



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

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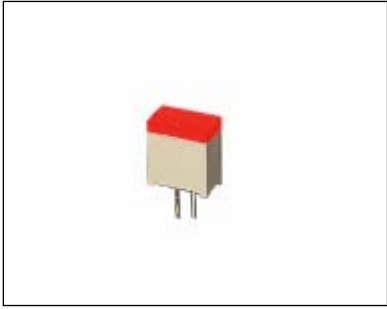
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**Pb-free
HEAT**



MU92 Series

Single Color / Light Bar Module

Features

Light emitting surface (Outer size)	9 x 5 mm (9 x 5 mm) (L x W)
Product features	<ul style="list-style-type: none"> • Single Color (Green, Yellow, Orange or Red) • Lead-free soldering compatible • RoHS compliant
Peak wavelength	Green : 555 nm Yellow : 570 nm Orange : 605 nm Red : 660 nm
Die materials	Green, Yellow : GaP Orange : GaAsP Red : GaAlAs
Soldering methods	TTW (Through The Wave) soldering and manual soldering
Soldering methods	More than 2kV(HBM)
Packing	Plastic bag

Recommended Applications

Electric Household Appliances, OA/FA, Other General Applications

Color and Luminous Intensity

Part No.	Material	Emitted Color	Resin Color	Luminous Intensity I _v (mcd)			Number of Chips
				MIN.	TYP.	I _F	
MU92-5001	GaP	Green	Green	1.2	2.4	20	1
MU92-4001	GaP	Yellow	Yellow	3	6	20	1
MU92-3001	GaAsP	Orange	Orange	3	6	20	1
MU92-2001	GaAlAs	Red	Red	3	6	20	1

Absolute Maximum Ratings

(Ta=25°C)

Item	Symbol	Absolute Maximum Ratings				Unit
		5001	4001	3001	2001	
Power Dissipation	P _d	75	75	75	60	mW
Forward Current	I _F	30	30	30	30	mA
Pulse Forward Current ^{※1}	I _{FRM}	100	100	100	300	mA
Derating (Ta=25°C or higher)	ΔI _F	0.33	0.33	0.33	0.33	mA/°C
	ΔI _{FRM}	1.33	1.33	1.33	4.00	mA/°C
Reverse Voltage	V _R	4	4	4	4	V
Operating Temperature	T _{opr}	-30~+85				°C
Storage Temperature	T _{stg}	-30~+85				°C

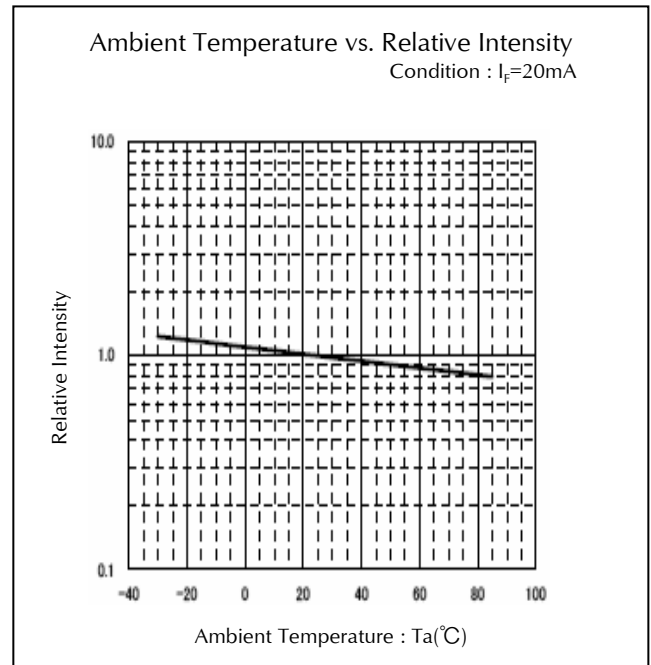
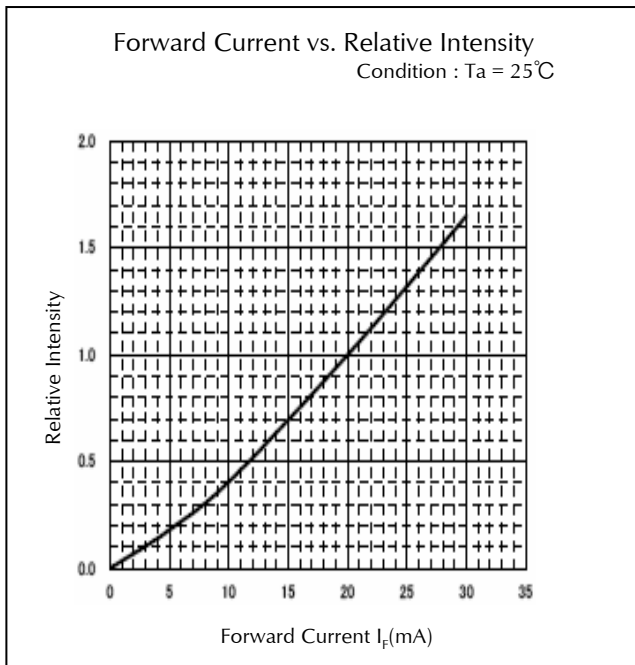
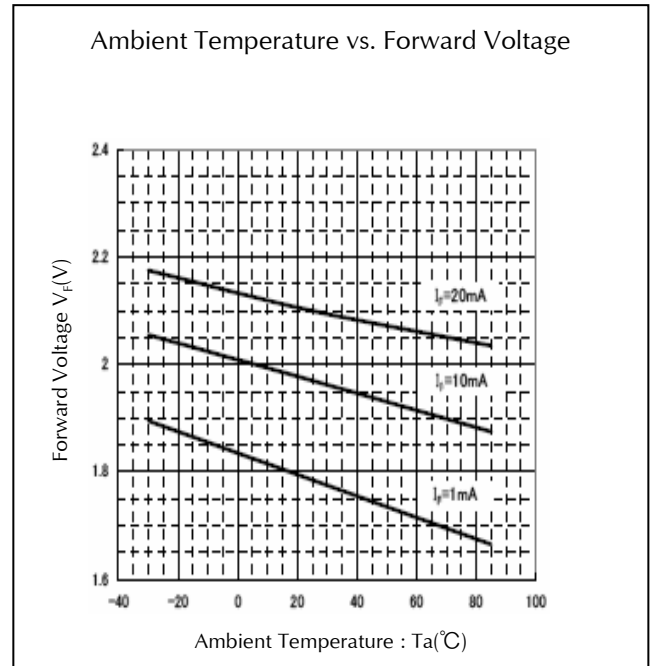
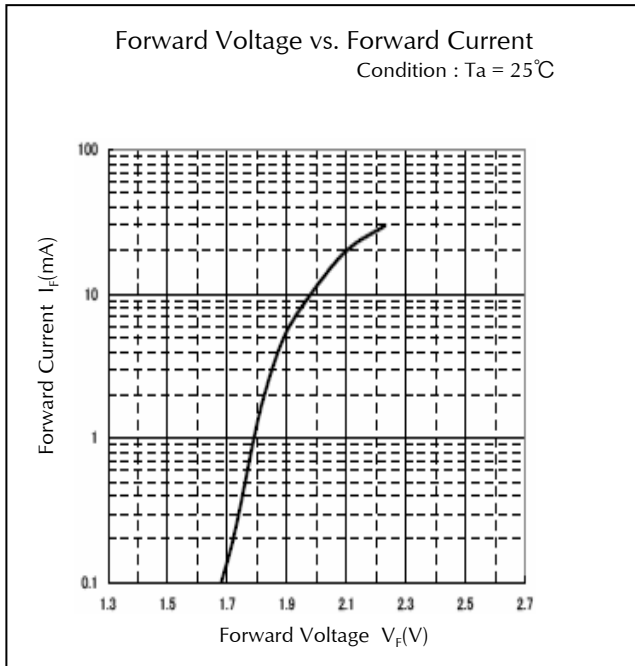
 ※1 I_{FRM} Measurement condition : Pulse Width ≤ 1ms, Duty ≤ 1/20

