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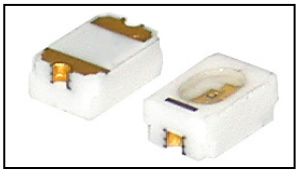
UVLED375E-SMD



TECHNICAL DATA

375 nm SMD UVLED

Features

- Zener diode is built in the protective circuit against static electricity
- Low Voltage DC Operated
- High Power Intensity
- Complies with RoHS Directive

Specifications (25°C)

Type	Symbol	Value	Unit
Absolute Maximum Ratings			
DC Forward Current	I_F	25	mA
Peak Pulse Forward Current *	I_{FP}	80	mA
Allowable Reverse Current	I_R	85	mA
Power Dissipation	P_D	100	mW
Operating Temperature	T_{OP}	-30 … +85	°C
Storage Temperature	T_{STG}	-40 … +100	°C
Soldering Temperature (reflow, 10 s)	T_{SOL}	260	°C
Soldering Temperature (hand, 3 s)	T_{SOL}	350	°C

* Note: 1/10 duty cycle, <10 ms pulse width

Characteristics		Symbol	Min.	Typ.	Max.	Unit
Electrical Specification						
Forward Current		I_F	-	20	-	mA
Forward Voltage *[1]		V_F	-	3.6	4.0	V
Optical Specification						
CW Output Power *[2]	Rank 9	P_O	9.6	-	13.6	mW
	Rank 10	P_O	13.6	-	19.2	mW
	Rank 11	P_O	19.2	-	27.2	mW
Peak Wavelength *[3]		λ_P	370	375	380	nm
Spectrum Half Width		λ		15		nm
Viewing Angel		φ		100		deg.

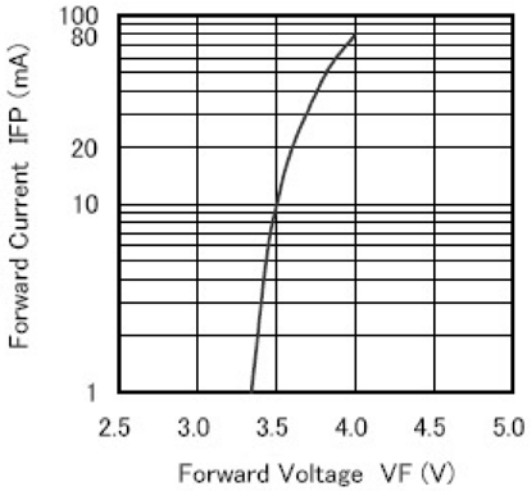
* Note:
1. Forward voltage measurement tolerance is ± 0.2 V
2. Optical ouput measurement tolerance is ± 10%
3. Peak wavelength measurement tolerance is ± 3 nm

Device Materials

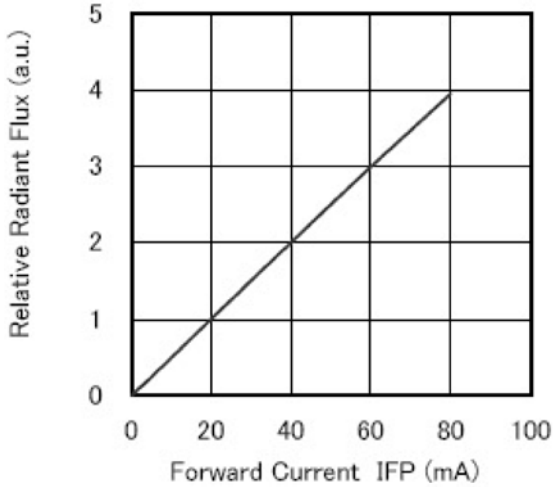
Item	Material
Package	Ceramics
Encapsulating Resin	Silicone Resin
Electrodes	Ag Plating

Typical Performance Curves

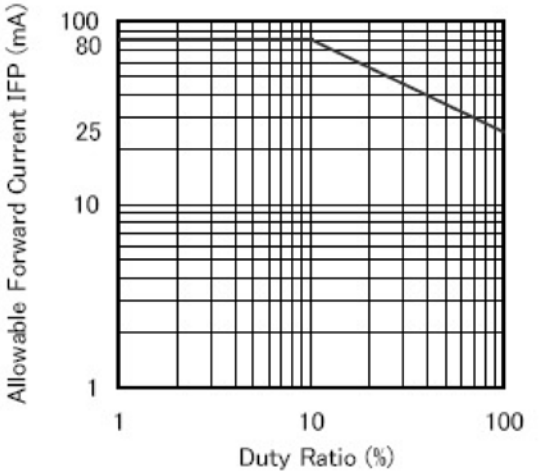
Forward Voltage vs Forward Current:



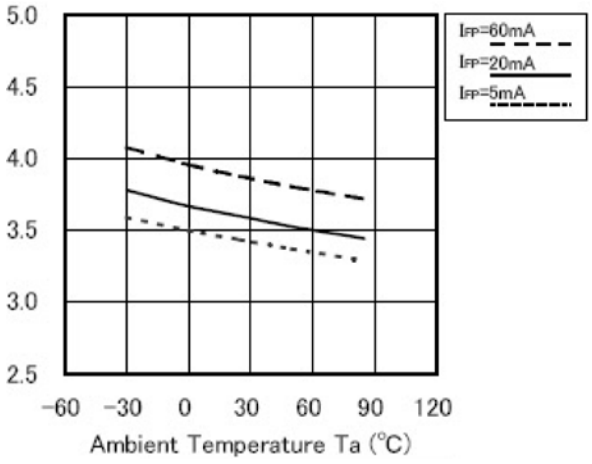
Forward Voltage vs relative radiant Flux :



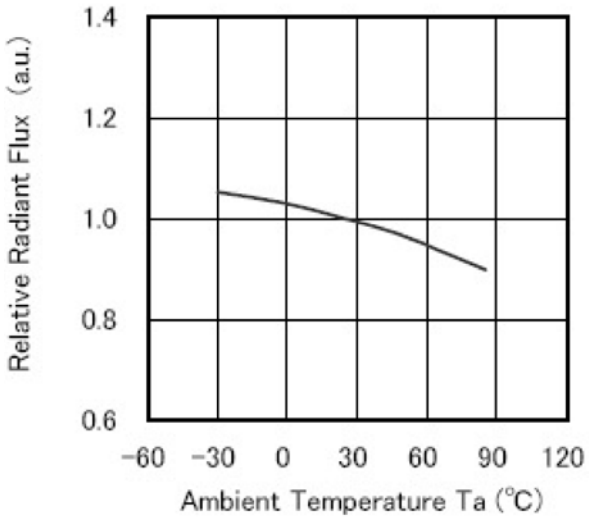
Duty Ratio vs Allowable Forward Current:



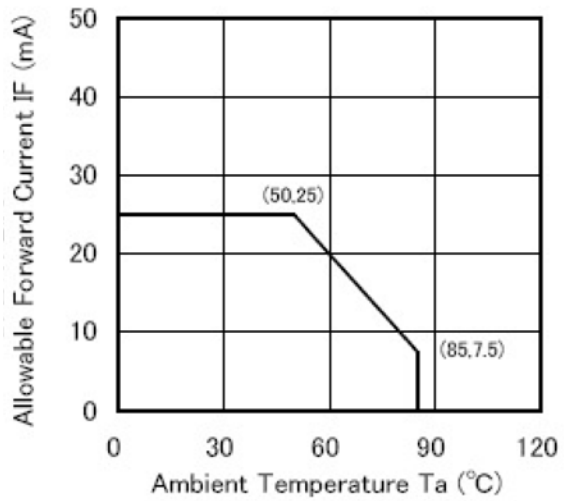
Ambient Temperature vs. Forward Voltage:



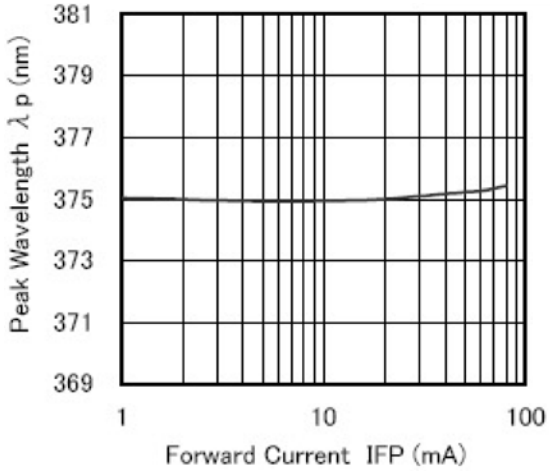
Ambient Temp. vs. Relative Output Power:



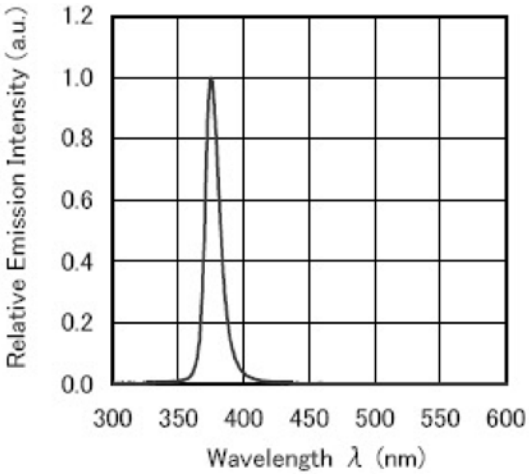
Ambient Temp. vs Allowable Forward Current:



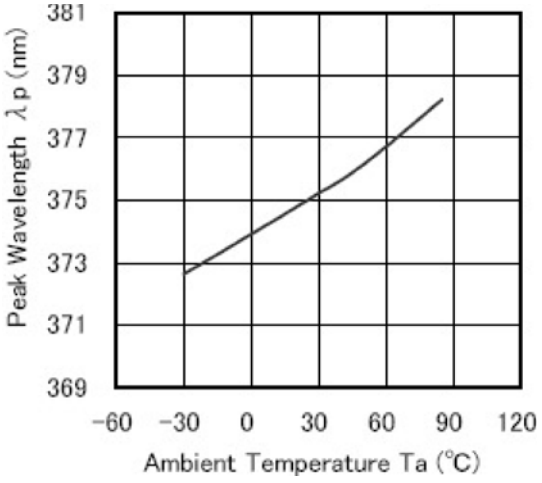
Forward Current vs. Peak Wavelenght.



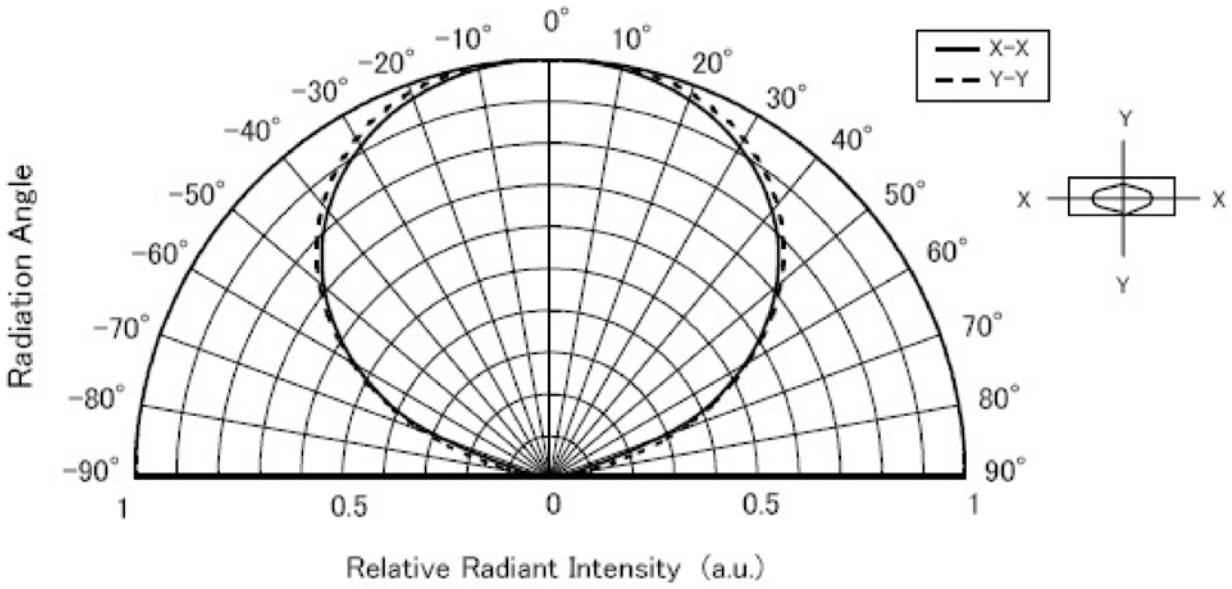
Spectrum:



Ambient Temperature vs. Peak Wavelenght:



Directivity:



Reliability

1. Test items and result

No.	Test Item	Standard Test Methode	Test Conditions	Note	Samples	Passed
1	Steady State Operating Life		I_F=25mA, Ta=25°C	1000 Hr	50	50/50
2	High Temp. Steady State Operating Life		I_F=7.5mA, Ta=85°C	1000 Hr	50	50/50
3	High Temp. High Humidity Steady State		Ta=60°C, RH=90%, I_F=20mA	500 Hr	50	50/50
4	Low Temp. Steady State Operating Life		I_F=20mA, Ta=-30°C	1000 Hr	50	50/50
5	Reflow Soldering	JEITA ED-4701 330 301	Tsol=260 ± 5°C, 10sec	2 Times	50	50/50
6	Reflow Solderability	JEITA ED-4701 330 303	Tsol=215 ± 5°C, 3sec	1 Time >95%	50	50/50
7	Themal Shock	JEITA ED-4701 330 307	0°C … +100°C (15 s)	20 cycles	50	50/50
8	Temperature Cycle	JEITA ED-4701 100 105	-40°C ~ 25°C ~ 100°C ~ 25°C 30min. 5min. 30min. 5min.	100 cycles	50	50/50
9	Moisture Resistance Cycle	JEITA ED-4701 200 203	25°C ~ 65°C ~ -10°C 90%RH 24hrs./1 cycle	10 cycles	50	50/50
10	High Temperature Storage	JEITA ED-4701 200 201	Ta=100°C	1000 Hr	50	50/50
11	Low Temperature Storage	JEITA ED-4701 200 202	Ta=-40°C	1000 Hr	50	50/50
12	Vibration	JEITA ED-4701 400 403	100 ~ 2k ~ 100HZ sweep 4min. 200m/s², 3directions, 4 cycles	48min	50	50/50

2. Criteria for judging the damage

Item	Symbol	Test Conditions	Criteria for Judgment	
			Min.	Max.
Forward Voltage	V_F	I_F=20mA	-	U.S.L x 1.1
Optical Power Ouput	P_O	I_F=20mA	L.S.L x 0.7	-

* Note:
1. U.S.L: Upper Standard Level
2. L.S.L: Lower Standard Level

Precaution for Use

1. Cautions

- This device is a UV LED, which radiates intense UV light during operation.
- DO NOT look directly into the UV light or look through the optical system. To prevent inadequate exposure of UV radiation, wearing UV protective glasses is recommended

2. Moisture Proof Package

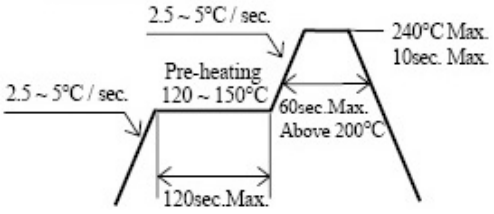
- When moisture is absorbed into the SMD package, it may vaporize and expand during soldering. This can cause exfoliation of the contacts, alter the optical characteristics of the LED, and may irreversible damage the LED.

3. Soldering

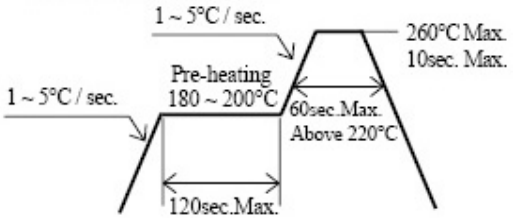
- The LEDs should be sodered using the reflow soldering method. Function of the LEDs can not be guaranteed after assembling was done using dip soldering method
- Recommended soldering conditions:

	Reflow Soldering		Dip Soldering
	Lead Solder	**Lead-free Solder**	
Pre-Heat	120 …150°C	180 …200°C	-
Pre-Heat Time	max 120 s	max 120 s	-
Peak Temperature	240°C	260°C	max 350°C.
Soldering time	max 10 s	max 10 s	max 3 s
Condition	Please see graph below	Please see graph below	-

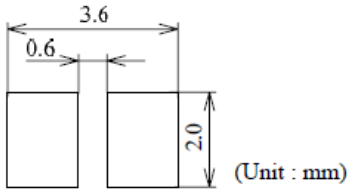
Lead Solder:



Lead free Solder:



Recommended Solder Pad design (unit mm):



- Soldering at the lowest possible temperatures is desireable for the LEDs.
- Occasionally there is a decrease in LEDs brightness due to the influence of heat or ambient atmoshere during soldering. Nitrogen reflow soldering is recommended therefor.
- LEDs encapsulation material is silicone. Therefor the LEDs surface is soft and must not be exposed to strong pressure during soldering.

4. Static Electricity

- The LEDs are very sensitive to Static Electricity and surge voltage. So it is recommended that a wrist band or an anti-electrostatic glove be used when handling the LEDs.
- All devices, equipment and machinery must be grounded properly. It is recommended that precautions should be taken against surge voltage to the equipment that mounts the LEDs.

5. Heat Generation

- The powered LEDs generate heat. Heat dissipation should be considered in the application design to avoid the environmental conditions for operation in excess of the absolute maximum ratings.

Outline Dimensons