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Pb-free
HEAT



NARG105/107 Series

Numeric Display/

Bi-Color Type/Case Size 22.8 x 33.0 mm

Features

Case Size	22.8 x 33.0 mm (W x H)
Product features	<ul style="list-style-type: none">• Bi-Color• Each color has anode common.• A black case and a gray case are available.• Lead-free soldering compatible• RoHS compliant
Peak wavelength	Green : 570nm Red : 660nm
Number of Digit	1 Digit
Segment Shape	Arrow Feather Type
Character Height	25.4 mm
Die materials	Green : GaP Red : GaAlAs
Soldering methods	TTW (Through The Wave) soldering and manual soldering
ESD	More than 2kV(HBM)
Packing	Tray

Recommended Applications

Amusement Equipment, Electric Household Appliances, Other General Applications



NARG105/107 Series

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Bi-Color Type/Case Size 22.8 x 33.0 mm

Emitted Color

Part No.		Material	Emitted Color	Chip/ Segment * 1
Anode Common				
Case Color Black	Case Color Gray			
NARG105	NARG107	GaP	Green	2
				1
		GaAsP	Red	2
				1

* 1 Segment NO. a, b, c, d, e, f, g : 2 chips / Segment
Segment NO. D.P : 1 chip / Segment

Absolute Maximum Ratings

(Ta=25°C)

Item	Symbol	Absolute Maximum Ratings				Unit
		Green		Red		
		Chip / Segment				
		2	1	2	1	
Power Dissipation* 2	Pd	96	48	80	40	mW/seg
Forward Current* 2	I _F	20		20		mA/seg
Pulse Forward Current * 2,* 3	I _{FRM}	40		40		mA/seg
Derating (Ta=25°C or higher)	ΔI _F	0.33		0.33		mA/°C
	ΔI _{FRM}	0.67		0.67		mA/°C
Reverse Voltage	V _R	8	4	8	4	V
Operating Temperature	T _{opr}	-30 ~ +70		-30 ~ +70		°C
Storage Temperature	T _{sta}	-30 ~ +80		-30 ~ +80		°C

* 2 When bi-color LEDs are driven simultaneously, the above ratings is the total of Pd, I_F and I_{FRM} values.

