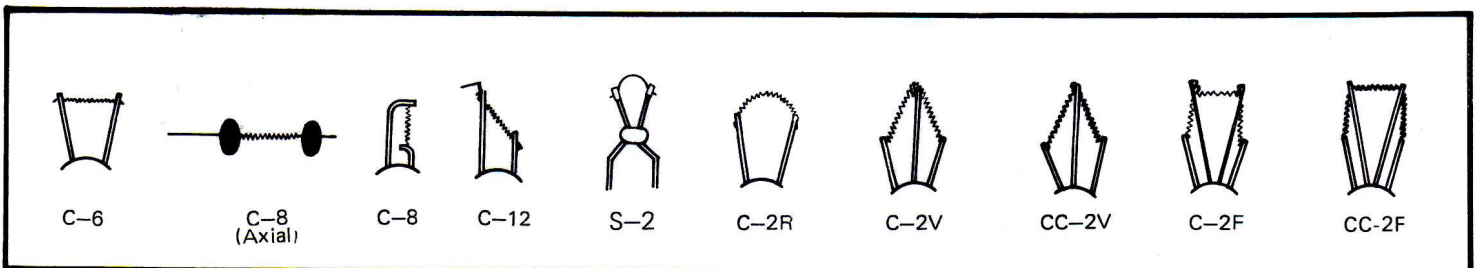
All specification requirements must be met before and after shock test for 3 times. The test condition let the lamp mounted on a board and force the lamp drop from 20cm high onto the bottom board.

Aging

"Aging" is one of the most important and indispensable procedures for stabilizing the quality of the lamps after production.

Each lamp, after being moved away from production line, is continuously lighted for 2-10 hours in design voltage according to its average life and application. This is called "aging". During the first few lighting hours the characteristics of the filament of an incandescent lamp change unstably. All specification requirements must be met by selection after aging of a lamp. Furthermore, aging is an important method to find out short circuit and vacuum leakage, which can not be found within short time of lighting. Only after aging will the filament of a vacuum-deficient lamp evaporate and cause the blackening of the inside bulb glass which can be discerned with naked eyes.

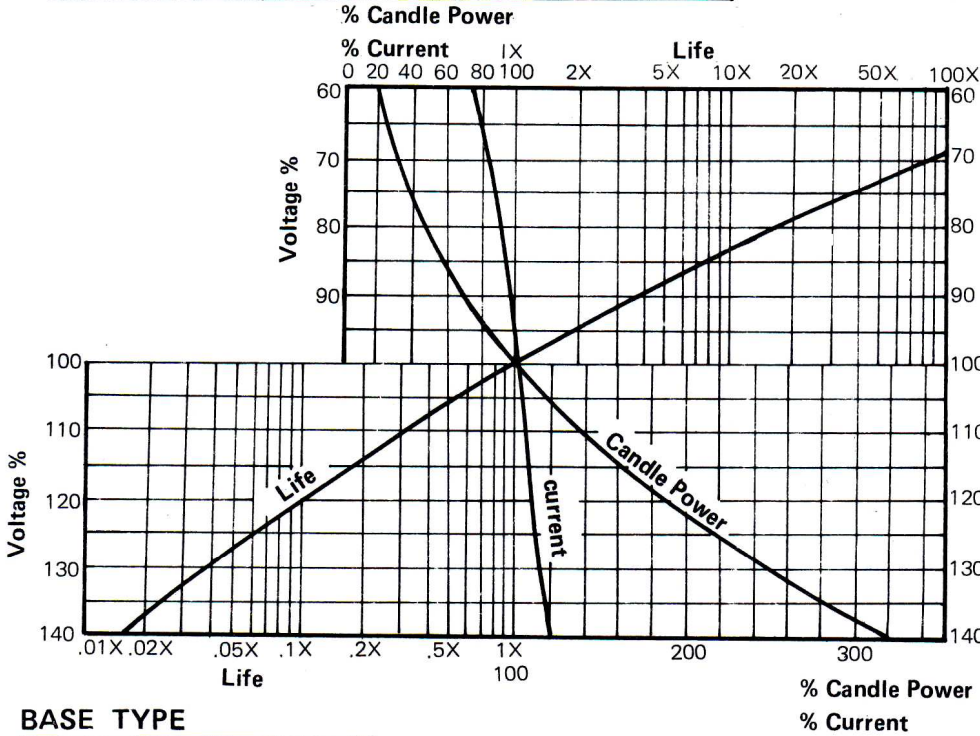
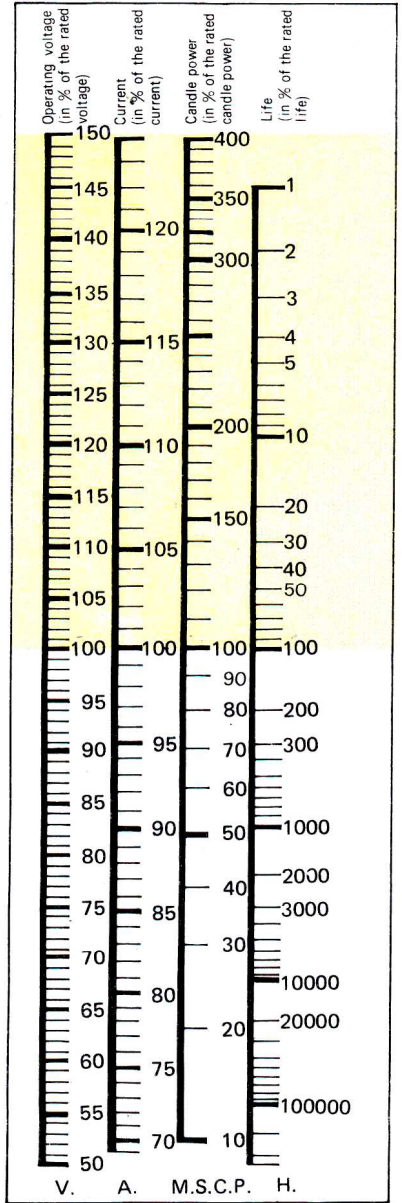
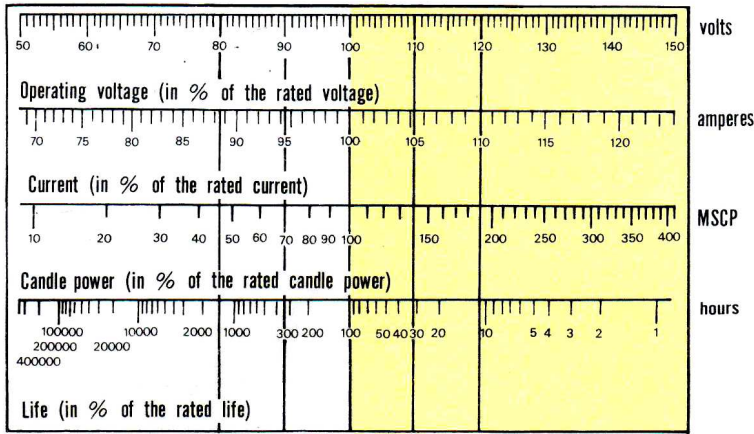
FILAMENT SHAPE



C = coil, CC = coiled-coil (double coil), S = straight

RELATION BETWEEN VOLTAGE, CURRENT, CANDLE POWER AND LIFE

Current, candle power and life in relation to the operating voltage



BASE TYPE

Wire Terminal			
Bi-Pin T 1/1.27 T1 1/4 T 1/2.54 T1 3/4	Midget Grooved MG 5.7S/g	Midget Screw E5/8	Axial Lead
Micro-Midget Flanged MM3S/6	Midget Bayonet BA 5S BA 7S	Miniature Screw E10/13	SF Type
Sub Midget Flanged SM 4S/4 SM 4S/7	Miniature Bayonet BA9S	Candelabra Screw E12/15	Snap Type
SM5S/8	S. C. Bayonet BA15S	Mignon Screw E14	Telephone Slide
S.C. Midget Flanged MF6S/8	D. C. Bayonet BA15D	Intermediate Screw E17/20	Wedge
S.C. Miniature Flanged	D. C. Indexing BAY15D	Special	Midget Screw E5 with lead wire
Lead Wires without Base		Nylon Resin Base	
Bond-Coated Neck		Metal Base	
Heat Shrinkable Tube		Silicon Rubber Base	

T-3/8

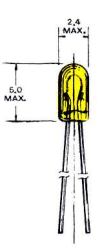
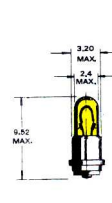
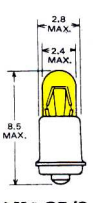
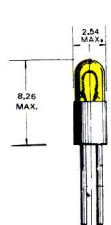

1.2mm (DIAMETER)


