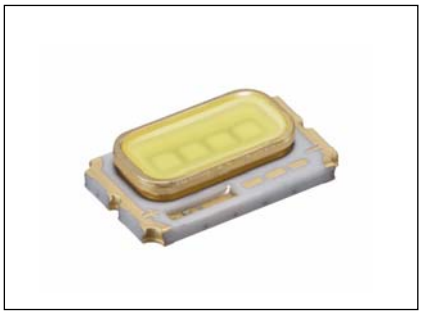


Pb-free HEAT

EBW1444US-E

High Flux , Power LED

Features

Package	High Heat Radiation Ceramic LCC Type with Metallic Reflector Diffused Pale Yellow Resin
Product feature	・Outer Dimension 8.67 x 5.27 x 1.6mm (L x W x H) ・Temperature range Storage Temperature：-40℃～120℃ Operating Temperature：-40℃～100℃ ・Lead-free soldering compatible ・RoHS compliant
Chromaticity coordinates	x = 0.356 TYP., y = 0.370 TYP. (Condition : IF=350mA)
Spatial distribution	120 deg.
Die materials	InGaN
Rank grouping parameter	Sorted by luminous intensity and chromaticity per rank tray
Assembly method	Auto pick & place machine (Auto Mounter)
Soldering methods	Recommendation of Reflow soldering
Packing form	100pcs per tray in a 32 x 111mm . 2~11 trays are contained into 1 moisture-proof bag. (Standard)
ESD	2kV (HBM)

Recommended Applications

・Residential lighting, Office lighting, Plant lighting, Store lighting, and Special lighting etc.

Color , Luminous Flux

(Ta=25℃,IF=350mA)

Part No.	Emitted Color	Lens Color	CCT TYP.	Chromaticity Coordinates TYP.		Luminous Flux ϕv (lm)	
				x	y	MIN.	TYP.
EBW1444US-E	Daylight	Pale Yellow	4,800K	0.356	0.370	300	360

Absolute Maximum Ratings

(Ta=25℃)

Item	Symbol	Ratings	Unit
Power Dissipation	P_d	8,000	mW
Continuous Forward Current	I_F	500	mA
Repetitive Peak Forward Current ※1	I_{FRM}	1250	mA
Allowable Reverse Current	I_R	85	mA
ESD(HBM)※2	ESD	2,000	V
Solder Temperature ※3 (Reflow soldering)	T_{sld}	260	℃
Operating Temperature※4	T_{opr}	-40～+100	℃
Storage Temperature※4	T_{stg}	-40～+120	℃

※1 I_{FRM} Measurement condition ／Pulse Width ≦ 1ms., Duty≦1/20
※2 ESD testing method：EIAJ 4701/300(304) (HBM) 1.5kΩ, 100pF
※3 Please refer to the attached sheets soldering conditions.
※4 The range of operating and storage temperature is not tray condition.

Thermal Characteristics

(Ta=25℃)

Item	Symbol	Ratings TYP.	Unit
Thermal Resistance (Junction/ Solder Point)	$R_{th(j-s)}$	2.5	℃/W
Junction Temperature	Tj	125	℃

Electro-Optical Characteristics

(Ta=25℃)

Item	Condition	Symbol	Characteristics		
Forward Voltage	I_F=350mA	V_F	MIN.	11.6	V
			TYP.	13.0	
			MAX.	14.8	
Reverse Voltage	I_R=85mA	V_R	MIN.	0.8	V
			MAX.	1.7	
Half Intensity Angle	I_F=350mA	Δ θ x	TYP.	120	deg.
		Δ θ y			
Chromaticly Coordinates	I_F=350mA	x	TYP.	0.356	–
		y	TYP.	0.370	–

Sorting chart for Forward Voltage Characteristics

(Ta=25℃)

Rank	VF (V)		Condition
	MIN.	MAX.	
1	11.6	13.6	IF=350mA
2	13,6	14.8	

Tolerance Each Rank : +/- 0.1V

※LEDs shall be "Forward Voltage" sorted put into the following chart and each rank parts shall be packed separately when shipping.

