

**HIGH SPEED INFRARED
LIGHT EMITTING DIODE****SE1103****FEATURES**

- **HIGH OUTPUT POWER**
 $I_e = 7 \text{ mW/sr TYP}$
- **WIDE HALF ANGLE**
 $\theta (1/2) = \pm 25^\circ \text{ TYP}$
- **SPECTRALLY MATCHED TO SILICON SENSORS**
- **ULTRA HIGH SPEED RESPONSE**
 $t_r, t_f = 80 \text{ ns TYP}$

DESCRIPTION

The SE1103 is a GaAlAs Infrared Light 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 890 nm.

APPLICATIONS

- **LIGHT SOURCE FOR TV REMOTE CONTROL**
- **LIGHT SOURCE FOR SMOKE DETECTOR**
- **PHOTOCHOPPERS, ISOLATOR**
- **OPTICAL ENCODERS**
- **WIRELESS HEADPHONE SYSTEM (LIGHT SOURCE)**

ELECTRO-OPTICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$)

PART NUMBER		SE1103			
SYMBOLS	PARAMETERS	UNITS	MIN	TYP	MAX
V_F	Forward Voltage, $I_F = 50 \text{ mA}$	V		1.4	1.7
V_{FP1}	Pulse Forward Voltage $I_{FP} = 1.0 \text{ A}$	V		1.9	
I_R	Reverse Current, $V_R = 3 \text{ V}$	μA			10
C_t	Capacitance, $V = 0, f = 1.0 \text{ MHz}$	pF		40	
λ_{Peak}	Peak Emission Wavelength, $I_F = 50 \text{ mA}$	nm		890	
I_e	Output Power, $I_F = 50 \text{ mA}$	mW/sr	3	7	
t_r	Rise Time, $I_F = 50 \text{ mA}$	nm		80	
t_f	Fall Time, $I_F = 50 \text{ mA}$	nm		80	

Note:

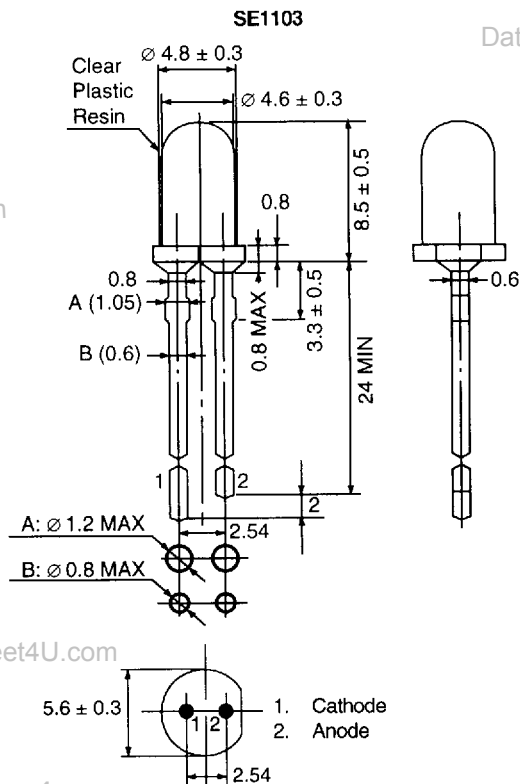
1. $f = 1.0 \text{ kHz}$, Duty Cycle 1 %

ABSOLUTE MAXIMUM RATINGS¹ ($T_A = 25^\circ\text{C}$)

SYMBOLS	PARAMETERS	UNITS	RATINGS
P	Max Power Dissipation	mW	150
I _F	Max Forward Current	mA	100
I _{FP} ¹	Max Pulse Forward Current	A	1.0
V _R	Max Reverse Voltage	V	5.0
Maximum Temperatures			
T _J	Junction Temperature	°C	100
T _{STG}	Storage Temperature	°C	-40 to +100
T _{OP}	Operating Temperature	°C	-30 to +85

Notes:

1. Operation in excess of any one of these parameters may result in permanent damage.
2. $f = 1.0$ kHz, Duty Cycle 1 %

OUTLINE DIMENSIONS (Units in mm)

