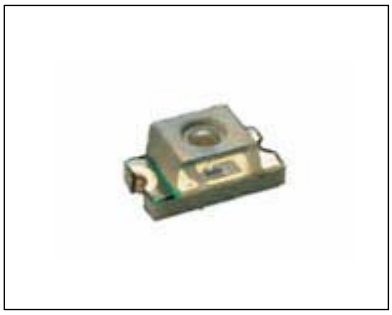


Pb-free HEAT

DN1102W

Surface Mount IRED/Inner Lens Type

Features

Package	3216 type, Water clear epoxy
Product features	・Outer Dimension 3.0 x 1.5 x 1.5mm (L x W x H) ・Inner Lenz type ・Total Output Power : 4mW TYP. (I_F=20mA) ・Lead-free soldering compatible ・RoHS compliant
Peak Wavelength	850nm
Half Intensity Angle	θ x = 60 deg., θ y = 70deg.
Die materials	GaAlAs
Rank grouping parameter	Sorted by radiant intensity per rank taping
Assembly method	Auto pick & place machine (Auto Mounter)
Soldering methods	Reflow soldering and manual soldering ※Please refer to Soldering Conditions about soldering.
Taping and reel	2,500pcs per reel in a 8mm width tape. (Standard) Reel diameter: ϕ 180mm
ESD	2kV (HBM)

Recommended Applications

Car Audio, Electric Household Appliances, OA/FA, PC/Peripheral Equipment, Other General Applications

Pb-free HEAT

DN1102W

Surface Mount IRED/Inner Lens Type

Absolute Maximum Ratings

(Ta=25℃)

Item	Symbol	Absolute Maximum Ratings	Unit
Power Dissipation	Pd	75	mW
Forward Current	I_F	50	mA
Pulse Forward Current ※1	I_{FRM}	300	mA
Derating (Ta=25℃ or higher)	ΔI_F	0.67	mA/℃
	ΔI_{FRM}	4	mA/℃
Reverse Voltage	V_R	5	V
Operating Temperature	T_{opr}	-30～+85	℃
Storage Temperature	T_{stg}	-40～+100	℃

※1 IFRM Measurement condition : Pulse Width≦100μs, Duty≦1/100

Electro-Optical Characteristics

(Ta=25℃)

Item	Conditions	Symbol	Characteristics		Unit
Forward Voltage	I_F=20mA	V_F	TYP.	1.45	V
			MAX.	1.8	
Reverse Current	V_R=5V	I_R	MAX.	100	μA
Radiant Intensity	I_F=20mA	I_E	MIN.	0.8	mW/sr
			TYP.	1.6	
Total Output Power	I_F=20mA	Po	TYP.	4	mW
Peak Wavelength	I_F=20mA	λ_p	TYP.	850	nm
Spectral Half-width	I_F=20mA	$\Delta\lambda$	TYP.	40	nm
Half Intensity Angle	I_F=20mA	2θ 1/2	TYP.	60(θ x)	deg.
				70(θ y)	deg.
Cut-off Frequency	I_F=20mA$_{DC}$±5mA, -3db from 0.1MHz	fc	MIN.	-	MHz
			TYP.	12	
Response Time	I_F=20mA	tr/tf	TYP.	30	ns

Radiant Intensity Rank

(Ta=25℃)

Rank	I_E (mW/sr)		Condition
	MIN.	MAX.	
A	0.8	1.6	I_F = 20mA
B	1.1	2.2	
C	1.6	3.2	
D	2.2	4.4	
E	3.2	-	

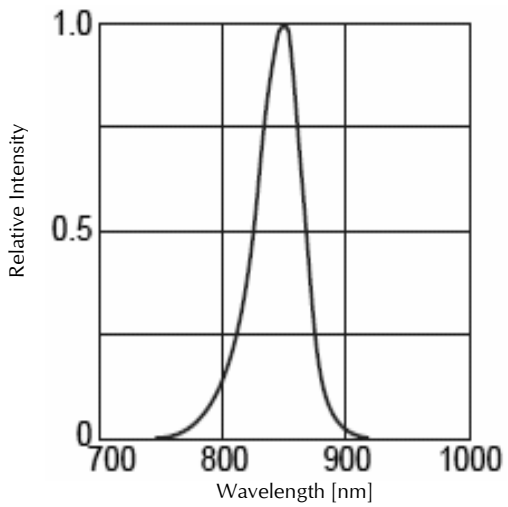
※Please contact our sales staff concerning rank designation.