Luminous Flux Rank （Unit：lm）

(Ta=25℃)

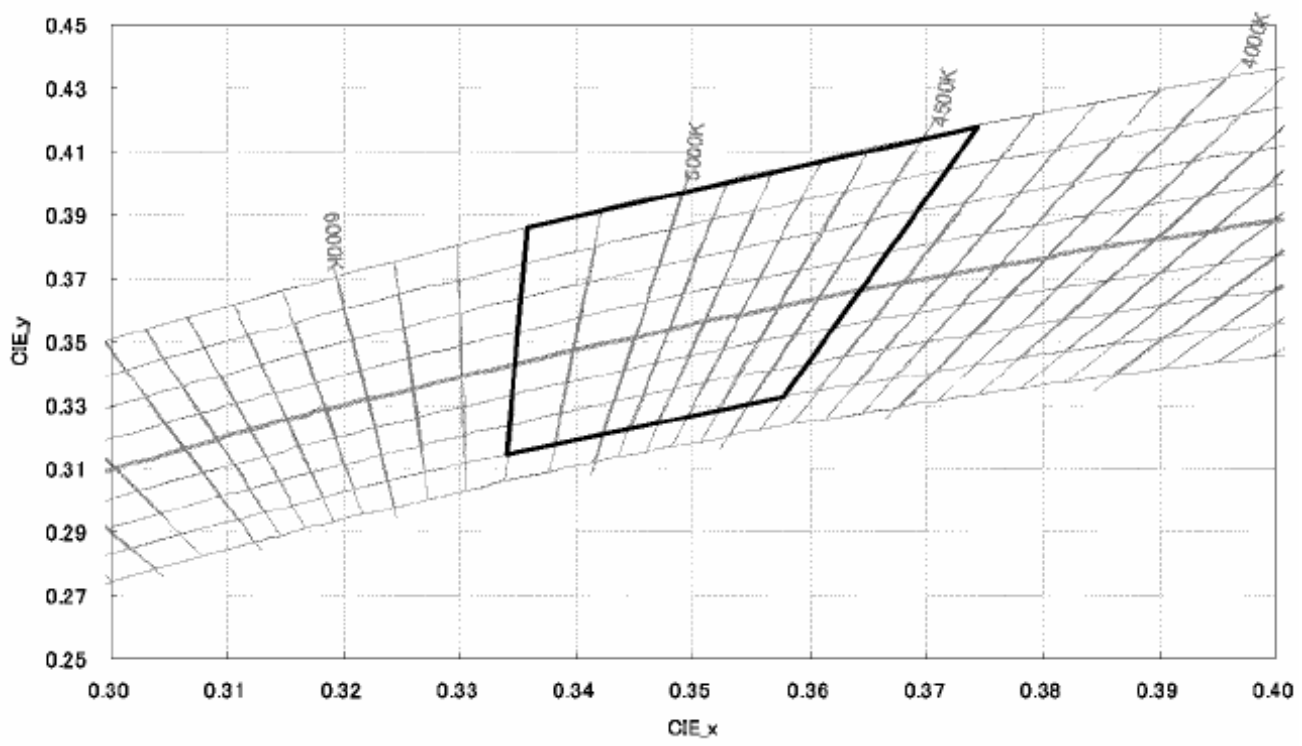
Rank	Φv (lm)		Condition
	MIN.	MAX.	
C6	300	330	IF=350mA
C7	330	390	

Tolerance Each Rank : +/-10%

※LEDs shall be "Luminous Flux" sorted put into the following chart and each rank parts shall be packed separately when shipping.