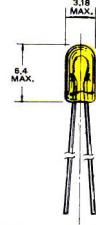
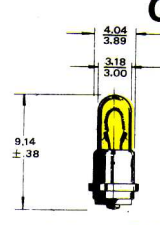
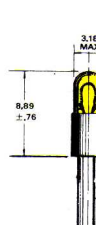
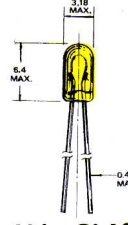
Voltage (V)	Current (A)	Candle Power (cp)	Life (h)	Filament Shape	Diagram			D	E
					A	B	C		
					WIRE TERMINAL	AXIAL WIRE TERMINAL	INSULATED WIRE LEAD		
1.5	.012	.0050	20	C-6	KH1-015-012A	KH1-015-012B	KH1-015-012C		
1.5	.015	.0040	60	C-6	KH1-015-015A-1	KH1-015-015B-1	KH1-015-015C-1		
1.5	.015	.0035	100	C-6	KH1-015-015A-2	KH1-015-015B-2	KH1-015-015C-2		
1.5	.015	.0025	500	C-6	KH1-015-015A-3	KH1-015-015B-3	KH1-015-015C-3		
1.5	.015	.0022	1,000	C-6	KH1-015-015A-4	KH1-015-015B-4	KH1-015-015C-4		
1.5	.040	.013	1,000	C-6	KH1-015-040A	KH1-015-040B	KH1-015-040C		
3.0	.015	.02	1,000	C-6	KH1-030-015A	KH1-030-015B	KH1-030-015C		
3.0	.040	.04	1,000	C-6	KH1-030-040A	KH1-030-040B	KH1-030-040C		

T-1/2

1.7mm (DIAMETER)

Voltage (V)	Current (A)	Candle Power (cp)	Life (h)	Filament Shape	Diagram			D	E
					A	B	C		
					WIRE TERMINAL	BI-PIN	INSULATED WIRE LEAD		
1.5	.090	.003	5,000	C-2R	KH17-015-090A	KH17-015-090B	KH17-015-090C		
2.5	.110	.001	10,000	C-2R	KH17-025-110A	KH17-025-110B	KH17-025-110C		
4.5	.021	.017	5,000	C-2R	KH17-045-021A	KH17-045-021B	KH17-045-021C		
5.0	.015	.02	1,000	C-2R	KH17-050-015A	KH17-050-015B	KH17-050-015C		
5.0	.021	.034	10,000	C-2R	KH17-050-021A	KH17-050-021B	KH17-050-021C		
5.0	.060	.03	1,000,000	C-2R	KH17-050-060A-1	KH17-050-060B-1	KH17-050-060C-1		
5.0	.060	.05	100,000	C-2R	KH17-050-060A-2	KH17-050-060B-2	KH17-050-060C-2		
5.0	.060	.15	3,000	C-2R	KH17-050-060A-3	KH17-050-060B-3	KH17-050-060C-3		
5.0	.075	.09	25,000	C-2R	KH17-050-075A	KH17-050-075B	KH17-050-075C		
5.0	.080	.15	15,000	C-2R	KH17-050-080A	KH17-050-080B	KH17-050-080C		
5.0	.115	.15	40,000	C-2R	KH17-050-115A-1	KH17-050-115B-1	KH17-050-115C-1		
5.0	.115	.20	5,000	C-2R	KH17-050-115A-2	KH17-050-115B-2	KH17-050-115C-2		
6.0	.050	.045	16,000	C-2V	KH17-060-050A-1	KH17-060-050B-1	KH17-060-050C-1		
6.0	.050	.05	5,000	C-2V	KH17-060-050A-2	KH17-060-050B-2	KH17-060-050C-2		
8.0	.050	.06	5,000	C-2V	KH17-080-050A	KH17-080-050B	KH17-080-050C		
9.0	.030	.05	1,000	C-2V	KH17-090-030A	KH17-090-030B	KH17-090-030C		
10.0	.030	.09	1,000	C-2V	KH17-100-030A	KH17-100-030B	KH17-100-030C		
12.0	.030	.03	16,000	C-2V	KH17-120-030A	KH17-120-030B	KH17-120-030C		
12.0	.050	.07	16,000	C-2V	KH17-120-050A-1	KH17-120-050B-1	KH17-120-050C-1		
12.0	.050	.12	5,000	C-2V	KH17-120-050A-2	KH17-120-050B-2	KH17-120-050C-2		
12.0	.060	.15	16,000	C-2V	KH17-120-060A	KH17-120-060B	KH17-120-060C		
14.0	.030	.099	16,000	C-2V	KH17-140-030A	KH17-140-030B	KH17-140-030C		
14.0	.050	.18	16,000	C-2V	KH17-140-050A	KH17-140-050B	KH17-140-050C		
16.0	.030	.065	10,000	C-2V	KH17-160-030A	KH17-160-030B	KH17-160-030C		
24.0	.020	.035	5,000	CC-2V	KH17-240-020A	KH17-240-020B	KH17-240-020C		
28.0	.020	.05	7,000	CC-2V	KH17-280-020A-1	KH17-280-020B-1	KH17-280-020C-1		
28.0	.020	.08	2,000	CC-2V	KH17-280-020A-2	KH17-280-020B-2	KH17-280-020C-2		

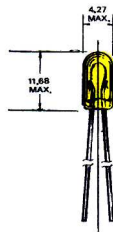
<h1 style="margin: 0;">T-3/4</h1> <h2 style="margin: 0;">2.4mm (DIAMETER)</h2>					 A	 B	 C	 D	 E
Voltage (V)	Current (A)	Candle Power [cp]	Life (h)	Filament Shape	WIRE TERMINAL	MICRO-MIDGET FLANGED	MM 3S/6 MICRO MIDGET FLANGED	BI-PIN	INSULATED WIRE LEAD
1.0	.040	.002	5,000	S-2	KH2-010-040A	KH2-010-040B	KH2-010-040C	KH2-010-040D	KH2-010-040E
1.0	.045	.0055	2,000	S-2	KH2-010-045A	KH2-010-045B	KH2-010-045C	KH2-010-045D	KH2-010-045E
1.2	.050	.010	100	S-2	KH2-012-050A	KH2-012-050B	KH2-012-050C	KH2-012-050D	KH2-012-050E
1.5	.015	.0025	1,000	C-2R	KH2-015-015A	KH2-015-015B	KH2-015-015C	KH2-015-015D	KH2-015-015E
1.5	.040	.013	1,000	C-2R	KH2-015-040A	KH2-015-040B	KH2-015-040C	KH2-015-040D	KH2-015-040E
1.5	.090	.02	5,000	C-2R	KH 7100	KH 3810	KH2-015-090C	KH 7810	KH2-015-090E
2.0	.050	.03	1,000	C-2R	KH2-020-050A	KH2-020-050B	KH2-020-050C	KH2-020-050D	KH2-020-050E
2.5	.110	.06	10,000	C-2R	KH 8534	KH 7121	KH2-025-110C	KH 7111	KH2-025-110E
4.0	.050	.07	2,000	C-2R	KH2-040-050A	KH2-040-050B	KH2-040-050C	KH2-040-050D	KH2-040-050E
4.0	.100	.15	1,000	C-2R	KH2-040-100A	KH2-040-100B	KH2-040-100C	KH2-040-100D	KH2-040-100E
4.0	.115	.15	15,000	C-2R	KH2-040-115A	KH2-040-115B	KH2-040-115C	KH2-040-115D	KH2-040-115E
4.5	.021	.03	5,000	C-2R	KH 30	KH2-045-021B	KH2-045-021C	KH2-040-021D	KH2-045-021E
5.0	.015	.02	1,000	C-2R	KH 8537	KH 8538	KH2-050-015C	KH 7538	KH2-050-015E
5.0	.021	.034	10,000	C-2R	KH 2	KH 7122	KH2-050-021C	KH 7112	KH2-050-021E
5.0	.060	.03	1,000,000	C-2R	KH 6803	KH 8587	KH2-050-060C-1	KH 7113	KH2-050-060E-1
5.0	.060	.05	100,000	C-2R	KH 6833	KH 8913	KH2-050-060C-2	KH 7114	KH2-050-060E-2
5.0	.060	.15	3,000	C-2R	KH 6153	KH 6183	KH2-050-060C-3	KH 7115	KH2-050-060E-3
5.0	.075	.09	25,000	C-2R	KH 7133	KH 8828	KH2-050-075C	KH 7116	KH2-050-075E
5.0	.080	.15	15,000	C-2R	KH 8666	KH 8383	KH2-050-080C	KH 7117	KH2-050-080E
5.0	.115	.15	40,000	C-2R	KH 7153	KH 8270	KH2-050-115C-1	KH 7118	KH2-050-115E-1
5.0	.115	.20	5,000	C-2R	KH 7102	KH 7123	KH2-050-115C-2	KH 7119	KH2-050-115E-2
6.0	.050	.04	16,000	C-2V	KH2-060-050A-1	KH2-060-050B-1	KH2-060-050C-1	KH2-060-050D-1	KH2-060-050E-1
6.0	.050	.045	5,000	C-2V	KH2-060-050A-2	KH2-060-050B-2	KH2-060-050C-2	KH2-060-050D-2	KH2-060-050E-2
8.0	.050	.06	5,000	C-2V	KH2-080-050A	KH2-080-050B	KH2-080-050C	KH2-080-050D	KH2-080-050E
9.0	.030	.40	1,000	C-2V	KH2-090-030A	KH2-090-030B	KH2-090-030C	KH2-090-030D	KH2-090-030E
10.0	.030	.09	1,000	C-2V	KH2-100-030A	KH2-100-030B	KH2-100-030C	KH2-100-030D	KH2-100-030E
12.0	.030	.055	16,000	C-2F	KH2-120-030A	KH2-120-030B	KH2-120-030C	KH2-120-030D	KH2-120-030E
12.0	.050	.09	16,000	C-2F	KH2-120-050A-1	KH2-120-050B-1	KH2-120-050C-1	KH2-120-050D-1	KH2-120-050E-1
12.0	.050	.12	5,000	C-2F	KH2-120-050A-2	KH2-120-050B-2	KH2-120-050C-2	KH2-120-050D-2	KH2-120-050E-2
12.0	.060	.15	16,000	C-2F	KH2-120-060A	KH2-120-060B	KH2-120-060C	KH2-120-060D	KH2-120-060E
14.0	.030	.08	16,000	C-2F	KH2-140-030A	KH2-140-030B	KH2-140-030C	KH2-140-030D	KH2-140-030E
14.0	.050	.13	16,000	C-2F	KH2-140-050A	KH2-140-050B	KH2-140-050C	KH2-140-050D	KH2-140-050E
16.0	.030	.09	10,000	C-2F	KH2-160-030A	KH2-160-030B	KH2-160-030C	KH2-160-030D	KH2-160-030E
24.0	.020	.05	5,000	CC-2V	KH2-240-020A	KH2-240-020B	KH2-240-020C	KH2-240-020D	KH2-240-020E
28.0	.020	.06	7,000	CC-2V	KH2-280-020A-1	KH2-280-020B-1	KH2-280-020C-1	KH2-280-020D-1	KH2-280-020E-1
28.0	.020	.08	2,000	CC-2V	KH2-280-020A-2	KH2-280-020B-2	KH2-280-020C-2	KH2-280-020D-2	KH2-280-020E-2