Electro-Optical Characteristics

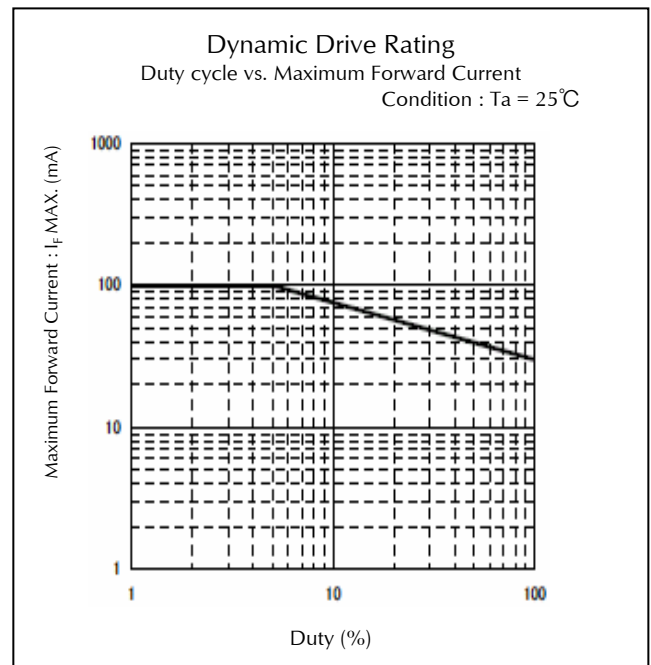
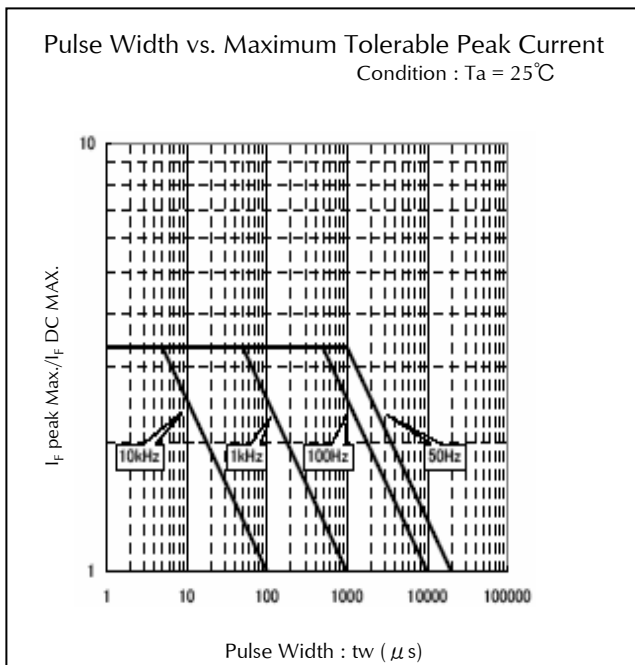
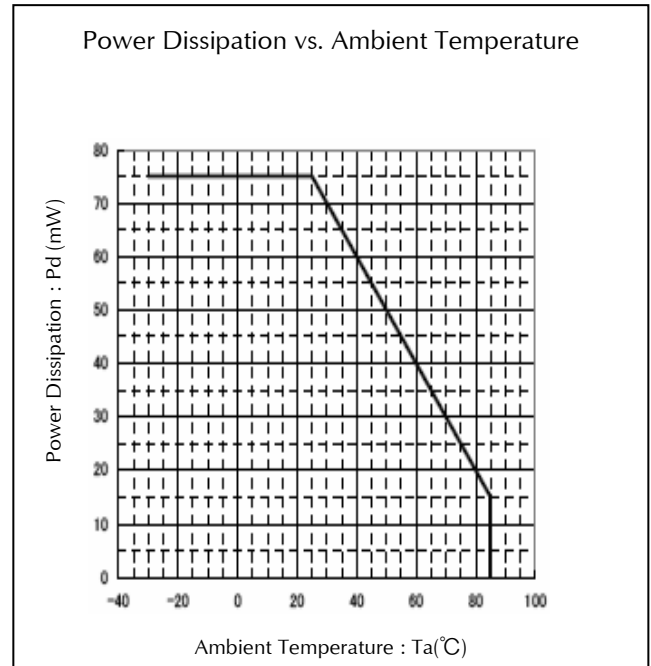
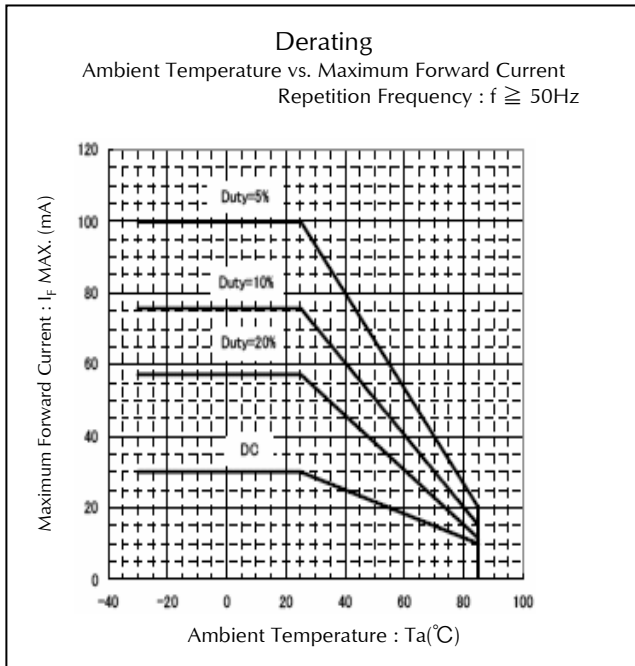
(Ta=25°C)

