

# Kingbright®

## SOT-23 SURFACE MOUNT LED LAMPS

KM-23

### Features

- SOT-23 PACKAGE SURFACE MOUNT LED LAMP.
- LOW POWER CONSUMPTION.
- BOTH SINGLE CHIP AND TWO CHIPS VERSION ARE AVAILABLE.
- LONG LIFE - SOLID STATE RELIABILITY.

### Description

The Bright Red source color devices are made with Gallium Phosphide Red Light Emitting Diode.

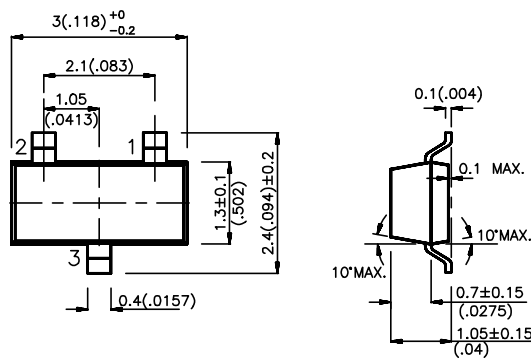
The Super Bright Green source color devices are made with Gallium Phosphide Green Light Emitting Diode.

The High Efficiency Red source color devices are made with Gallium Arsenide Phosphide on Gallium Phosphide Orange Light Emitting Diode.

The Yellow source color devices are made with Gallium Arsenide Phosphide on Gallium Phosphide Yellow Light Emitting Diode.

The Super Bright Red source color devices are made with Gallium Aluminum Arsenide Red Light Emitting Diode.

### Package Dimensions



KM-23  
SINGLE CHIP  
(SR EXCEPTED)

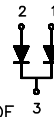
1	N.C.
2	ANODE
3	CATHODE

KM-23SRx

1	N.C.
2	CATHODE
3	ANODE

KM-23ESGW  
KM-23ESGC

1	ANODE RED
2	ANODE GREEN
3	COMMON CATHODE



### Notes:

1. All dimensions are in millimeters (inches).
2. Tolerance is  $\pm 0.25(0.01)$  unless otherwise noted.
3. Lead spacing is measured where the lead emerge package.
4. Specifications are subjected to change without notice.

## Selection Guide

Part No.	Dice	Lens Type	Iv (mcd) @ 20 mA		Viewing Angle
			Min.	Max.	2q1/2
KM-23HD	BRIGHT RED (GaP)	RED DIFFUSED	0.5	1.25	140°
KM-23HT		RED TRANSPARENT	0.5	1.25	140°
KM-23HC		WATER CLEAR	0.5	1.25	140°
KM-23ID	HIGH EFFICIENCY RED (GaAsP/GaP)	RED DIFFUSED	8	32	140°
KM-23IT		RED TRANSPARENT	8	32	140°
KM-23EC		WATER CLEAR	8	32	140°
KM-23YD	YELLOW (GaAsP/GaP)	YELLOW DIFFUSED	5	12.5	140°
KM-23YT		YELLOW TRANSPARENT	5	12.5	140°
KM-23YC		WATER CLEAR	5	12.5	140°
KM-23SGD	SUPER BRIGHT GREEN (GaP)	GREEN DIFFUSED	8	32	140°
KM-23SGT		GREEN TRANSPARENT	8	32	140°
KM-23SGC		WATER CLEAR	8	32	140°
KM-23SYD	SUPER BRIGHT YELLOW (InGaAlP)	YELLOW DIFFUSED	40	100	140°
KM-23SYT		YELLOW TRANSPARENT	40	100	140°
KM-23SYC		WATER CLEAR	40	100	140°
KM-23SRD	SUPER BRIGHT RED (GaAlAs)	RED DIFFUSED	50	90	140°
KM-23SRT		RED TRANSPARENT	50	90	140°
KM-23SRC		WATER CLEAR	50	90	140°
KM-23ESGW	HIGH EFFICIENCY RED (GaAsP/GaP)	WHITE DIFFUSED	8	32	140°
	SUPER BRIGHT GREEN (GaP)		8	32	
KM-23ESGC	HIGH EFFICIENCY RED (GaAsP/GaP)	WATER CLEAR	8	32	140°
	SUPER BRIGHT GREEN (GaP)		8	32	

**Note:**

1.  $\theta_{1/2}$  is the angle from optical centerline where the luminous intensity is 1/2 the optical centerline value.

