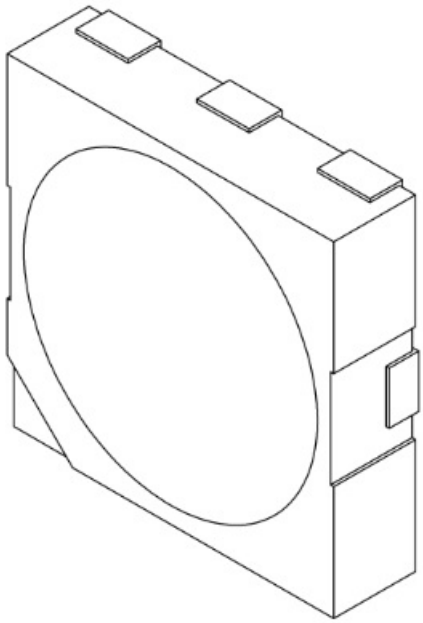
IRSMD5050-940-60-001

940nm HIGH POWER LED



Features

- Chip size : 1.0×1.0mm
- Number of Chips : 1pc
- Peak Wavelength : 940nm
- Optical efficiency (typ.) : 1180mW
- Viewing half angle : 60°
- Package : SMD Resin package
- Lens : Silicone Resin

Applications

- Machine Vision System
- Light source for in-vehicle camera
- Infrared data communication

Maximum Ratings (Tc=25℃)

Parameter	Symbol	Values	Unit
Power Dissipation	P_D	3600	mW
Forward Current	I_F	1000	mA
Pulse Forward Current	I_{FP}	3000	mA
Reverse Voltage	V_R	5	V
Junction Temperature	T_j	115	℃
Operating Temperature	T_{opr}	-40～100	℃
Storage Temperature	T_{stg}	-40～100	℃
Thermal Resistance	R_{thja}	10	K/W

※Pulse Forward Current Condition：Duty 1% and Pulse Width=10us.

※Soldering condition：Soldering condition must be completed with 5 seconds at below 260℃

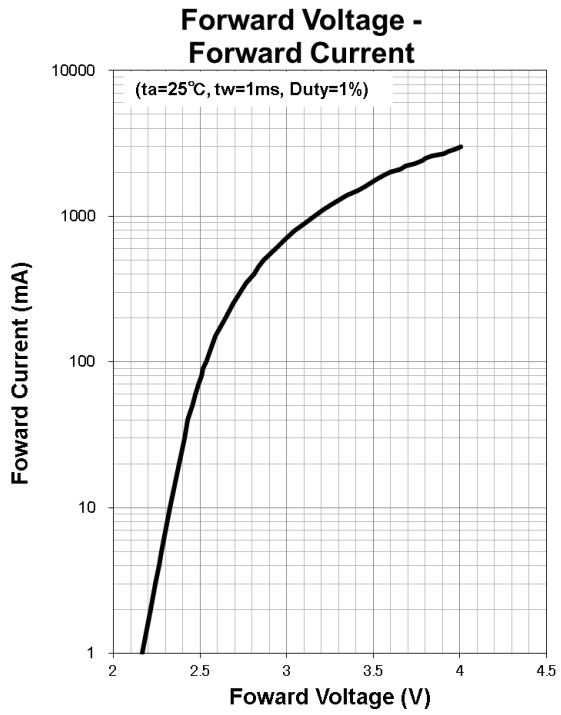
Optical and Electrical Characteristics (Tc=25℃)