Sorting Chart for Chromaticity Coordinates

(Ta=25℃)

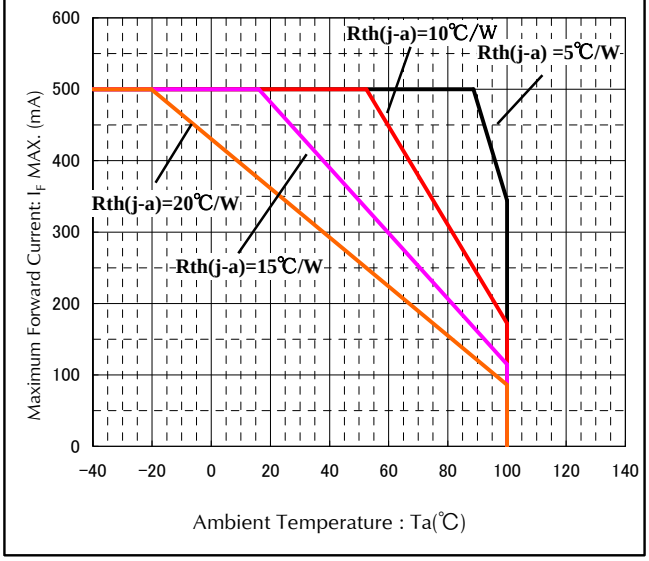


Tolerance Each Rank ：+/-0.02

LEFT DOWN point		LEFT UP point		RIGHT UP point		RIGHT DOWN point	
x	y	x	y	x	y	x	y
0.3340	0.3147	0.3357	0.3860	0.3744	0.4180	0.3577	0.3324