Item	Conditions	Symbol	Characteristics				Unit	
			5001	4001	3001	2001		
Forward Voltage	I _F =20mA	V _F	TYP.	2.2	2.1	2.2	1.7	V
			MAX.	2.5	2.5	2.5	2.0	
Reverse Current	V _R =4V	I _R	MAX.	100	100	100	100	μA
Peak Wavelength	I _F =20mA	λ _p	TYP.	555	570	605	660	nm
Spectral Line Half Width	I _F =20mA	Δλ	TYP.	30	30	30	30	nm

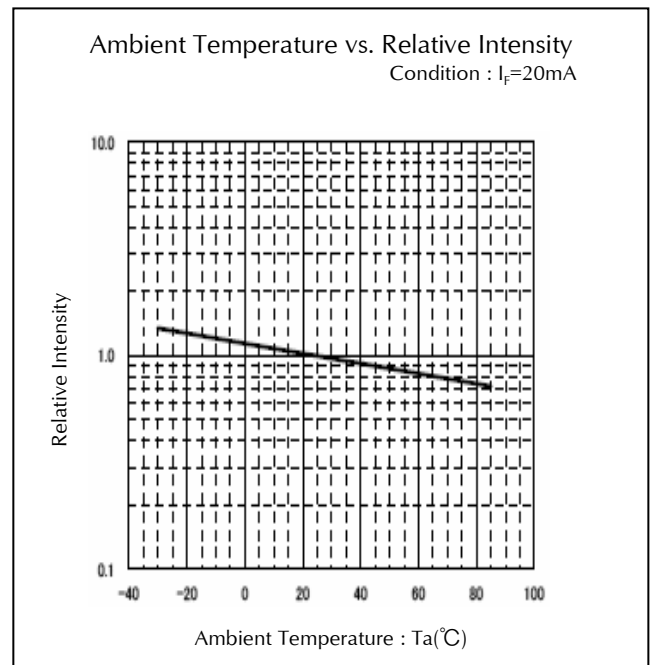
