

GENERAL INFORMATION

QUALITY CONTROL AND ASSURANCE

Classification	Test Item	Reference Standard	Test Conditions	Result
Endurance Test	Operation Life	MIL-STD-750 : 1026 MIL-STD-883 : 1005 JIS C 7021 : B-1	Connect with a power $I_f = 20\text{mA}$ $T_a =$ Under room temperature Test time = 1,000hrs	0/20
	High Temperature High Humidity Storage	MIL-STD-202 : 103B JIS C 7021 : B-11	$T_a = +65^\circ\text{C}\pm 5^\circ\text{C}$ RH = 90% - 95% Test time = 1,000hrs	0/20
	High Temperature Storage	MIL-STD-883 : 1008 JIS C 7021 : B-10	High $T_a = +85^\circ\text{C}\pm 5^\circ\text{C}$ Test time = 1,000hrs	0/20
	Low Temperature Storage	JIS-C-7021 : B-12	Low $T_a = 35^\circ\text{C}\pm 5^\circ\text{C}$ Test time = 1,000hrs	0/20
Environmental Test	Temperature Cycling	MIL-STD-202 : 107D MIL-STD-750 : 1051 MIL-STD-883 : 1010 JIS C 7021 : A-4	$35^\circ\text{C} \sim +25^\circ\text{C} \sim +85^\circ\text{C} \sim +25^\circ\text{C}$ 60min 20min 60min 20min Test Time = 5cycle	0/20
	Thermal Shock	MIL-STD-202 : 107D MIL-STD-750 : 1051 MIL-STD-883 : 1011	$+85^\circ\text{C}\pm 5^\circ\text{C} \sim 35^\circ\text{C}\pm 5^\circ\text{C}$ 20min 20min Test Time = 10cycle	0/20
	Solder Resistance	MIL-STD-202 : 201A MIL-STD-750 : 2031 JIS C 7021 : A-1	Preheating : 140°C-160°C, within 2 minutes. Operation heating: 235°C (Max.), within 10 seconds. (Max)	0/20

JUDGMENT CRITERIA OF FAILURE FOR THE RELIABILITY

Measuring items	Symbol	Measuring conditions	Judgement criteria for failure
Forward voltage	V_F (V)	$I_f = 20\text{mA}$	Over $U \times 1.2$
Reverse current	I_r (μA)	$V_r = 5\text{V}$	Over $U \times 2$
Luminous intensity	I_v (mcd)	$I_f = 20\text{mA}$	Below $S \times 0.5$

Note:1.U means the upper limit of specified characteristics. S means initial value.

2.Measurment shall be taken between 2 hours and after the test pieces have been returned to normal ambient conditions after completion of each test.

GENERAL INFORMATION

1. Soldering

Manual Of Soldering

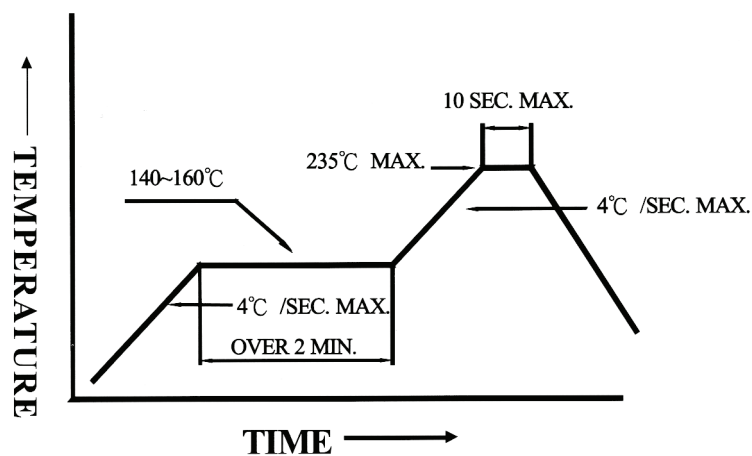
The temperature of the iron tip should not be higher than 300°C(572°F) and Soldering within 3 seconds per solder-land is to be observed.

Reflow Soldering

Preheating: 140°C~160°C±5°C, within 2 minutes.

Operatin heating: 235°C(MAX.) within 10 seconds. (Max)

Gradual Cooling (Avoid quenching).

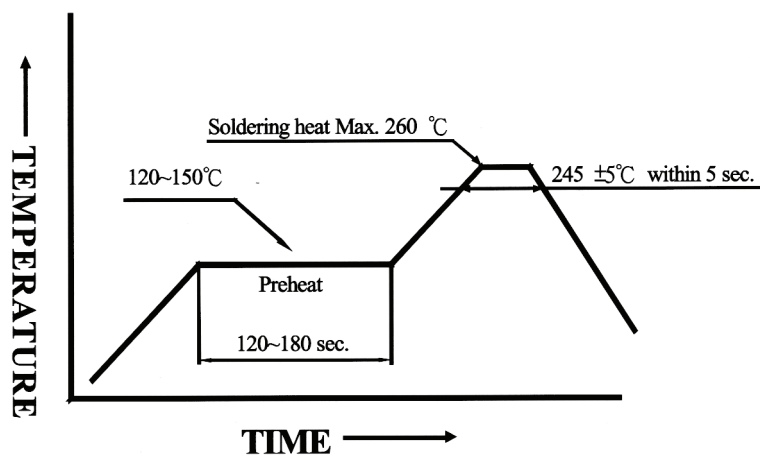


DIP soldering (Wave Soldering)

Preheating : 120°C~150°C, within 120~180 sec.