T-1 3.2mm (DIAMETER)									
Voltage (V)	Current (A)	Candle Power (cp)	Life (h)	Filament Shape	SHORT WIRE TERMINAL	STANDARD WIRE TERMINAL	SUB-MIDGET FLANGED	BI-PIN	ALL GLASS BI-PIN ECONO-BI-PIN
1.25 1.35 1.5	.012 .220 .075	.004 .02 .03	1,000 25,000 16,000	C-6 C-2R C-2R	KH3-0125-012A KH3-0135-220A KH3-015-075A	KH 8798 KH 8910 KH 7203	KH 7244 KH 7245 KH 8102	KH 7252 KH 7253 KH 7255	KH3-0125-012E KH3-0135-220E KH3-015-075E
2.5 2.5 2.5	.015 .100 .320	.001 .10 .21	10,000 10,000 5,000	C-2R C-2R C-2R	KH3-025-015A KH3-025-100A KH3-025-320A	KH 8601 KH 8732 KH 8711	KH 7246 KH 7247 KH 7248	KH 7256 KH 7732 KH 7257	KH3-025-015E KH3-025-100E KH3-025-320E
3.0 3.0 5.0	.008 .0125 .017	.001 .001 .005	16,000 16,000 10,000	C-2R C-2R C-2R	KH3-030-008A KH3-030-0125A KH3-050-017A	KH 8846 KH 2128 KH 8602	KH 7249 KH 679 KH 8605	KH 7258 KH 7259 KH 7262	KH3-030-008E KH3-030-0125E KH3-050-017E
5.0 5.0 5.0	.021 .030 .045	.034 .03 .04	10,000 16,000 10,000	C-2R C-2R C-2R	KH 2022 KH3-050-030A KH3-050-045A	KH 6022 KH 7210 KH 8729	KH 8022 KH7234 KH7250	KH 7022 KH 7263 KH 7264	KH3-050-021E KH3-050-030E KH3-050-045E
5.0 5.0 5.0	.060 .060 .060	.03 .05 .15	1,000,000 100,000 5,000	C-2R C-2R C-2R	KH 6802 KH 6832 KH 6152	KH 680 KH 683 KH 6150	KH 682 KH 685 KH 6180	KH7680 KH7683 KH7265	KH3-050-060E-1 KH3-050-060E-2 KH3-050-060E-3
5.0 5.0 5.0 5.0	.075 .080 .115 .125	.09 .16 .15 .22	25,000 3,000 40,000 5,000	C-2R C-2R C-2R C-2R	KH 7132 KH3-050-080A KH 7152 KH3-050-125A	KH 713 KH 7211 KH 715 KH 7216	KH 714 KH 7235 KH 718 KH 7239	KH 7714 KH 7266 KH 7715 KH 7268	KH3-050-075E KH3-050-080E KH3-050-115E KH3-050-125E
6.0 6.0 8.0 9.0	.040 .080 .060 .030	.06 .12 .12 .45	16,000 10,000 10,000 1,000	C-2R C-2R C-2F C-2V	KH3-060-040A KH3-060-080A KH3-080-060A KH3-090-030A	KH3-060-040B KH3-060-080B KH3-080-060B KH3-090-030B	KH3-060-040C KH3-060-080C KH3-080-060C KH3-090-030C	KH3-060-040D KH3-060-080D KH3-080-060D KH3-090-030D	KH3-060-040E KH3-060-080E KH3-080-060E KH3-090-030E
10.0 10.0 12.0 12.0	.027 .030 .030 .050	.10 .08 .055 .09	10,000 1,000 16,000 16,000	C-2F C-2F C-2F C-2F	KH3-100-027A KH3-100-030A KH3-120-030A KH3-120-050A-1	KH 7218 KH3-100-030B KH3-120-030B KH3-120-050-B-1	KH 7240 KH3-100-030C KH3-120-030C KH3-120-050C-1	KH 8095 KH3-100-030D KH3-120-030D KH3-120-050D-1	KH3-100-027E KH3-100-030E KH3-120-030E KH3-120-050E-1
12.0 12.0 14.0 14.0	.050 .060 .040 .050	.12 .15 .12 .13	5,000 16,000 16,000 16,000	C-2F C-2F C-2F C-2F	KH3-120-050A-2 KH3-120-060A KH3-140-040A KH3-140-050A	KH3-120-050B-2 KH 7219 KH3-140-040B KH3-140-050B	KH3-120-050C-2 KH 32 KH3-140-040C KH3-140-050C	KH3-120-050D-2 KH 8097 KH3-140-040D KH3-140-050D	KH3-120-050E-2 KH3-120-060E KH3-140-040E KH3-140-050E
14.0 16.0 18.0 24.0	.065 .030 .026 .020	.15 .09 .15 .05	16,000 10,000 16,000 5,000	C-2F C-2F C-2F CC-2F	KH3-140-065A KH3-160-030A KH3-180-026A KH3-240-020A	KH 8111 KH3-160-030B KH 7220 KH3-240-020B	KH 8112 KH3-160-030C KH 7241 KH3-240-020C	KH 8098 KH3-160-030D KH 8099 KH3-240-020D	KH3-140-065E KH3-160-030E KH3-180-026E KH3-240-020E
28.0 28.0 28.0	.020 .020 .024	.06 .08 .15	7,000 2,000 16,000	CC-2F CC-2F CC-2F	KH3-280-020A-1 KH3-280-020A-2 KH3-280-024A	KH3-280-020B-1 KH3-280-020B-2 KH 6838	KH3-280-020C-1 KH3-280-020C-2 KH 6839	KH3-280-020D-1 KH3-280-020D-2 KH 7839	KH3-280-020E-1 KH3-280-020E-2 KH3-280-024E



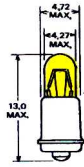
T-1 1/4

4mm (DIAMETER)