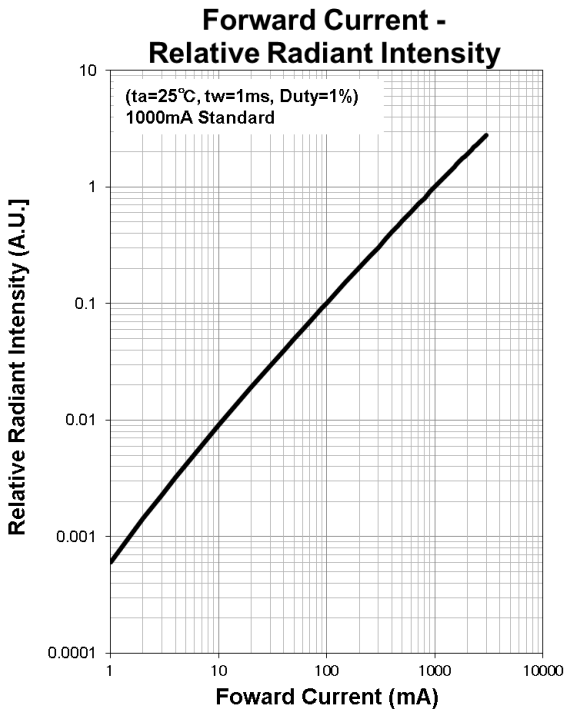
Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage	V_F		3.1	3.6	V	I_F=1A
	V_{FP}		3.9		V	I_{FP}=3A
Radiated Power	P_O		1180		mW	I_F=1A
			3540		mW	I_{FP}=3A
Radiant Intensity	I_E		2388		mW/sr	I_F=1A
			7200		mW/sr	I_{FP}=3A
Peak Wavelength	λ_P		940		nm	I_F=1A
Half Width	$\Delta\lambda$		36		nm	I_F=1A
Viewing Half Angle	θ 1/2		±60		deg	I_F=100mA

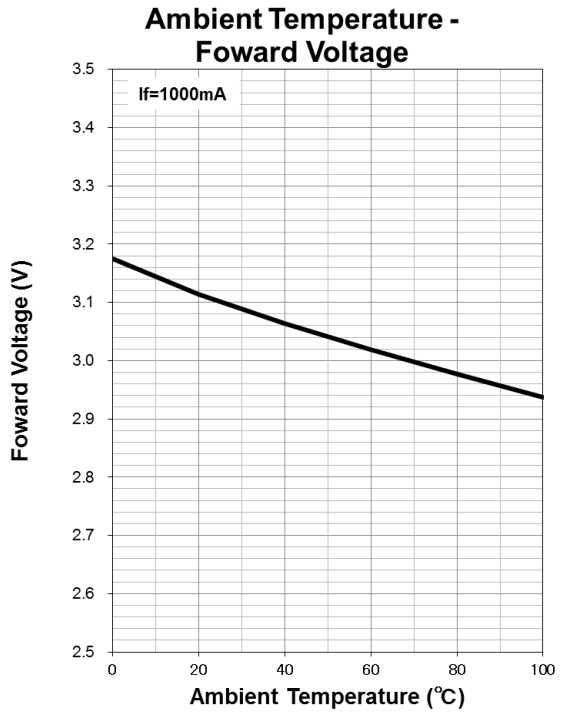
※Radiated Power is measured by S3584-08.

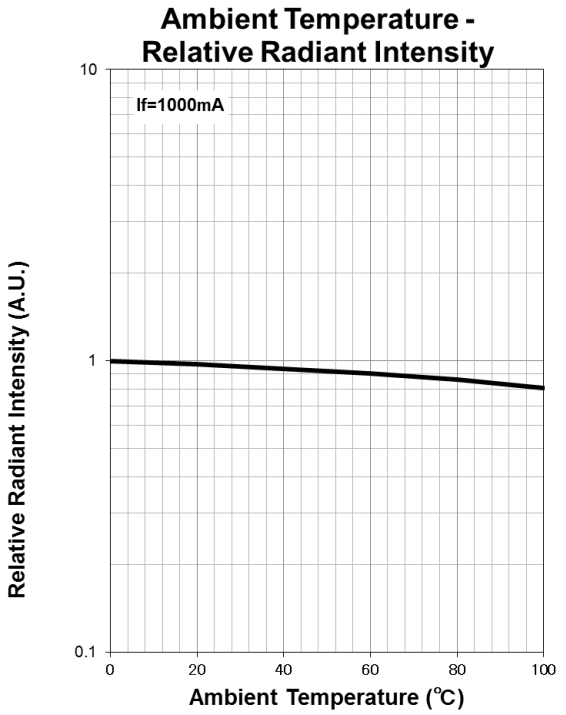
※Radiant Intensity is measured by CIE127-2007 Condition B.