Operation heating : 245°C±5°C within 5 sec. 260°C (Max)

Gradual Cooling (Avoid quenching).



GENERAL INFORMATION

2. Notes for designing :

Care must be taken to provide the current limiting resistor in the circuit so as to drive the LED within the rated figures.

Also,caution should be taken not to overload with instantaneous voltage at the turning ON and OFF of the circuit.

When using the pulse drive care must be taken to keep the average current within the rated figures.

3. Storage :

If the envelope is still packed, to store it in the environment as following:

- (1) Temperature: 5°C–30°C (41°F) Humidity :RH 60% Max.
- (2) After this bag is opened, devices that will be applied to infrared reflow, vapor phase reflow, or equivalent soldering process must be:
 - a. Completed within 24 hours.
 - b. Stored at less than 30 % RH.
- (3) Devices require baking before mounting, if: (2) a or (2) b is not met.
- (4) If baking is required, devices must be baked under below conditions:12 hours at 60°C± 3°C

4. Package of Products :

Products are packed in one bag of 3000 pcs (one taping reel) and a label is attached on each bag.

GENERAL INFORMATION

ABSOLUTE MAXIMUM RATINGS

1. Test Condition For Each Parameter:

Parameter	Symbol	Unit	Test Condition
Reverse Voltage	V_R	V	$I_R = 100\mu A$
Reverse Current	I_R	μA	$V_R = 5V$
Forward Voltage	V_F	V	$I_F = 20mA$
Luminous Intensity	I_V	mcd	$I_F = 20mA$
Viewing Angle	$2\theta \ 1/2$	Degree	$I_F = 20mA$
Spectral Line Half-Width	$\Delta\lambda$	nm	$I_F = 20mA$
Power Dissipation	P_D	mw	$I_F = 20mA$
Peak Forward Current	I_{FP}	mA	Duty 1/10, Pulse width = 0.1ms

2. Absolute Maximum Ratings :

Reverse Voltage	5.0 Volt
Reverse Current ($V_R = 5V$)	$\leq 100 \mu A$
Operating Temperature Range	$25^\circ C \sim +80^\circ C$
Storage Temperature Range	$30^\circ C \sim +85^\circ C$