Technical Data

Spectral Distribution

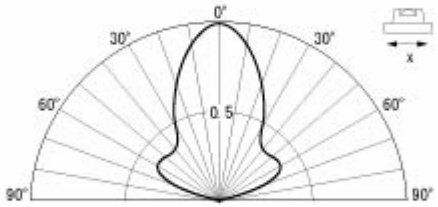
Relative Intensity vs. Wavelength

Condition : Ta = 25℃, I_F = 50mA



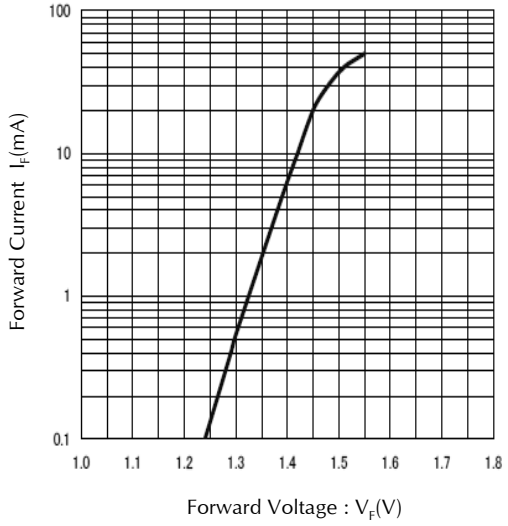
Spatial Distribution Example

Condition : Ta = 25℃



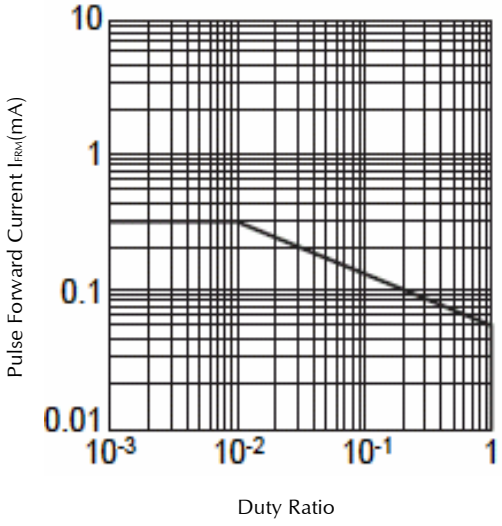
Forward Voltage vs. Forward Current

Condition : Ta = 25℃



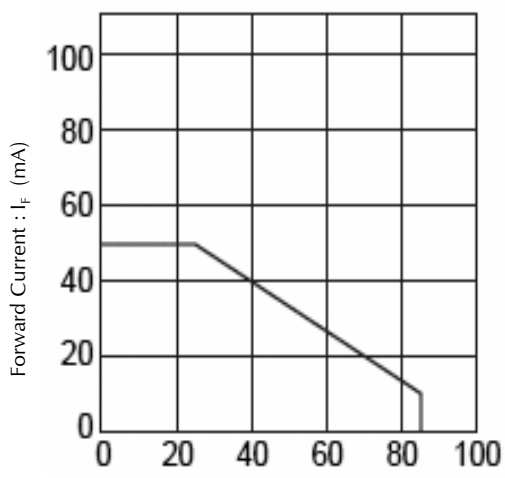
Duty Ratio vs. Pulse Forward Current