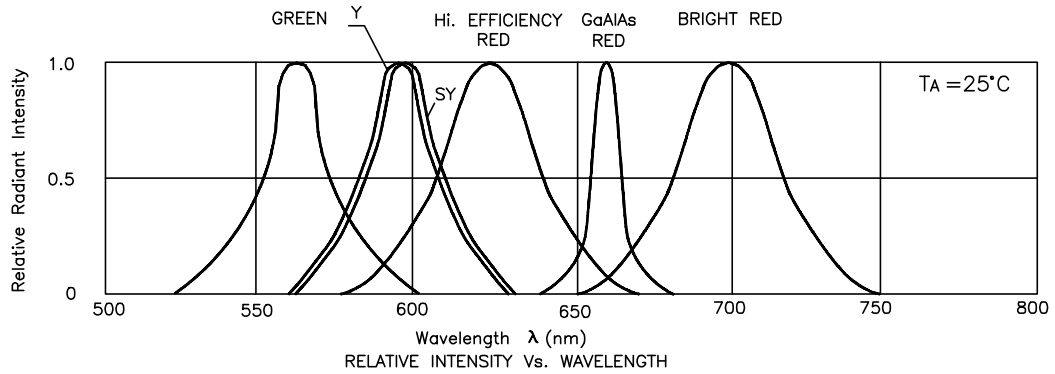
## Electrical / Optical Characteristics at T<sub>A</sub>=25°C

Symbol	Parameter	Device	Typ.	Max.	Units	Test Conditions
$\lambda_{peak}$	Peak Wavelength	Bright Red High Efficiency Red Yellow Super Bright Red Super Bright Green Super Bright Yellow	700 625 590 660 565 595		nm	IF=20mA
$\Delta\lambda_{1/2}$	Spectral Line Halfwidth	Bright Red High Efficiency Red Yellow Super Bright Red Super Bright Green Super Bright Yellow	45 45 35 20 30 20		nm	IF=20mA
C	Capacitance	Bright Red High Efficiency Red Yellow Super Bright Red Super Bright Green Super Bright Yellow	40 12 10 95 45 33		pF	VF=0V;f=1MHz
V <sub>F</sub>	Forward Voltage	Bright Red High Efficiency Red Yellow Super Bright Red Super Bright Green Super Bright Yellow	2.0 2.0 2.1 1.85 2.2 2.0	2.5 2.5 2.5 2.5 2.5 2.4	V	IF=20mA
I <sub>R</sub>	Reverse Current	All	10		uA	VR = 5V

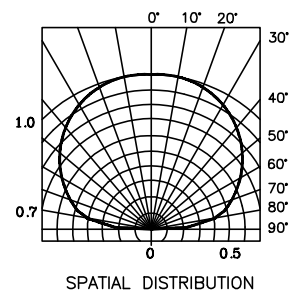
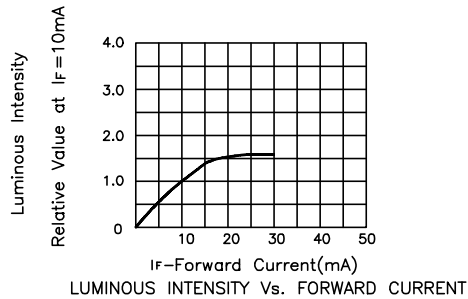
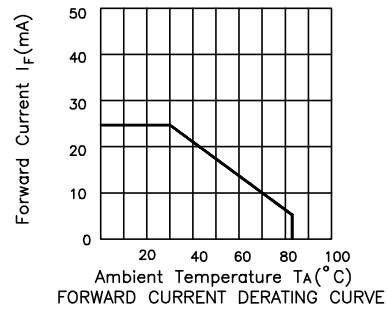
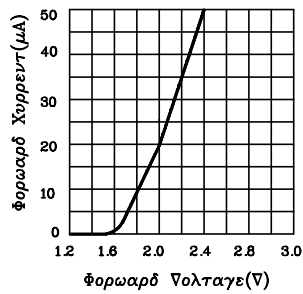
### Absolute Maximum Ratings at $T_A=25^\circ\text{C}$