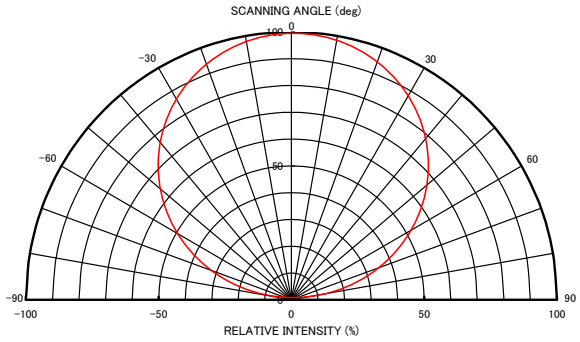
Technical Data

Ambient Temperature vs. Maximum Forward Current



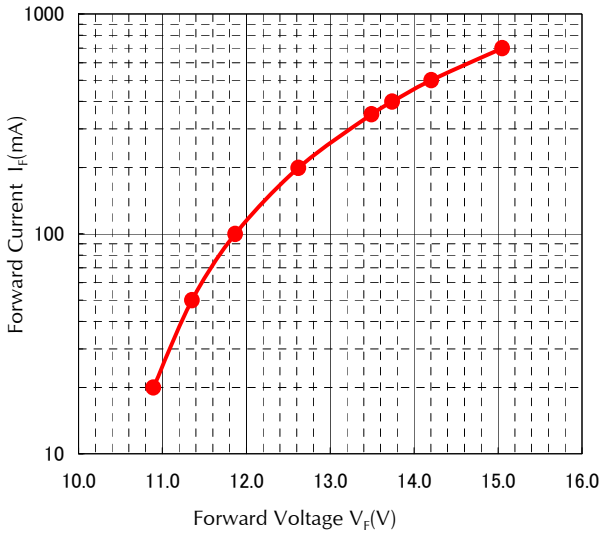
Spatial Distribution Example

Condition : Ta = 25℃



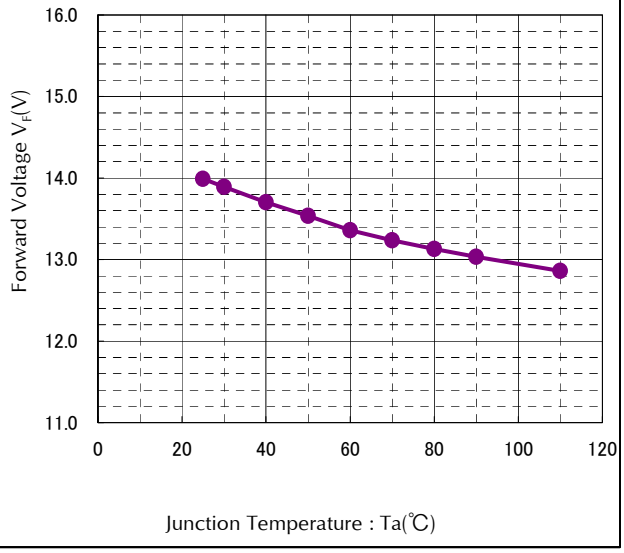
Forward Voltage vs. Forward Current

Condition: Ta = 25℃

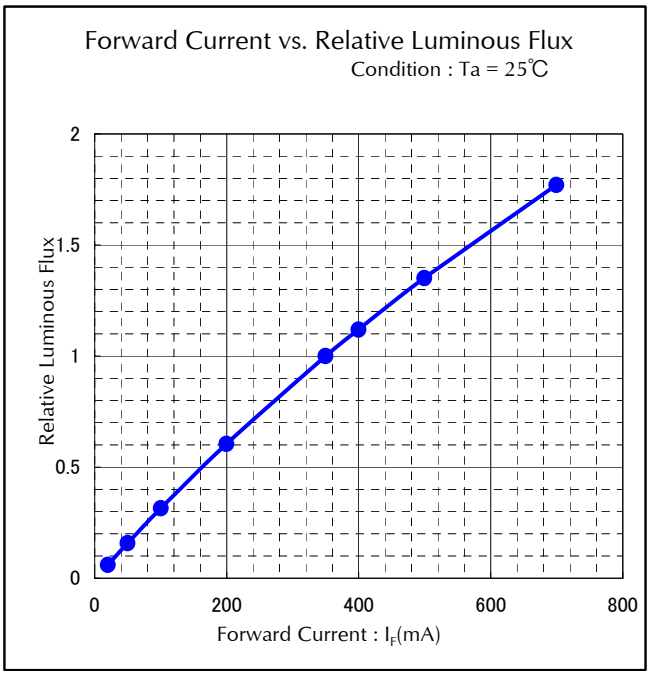


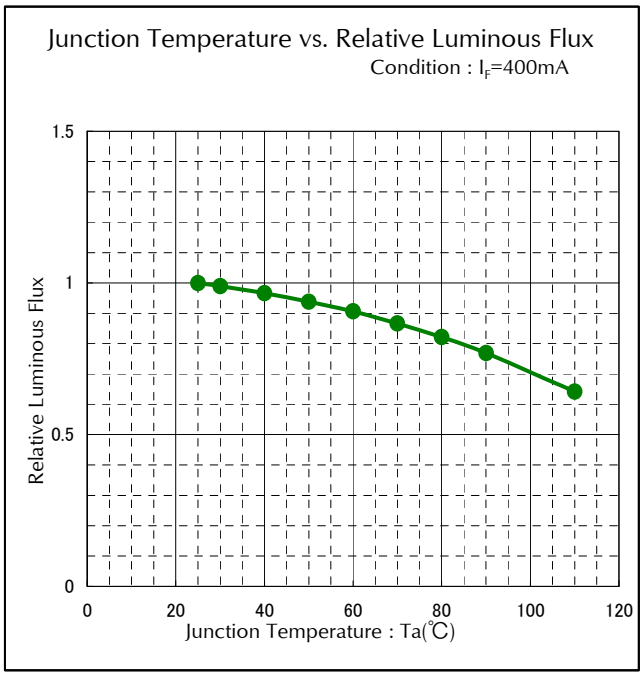
Junction Temperature vs. Forward Voltage