A

WIRE TERMINAL



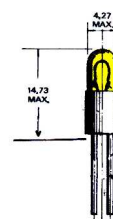
B

**SM5S/8
SPECIAL
MIDGET
FLANGED**



C

**SPECIAL
SCREW**



D

BI-PIN



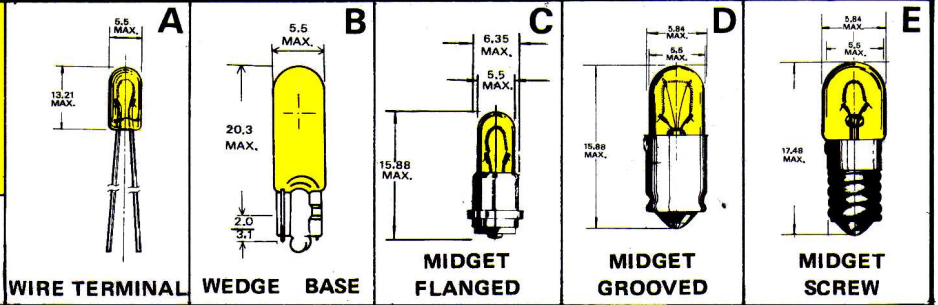
E

**INSULATED
WIRE LEAD**

Voltage (V)	Current (A)	Candle Power (cp)	Life (h)	Filament Shape					
1.3	.030	.006	100	S-2	KH 2135	KH 7302	KH 7303	KH 7306	KH4-013-030-E
1.35	.060	.006	500	C-2R	KH 8631	KH 8636	KH 8641	KH 7636	KH4-0135-060E
1.5	.075	.03	1,000	C-2R	KH4-015-075A	KH4-015-075B	KH4-015-075C	KH4-015-075D	KH4-015-075E
2.5	.100	.10	1,000	C-2R	KH4-025-100A	KH4-025-100B	KH4-025-100C	KH4-025-100D	KH4-025-100E
2.5	.320	.21	5,000	C-2R	KH4-025-320A	KH4-025-320B	KH4-025-320C	KH4-025-320D	KH4-025-320E
2.5	.400	.55	30	C-2R	KH 8655	KH 8656	KH 329	KH 7307	KH4-025-400E
3.0	.190	.25	350	C-2R	KH 324	KH 8637	KH 325	KH 7637	KH4-030-190E
5.0	.060	.03	1,000,000	C-2R	KH 580	KH 3582	KH 3580	KH 7580	KH4-050-060E-1
5.0	.060	.05	100,000	C-2R	KH 583	KH 3585	KH 3583	KH 7583	KH4-050-060E-2
5.0	.115	.15	40,000	C-2R	KH 515	KH 3518	KH 3515	KH 7515	KH4-050-115E
6.0	.030	.035	16,000	C-2R	KH4-060-030A	KH4-060-030B	KH4-060-030C	KH4-060-030D	KH4-060-030E
6.0	.040	.055	16,000	C-2R	KH4-060-040A	KH4-060-040B	KH4-060-040C	KH4-060-040D	KH4-060-040E
6.0	.060	.13	3,000	C-2R	KH 2114	KH 8541	KH 371	KH 7309	KH4-060-060E
6.0	.100	.20	5,000	C-2R	KH4-060-100A	KH4-060-100B	KH4-060-100C	KH4-060-100D	KH4-060-100E
6.0	.120	.20	20,000	C-2R	KH4-060-120A	KH4-060-120B	KH4-060-120C	KH4-060-120D	KH4-060-120E
6.0	.200	.63	1,000	C-2R	KH 634	KH 8628	KH 8645	KH 7628	KH4-060-200E
6.3	.200	.55	5,000	C-2R	KH 8610	KH 8551	KH 8552	KH 7310	KH4-063-200E
8.0	.060	.08	10,000	C-2F	KH4-080-060A	KH4-080-060B	KH4-080-060C	KH4-080-060D	KH4-080-060E
9.0	.040	.075	10,000	C-2V	KH4-090-040A	KH4-090-040B	KH4-090-040C	KH4-090-040D	KH4-090-040E
9.0	.060	.09	10,000	C-2F	KH4-090-060A	KH4-090-060B	KH4-090-060C	KH4-090-060D	KH4-090-060E
10.0	.070	.14	10,000	C-2F	KH4-100-070A	KH4-100-070B	KH4-100-070C	KH4-100-070D	KH4-100-070E
12.0	.040	.09	10,000	C-2F	KH4-120-040A	KH4-120-040B	KH4-120-040C	KH4-120-040D	KH4-120-040E
12.0	.050	.11	16,000	C-2F	KH4-120-050A	KH4-120-050B	KH4-120-050C	KH4-120-050D	KH4-120-050E
12.0	.080	.23	20,000	C-2F	KH4-120-080A	KH4-120-080B	KH4-120-080C	KH4-120-080D	KH4-120-080E
14.0	.080	.50	1,000	C-2F	KH 8640	KH 8646	KH 8644	KH 7646	KH4-140-080E
16.0	.030	.034	25,000	C-2F	KH4-160-030A	KH4-160-030B	KH4-160-030C	KH4-160-030D	KH4-160-030E
18.0	.026	.15	16,000	C-2F	KH4-180-026A	KH4-180-026B	KH4-180-026C	KH4-180-026D	KH4-180-026E
24.0	.040	.17	15,000	C-2F	KH4-240-040A	KH4-240-040B	KH4-240-040C	KH4-240-040D	KH4-240-040E
24.0	.050	.22	10,000	C-2F	KH4-240-050A	KH4-240-050B	KH4-240-050C	KH4-240-050D	KH4-240-050E
28.0	.020	.10	7,000	CC-2F	KH4-280-020A	KH4-280-020B	KH4-280-020C	KH4-280-020D	KH4-280-020E
28.0	.040	.25	25,000	C-2F	KH4-280-040A-1	KH4-280-040B-1	KH4-280-040C-1	KH4-280-040D-1	KH4-280-040E-1
28.0	.040	.30	7,000	C-2F	KH4-280-040A-2	KH4-280-040B-2	KH4-280-040C-2	KH4-280-040D-2	KH4-280-040E-2
28.0	.040	.32	1,000	C-2F	KH 8627	KH 8632	KH 8635	KH 7632	KH4-280-040E-3

T-1³/₄

4.85 mm, 5.5mm (DIAMETER)

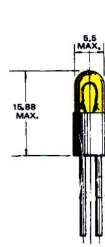


Voltage (V)	Current (A)	Candle Power (cp)	Life (h)	Filament Shape	WIRE TERMINAL	WEDGE BASE	MIDGET FLANGED	MIDGET GROOVED	MIDGET SCREW
1.35	.060	.01	500	C-2R	KH 1728	KH5-0135-060B	KH 331	KH 698	KH 8669
2.5	.200	.22	500	C-2R	KH 1783	KH5-025-020B	KH 368	KH 8699	KH 1769
2.5	.350	.21	10,000	C-2R	KH 2169	KH5-025-035B	KH 268	KH 266	KH 7312
2.7	.060	.04	6,000	C-2R	KH 1738	KH5-027-060B	KH 338	KH 8704	KH 8693
3.0	.015	.003	10,000	C-6	KH 2158	KH5-030-015B	KH 375	KH 390	KH 7313
3.0	.350	.30	10,000	C-2R	KH 8847	KH5-030-350B	KH 8848	KH 8849	KH 7314
4.5	.120	.15	25,000	C-2R	KH 2171	KH5-045-120B	KH 7331	KH 7345	KH 7315
5.0	.060	.03	1,000,000	C-2R	KH 8805	KH5-050-060B-1	KH 7332	KH 7346	KH 7316
5.0	.060	.05	100,000	C-2R	KH 2200	KH5-050-060B-2	KH 7333	KH 7347	KH 7318
5.0	.060	.15	2,000	C-2R	KH 3151	KH5-050-060B-3	KH 3150	KH 3152	KH 3153
5.0	.115	.15	40,000	C-2R	KH 2203	KH5-050-115B	KH 7335	KH 7348	KH 7319
5.0	.190	.45	1,000	C-2R	KH 8784	KH5-050-190B	KH 7334	KH 7350	KH 7317
6.0	.040	.055	10,000	C-2R	KH 1730	KH5-060-040B	KH 345	KH 8705	KH 342
6.0	.200	.25	50,000	C-2F	KH 8664	KH5-060-200B	KH 7336	KH 8706	KH 8687
6.0	.200	.60	1,000	C-2R	KH 1784	KH 79	KH 328	KH 337	KH 1768
6.3	.040	.03	50,000	C-2V	KH 2180	KH 84	KH 380	KH 7351	KH 7320
6.3	.075	.23	1,000	C-2R	KH 1739	KH5-063-075B	KH 37	KH 8708	KH 1775
6.3	.150	.45	3,000	C-2R	KH 8350	KH 16	KH 350	KH 7352	KH 7321
6.3	.200	.40	20,000	C-2F	KH 2181	KH 86	KH 381	KH 379	KH 378
6.3	.200	.55	5,000	C-2R	KH 2112	KH5-063-200B	KH 349	KH 398	KH 7323
8.0	.060	.08	10,000	C-2F	KH5-080-060A	KH5-080-060B	KH5-080-060C	KH5-080-060D	KH5-080-060E
9.0	.040	.07	10,000	C-2F	KH5-090-040A	KH5-090-040B	KH5-090-040C	KH5-090-040D	KH5-090-040E
10.0	.014	.004	50,000	C-2V	KH 1869	KH5-100-014B	KH 344	KH 709	KH 8691
10.0	.040	.07	5,000	C-2F	KH 2107	KH5-100-040B	KH 367	KH 397	KH 389
10.0	.070	.14	10,000	C-2F	KH5-100-070A	KH5-100-070B	KH5-100-070C	KH5-100-070D	KH5-100-070E
11.0	.022	.03	10,000	C-2F	KH 8946	KH5-110-022B	KH 7338	KH 7353	KH 7325
12.0	.040	.12	10,000	C-2F	KH 2174	KH5-120-040B	KH 394	KH 7354	KH 7326
12.0	.050	.14	16,000	C-2F	KH5-120-050A	KH5-120-050B	KH5-120-050C	KH5-120-050D	KH5-120-050E
12.0	.060	.12	10,000	C-2F	KH5-120-060A	KH5-120-060B	KH5-120-060C	KH5-120-060D	KH5-120-060E
12.0	.080	.22	25,000	C-2F	KH5-120-080A	KH5-120-080B	KH5-120-080C	KH5-120-080D	KH5-120-080E
12.0	.100	.30	10,000	C-2F	KH5-120-100A	KH5-120-100B	KH5-120-100C	KH5-120-100D	KH5-120-100E
14.0	.080	.30	50,000	C-2F	KH 2182	KH 73	KH 382	KH 386	KH 8362
14.0	.080	.50	1,500	C-2F	KH 1705	KH5-140-080B	KH 330	KH 336	KH 373
14.0	.100	.50	5,000	C-2F	KH 2162	KH 37	KH 8918	KH 393	KH 8162
14.0	.100	.70	500	C-2F	KH5-140-100A	KH 74	KH5-140-100C	KH5-140-100D	KH5-140-100E
18.0	.040	.15	10,000	C-2F	KH 2102	KH5-180-040-B	KH 370	KH 346	KH 8536
22.0	.040	.30	2,000	C-2F	KH 8425	KH5-220-040B	KH 459	KH 457	KH 8437
24.0	.050	.50	1,000	C-2F	KH 2176	KH5-240-050B	KH 8176	KH5-240-050-D	KH5-240-050E
28.0	.040	.20	50,000	C-2F	KH 2185	KH5-280-040B-1	KH 385	KH 7355	KH 8384
28.0	.040	.30	25,000	C-2F	KH 2187	KH 85	KH 387	KH 388	KH 399
28.0	.040	.34	7,000	C-2F	KH 1764	KH5-280-040B-2	KH 327	KH 334	KH 335
28.0	.060	.34	25,000	C-2F	KH 476	KH5-280-060B	KH 376	KH 334LSV	KH 335LSV
28.0	.065	.65	5,000	C-2F	KH 8361	KH 17	KH 7341	KH 7356	KH 8369
48.0	.025	.20	5,000	CC-2F	KH 6748	KH5-480-025B	KH 6848	KH5-480-025D	KH5-480-025E