Condition : Ta = 25℃, tw ≦ 100 μs



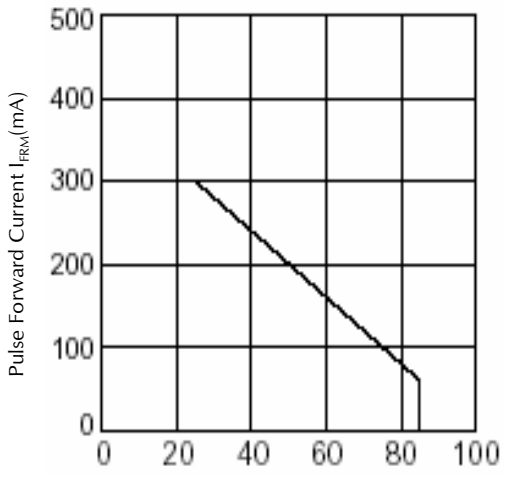
Technical Data

Ambient Temperature vs. Forward Current



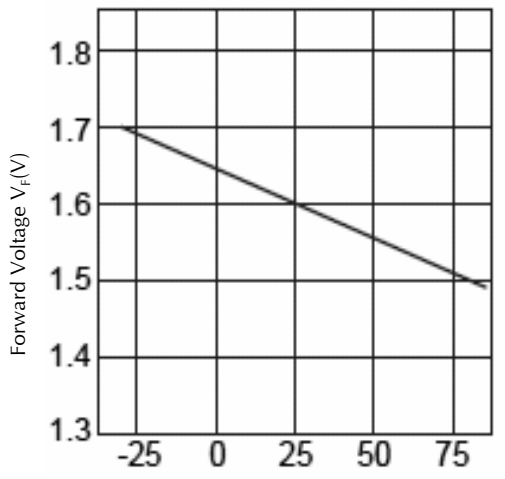
Ambient Temperature vs. Pulse Forward Current

Condition : tw≦100 μs, Duty≦1/100



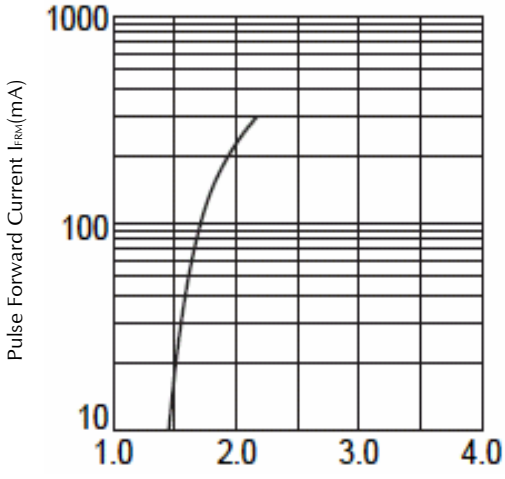
Ambient Temperature vs. Forward Voltage

Condition : I_F = 50mA



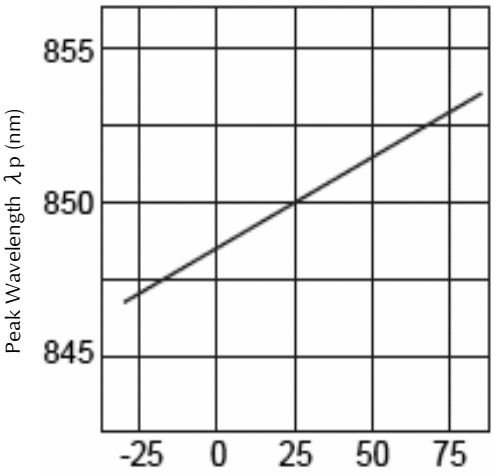
Pulse Forward Voltage vs. Pulse Forward Current