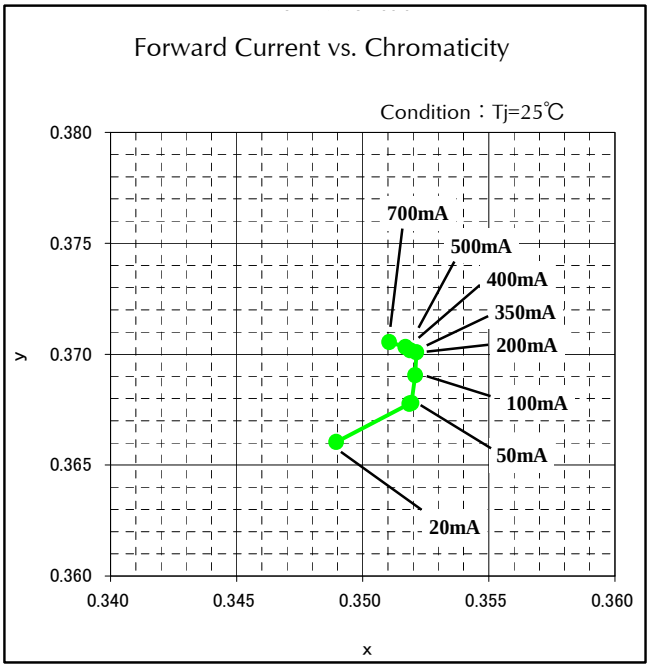
Condition : I_F=400mA

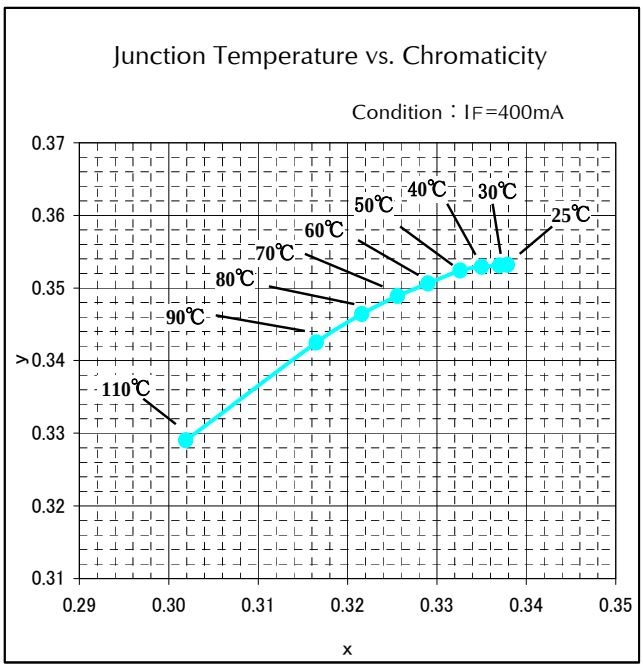


Technical Data

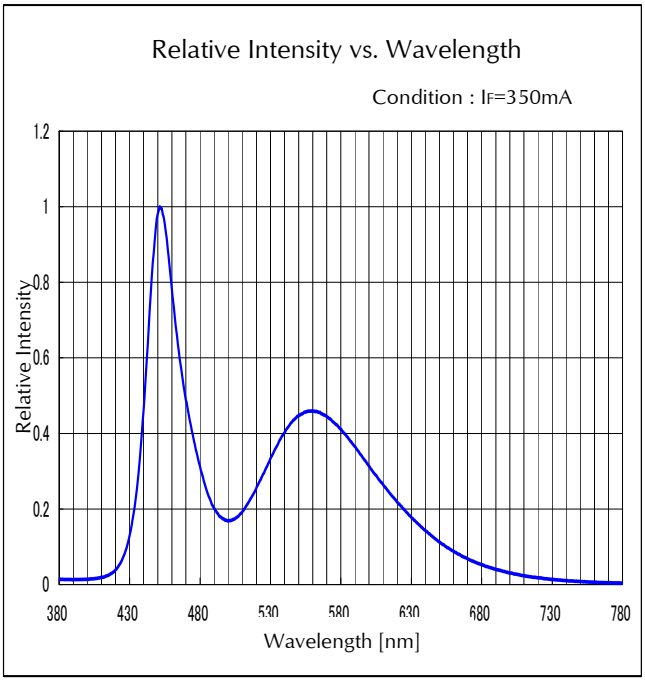








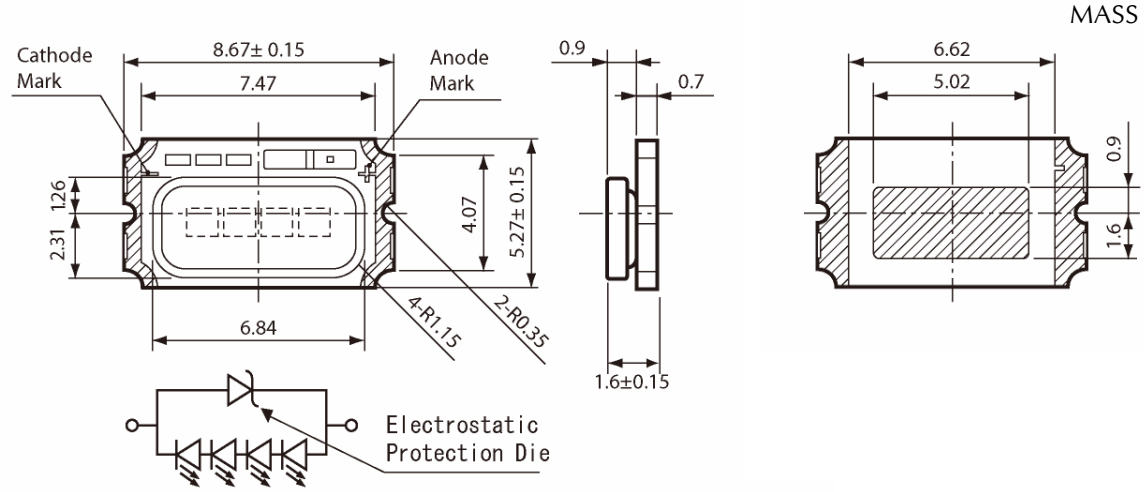
