# SE1003-C

## GaAlAs on GaAs INFRARED EMITTING DIODE

30E D

### DESCRIPTION

The SE1003-C is a GaAlAs on GaAs Infrared Emitting Diode which is mounted on the lead frames and molded in plastic. On forward bias, it emits a spectrally narrow band of radiation peaking at 950 nm.

# PACKAGE DIMENSIONS in millimeters Pale dark blue Clear Plastic Resin 4.8±0.3 Plastic Resin 0.8 A(1.05) A(1

### **FEATURES**

- Economical.
- High output power.
- Wide half angle. (θ (½) = ±25 ° TYP.)
- Good linearity.
- Spectrally matched to silicon sensors.
- Long lead.

### **APPLICATIONS**

- Light source for TV remote control.
- Light source for smoke detector.
- Optical encoders.
- Photochoppers, isolator.

### **ABSOLUTE MAXIMUM RATINGS**

Maximum Power Dissipation (T <sub>a</sub> =25 °C)	P	150	mW
Maximum Forward Current (T <sub>a</sub> =25 °C)	l <sub>E</sub>	100	mΑ
Maximum Pulse Forward Current (T <sub>a</sub> =25°C)	lep*	1.0	Α
Maximum Reverse Voltage (T <sub>a</sub> =25 °C)	VR	5.0	V
Maximum Temperatures	- 11	0.0	•
Junction Temperature	T;	+100	°C
Storage Temperature	T <sub>stg</sub>	-40 to +100	°C
Operating Temperature	Topt	-30 to +85	°C

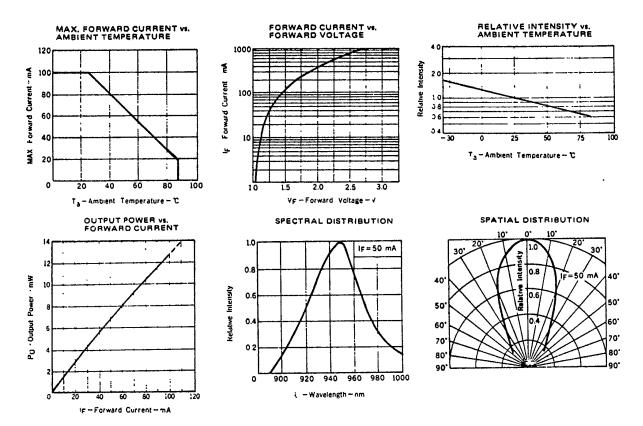
### ELECTRO-OPTICAL CHARACTERISTICS (Ta = 25 °C)

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CHARACTERISTICS	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Forward Voltage	VF		. 1.27	1.45	V	IF = 50 mA
Pulse Forward Voltage	VFP*		2.9	3.4	v	lep = 1.0 A
Capacitance	Ct		40	:	pF i	V = 0, f = 1.0 MHz
Peak Emission Wavelength	, <sup>λ</sup> peak		950		nm ·	i <sub>F</sub> = 50 mA
Spectral Line Half Width	٨ك		50	<u>-</u>	nm	1g = 50 mA
Output Power	l <sub>e</sub>	12	20		mW/sr	IF = 50 mA
Light Turn-On and Turn-Off	ton, toff		. 1	<del></del>	μs	· · · · · · · · · · · · · · · · · · ·

<sup>\*</sup>f = 1.0 kHz, Duty Cycle 1 %

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### TYPICAL CHARACTERISTICS (T=25 °C)



### HANDLING PRECAUTIONS:

- 1. The full resin-molded LED lamps have generally a little less mechanical and thermal strength than other resin-molded semiconductor devices as they have less additives. Therefore please note on the following points.
  - (a) Soldering of leads should be made at the point 5 mm or more from the root of the leads at 260 °C and within 5 s.
  - (b) If the temperature of the molded portion rises in addition to the residual stress between the leads, the possibility that open or short circuit occurs due to the deformation or destruction of the resin will increase.
- 2. On cleaning the device:
  - (a) Cleaning with unsuitable solvent may impair the resin of the package and the following solvents should be used at the temperature of less than 45 °C and for less than 3 minutes of immersion time.

Ethanol, Methanol

Isopropyl-alcohol

(b) Ultrasonic cleaning will add some stress on devices. The degree of the stress differs depending on the oscillation output power, the size of the PCB and the mounting methods of the devices, therefore it should be confirmed by making an experiment at actual conditions that the cleaning does not have any problem on the devices.