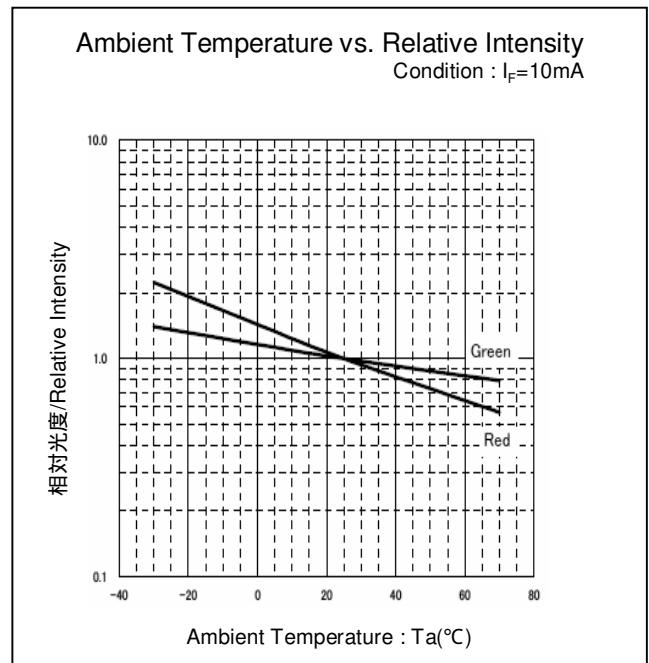
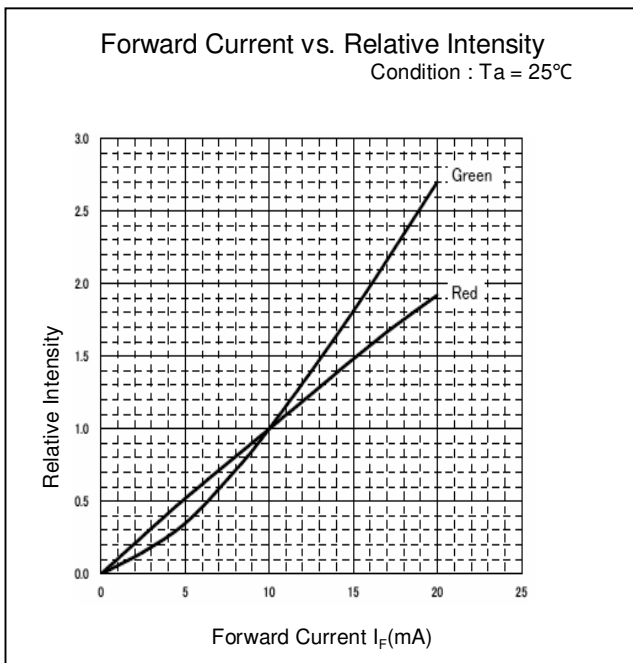
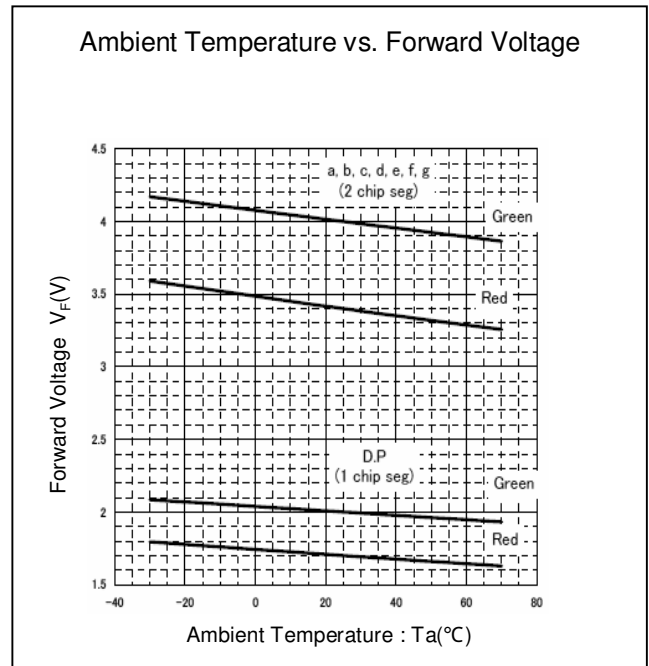
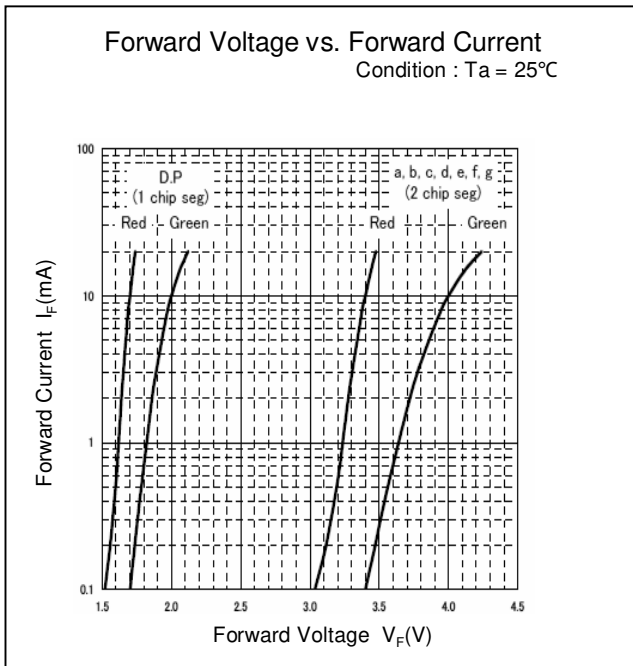
* 3 I_{FRM} Measurement condition : Duty 1/2, f = 500Hz