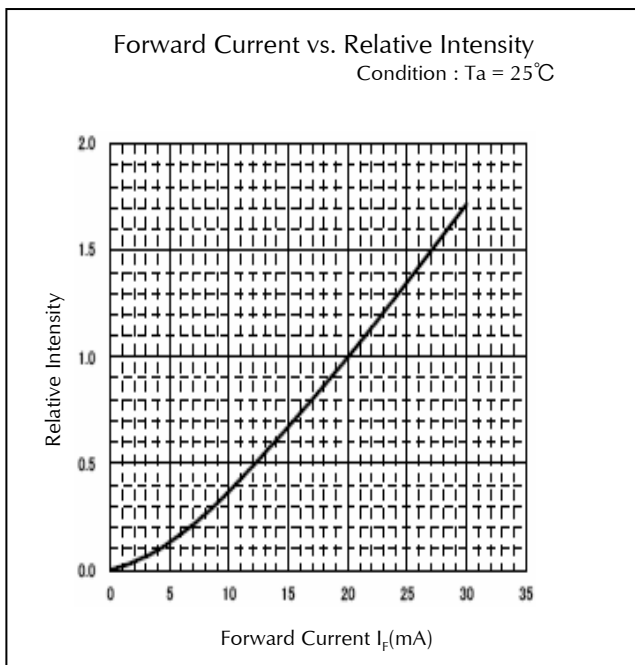
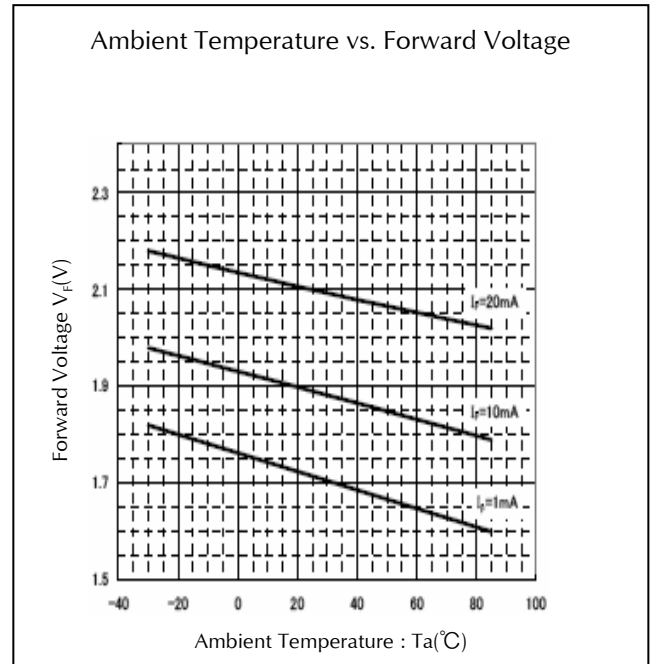
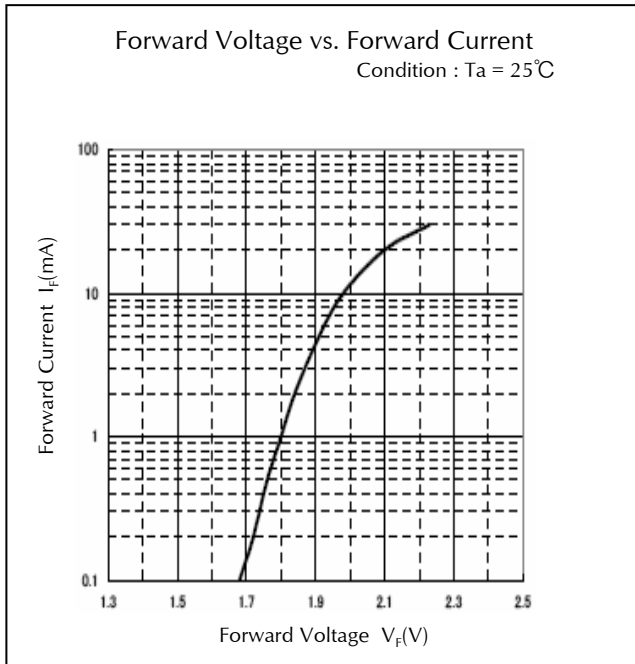
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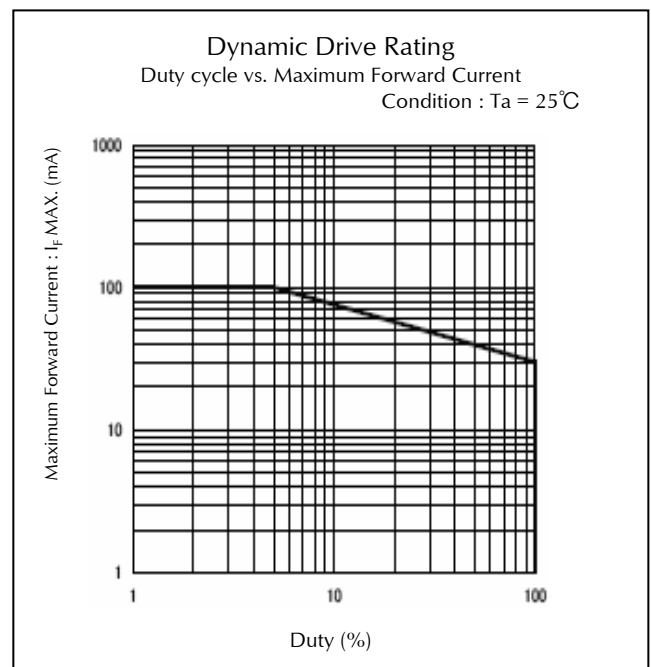
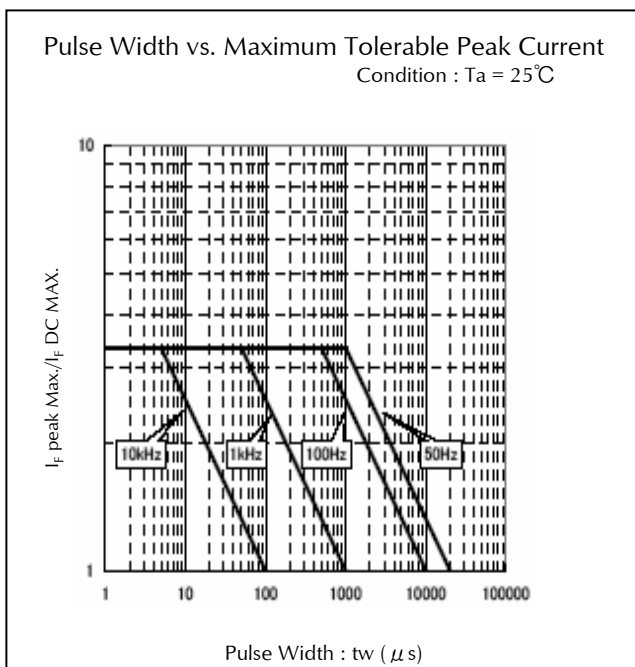
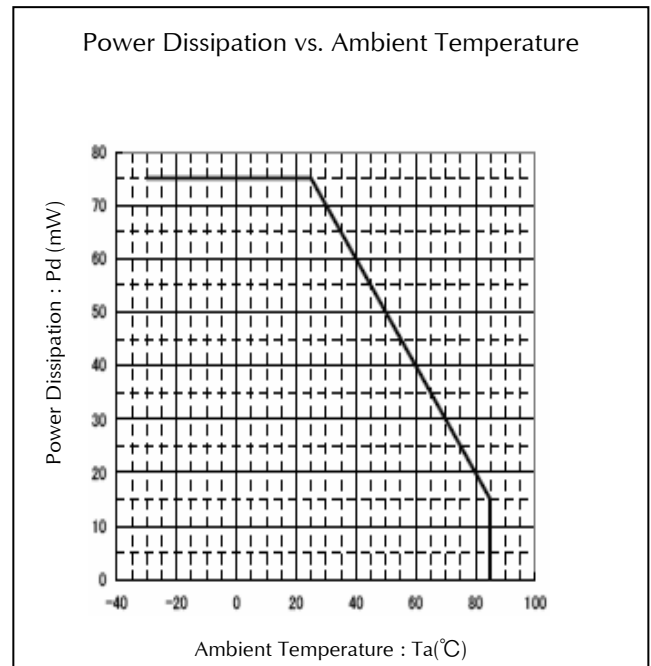
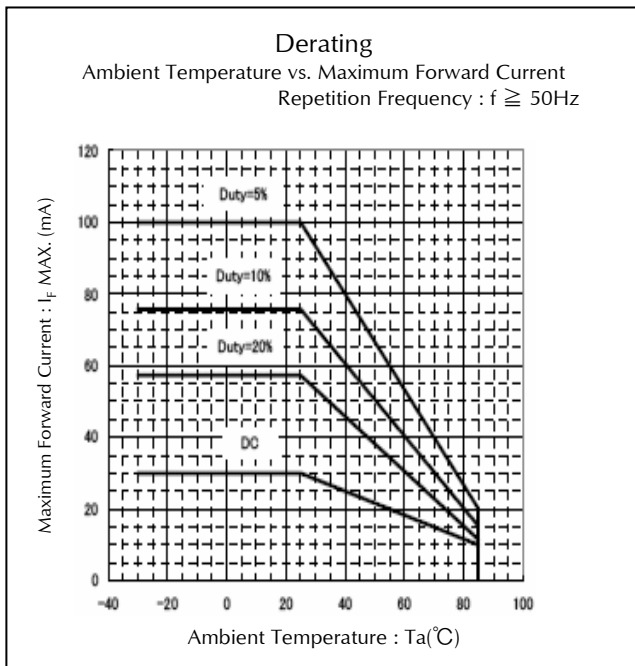