TYPICAL ELECTRICAL-OPTICAL CHARACTERISTICS CURVES

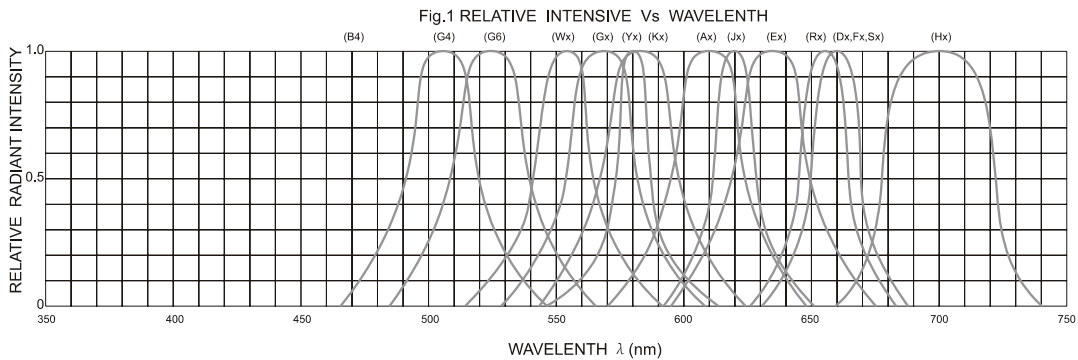


Fig.2 FORWARD CURRENT DERATING CURVE

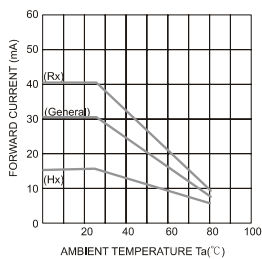


Fig.3 FORWARD CURRENT FORWARD VOLTAGE

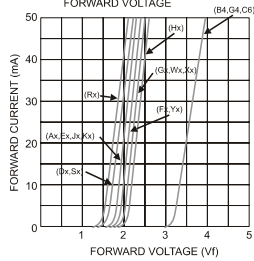


Fig.4 RELATIVE LUMINOUS INTENSITY VS. AMBIENT TEMPERATURE

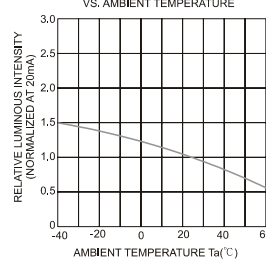


Fig.5 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

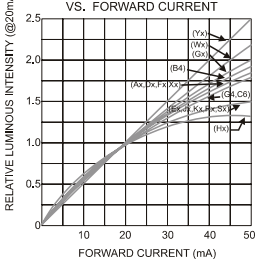
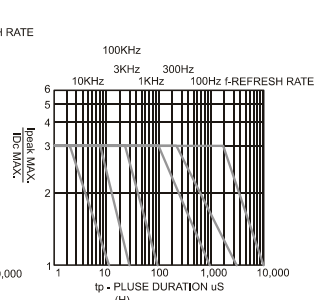
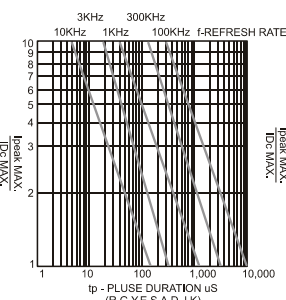
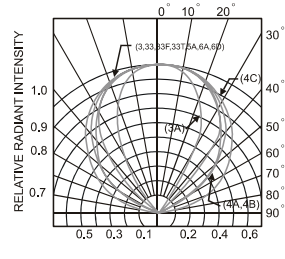
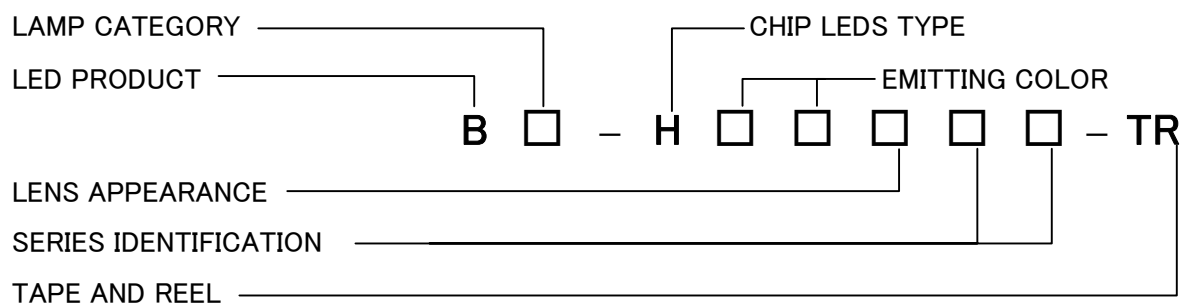


Fig.6 RADIATION DIAGRAM



CHIP LED LAMPS

SELECTION GUIDE TO CHIP LED LAMPS(PART NO. SYSTEM)



LAMP CATEGORY:

L : Standard Lamp

B : Blinking Lamp

R : Resistor Lamp

SERIES IDENTIFICATION:

3 : 1206 Flat Top Type

3A : 1206 Inner Lens Type

4A : Right Angle Lens Type/2.0mm Height

4B : Right Angle Lens Bi-Color Type

4C : Right Angle Lens Type/1.7mm Height

5A : 0805 Flat Top Type

4E : Right Angle Lens Type/1.0mm Height:

6G : 0603 Super Thin(0.4mm) Typ

6A : 0603 Super Thin(0.6mm) Type

6D : 0603 Flat Top Type

3 : 1206 Bi-Color Type

3B : Bi-Color Type

3T : Multi Color Type

3G : Multi Color Type

3F : Multi Color Type

6T : 0605 Super Thin Multi Color Type

6H : 0605 Super Thin Bi-Color Type

LENS APPEARANCE:

1 : Color Diffused

2 : White Diffused

3 : Water Clear

4 : Clolr Transparent

PACKAGE TYPE:

H : CHIP LED

X : Axial

EMITTING COLOR:

A_x : GaAsP/GaP 610nm/Amber (7)

B4 : InGaN 470nm/Super Blue

D_x : GaAlAs/GaAs 660nm/DH Red

E_x : GaAsP/GaP 640nm/Amber (7)

F_x : GaAlAs/GaAs 660nm/DDH Red

G_x : GaP/GaP 568nm/Yellow Green(2)

G4 : InGaN 505nm/Bluish Green

G6 : InGaN 525nm/Green

H_x : GaP/GaP 700nm/Bright Red(5)

J_x : AlGaInP620nm/Super Orange

K_x : AlGaInP595nm/Super Yellow

R_x : GaAsP/GaAs 655nm/Red(1)

S_x : GaAlAs/GaAs660nm/SH Red (6)

W_x : GaP/GaP 555nm/Pure Green (9)

X_x : GaP/GaP 568nm/Hi-Eff Green

Y_x : GaASP/GaP 583nm/Yellow