Condition : Ta=25℃, tw≦100 μs, Duty≦1/100

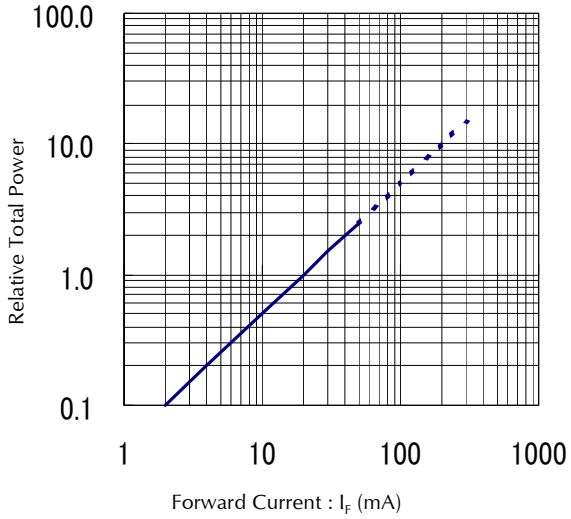


Technical Data

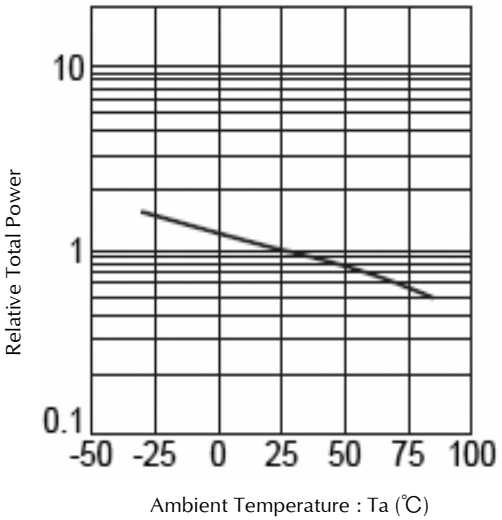
Ambient Temperature vs. Peak Wavelength
Condition : I_F = 50mA



Forward Current vs. Relative Total Power
Condition : - - Pulse, tw≦100μs,
Duty≦1/100, Ta = 25℃



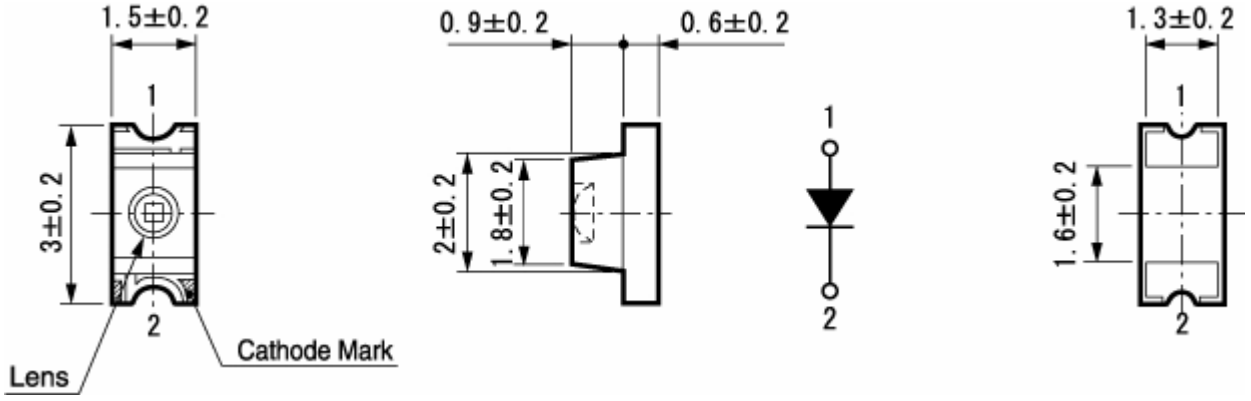
Ambient Temperature vs. Relative Total Power
Condition : I_F = 50mA



Package Dimensions

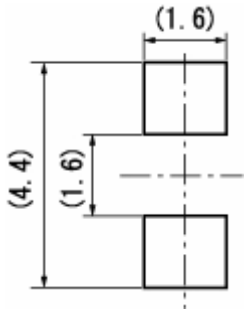
(Unit: mm)

Weight: (7.80)mg



Recommended Soldering Pattern

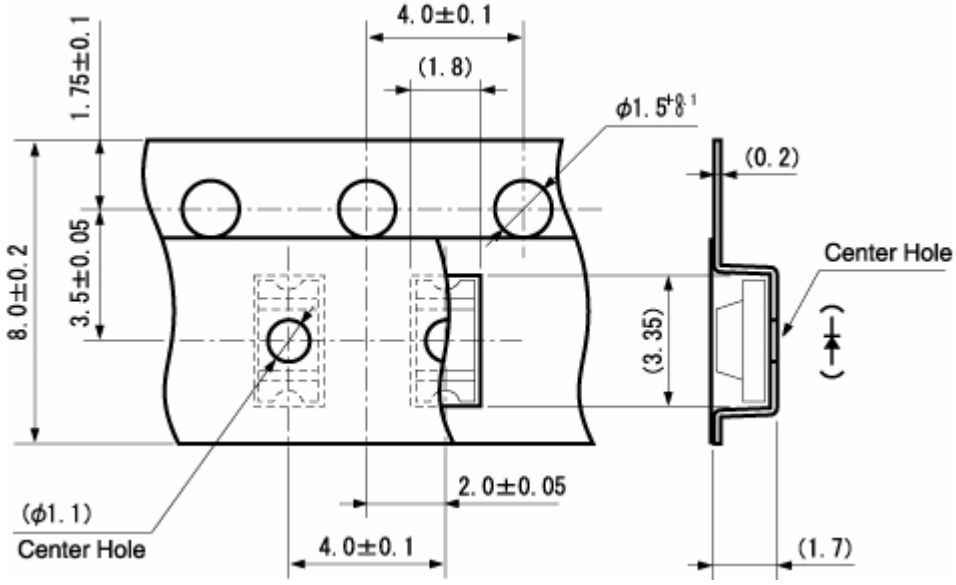
(Unit: mm)