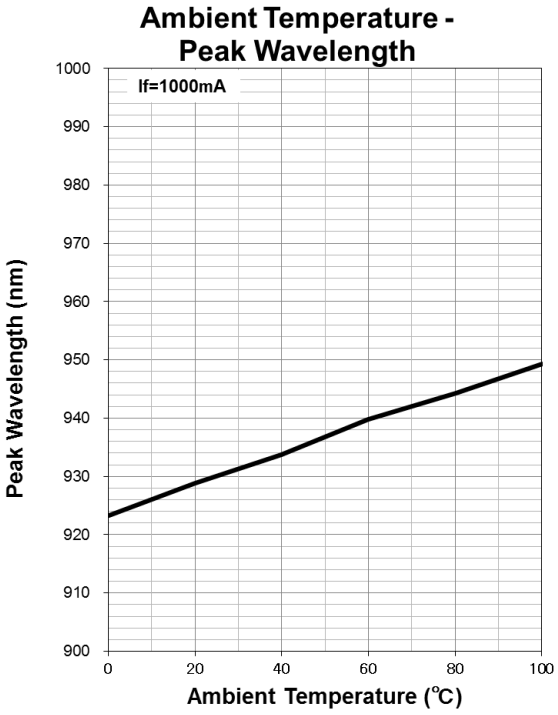
Typical Characteristic Curves

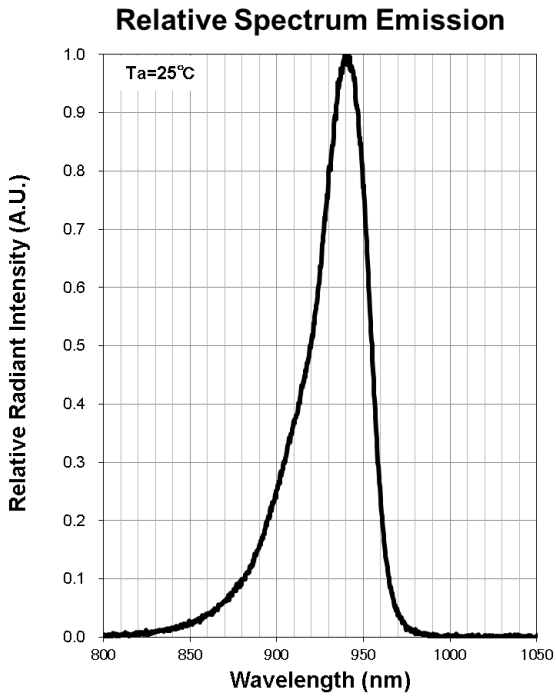


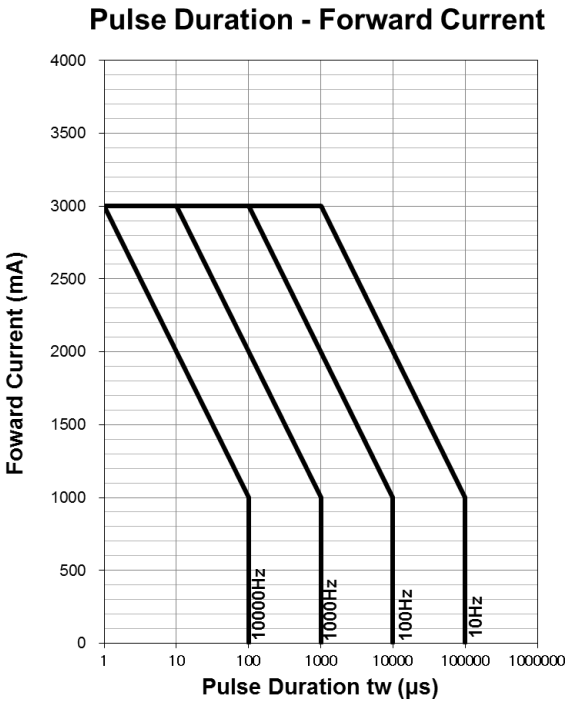


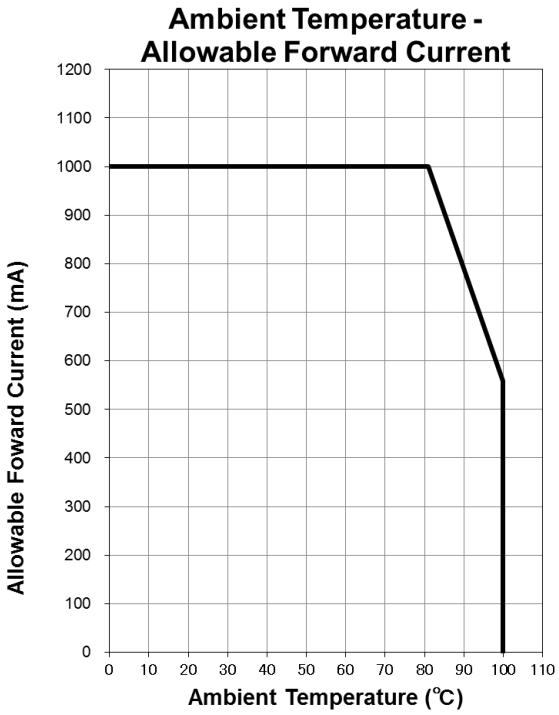


