



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

Emitted Color

Part No.		Material	Emitted Color	1 Chip/ Segment			
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)

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 or higher)	I _F	0.33		0.33		mA/	
	I _{FRM}	0.67		0.67		mA/	
Reverse Voltage	V _R	8	4	8	4	V	
Operating Temperature	T _{opr}	-30 ~ +70		-30 ~ +70			
Storage Temperature	T _{stg}	-30 ~ +80		-30 ~ +80			

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

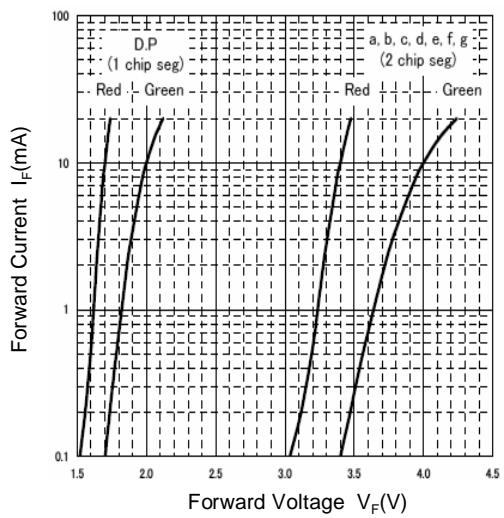
Electro-Optical Characteristics

(Ta=25)

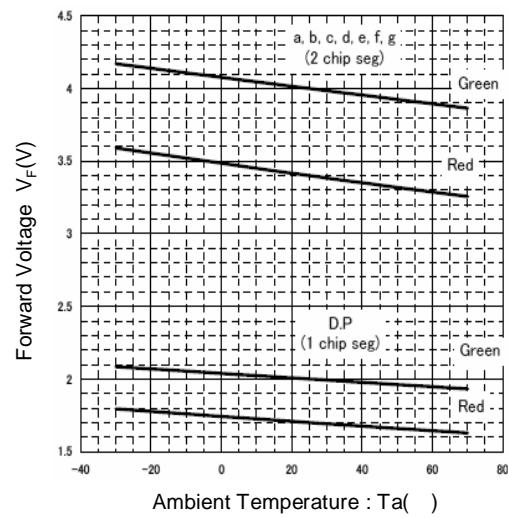
Item	Symbol	Characteristics				Unit		
		Green		Red				
		Chip / Segment						
		2	1	2	1			
Luminous Intensity	I _F =10mA	I _V	MIN.	2.0	1.0	2.0	1.0	mcd/seg
			TYP.	4.0	2.0	4.0	2.0	
Forward Voltage	I _F =10mA	V _F	TYP.	4.0	2.0	3.4	1.7	V/seg
			MAX.	4.8	2.4	4.0	2.0	
Reverse Current	-	I _R	MAX.	100 (V _R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

Technical Data

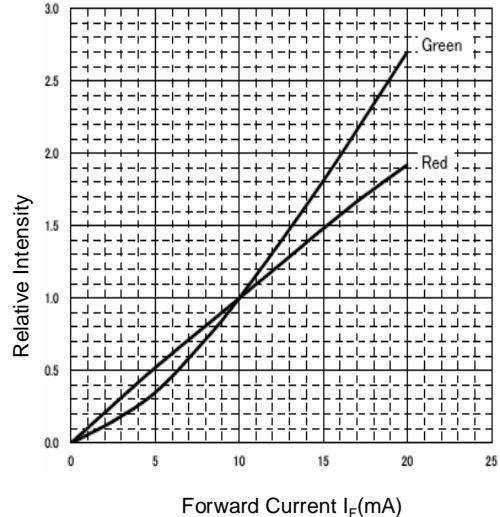
Forward Voltage vs. Forward Current
Condition : $T_a = 25$