Electro-Optical Characteristics

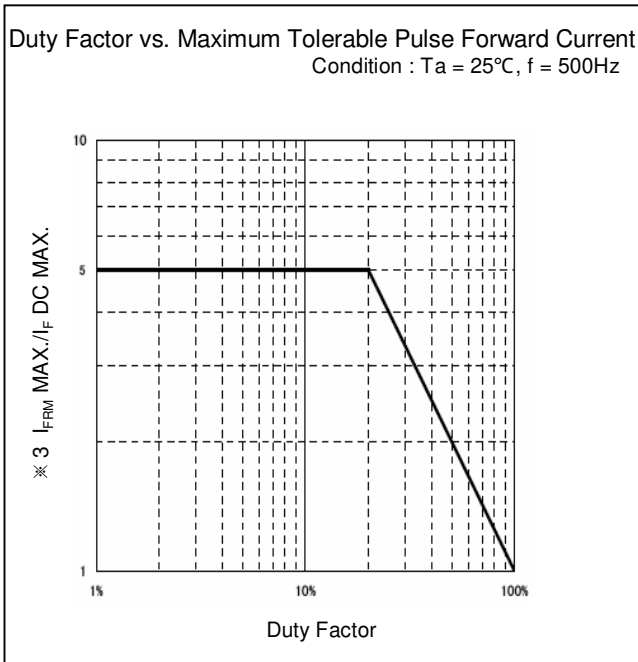
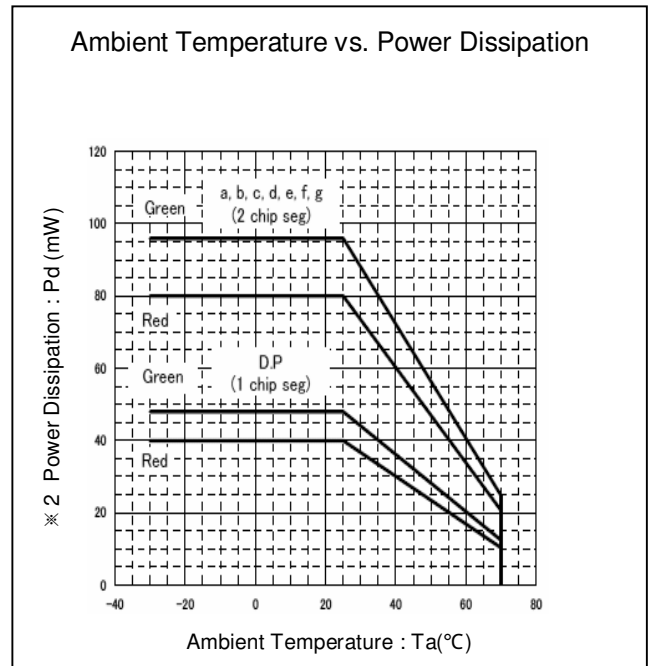
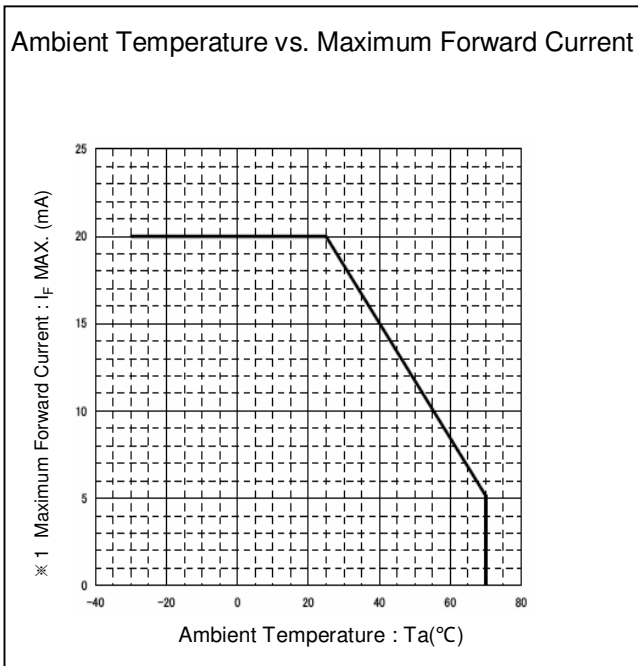
(Ta=25°C)

Item	Conditions	Symbol	Characteristics				Unit	
			Green		Red			
			Chip / Segment					
			2	1	2	1		
Luminous Intensity	I _F =10mA	I _v	MIN.	2.0	1.0	2.0	1.0	mcd/seg
			TYP.	4.0	2.0	4.0	2.0	
Forward Voltage	I _F =10mA	V _F	TYP.	4.0	2.0	3.4	1.7	V/seg
			MAX.	4.8	2.4	4.0	2.0	
Reverse Current	-	I _R	MAX.	100 (V _R =8V)	100 (V _R =4V)	100 (V _R =8V)	100 (V _R =4V)	μ A/seg
Peak Wavelength	I _F =10mA	λ _p	TYP.	570		660		nm
Spectral Line Half Width	I _F =10mA	Δλ	TYP.	30		30		nm

