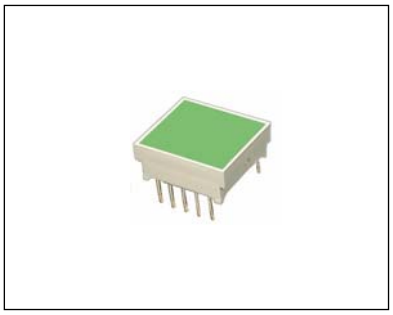


Pb-free HEAT

MU08-9301

Bi-Color / Light Bar Module

Features

Light emitting surface (Outer size)	14 x 16 mm (15 x 17 mm) (L x W)
Product features	・Bi-Color ・Lead-free soldering compatible ・RoHS compliant
Peak wavelength	Green : 555 nm Red : 660 nm
Die materials	Green : GaP Red : GaAlAs
Soldering methods	TTW (Through The Wave) soldering and manual soldering
Soldering methods	More than 2kV(HBM)
Packing	Tray

Recommended Applications

Electric Household Appliances, OA/FA, Other General Applications

Color and Luminous Intensity

Part No.	Material	Emitted Color	Resin Color	Luminous Intensity※1 Iv (mcd)			Number of Chips
				MIN.	TYP.	I_F	
MU08-9301	GaP	Green	Green	8	12	20	4
	GaAlAs	Red		8	12	20	4

※1 Luminous Intensity : 4 chips

Absolute Maximum Ratings

(Ta=25℃)

Item	Symbol	Absolute Maximum Ratings		Unit
		Green	Red	
Power Dissipation※2	P_d	250	240	mW
Forward Current	I_F	25	30	mA
Pulse Forward Current※3	I_{FRM}	60	60	mA
Derating (Ta=25℃ or higher)	ΔI_F	0.33	0.40	mA/℃
	ΔI_{FRM}	0.80	0.80	mA/℃
Reverse Voltage	V_R	4	4	V
Operating Temperature	T_{opr}	-40～+85		℃
Storage Temperature	T_{stg}	-40～+85		℃

※2 Power Dissipation : 4 chips, The other Items : 1 chip

※3 I_{FRM} Measurement condition : Pulse Width ≦ 2ms, Duty ≦1/5

Electro-Optical Characteristics

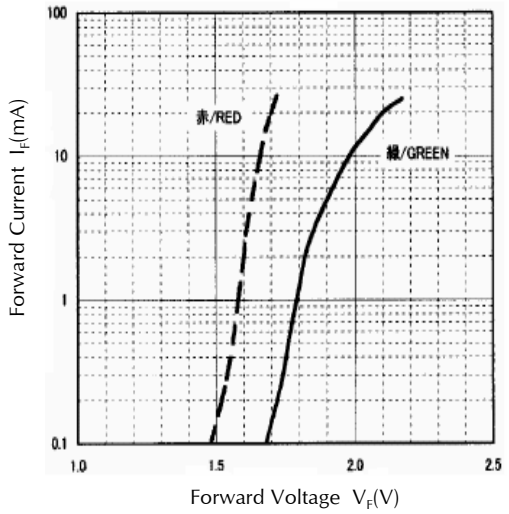
(Ta=25℃)

Item	Conditions	Symbol	Characteristics			Unit
				Green	Red	
Forward Voltage	I_F=20mA	V_F	TYP.	2.2	1.7	V
			MAX.	2.5	2.0	
Reverse Current	V_R=4V	I_R	MAX.	100	100	μA
Peak Wavelength	I_F=20mA	λ_p	TYP.	555	660	nm
Spectral Line Half Width	I_F=20mA	$\Delta\lambda$	TYP.	30	30	nm