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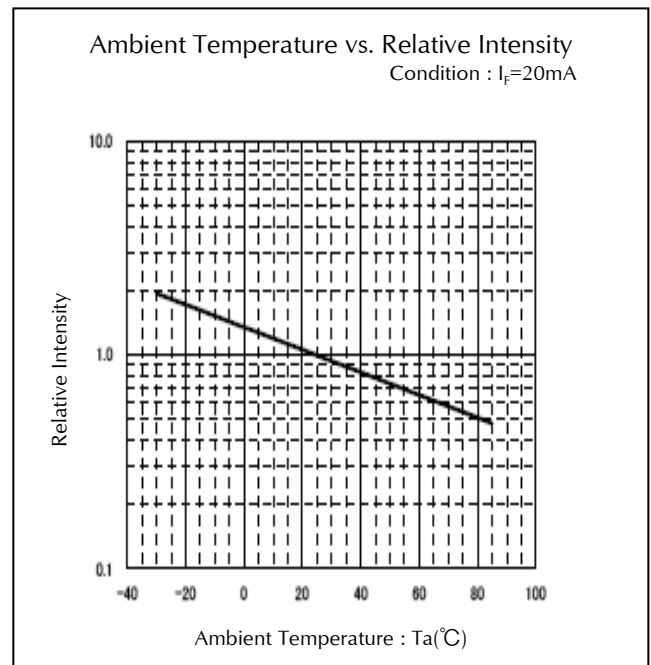
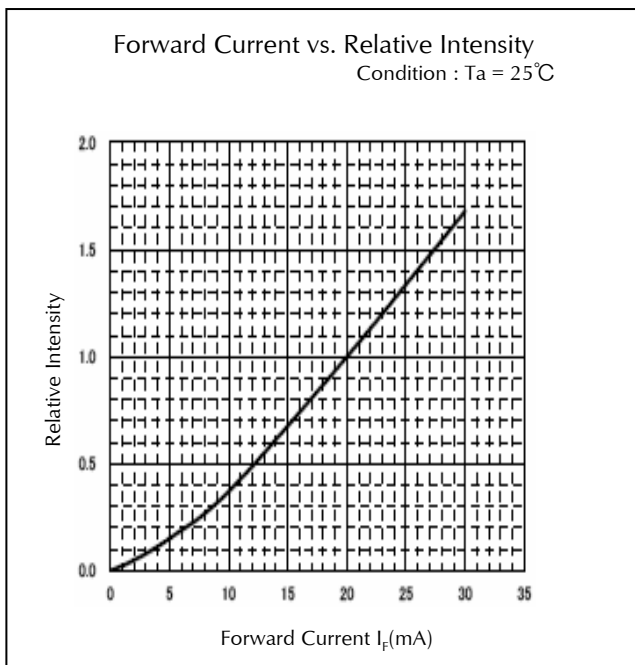
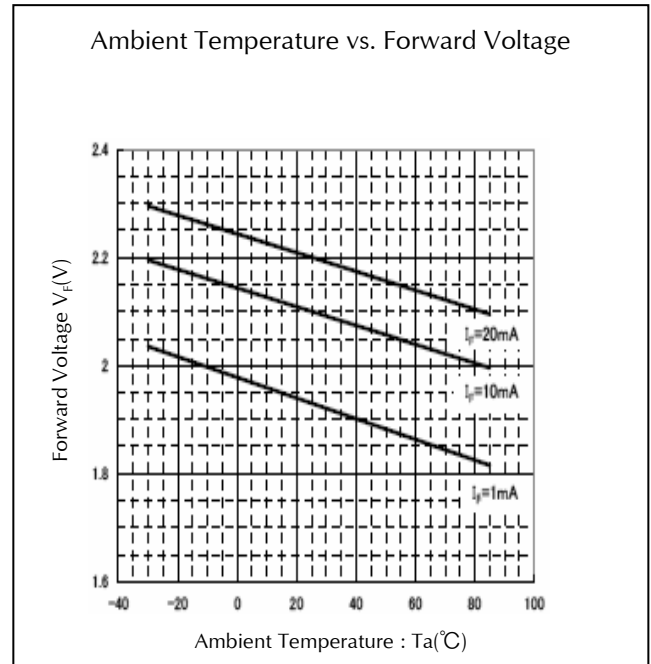
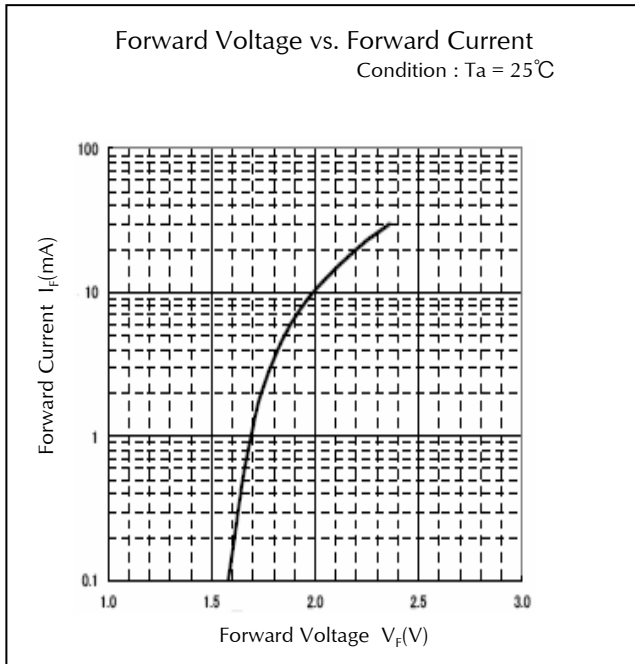
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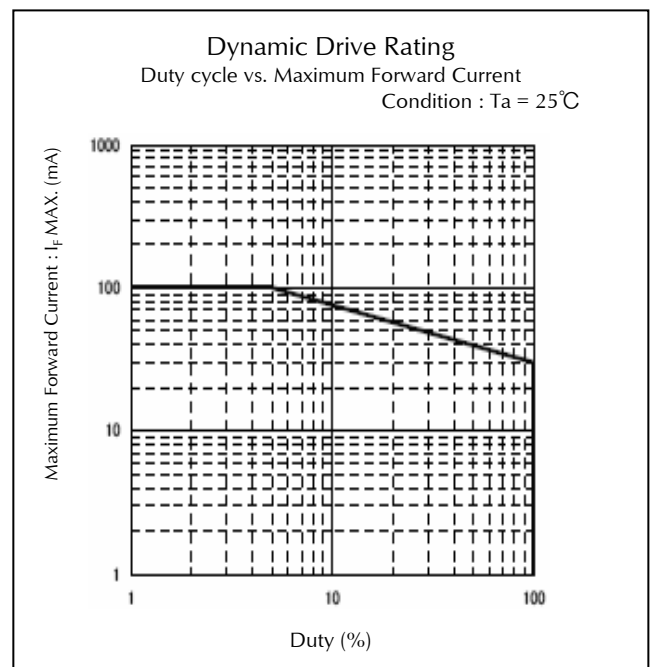
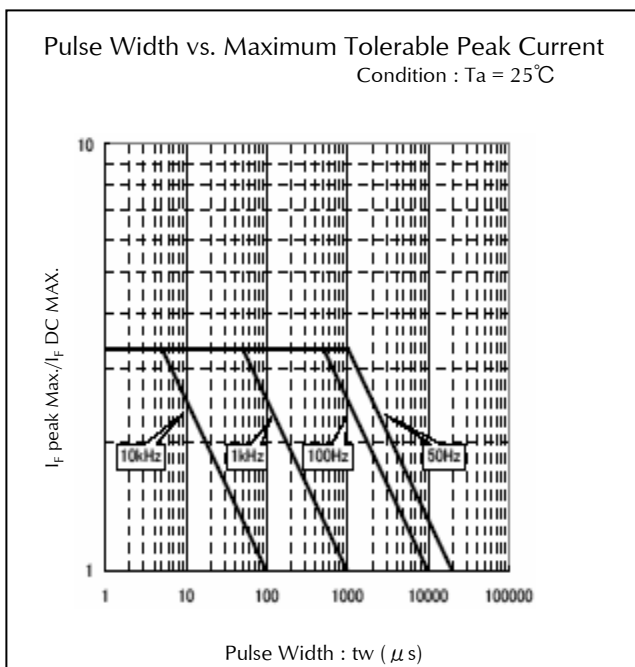