Technical Data



Technical Data



Notes

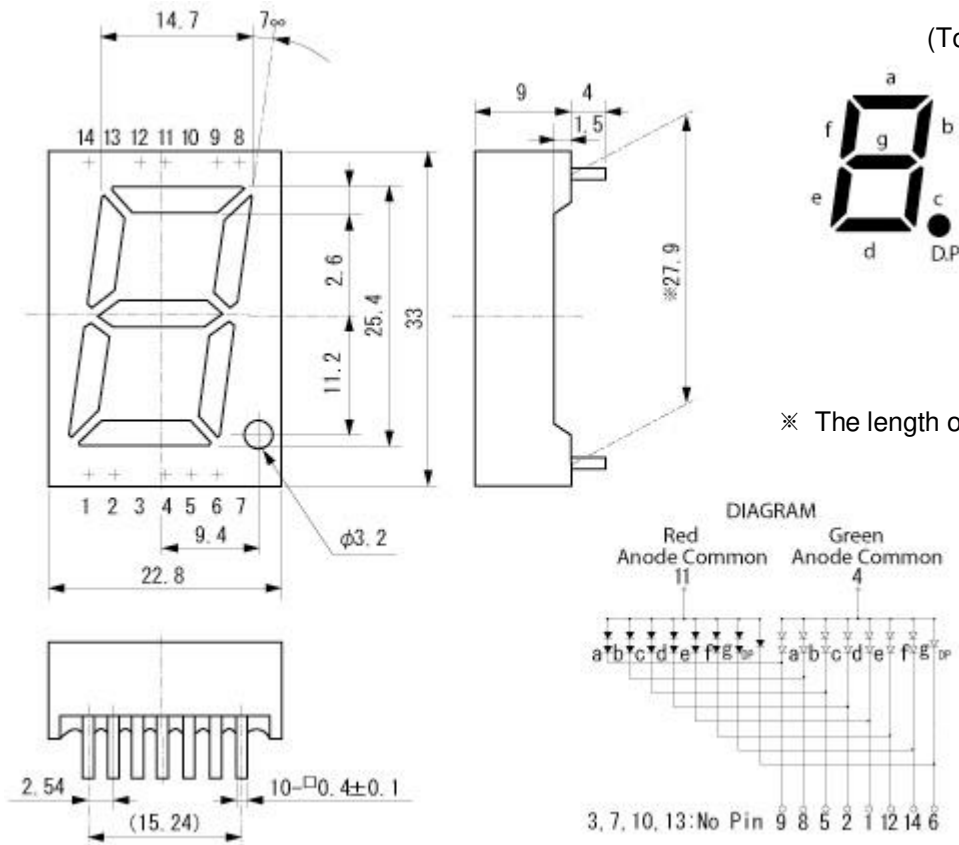
※ 1, ※ 2, ※ 3

When bi-color LEDs are driven simultaneously, the ratings of these description graphs is the total of I_F Max., Pd and I_{FRM} Max./I_F DC MAX. values.

Package Dimensions

(Unit: mm)

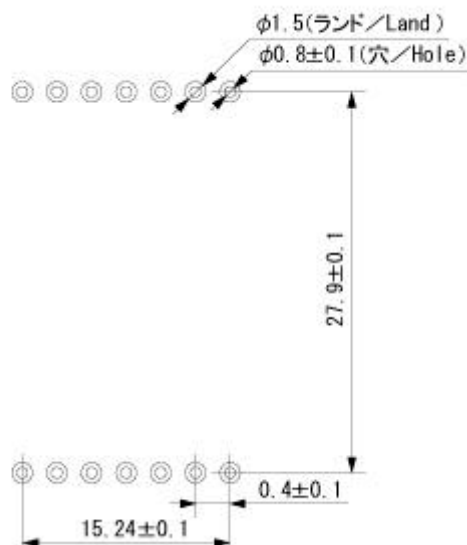
(Tolerance : ± 0.25 mm)



※ The length of lead base.

Recommended Soldering Pattern

(Unit: mm)



TTW (Through The Wave) soldering Conditions

Pre-heating	100 °C (MAX.) 60 s (MAX.)	Resin surface temperature
Solder Bath Temp.	265 °C (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 °C (MAX.) (30 W Max.)	
Soldering time and frequency	3 s (MAX.) 2 times (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	BAJED-4701/100(101)	Ta = 25°C, If = Maximum Rated Current/seg	1,000 h	0/10
Resistance to Soldering Heat	BAJED-4701/300(302)	260± 5°C, 3mm from package base	10s	0/10
Temperature Cycling	BAJED-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	BAJED-4701/100(103)	Ta = 60± 2°C, RH = 90± 5%	1,000 h	0/10
High Temp. Storage Life	BAJED-4701/200(201)	Ta = Maximum Rated Storage Temperature	1,000 h	0/10
Low Temp. Storage Life	BAJED-4701/200(202)	Ta = Minimum Rated Storage Temperature	1,000 h	0/10
Lead Tension	BAJED-4701/400(401)	5N, 1time	10s	0/10
Vibration, Variable Frequency	BAJED-4701/400(403)	98.1m/s ² (10G), 100 ~ 2KHz sweep for 20min., XYZ each direction	2 h	0/10
Lead Bend	BAJED-4701/400(401)	2.5N, 0° ← → 90°	Twice	0/10
Shock	JSC 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 Value of each product Luminous Intensity	Testing Min. Value < Spec. Min. Value x 0.5
Forward Voltage	V _F	If 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
Cosmetic Appearance	-	-	Occurrence of notable decoloration, deformation and cracking

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