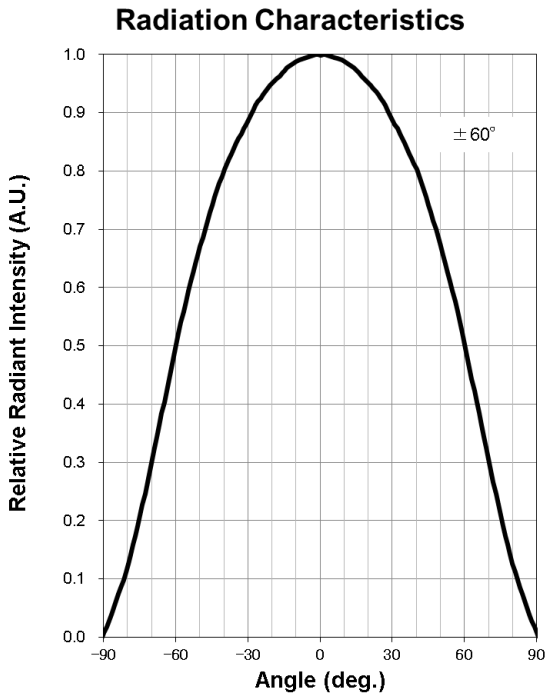



Ambient Temperature -
Peak Wavelength
If=1000mA
Peak Wavelength (nm)
1000
990
980
970
960
950
940
930
920
910
900
0
20
40
60
80
100
Ambient Temperature (℃)