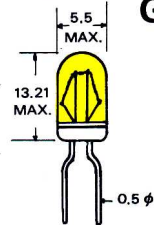
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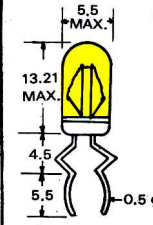
4.85mm, 5.5mm (DIAMETER)



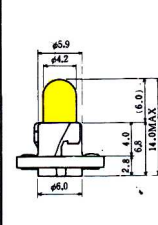
BI-PIN



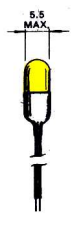
All glass Bi-Pin ECONO-BI-PIN



All glass Bi-Pin ECONO-BI-PIN



NEOWEDGE TYPE



INSULATED WIRE LEAD

Voltage (V)	Current (A)	Candle Power [cp]	Life (h)	Filament Shape					
1.35	.060	.01	500	C-2R	KH 7931	KH5-0135-060G	KH5-0135-060H	KH5-0135-060I	KH5-0135-060J
2.5	.200	.22	500	C-2R	KH 7968	KH5-025-020G	KH5-025-020H	KH5-025-020I	KH5-025-020J
2.5	.350	.21	10,000	C-2R	KH 7868	KH5-025-350G	KH5-025-350H	KH5-025-350I	KH5-025-350J
2.7	.060	.04	6,000	C-2R	KH 7838	KH5-027-060G	KH5-027-060H	KH5-027-060I	KH5-027-060J
3.0	.015	.003	10,000	C-6	KH 7375	KH5-030-015G	KH5-030-015H	KH5-030-015I	KH5-030-015J
3.0	.350	.30	10,000	C-2R	KH 7358	KH5-030-350G	KH5-030-350H	KH5-030-350I	KH5-030-350J
4.5	.120	.15	25,000	C-2R	KH 7359	KH5-045-120G	KH5-045-120H	KH5-045-120I	KH5-045-120J
5.0	.060	.03	1,000,000	C-2R	KH 7360	KH5-050-060G-1	KH5-050-060H-1	KH5-050-060I-1	KH5-050-060J-1
5.0	.060	.05	100,000	C-2R	KH 7361	KH5-050-060G-2	KH5-050-060H-2	KH5-050-060I-2	KH5-050-060J-2
5.0	.060	.15	2,000	C-2R	KH 3149	KH5-050-060G-3	KH5-050-060H-3	KH5-050-060I-3	KH5-050-060J-3
5.0	.115	.15	40,000	C-2R	KH 7362	KH5-050-115-G	KH5-050-115H	KH5-050-115I	KH5-050-115J
5.0	.190	.45	1,000	C-2R	KH 7363	KH5-050-190G	KH5-050-190H	KH5-050-190I	KH5-050-190J
6.0	.040	.055	10,000	C-2R	KH 7945	KH5-060-040G	KH5-060-040H	KH5-060-040I	KH5-060-040J
6.0	.200	.25	50,000	C-2F	KH 7364	KH5-060-200G-1	KH5-060-200H-1	KH5-060-200I-1	KH5-060-200J-1
6.0	.200	.60	1,000	C-2R	KH 7328	KH5-060-200G-2	KH5-060-200H-2	KH5-060-200I-2	KH5-060-200J-2
6.3	.040	.03	50,000	C-2F	KH 7380	KH5-063-040G	KH5-063-040H	KH5-063-040I	KH5-063-040J
6.3	.075	.23	1,000	C-2R	KH 7377	KH5-063-075G	KH5-063-075H	KH5-063-075I	KH5-063-075J
6.3	.150	.45	3,000	C-2R	KH 7368	KH5-063-150G	KH5-063-150H	KH5-063-150I	KH5-063-150J
6.3	.200	.40	20,000	C-2F	KH 7381	KH5-063-200G-1	KH5-063-200H-1	KH5-063-200I-1	KH5-063-200J-1
6.3	.200	.55	5,000	C-2R	KH 7349	KH5-063-200G-2	KH5-063-200H-2	KH5-063-200I-2	KH5-063-200J-2
8.0	.060	.08	10,000	C-2F	KH5-080-060F	KH5-080-060G	KH5-080-060H	KH5-080-060I	KH5-080-060J
9.0	.040	.07	10,000	C-2F	KH5-090-040F	KH5-090-040G	KH5-090-040H	KH5-090-040I	KH5-090-040J
10.0	.014	.004	50,000	C-2V	KH 7344	KH5-100-014G	KH5-100-014H	KH5-100-014I	KH5-100-014J
10.0	.040	.07	5,000	C-2F	KH 7367	KH5-100-040G	KH5-100-040H	KH5-100-040I	KH5-100-040J
10.0	.070	.14	10,000	C-2F	KH5-100-070F	KH5-100-070G	KH5-100-070H	KH5-100-070I	KH5-100-070J
11.0	.022	.03	10,000	C-2F	KH 7369	KH5-110-022G	KH5-110-022H	KH5-110-022I	KH5-110-022J
12.0	.040	.12	10,000	C-2F	KH 7371	KH5-120-040G	KH5-120-040H	KH5-120-040I	KH5-120-040J
12.0	.050	.14	16,000	C-2F	KH5-120-050F	KH5-120-050G	KH5-120-050H	KH5-120-050I	KH5-120-050J
12.0	.060	.12	10,000	C-2F	KH5-120-060F	KH5-120-060G	KH5-120-060H	KH5-120-060I	KH5-120-060J
12.0	.080	.22	25,000	C-2F	KH5-120-080F	KH5-120-080G	KH5-120-080H	KH5-120-080I	KH5-120-080J
12.0	.100	.30	10,000	C-2F	KH5-120-100F	KH5-120-100G	KH5-120-100H	KH5-120-100I	KH5-120-100J
14.0	.080	.30	50,000	C-2F	KH 7382	KH5-140-080G-1	KH5-140-080H-1	KH5-140-080I-1	KH5-140-080J-1
14.0	.080	.50	1,500	C-2F	KH 7330	KH5-140-080G-2	KH5-140-080H-2	KH5-140-080I-2	KH5-140-080J-2
14.0	.100	.50	5,000	C-2F	KH 7373	KH5-140-100G-1	KH5-140-100H-1	KH5-140-100I-1	KH5-140-100J-1
14.0	.100	.70	500	C-2F	KH5-140-100F	KH5-140-100G-2	KH5-140-100H-2	KH5-140-100I-2	KH5-140-100J-2
18.0	.040	.15	10,000	C-2F	KH 7370	KH5-180-040G	KH5-180-040H	KH5-180-040I	KH5-180-040J
22.0	.040	.30	2,000	C-2F	KH 7459	KH5-220-040G	KH5-220-040H	KH5-220-040I	KH5-220-040J
24.0	.050	.50	1,000	C-2F	KH5-240-050F	KH5-240-050G	KH5-240-050H	KH5-240-050I	KH5-240-050J
28.0	.040	.20	50,000	C-2F	KH 7374	KH5-280-040G-1	KH5-280-040H-1	KH5-280-040I-1	KH5-280-040J-1
28.0	.040	.30	25,000	C-2F	KH 7387	KH5-280-040G-2	KH5-280-040H-2	KH5-280-040I-2	KH5-280-040J-2
28.0	.040	.34	7,000	C-2F	KH 7327	KH5-280-040G-3	KH5-280-040H-3	KH5-280-040I-3	KH5-280-040J-3
28.0	.060	.34	25,000	C-2F	KH 7876	KH5-280-060G	KH5-280-060H	KH5-280-060I	KH5-280-060J
28.0	.065	.65	5,000	C-2F	KH 7376	KH5-280-065G	KH5-280-065H	KH5-280-060I	KH5-280-065J
48.0	.025	.20	5,000	C-2F	KH5-480-025F	KH5-480-025G	KH5-480-025H	KH5-480-025I	KH5-480-025J

T-3 1/4

10mm (DIAMETER)