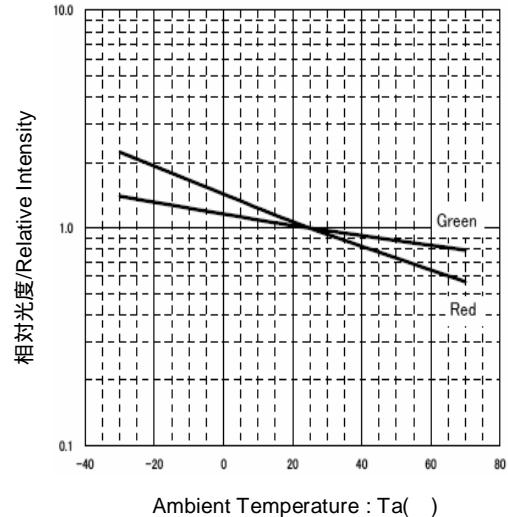
Ambient Temperature vs. Forward Voltage



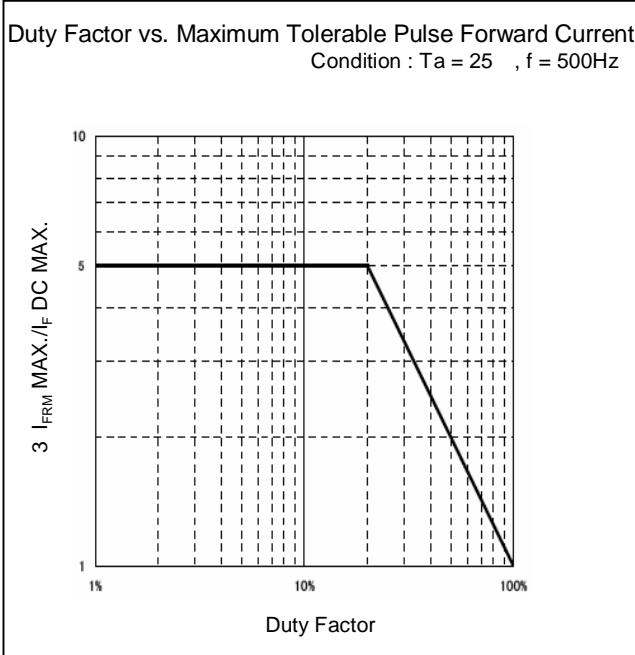
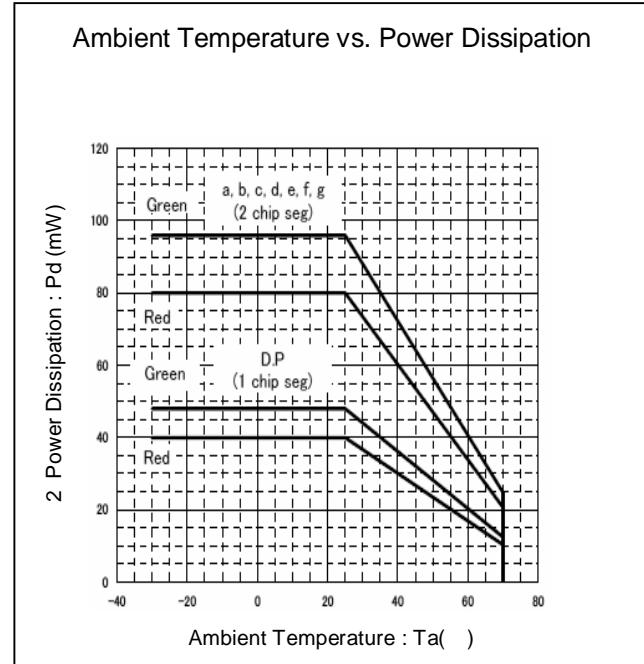
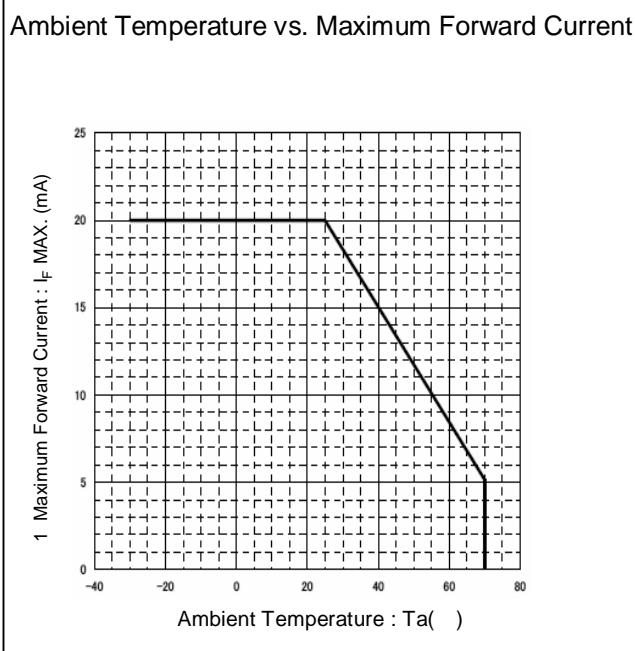
Forward Current vs. Relative Intensity
Condition : $T_a = 25$



