ELECTRONICS, INC.
44 FARRAND STREET
BLOOMFIELD, NJ 07003
(973) 748–5089

NTE3028
Infrared Emitting Diode
PN Gallium Arsenide

Description:

The NTE3028 is designed for applications requiring high power output, low drive power, and very fast response time. This device is used in industrial processing and control, light modulators, shaft or position encoders, punched card readers, optical switching, and logic circuits. It is spectrally matched for use with silicon detectors.

Features:

- High Power Output
- Infrared Emission
- Low Drive Current
- Popular TO18 Type Package for Easy Handling and Mounting

Absolute Maximum Ratings:

Reverse Voltage, V_R 6V

Forward Current, I_F

Continuous 60mA

Peak (PW = 100µs, Duty Cycle = 2%) 1A

Total Device Dissipation (T_A = +25°C), P_D 250mW

Derate Above 25°C (Note 1) . . . . . 2.27mW/°C

Operating Temperature Range, T_A . . . . . –55° to +125°C

Storage Temperature Range, T_{stg} . . . . . –65° to +150°C

Note 1. Printed circuit board mounting.

Electrical Characteristics: (T_A = +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Reverse Leakage Current	I_R	V_R = 3V	–	2	–	nA
Reverse Breakdown Voltage	$V_{(BR)R}$	I_R = 100µA	6	20	–	V
Forward Voltage	V_F	I_F = 50mA	–	1.32	1.5	V
Total Capacitance	C_T	V_R = 0V, f = 1MHz	–	18	–	pF

Optical Characteristics: (T_A = +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Total Output Power	P_O	I_F = 60mA, Note 2	–	2.5	–	mW
		I_F = 100mA, Note 2, Note 3	1.0	4.0	–	mW
Radiant Intensity	I_O	I_F = 100mA, Note 3, Note 4	–	1.5	–	mW/ steradian
Peak Emission Wavelength	λP		–	940	–	nm
Spectral Line Half Width	Δλ		–	40	–	nm

Note 2. Power Output, P_O, is the total power radiated by th device into a solid angle of 2π steradians. It is measured by directing all radiation leaving the device, within this solid angle, onto a calibrated silicon solar cell.

Note 3. PW = 100μs, Duty Cycle = 2%.

Note 4. Irradiance from a Light Emitting Diode (LED) can be calculated by:

$$H = \frac{I_e}{d^2}$$

where
H is irradiance in mW/cm^2
I_e is radiant intensity in mW/steradian
d^2 is distance from LED to the detector in cm