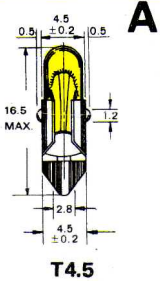
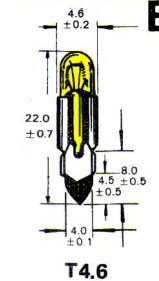
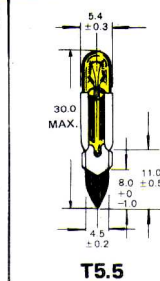
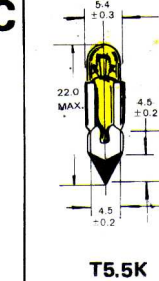
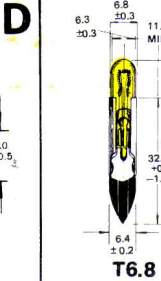
Voltage (V)	Current (A)	Candle Power (cp)	Life (h)	Filament Shape					
					A	B	C	D	E
2.0	.060	.04	1,000	S-2	KH10-020-060A	KH 48	KH 49	KH10-020-060D	KH10-020-060E
2.5	.500	.5	3,000	C-2R	KH10-025-500A	KH 41	KH 43	KH10-025-500D	KH10-025-500E
3.2	.160	.2	3,000	C-2R	KH10-032-160A	KH10-32-160B	KH 1490	KH10-032-160D	KH10-032-160E
3.2	.350	.5	3,000	C-2R	KH10-032-350A	KH10-032-350B	KH 45	KH10-032-350D	KH10-032-350E
5.0	.090	.25	1,500	C-2R	KH10-050-090A	KH10-050-090B	KH 1850	KH10-050-090D	KH10-050-090E
6.3	.150	.33	50,000	C-2R	KH10-063-150A-1	KH10-063-150B-1	KH 755	KH10-063-150D-1	KH10-063-150E-1
6.3	.150	.38	20,000	C-2R	KH 159	KH10-063-150B-2	KH 1847	KH10-063-150D-2	KH10-063-150E-2
6.3	.150	.52	3,000	C-2R	KH10-063-150A-2	KH 40	KH 47	KH10-063-150D-3	KH10-063-150E-3
6.3	.250	.65	20,000	C-2R	KH 259	KH10-063-250B	KH 1866	KH10-063-250D-1	KH10-063-250E-1
6.3	.250	.9	3,000	C-2R	KH10-063-250A	KH 46	KH 44	KH10-063-250D-2	KH10-063-250E-2
6.3	.360	.67	5,000	C-2R	KH10-063-360A-1	KH10-063-360B-1	KH 240	KH10-063-360D-1	KH10-063-360E-1
6.3	.360	.67	5,000	C-2R	KH10-063-360A-2	KH10-063-360B-2	KH 239	KH10-063-360D-2	KH10-063-360E-2
6.3	.400	1.5	3,000	C-2R	KH10-063-400A	KH10-063-400B	KH 1810	KH10-063-400D	KH10-063-400E
13.0	.330	3.0	1,000	C-2V	KH10-130-330A	KH10-130-330B	KH 1816	KH10-130-330D	KH10-130-330E
14.0	.080	.31	50,000	C-2F	KH10-140-080A	KH10-140-080B	KH 756	KH10-140-080D	KH10-140-080E
14.0	.150	1.5	200	C-2V	KH10-140-150A	KH10-140-150B	KH 1488	KH10-140-150D	KH10-140-150E
14.0	.200	1.4	3,000	C-2V	KH10-140-200A	KH 1487	KH 1815	KH10-140-200D	KH10-140-200E
14.0	.240	2.0	500	C-2F	KH 158	KH10-140-240B	KH 1891	KH10-140-240D	KH10-140-240E
14.0	.270	2.0	1,500	C-2F	KH 194	KH10-140-270B	KH 1889	KH10-140-270D	KH10-140-270E
14.0	.330	2.0	3,000	C-2F	KH10-140-330A	KH10-140-330B	KH 1893	KH10-140-330D	KH10-140-330E
14.4	.100	.86	1,000	C-2V	KH10-144-100A	KH10-144-100B	KH 1813	KH10-144-100D	KH10-144-100E
14.4	.120	.75	1,000	C-2V	KH10-144-120A	KH10-144-120B	KH 1892	KH10-144-120D	KH10-144-120E
18.0	.150	1.8	250	C-2V	KH10-180-150A	KH10-180-150B	KH 1826	KH10-180-150D	KH10-180-150E
24.0	.170	3.3	250	C-2V	KH10-240-170A	KH10-240-170B	KH 1818	KH10-240-170D	KH10-240-170E
28.0	.040	.34	1,000	C-2F	KH10-280-040A	KH10-280-040B	KH 1819	KH10-280-040D	KH10-280-040E
28.0	.060	.64	5,000	C-2F	KH 656	KH10-280-060B	KH10-280-060C	KH10-280-060D	KH10-280-060E
28.0	.070	1.0	1,000	C-2F	KH10-280-070A	KH10-280-070B	KH1829	KH10-280-070D	KH10-280-070E
28.0	.080	.62	15,000	C-2F	KH10-280-080A	KH10-280-080B	KH 757	KH10-280-080D	KH10-280-080E
28.0	.100	1.6	1,000	C-2F	KH10-280-100A	KH10-280-100B	KH 1820	KH10-280-100D	KH10-280-100E
28.0	.170	3.0	1,500	C-2F	KH10-280-170A	KH10-280-170B	KH 1864	KH10-280-170D	KH10-280-170E

AXIAL TYPE

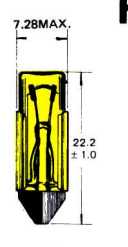
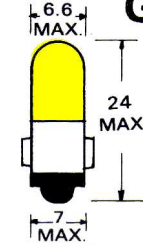

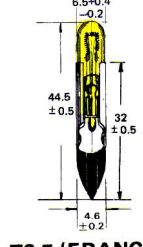
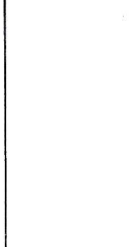
AT-1 DIA. 3.2mm AT-2 DIA. 6mm
AT-1 1/4 DIA. 4mm
AT-1 3/4 DIA. 5mm

Voltage (V)	Current (A)	Candle Power (cp)	Life (h)	Filament Shape					
					A	B	C	D	E
					DIAMETER 3mm, 4mm 5mm, 6mm AXIAL WIRE TERMINAL	DIAMETER 3mm, 4mm 5mm, 6mm SOFFITTEN METAL CAP	DIAMETER 3mm, 4mm 5mm, 6mm FUSE TYPE METAL CAP	DIAMETER 3mm, 4mm 5mm, 6mm INSULATED WIRE LEAD	DIAMETER 3mm, 4mm 5mm, 6mm BULB TYPE
3.0	.060	.03	10,000	C-8	KHA-030-060A	KHA-030-060B	KHA-030-060C	KHA-030-060D	KHA-030-060E
5.0	.060	.05	60,000	C-8	KHA-050-060A	KHA-050-060B	KHA-050-060C	KHA-050-060D	KHA-050-060E
5.0	.115	.15	40,000	C-8	KHA-050-115A	KHA-050-115B	KHA-050-115C	KHA-050-115D	KHA-050-115E
6.0	.040	.05	10,000	C-8	KHA-060-040A	KHA-060-040B	KHA-060-040C	KHA-060-040D	KHA-060-040E
6.0	.120	.20	20,000	C-8	KHA-060-120A	KHA-060-120B	KHA-060-120C	KHA-060-120D	KHA-060-120E
6.0	.150	.35	5,000	C-8	KHA-060-150A	KHA-060-150B	KHA-060-150C	KHA-060-150D	KHA-060-150E
6.0	.250	.50	5,000	C-8	KHA-060-250A	KHA-060-250B	KHA-060-250C	KHA-060-250D	KHA-060-250E
6.0	.300	.60	5,000	C-8	KHA-060-300A	KHA-060-300B	KHA-060-300C	KHA-060-300D	KHA-060-300E
8.0	.100	.25	5,000	C-8	KHA-080-100A	KHA-080-100B	KHA-080-100C	KHA-080-100D	KHA-080-100E
8.0	.150	.45	5,000	C-8	KHA-080-150A	KHA-080-150B	KHA-080-150C	KHA-080-150D	KHA-080-150E
8.0	.200	.40	10,000	C-8	KHA-080-200A	KHA-080-200B	KHA-080-200C	KHA-080-200D	KHA-080-200E
8.0	.250	.65	5,000	C-8	KHA-080-250A	KHA-080-250B	KHA-080-250C	KHA-080-250D	KHA-080-250E
12.0	.100	.40	5,000	C-8	KHA-120-100A	KHA-120-100B	KHA-120-100C	KHA-120-100D	KHA-120-100E
12.0	.250	1.0	5,000	C-8	KHA-120-250A	KHA-120-250B	KHA-120-250C	KHA-120-250D	KHA-120-250E
14.0	.080	.03	10,000	C-8	KHA-140-080A	KHA-140-080B	KHA-140-080C	KHA-140-080D	KHA-140-080E
14.0	.100	.45	3,000	C-8	KHA-140-100A	KHA-140-100B	KHA-140-100C	KHA-140-100D	KHA-140-100E