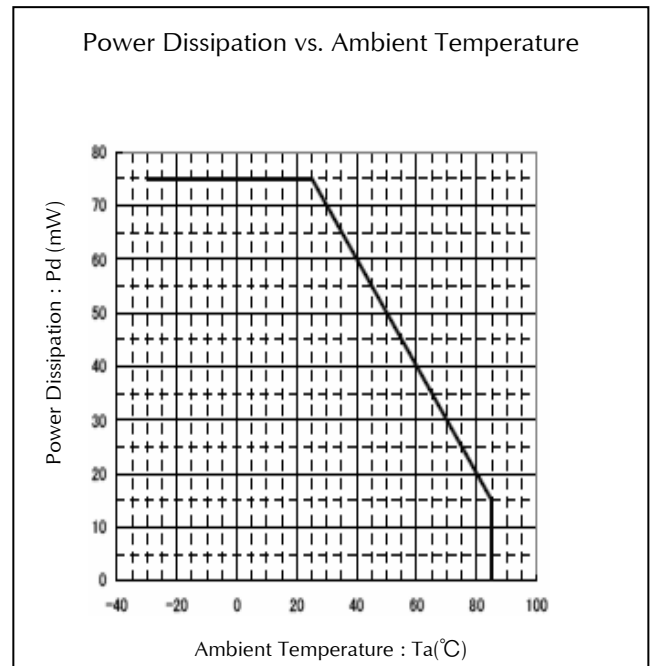
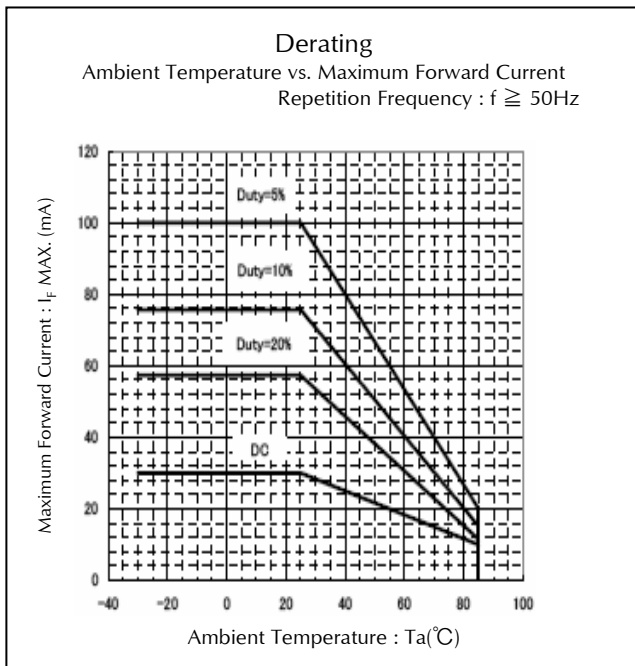
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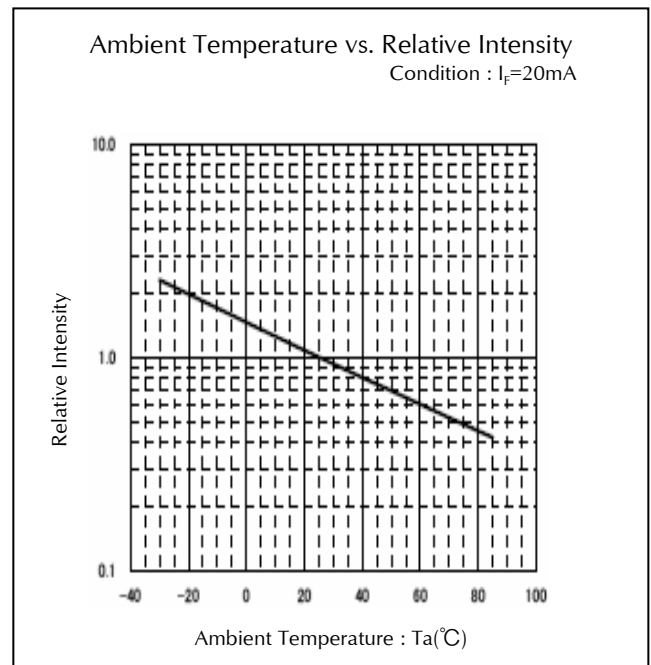
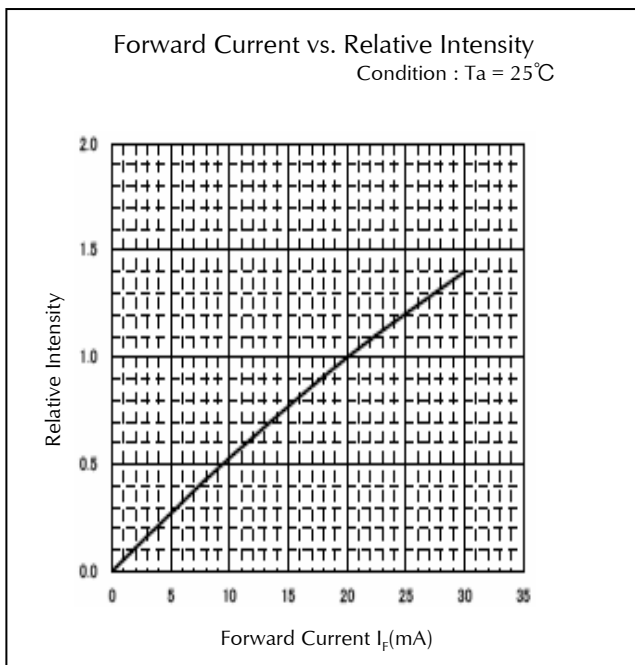
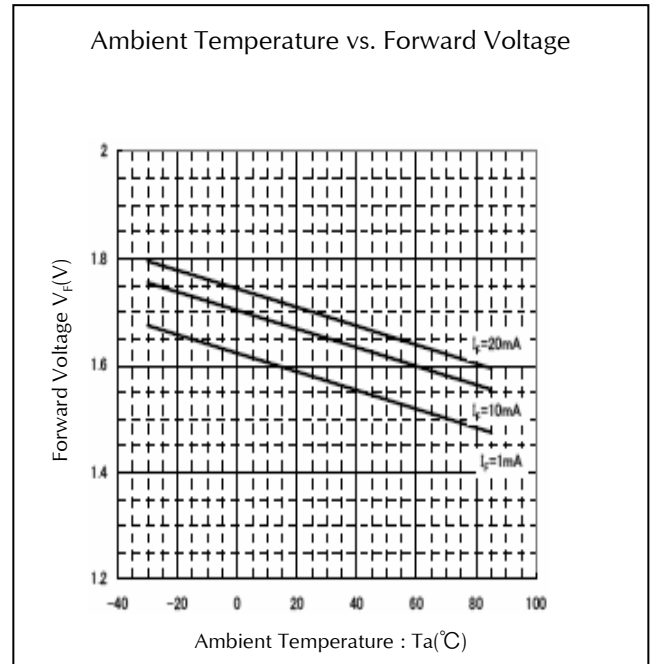
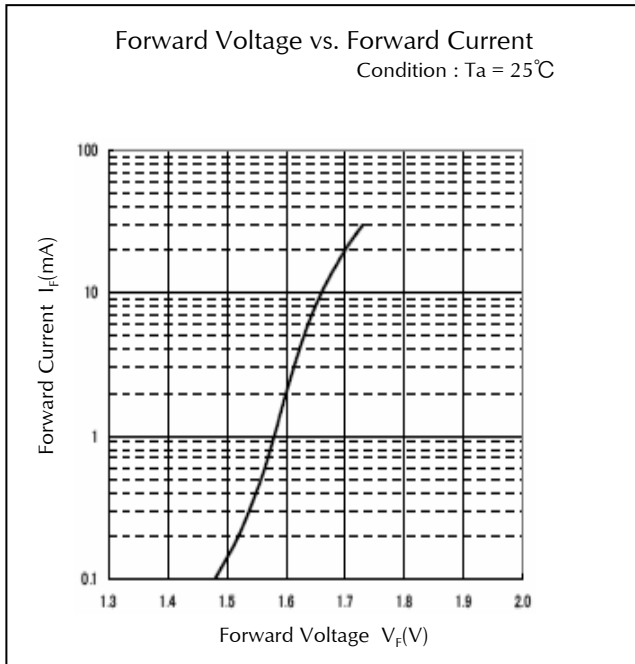