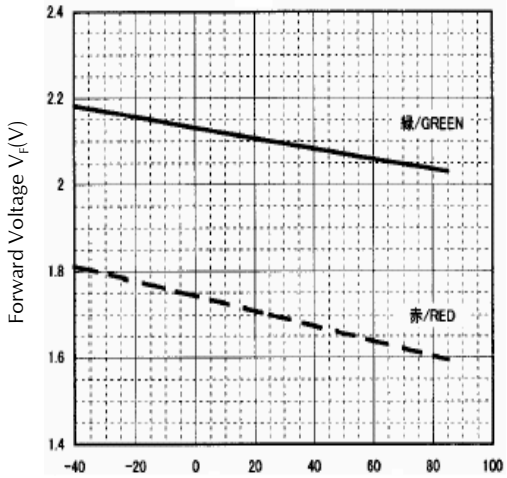
※ The above Items : 1 chip

Technical Data

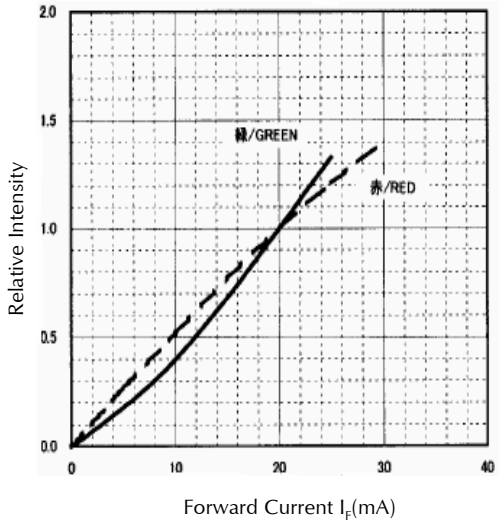
Forward Voltage vs. Forward Current
Condition : Ta = 25℃



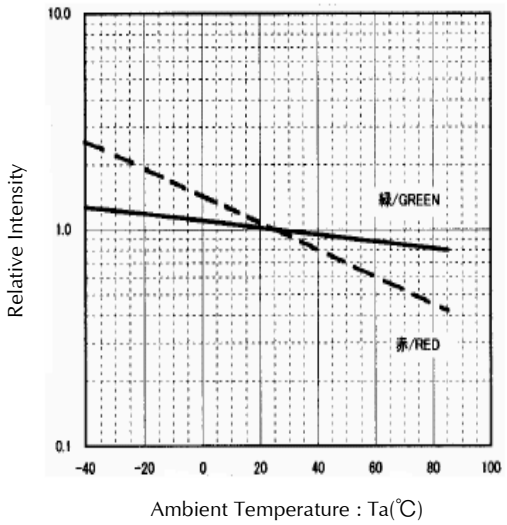
Ambient Temperature vs. Forward Voltage



Forward Current vs. Relative Intensity
Condition : Ta = 25℃



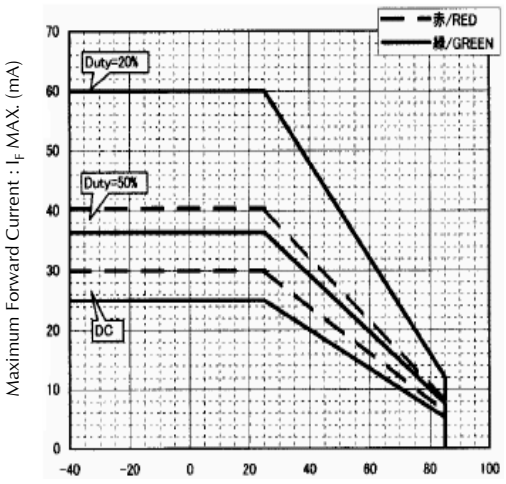
Ambient Temperature vs. Relative Intensity
Condition : I_F=20mA