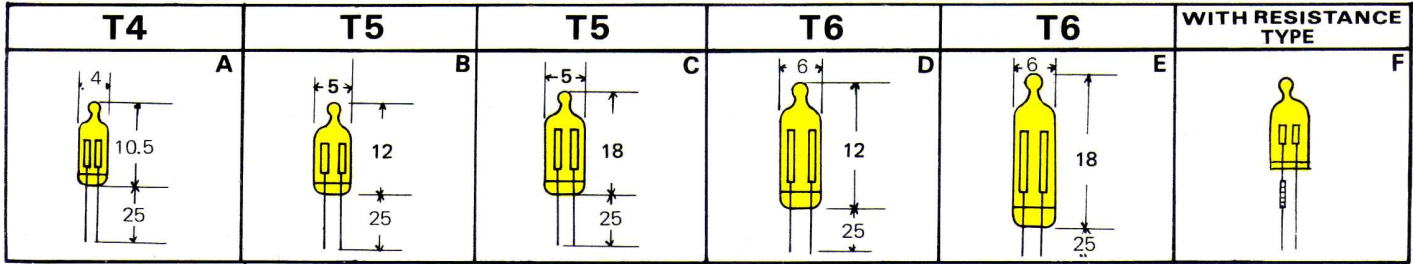
TELEPHONE LAMP T4.5, T4.6, T5.5 T5.5K, T6.8									
Voltage (V)	Current (A)	Candle Power [cp]	Life (h)	Filament Shape	T4.5	T4.6	T5.5	T5.5K	T6.8
6.0	.020	.013	10,000	C-2V	KT45-060-020A	KT46-060-020B	KT55-060-020C	KT55K-060-020D	KT68-060-020E
6.0	.040	.047	10,000	C-2V	KT45-060-040A	KT46-060-040B	KT55-060-040C	KT55K-060-040D	KT68-060-040E
6.0	.200	.47	7,000	C-2V	KT45-060-200A	KT46-060-200B	KT55-060-200C	KT55K-060-200D	KT68-060-200E
12.0	.020	.032	10,000	C-2V	KT45-120-020A	KT46-120-020B	KT55-120-020C	KT55K-120-020D	KT68-120-020E
12.0	.040	.095	10,000	C-2V	KT45-120-040A	KT46-120-040B	KT55-120-040C	KT55K-120-040D	KT68-120-040E
12.0	.050	.11	10,000	C-2F	KT45-120-050A	KT46-120-050B	KT55-120-050C	KT55K-120-050D	KT68-120-050E
12.0	.100	.30	10,000	C-2F	KT45-120-100A	KT46-120-100B	KT55-120-100C	KT55K-120-100D	KT68-120-100E
24.0	.020	.055	10,000	C-2F	KT45-240-020A	KT46-240-020B	KT55-240-020C	KT55K-240-020D	KT68-240-020E
24.0	.030	.11	10,000	C-2F	KT45-240-030A	KT46-240-030B	KT55-240-030C	KT55K-240-030D	KT68-240-030E
24.0	.040	.20	10,000	C-2F	KT45-240-040A	KT46-240-040B	KT55-240-040C	KT55K-240-040D	KT68-240-040E
24.0	.050	.27	10,000	C-2F	KT45-240-050A	KT46-240-050B	KT55-240-050C	KT55K-240-050D	KT68-240-050E
28.0	.040	.27	10,000	C-2F	KT45-280-040A	KT46-280-040B	KT55-280-040C	KT55K-280-040D	KT68-280-040E
28.0	.050	.32	10,000	C-2F	KT45-280-050A	KT46-280-050B	KT55-280-050C	KT55K-280-050D	KT68-280-050E
30.0	.020	.08	10,000	C-2F	KT45-300-020A	KT46-300-020B	KT55-300-020C	KT55K-300-020D	KT68-300-020E
30.0	.040	.28	10,000	C-2F	KT45-300-040A	KT46-300-040B	KT55-300-040C	KT55K-300-040D	KT68-300-040E
32.0	.033	.33	10,000	C-2F	KT45-320-033A	KT46-320-033B	KT55-320-033C	KT55K-320-033D	KT68-320-033E
36.0	.020	.12	10,000	C-2F	KT45-360-020A	KT46-360-020B	KT55-360-020C	KT55K-360-020D	KT68-360-020E
48.0	.020	.14	5,000	CC-2F	KT45-480-020A	KT46-480-020B	KT55-480-020C	KT55K-480-020D	KT68-480-020E
48.0	.025	.20	5,000	CC-2F	KT45-480-025A	KT46-480-025B	KT55-480-025C	KT55K-480-025D	KT68-480-025E
48.0	.030	.24	5,000	CC-2F	KT45-480-030A	KT46-480-030B	KT55-480-030C	KT55K-480-030D	KT68-480-030E
48.0	.040	.34	5,000	CC-2F	KT45-480-040A	KT46-480-040B	KT55-480-040C	KT55K-480-040D	KT68-480-040E
60.0	.020	.16	5,000	CC-2F	KT45-600-020A	KT46-600-020B	KT55-600-020C	KT55K-600-020D	KT68-600-020E
60.0	.030	.19	5,000	CC-2F	KT45-600-030A	KT46-600-030B	KT55-600-030C	KT55K-600-030D	KT68-600-030E
60.0	.040	.50	5,000	CC-2F	KT45-600-040A	KT46-600-040B	KT55-600-040C	KT55K-600-040D	KT68-600-040E
70.0	.020	.19	5,000	CC-2F	KT45-700-020A	KT46-700-020B	KT55-700-020C	KT55K-700-020D	KT68-700-020E

*Telephone lamps with other types of slide bases or with neon bulbs are available.

TELEPHONE (Continued) T2, BA7S, BPO NO. 2 T6.5 (FRANCE) ... ETC.									
Voltage (V)	Current (A)	Candle Power [cp]	Life (h)	Filament Shape	T2	BA7S	BPO NO.2	T6.5 (FRANCE)	
4.0	.040	.03	10,000	C-6	KT2-040-040F	KT7S-040-040G	KHB2-040-040H	KT65-040-040I	
5.0	.040	.035	8,000	C-6	KT2-050-040F	KT7S-050-040G	KHB2-050-040H	KT65-050-040I	
6.0	.041	.06	1,000	C-6	KT2-060-041F-1	KT7S-060-041G-1	KHB2-060-041H-1	KT65-060-041I-1	
6.0	.041	.035	10,000	C-2V	KT2-060-041F-2	KT7S-060-041G-2	KHB2-060-041H-2	KT65-060-041I-2	
10.0	.040	.07	10,000	C-2V	KT2-100-040F	KT7S-100-040G	KHB2-100-040H	KT65-100-040I	
12.0	.020	.05	1,000	C-2V	KT2-120-020F	KT7S-120-020G	KHB2-120-020H	KT65-120-020I	
12.0	.040	.09	10,000	C-2V	KT2-120-040F	KT7S-120-040G	KHB2-120-040H	KT65-120-040I	
12.0	.100	.35	1,000	C-2F	KT2-120-100F-1	KT7S-120-100G-1	KHB2-120-100H-1	KT65-120-100I-1	
12.0	.100	.20	40,000	C-2F	KT2-120-100F-2	KT7S-120-100G-2	KHB2-120-100H-2	KT65-120-100I-2	
16.0	.040	.12	7,500	C-2F	KT2-160-040F	KT7S-160-040G	KHB2-160-040H	KT65-160-040I	
18.0	.040	.13	5,000	C-2F	KT2-180-040F	KT7S-180-040G	KHB2-180-040H	KT65-180-040I	
24.0	.040	.18	8,000	C-2F	KT2-240-040F	KT7S-240-040G	KHB2-240-040H	KT65-240-040I	
24.0	.055	.28	1,000	C-2F	KT2-240-055F	KT7S-240-055G	KHB2-240-055H	KT65-240-055I	
28.0	.040	.34	6,000	C-2F	KT2-280-040F	KT7S-280-040G	KHB2-280-040H	KT65-280-040I	
48.0	.040	.45	5,000	CC-2F	KT2-480-040F	KT7S-480-040G	KHB2-480-040H	KT65-480-040I	
60.0	.050	.50	7,500	CC-2F	KT2-600-050F	KT7S-600-050G	KHB2-600-050H	KT65-600-050I	

NEON LAMPS

T4 T5 T6



* Other sizes or lengths are available to meet your specification requirements.