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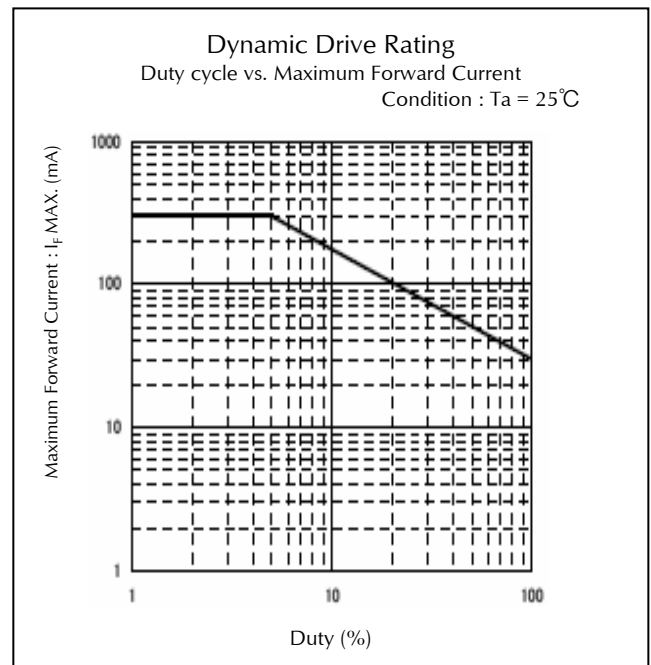
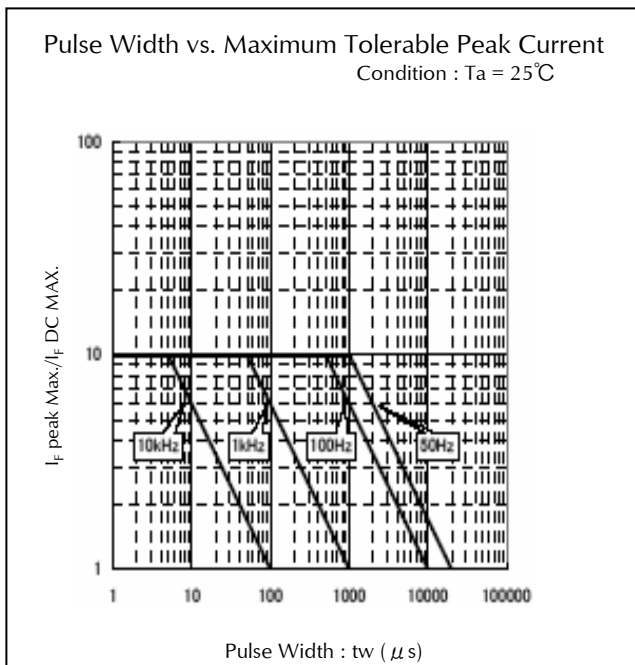
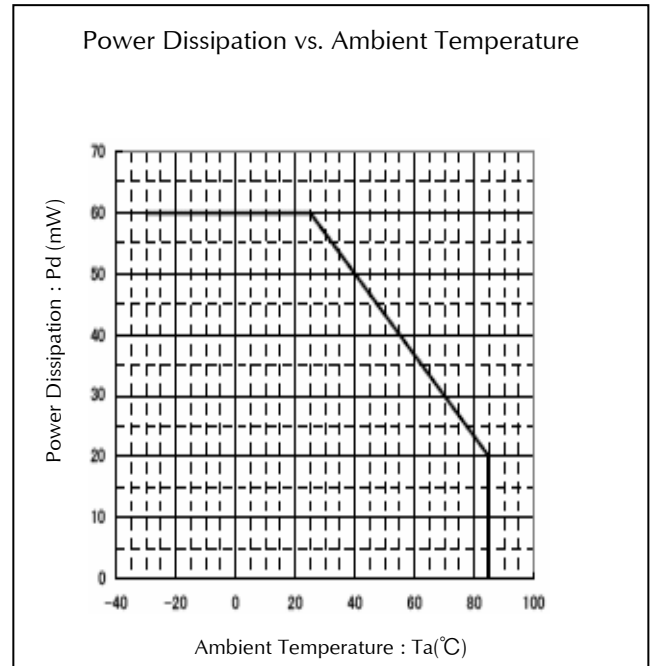
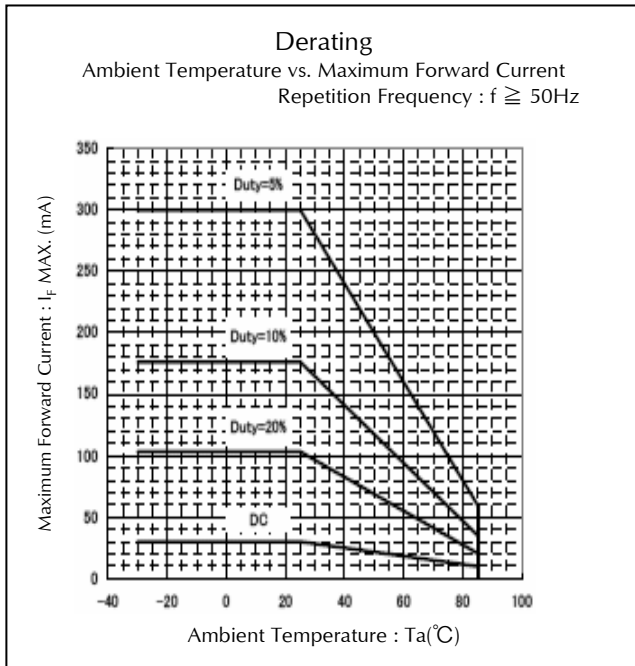
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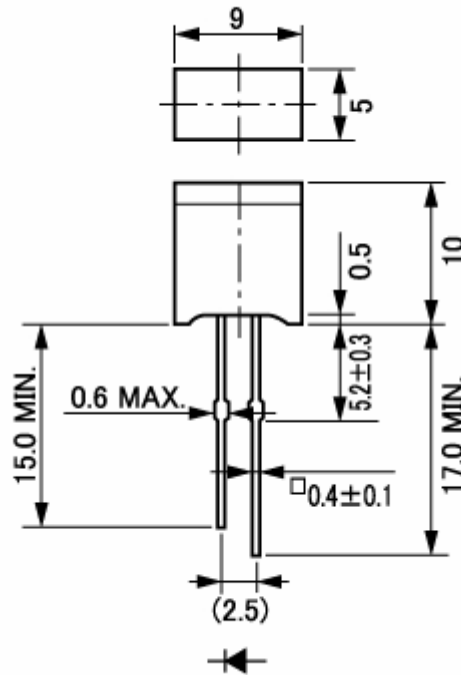
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Package Dimensions