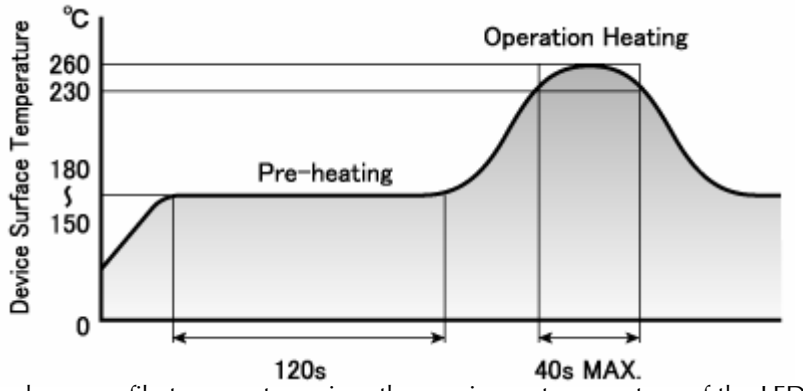
Taping Specification

(Unit: mm)

Quantity: 2,500pcs/ reel (standard)



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 normal temperature after the first reflow) in order to prevent the LED from absorbing moisture.

3) Temperature fluctuation to the LED during the pre-heating process shall be minimized.

Manual Soldering Conditions

Iron tip temp.	350 ℃	(MAX.) (30 W Max.)
Soldering time and frequency	3 s 1 time	(MAX.) (MAX.)

Reliability Testing Result

Reliability Testing Result	Applicable Standard	Testing Conditions	Duration	Failure
Room Temp. Operating Life	EIAJ ED-4701/100(101)	Ta = 25℃, I_F = Maxium Rated Current	1,000 h	0/25
Resistance to Soldering Heat	EIAJ ED-4701/300(301)	(Pretreatment) Individual standard (Reflow Soldering) Pre-heating 150℃～180℃ 120s Operating Heating 230℃ Min. Peak temperature 260℃	Twice	0/25
Temperature Cycling	EIAJ ED-4701/100(105)	Minimum Rated Storage Temperature(30min) ～Normal Temperature(15min) ～Maximum Rated Storage Temperature(30min) ～Normal Temperature(15min)	5 cycles	0/25
Wet High Temp. Storage Life	EIAJ ED-4701/100(103)	Ta = 60±2℃, RH = 90±5%	1,000 h	0/25
High Temp. Storage Life	EIAJ ED-4701/200(201)	Ta = Maximum Rated Storage Temperature	1,000 h	0/25
Low Temp. Storage Life	EIAJ ED-4701/200(202)	Ta = Minimum Rated Storage Temperature	1,000 h	0/25
Vibration, Variable Frequency	EIAJ ED-4701/400(403)	98.1m/s^2(10G), 100 ～ 2KHz sweep for 20min., XYZ each direction	2 h	0/10

Failure Criteria

Items	Symbols	Conditions	Failure criteria
Radiant Intensity	I_E	I_F Value of each product Radiant Intensity	Testing Min. Value < Initial Value x 0.5
Forward Voltage	V_F	I_F Value of each product Forward Voltage	Testing Max. Value > Spec. Max. Value x 1.2
Reverse Current	I_R	V_R = Maximum Rated Reverse Voltage V	Testing Max. Value ≧ Spec. Max. Value x 2.5

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