Parameter	Bright Red	High Efficiency Red	Yellow	Super Bright Red	Super Bright Green	Super Bright Yellow	Units
Power dissipation	105	105	105	100	105	125	mW
DC Forward Current	25	30	30	30	25	30	mA
Peak Forward Current [1]	150	150	150	150	150	150	mA
Reverse Voltage	5	5	5	5	5	5	V
Operating/Storage Temperature	-40° C To +85 ° C						

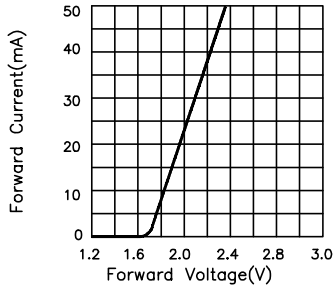
Note:  
1. 1/10 Duty Cycle, 0.1ms Pulse Width .



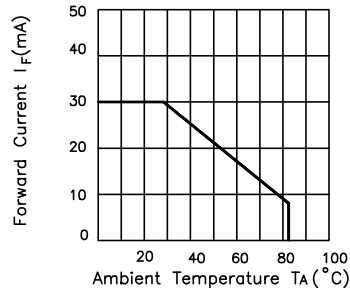
### Bright Red KM-23HD, KM23HT, KM-23HC



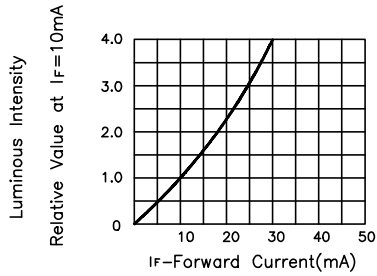
### High Efficiency Red KM-23ID, KM23IT, KM-23EC



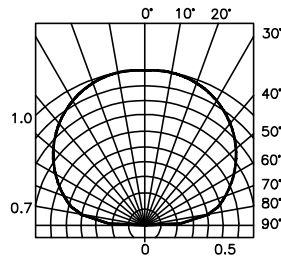
FORWARD CURRENT Vs. FORWARD VOLTAGE



FORWARD CURRENT DERATING CURVE

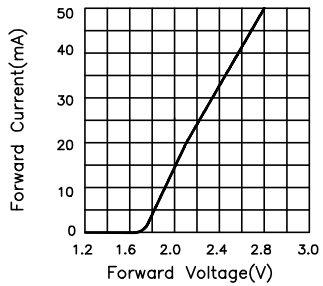


LUMINOUS INTENSITY Vs. FORWARD CURRENT

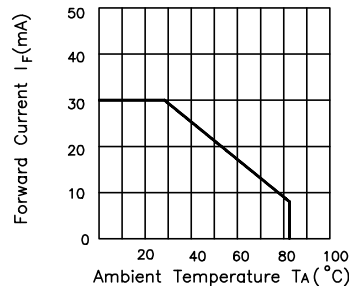


SPATIAL DISTRIBUTION

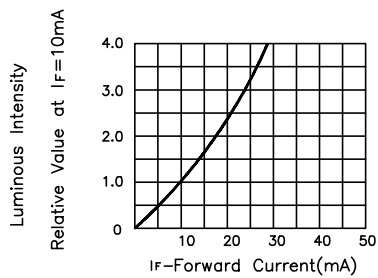
### Yellow KM-23YD, KM23YT, KM-23YC



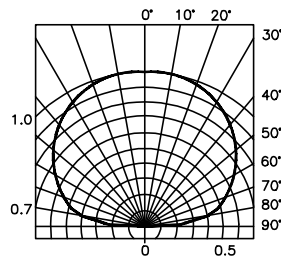
FORWARD CURRENT Vs. FORWARD VOLTAGE



FORWARD CURRENT DERATING CURVE

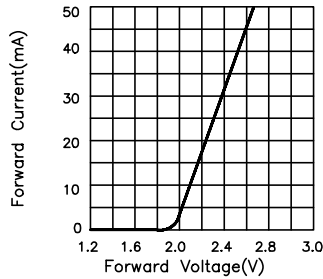


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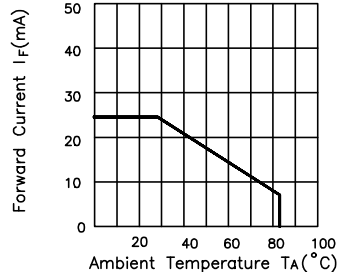