(Unit: mm)

(Tolerance : ± 0.25 mm)



TTW (Through The Wave) soldering Conditions

Pre-heating	100 °C 60 s	(MAX.) Resin surface temperature (MAX.)
Solder Bath Temp.	265 °C	(MAX.)
Dipping Time	5 s	(MAX.)
Position	At least 3.0 mm away from resin body	

- 1) The dip soldering process shall be 2 times maximum.
- 2) The product shall be cooled to normal temperature before the second dipping process.

Manual Soldering Conditions

Iron tip temp.	400 °C	(MAX.) (30 W Max.)
Soldering time and frequency	3 s 2 times	(MAX.) (MAX.)
Position	At least 3.0 mm away from resin body	

Reliability Testing Result

Reliability Testing Result	Applicable Standard	Testing Conditions	Duration	Failure
Room Temp. Operating Life	EIAJ ED-4701/100(101)	Ta = 25°C, If = Maximum Rated Current	1,000 h	0/10
Resistance to Soldering Heat	EIAJ ED-4701/300(302)	260±5°C, 3mm from package base	10sec	0/10
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	0/10
Wet High Temp. Storage Life	EIAJ ED-4701/100(103)	Ta = 60±2°C, RH = 90±5%	1,000 h	0/10
High Temp. Storage Life	EIAJ ED-4701/200(201)	Ta = Maximum Rated Storage Temperature	1,000 h	0/10
Low Temp. Storage Life	EIAJ ED-4701/200(202)	Ta = Minimum Rated Storage Temperature	1,000 h	0/10
Lead Tension	EIAJ ED-4701/400(401)	5N, 1time	10sec	0/10
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
Lead Bend	EIAJ ED-4701/400(401)	2.5N, 0°←→ 90°	2 times	0/10
Shock	JIS C 7201 A-8	It falls on wood engraving from height of 75cm.	3 times	0/10

Failure Criteria

Items	Symbols	Conditions	Failure criteria
Luminous Intensity	Iv	If=20mA	Testing Min. Value < Spec. Min. Value x 0.5
Forward Voltage	V _F	If=20mA	Testing Max. Value ≥ Spec. Max. Value x 1.2
Reverse Current	I _R	V _R =4V	Testing Max. Value ≥ Spec. Max. Value x 2.5
Cosmetic Appearance	-	-	No notable, decoloration, deformation and cracking

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