Technical Data



Package Dimensions

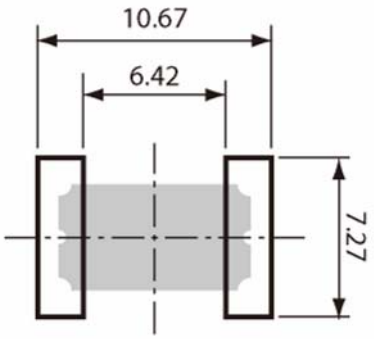
(Unit：mm)

MASS : (175.0)mg



Recommended Soldering Pattern

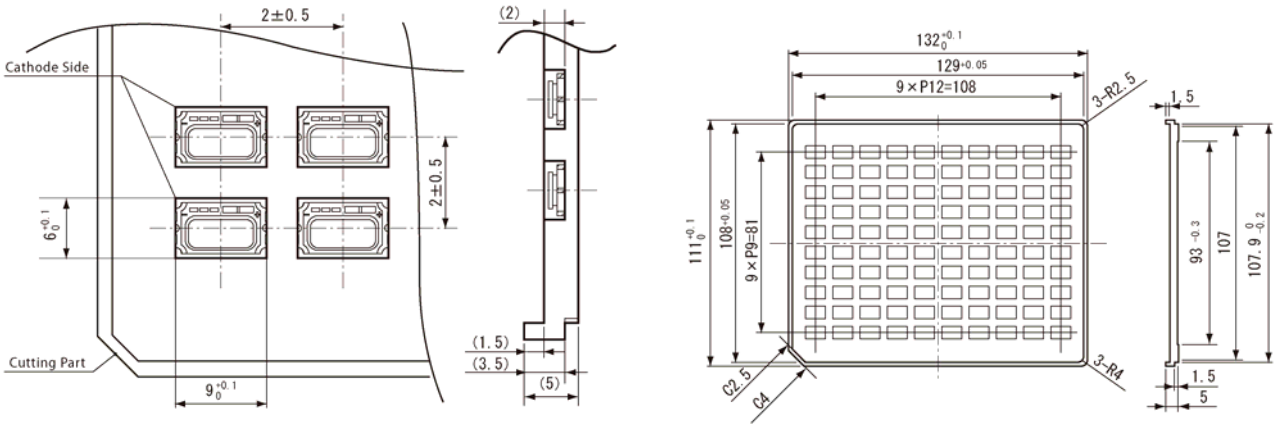
(Unit：mm)