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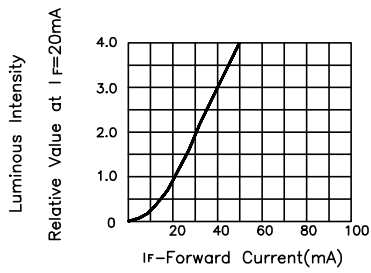
Super Bright Green KM-23SGD, KM-23SGT, KM-23SGC



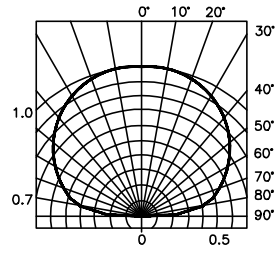
FORWARD CURRENT Vs. FORWARD VOLTAGE



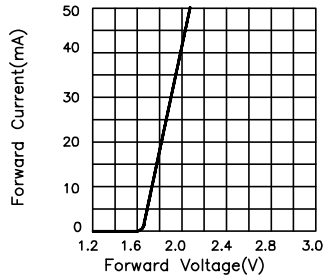
FORWARD CURRENT DERATING CURVE



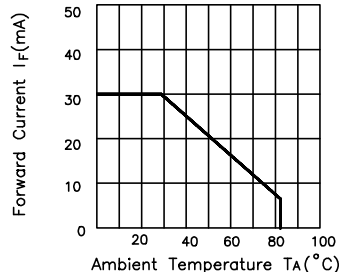
LUMINOUS INTENSITY Vs. FORWARD CURRENT



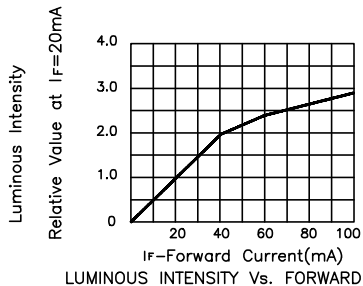
Super Bright Red KM-23SRD, KM-23SRT, KM-23SRC



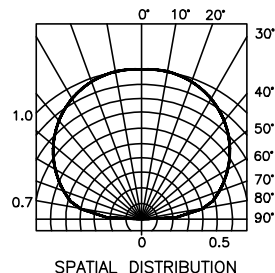
FORWARD CURRENT Vs. FORWARD VOLTAGE



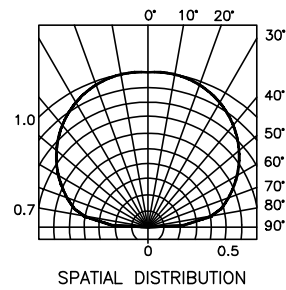
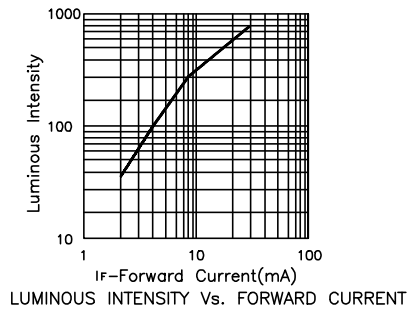
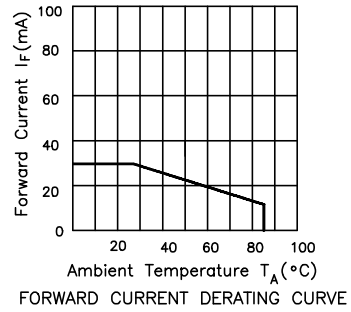
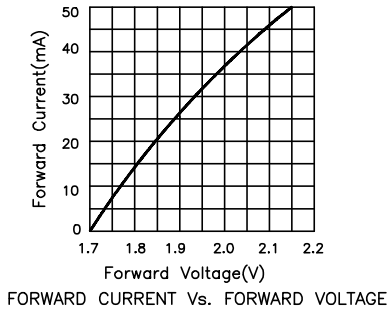
FORWARD CURRENT DERATING CURVE