Ambient Temperature vs. Relative Intensity
Condition : $I_F=10mA$



Technical Data



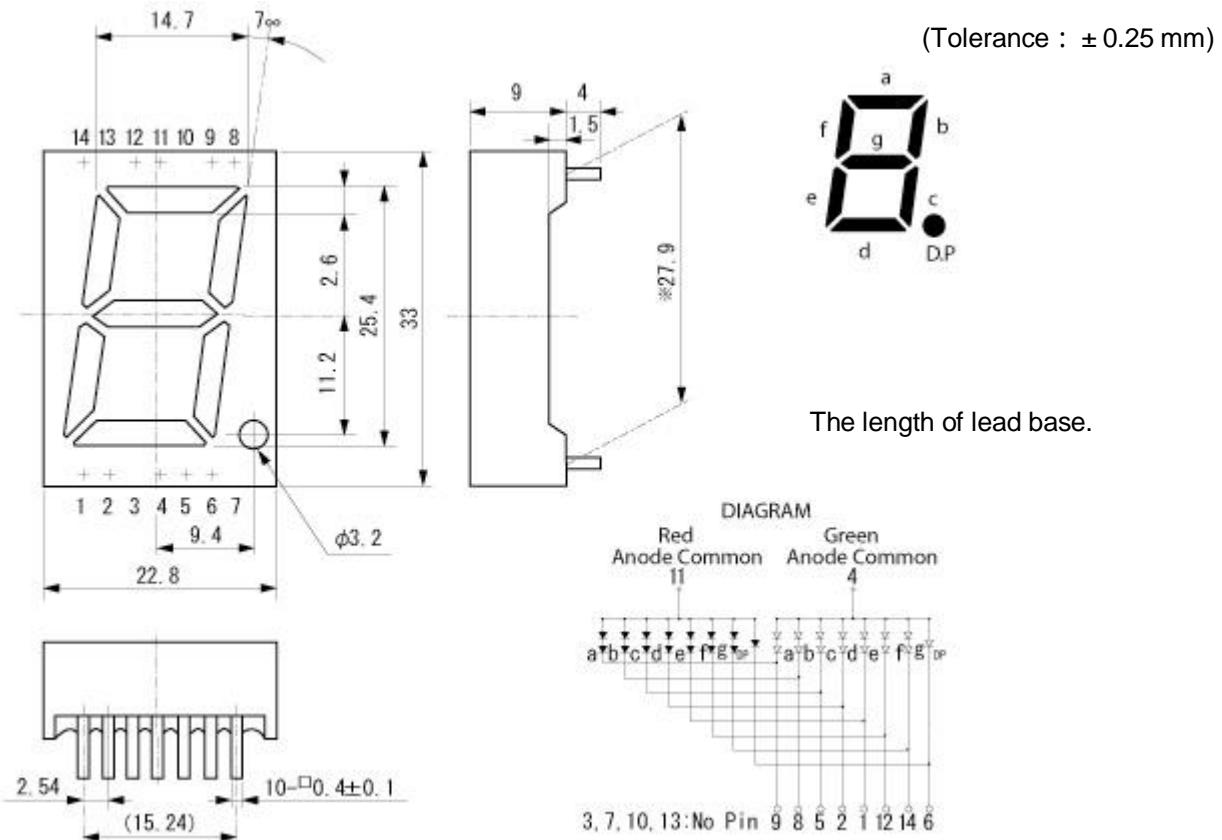
Notes

1, 2, 3

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

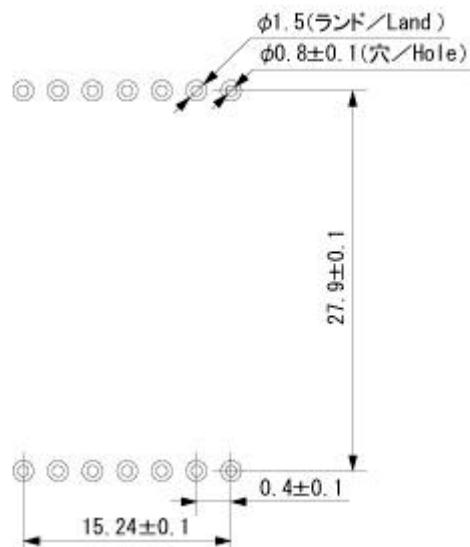
Package Dimensions

(Unit: mm)



Recommended Soldering Pattern

(Unit: mm)





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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	EIAJED-4701/100(101)	Ta = 25 , If = Maximum Rated Current/seg	1,000 h	0/10
Resistance to Soldering Heat	EIAJED-4701/300(302)	260 ± 5 , 3mm from package base	10s	0/10
Temperature Cycling	EIAJED-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	EIAJED-4701/100(103)	Ta = 60 ± 2 , RH = 90 ± 5%	1,000 h	0/10
High Temp. Storage Life	EIAJED-4701/200(201)	Ta = Maximum Rated Storage Temperature	1,000 h	0/10
Low Temp. Storage Life	EIAJED-4701/200(202)	Ta = Minimum Rated Storage Temperature	1,000 h	0/10
Lead Tension	EIAJED-4701/400(401)	5N, 1time	10s	0/10
Vibration, Variable Frequency	EIAJED-4701/400(403)	98.1m/s ² (10G), 100 ~ 2KHz sweep for 20min., XYZ each direction	2 h	0/10
Lead Bend	EIAJED-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	VF	If Value of each product Forward Voltage	Testing Max. Value > Spec. Max. Value x 1.2
Reverse Current	IR	VR = 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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