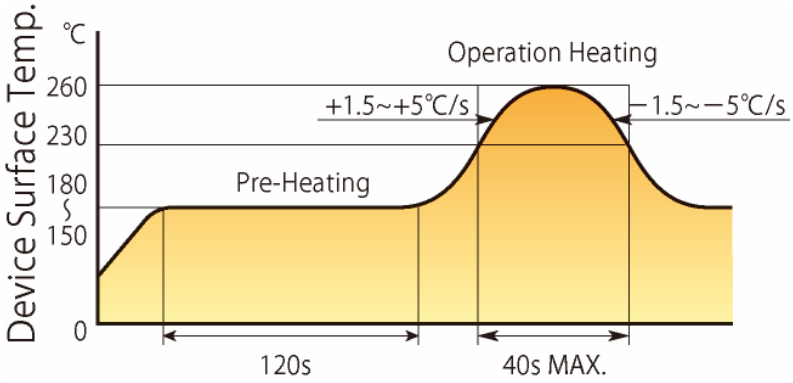
Pocket Dimensions

(Unit：mm)

※ Quantity: 100pcs/ tray



Reflow Soldering Conditions



1) The above profile temperature gives the maximum temperature of the LED resin surface. Please set the temperature so as to avoid exceeding this range.

2) Total times of reflow soldering process shall be no more than 2 times. When the second reflow soldering process is performed, intervals between the first and second reflow should be short as possible (while allowing some time for the component to return to room temperature after the first reflow) in order to prevent the LED resin from absorbing moisture.

Reliability Testing Result

Reliability Testing Result	Applicable Standard	Testing Conditions	Duration	Failure
Room Temp. Operating Life	EIAJ ED-4701/100(101)	Ta = 25℃, IF = Maxium Rated Current	1,000 h	0/20
High Temp. Operating Life	EIAJ ED-4701/100(101)	Ta = Maximum Rated Operating Temp., I_F = 350mA	1,000 h	0/20
Low Temp. Operating Life	EIAJ ED-4701/100(101)	Ta = -40℃, I_F = Maxium Rated Current	1,000 h	0/20
Wet High Temp. Operating Life	EIAJ ED-4701/100(102)	Ta = 60℃, 90%, I_F = 350mA	1,000 h	0/20
Temperature Cycling	EIAJ ED-4701/100(105)	Ta = -40℃ ~ Maximum Rated Storage Temp. (each 15min.)	1,000 cycles	0/20
Resistance to Soldering Heat	EIAJ ED-4701/300(301)	Preheating : 150 ~ 180℃(120s Max.) Operation Heating : 260℃	2 times	0/20

Failure Criteria

Items	Symbols	Conditions	Failure criteria
Luminous Intensity	I_V	I_F =100mA	Testing Min. Value < Spec. Min. Value x 0.5
Forward Voltage	V_F	I_F =100mA	Testing Max. Value ≧ Spec. Max. Value x 1.2
Cosmetic Appearance	-	-	Occurrence of notable decoloration, deformation and cracking

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