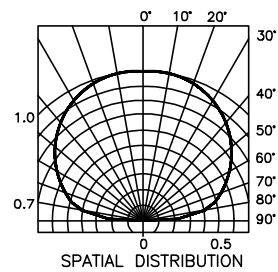
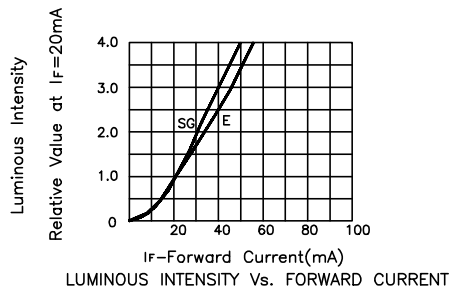
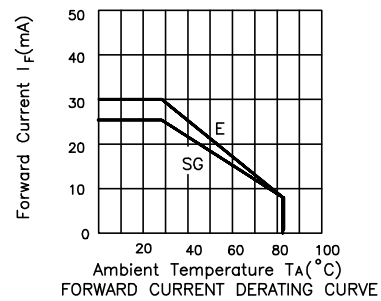
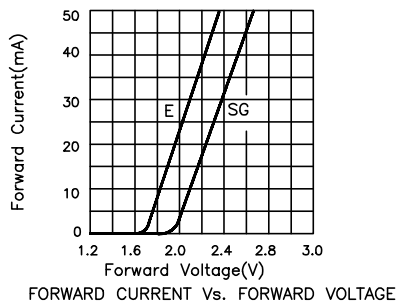
LUMINOUS INTENSITY Vs. FORWARD CURRENT



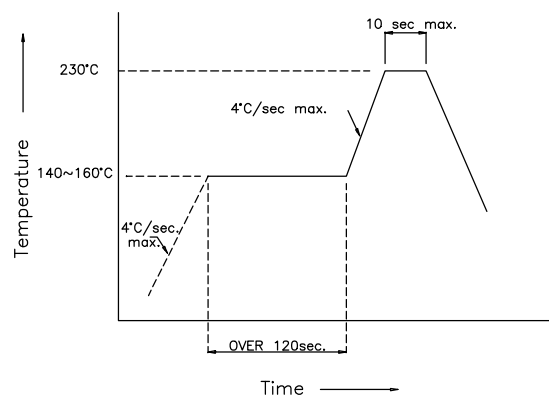
Super Bright Yellow KM-23SYD, KM-23SYT, KM-23SYC



High Efficiency Red / Super Bright Green KM-23ESGW, KM-23ESGC

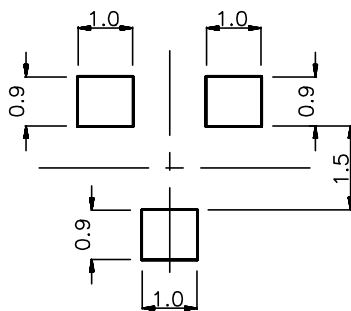


## KM-23 Series SMT Reflow Soldering Instructions



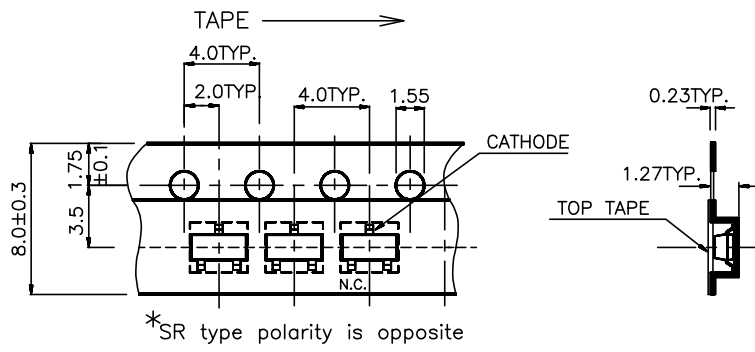
## KM-23 Series Recommended Soldering Pattern

FOR REFLOW SOLDERING



**KM-23 Series Tape Specifications**  
 (Units : mm)

KM-23xxx



KM-23ESGx