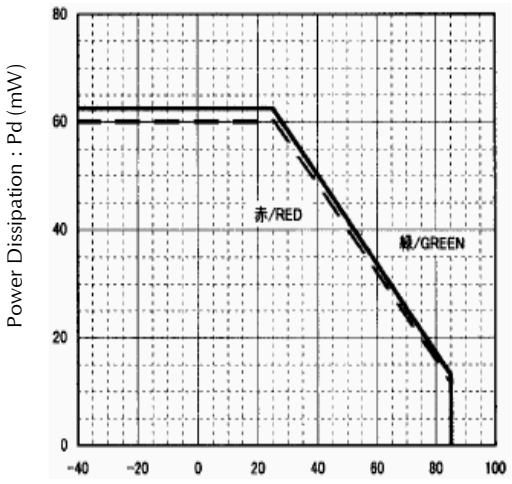
Technical Data

Derating

Ambient Temperature vs. Maximum Forward Current
Repetition Frequency : f ≧ 100Hz

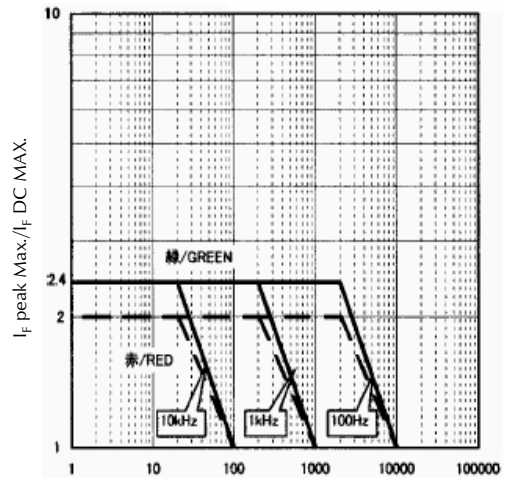


Power Dissipation vs. Ambient Temperature



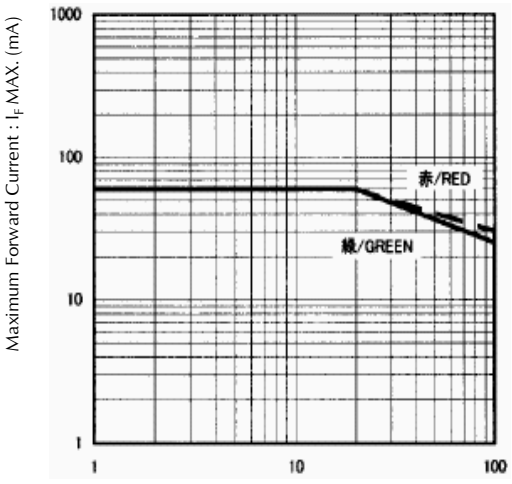
Pulse Width vs. Maximum Tolerable Peak Current

Condition : Ta = 25℃



Dynamic Drive Rating

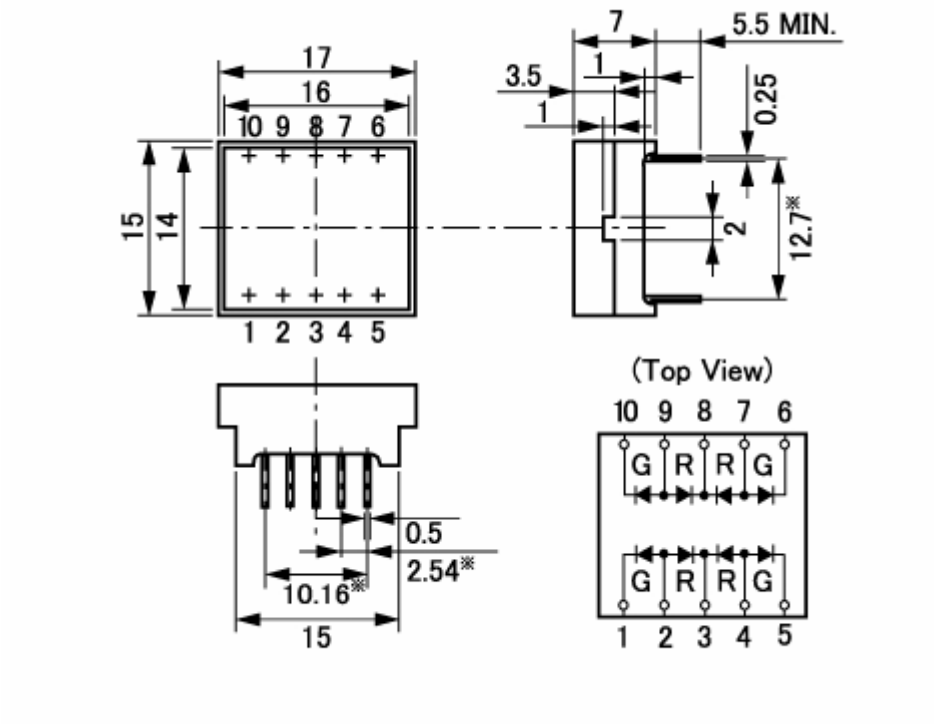
Duty cycle vs. Maximum Forward Current
Condition : Ta = 25℃



Package Dimensions

(Unit: mm)

(Tolerance：±0.25 mm)



● ※ mark : The measure of lead root

TTW (Through The Wave) soldering Conditions

Pre-heating	100 ℃ 60 s	(MAX.) Resin surface temperature (MAX.)
Solder Bath Temp.	265 ℃	(MAX.)
Dipping Time	5 s	(MAX.)
Position	At least 2.0 mm away from the root of lead	

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 ℃	(MAX.) (30 W Max.)
Soldering time and frequency	3 s 2 times	(MAX.) (MAX.)
Position	At least 2.0 mm away from the root of lead	

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	0/10
Resistance to Soldering Heat	EIAJ ED-4701/300(302)	260±5℃, 3mm from package base	10s	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℃, 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	10s	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°	Twice	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	I_V	I_F=20mA	Testing Min. Value < Spec. Min. Value x 0.5
Forward Voltage	V_F	I_F=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	-	-	Occurrence of notable decoloration, deformation and cracking

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