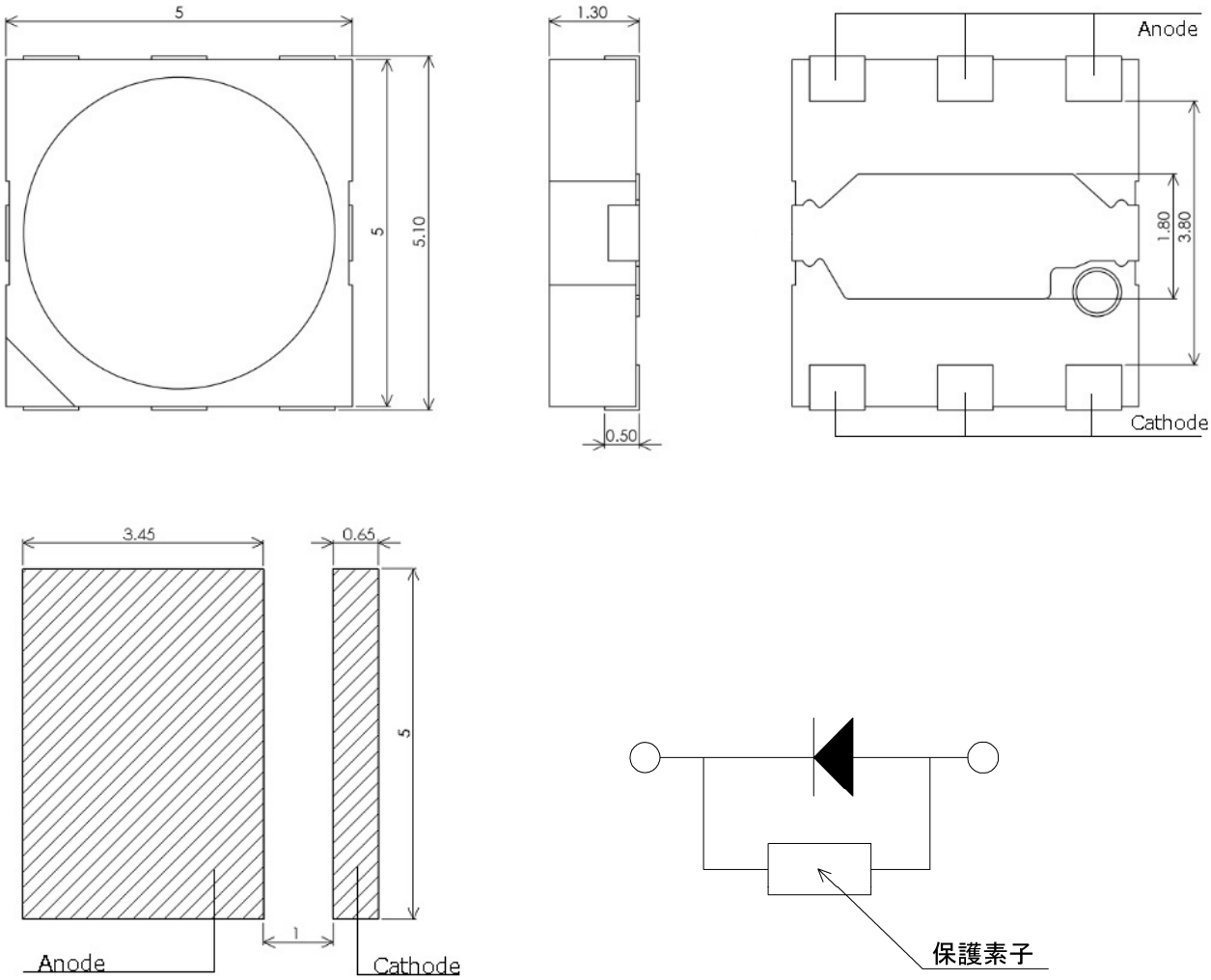

Relative Spectrum Emission
Ta=25℃
Relative Radiant Intensity (A.U.)
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
800
850
900
950
1000
1050
Wavelength (nm)


Pulse Duration - Forward Current
Foward Current (mA)
4000
3500
3000
2500
2000
1500
1000
500
0
1
10
100
1000
10000
100000
1000000
10000Hz
1000Hz
100Hz
10Hz
Pulse Duration tw (μs)


Ambient Temperature -
Allowable Forward Current
Allowable Foward Current (mA)
1200
1100
1000
900
800
700
600
500
400
300
200
100
0
0
10
20
30
40
50
60
70
80
90
100
110
Ambient Temperature (℃)


Radiation Characteristics
Relative Radiant Intensity (A.U.)
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
±60°
-90
-60
-30
0
30
60
90
Angle (deg.)

Outline and Internal Circuit



RECOMMENDED METHODE OF STORAGE AND HANDLING

Storage Conditions

Before opening the moisture-proof Aluminum Bag

- Please keep at the condition of < 30℃ and < 60% RH
- The maximum storage life is 12 months under these conditions.

After opening the moisture-proof Aluminum Bag

- Please store the aluminum bag and silica gel in a drying apparatus.
- The LED should go through the soldering process within 72 hours in a room with the condition of 5～30℃ and < 50% RH.
- Unused remaining LEDs and silica gel should be returned to the original aluminum bag. And please hermetically seal that bag.
- It is recommended to store the re-sealed bag in a drying apparatus at the condition of < 30% RH.
- 72 hours of long floor life does not included the time period which LEDs are stored in the moisture-proof Aluminum Bag. Even though, it is highly recommended to solder the LEDs as soon as after opening the aluminum bag.

Disclaimer

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Product data and parameters in this brochure are typical values according to reasonably updated measurements.

Product data and parameters may vary by its application and operating time.

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Oct. 2018