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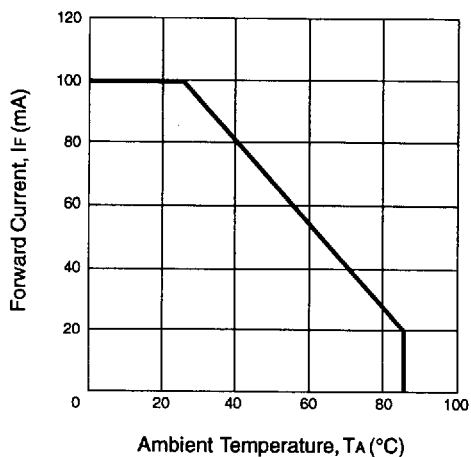
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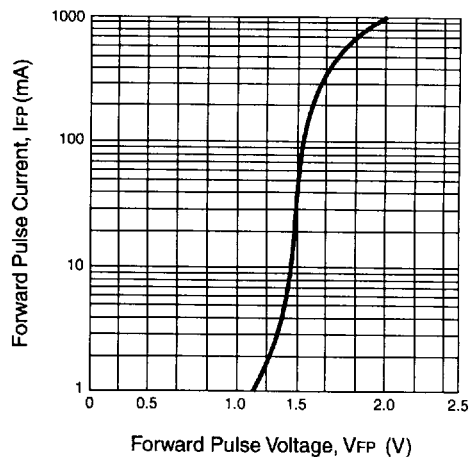
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TYPICAL PERFORMANCE CURVES ($T_A = 25^\circ\text{C}$)

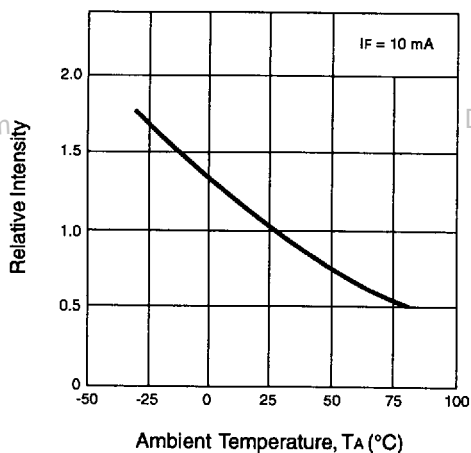
FORWARD CURRENT vs. AMBIENT TEMPERATURE



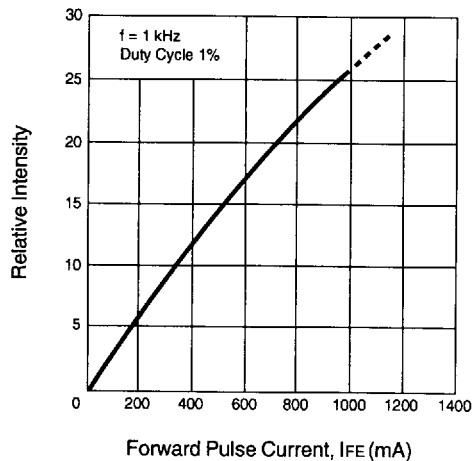
FORWARD PULSE CURRENT vs. FORWARD PULSE VOLTAGE



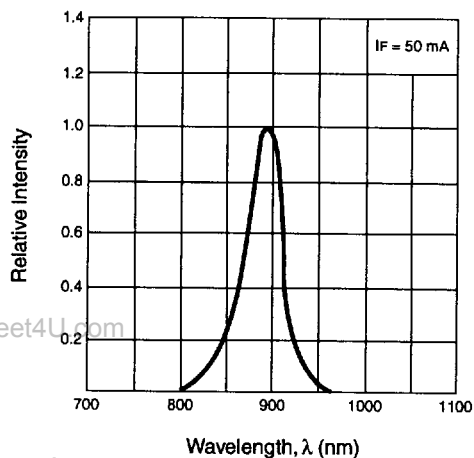
RELATIVE LUMINOUS INTENSITY vs. AMBIENT TEMPERATURE



RELATIVE LUMINOUS INTENSITY vs. FORWARD CURRENT



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