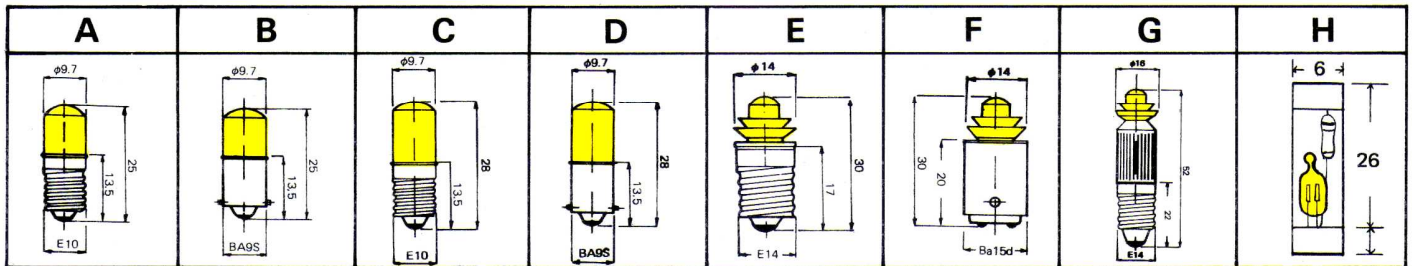
LAMP NO.	BREAKDOWN VOLTAGE MAX (AC)	CURRENT (MA)	SERIES RESISTANCE (KΩ)		AVERAGE LAB LIFE (HOURS)	BULB DIAMETER (mm)	BULB LENGTH (mm)	FIGURE	REMARKS
			110V	220V					
T4x10L	65	0.3	150	300	25,000	4	10.5	A	
T5x14L	65	0.3	150	300	25,000	5	12	B	
T5x18L	65	0.3	150	300	25,000	5	18	C	
T6x12L	65	0.3	150	300	25,000	6	12	D	
T6x16L	65	0.3	150	300	25,000	6	12	D	
T6x25L	65	0.3	150	300	25,000	6	18	E	
T4x10H	90	1.2	33	100	25,000	4	10.5	A	
T5x14H	90	1.2	33	100	25,000	5	12	B	
T5x18H	90	1.2	33	100	25,000	5	18	C	
T6x12H	90	1.2	33	100	25,000	6	12	D	
T6x16H	90	1.2	33	100	25,000	6	16	D	
T6x25H	90	1.2	33	100	25,000	6	18	E	

Caution of using neon lamps: Ajust resistance for setting discharge current as fixed standard
Neon lamps with attached resistors are available as per customers' specification.

NEON LAMPS WITH PLASTIC CAPS

**E10
BA9S**

**E14
BA15D**



Lamp No.	Circuit AC Volt	Design Current mA	Built-in Resistor OHM	Life Hours	Dimension mm	Base	Figure
N11025E	105-130	1.5	30K	25000	10x25	E10	A
N21025E	220-250	1.5	100K	25000	10x25	E10	A
N31025E	380	1.2	470K	25000	10x25	E10	A
N11025B	105-130	1.5	30K	25000	10x25	BA9S	B
N21025B	220-250	1.5	100K	25000	10x25	BA9S	B
N21025B	380	1.2	470K	25000	10x25	BA9S	B
N31025B	105-130	1.5	30K	25000	10x28	E10	C
N21028E	220-250	1.5	100K	25000	10x28	E10	C
N31028E	380	1.2	470K	25000	10x28	E10	C
N11028B	105-130	1.5	30K	25000	10x28	BA9S	D
N21028B	220-250	1.5	100K	25000	10x28	BA9S	D
N31028B	380	1.2	470K	25000	10x28	BA9S	D
N11430E	105-130	1.5	30K	25000	14x30	E14	E
N21430E	220-250	1.5	100K	25000	14x30	E14	E
N31430E	380	1.2	470K	25000	14x30	E14	E
N11430B	105-130	1.5	30K	25000	14x30	BA15D	F
N21430B	220-250	1.5	100K	25000	14x30	BA15D	F
N31430B	380	1.2	470K	25000	14x30	BA15D	F
N11652E	105-130	1.5	30K	25000	16x52	E14	G
N21652E	220-250	1.5	100K	25000	16x52	E14	G
N31652E	380	1.2	470K	25000	16x52	E14	G
N11652M	105-130	1.2 OR 0.3	33K OR 150K	25000	6x26	METAL CAP	H
N21652M	220-250	1.5 OR 0.5	68K OR 300K	25000	6x26	METAL CAP	H
N31652	380	1.2	470K	25000	6x26	METAL CAP	H

All the above lamps are incorporated with neon lamps of high brightness in orange colour. Lamps without built-in resistors are also available.
Neon lamps with various other types of filters are available.

AIRCRAFT INDICATED LAMP



AUTO PANEL LAMP



SMD TYPE



SUMMARY



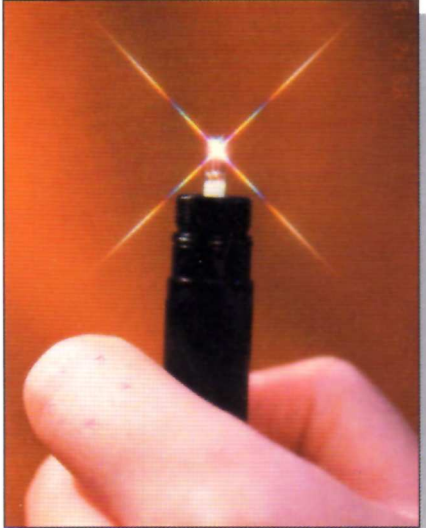
NEOWEDGE TYPE



SPECTRASCAN FOR COLOR CAPS



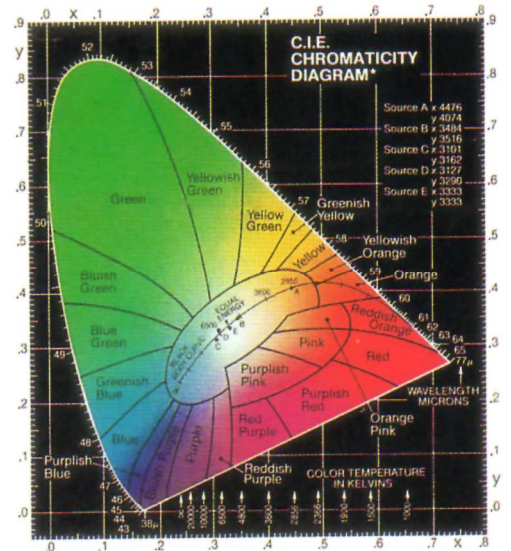
VACUUM & GAS FILLED (XENON)
FLASH LIGHT (TORCH) LAMP



LED ASSEMBLY



PHOTO RESEARCH(SpectraMetrics)



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17	10	B	388	10	D	2102	10	A	7203	8	B	7346	10	D	8176	10	C
30	7	A	389	10	E	2107	10	A	7210	8	B	7347	10	D	8270	7	B
32	8	C	390	10	D	2112	10	A	7211	8	B	7348	10	D	8350	10	A
37	10	B	393	10	D	2114	9	A	7216	8	B	7349	11	F	8361	10	A
40	12	B	394	10	C	2128	8	B	7218	8	B	7350	10	D	8362	10	E
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47	12	C	476	10	A	2174	10	A	7240	8	C	7356	10	D	8534	7	A
48	12	B	515	9	A	2176	10	A	7241	8	C	7358	11	F	8536	10	E
49	12	C	580	9	A	2180	10	A	7244	8	C	7359	11	F	8537	7	A
73	10	B	583	9	A	2181	10	A	7245	8	C	7360	11	F	8538	7	B
74	10	B	634	9	A	2182	10	A	7246	8	C	7361	11	F	8541	9	B
79	10	B	656	12	A	2185	10	A	7247	8	C	7362	11	F	8551	9	B
84	10	B	673	9	C	2187	10	A	7248	8	C	7363	11	F	8552	9	C
85	10	B	679	8	C	2200	10	A	7249	8	C	7364	11	F	8587	7	B
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158	12	A	682	8	C	3149	11	F	7252	8	D	7368	11	F	8602	8	B
159	12	A	683	8	B	3150	10	C	7253	8	D	7369	11	F	8605	8	C
194	12	A	685	8	C	3151	10	A	7255	8	D	7370	11	F	8610	9	A
239	12	C	698	10	D	3152	10	D	7256	8	D	7371	11	F	8627	9	A
240	12	C	709	10	D	3153	10	E	7257	8	D	7373	11	F	8628	9	B
251	10	C	713	8	B	3515	9	C	7258	8	D	7374	11	F	8631	9	A
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329	9	C	1488	12	C	6150	8	B	7302	9	B	7459	11	F	8645	9	C
330	10	C	1490	12	C	6152	8	A	7303	9	C	7515	9	D	8646	9	B
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334	10	D	1728	10	A	6180	8	C	7307	9	D	7580	9	D	8655	9	A
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337	10	D	1768	10	E	6832	8	A	7314	10	E	7637	9	D	8687	10	E
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345	10	C	1784	10	A	6848	10	C	7318	10	E	7714	8	D	8704	10	D
346	10	D	1810	12	C	7022	8	D	7319	10	E	7715	8	D	8705	10	D
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350	10	C	1815	12	C	7102	7	A	7321	10	E	7810	7	D	8708	10	D
367	10	C	1816	12	C	7111	7	D	7323	10	E	7838	11	F	8711	8	B
368	10	C	1818	12	C	7112	7	D	7325	10	E	7839	8	D	8729	8	B
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373	10	E	1826	12	C	7115	7	D	7328	11	F	7931	11	F	8798	8	B
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376	10	C	1847	12	C	7117	7	D	7331	10	C	7968	11	F	8828	7	B
377	10	C	1850	12	C	7118	7	D	7332	10	C	8022	8	C	8846	8	B
378	10	E	1864	12	C	7119	7	D	7333	10	C	8095	8	D	8847	10	A
379	10	D	1866	12	C	7121	7	B	7334	10	C	8097	8	D	8848	10	C
380	10	C	1869	10	A	7122	7	B	7335	10	C	8098	8	D	8849	10	D
381	10	C	1889	12	C	7123	7	B	7336	10	C	8099	8	D	8910	8	B
382	10	C	1891	12	C	7132	8	A	7338	10	C	8102	8	C	8913	7	B
385	10	C	1892	12	C	7133	7	A	7341	10	C	8111	8	B	8918	10	C
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