

P-N GaAs Infrared-Emitting Diode

Optoelectronic Products

TIL38

General Description

The TIL38 is a p-n GaAs infrared-emitting diode in a low-cost plastic T1- $\frac{3}{4}$ package.

Output Spectrally Compatible With Silicon Sensors
High Power Output
High Radiant Intensity

Absolute Maximum Ratings

Maximum Temperature
 Operating Temperature -55°C to $+100^{\circ}\text{C}$
 Storage Temperature -55°C to $+100^{\circ}\text{C}$
 Pin Temperature (Soldering, 3 s) 260°C

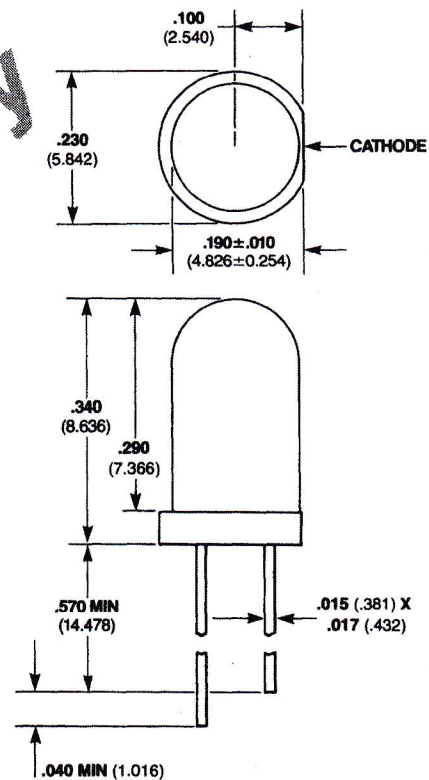
Maximum Power Dissipation

Total Dissipation at $T_A = 25^{\circ}\text{C}$ 125 mW
 Derate Linearly at 25°C 1.3 mW/ $^{\circ}\text{C}$

Maximum Voltage and Current

V_R Reverse Voltage 5 V
 I_F Forward dc Current (25°C) 150 mA

Package Outline



Notes

This device has a gray-tinted plastic body
 All dimensions in inches **bold** and millimeters (parentheses)
 Tolerance unless specified = $\pm .015$ ($\pm .381$)

Electrical Characteristics $T_A = 25^{\circ}\text{C}$

Symbol	Characteristic	Min	Typ	Max	Units	Test Conditions
P_O	Radiant Power Output	6	12		mW	$I_F = 100$ mA
λ_{pk}	Wavelength @ Peak Emission	915	940	975	nm	$I_F = 100$ mA
$\Delta\lambda$	Spectral Bandwidth Between Half-Power Points		50	75	nm	$I_F = 100$ mA
θ_{HI}	Emission Beam Angle Between Half Intensity		60		degree	$I_F = 100$ mA
C	Capacitance		25		pF	$V_F = 0$, $f = 1$ MHz
t_r	Radiant Rise Time		600		ns	$I_{FM} = 20$ mA, $t_w = 2$ μ s
t_f	Radiant Fall Time		350		ns	$f = 45$ kHz
V_F	Forward Voltage		2.55		V	$I_F = 1$ A

Silicon Photodiode

Optoelectronic Products

TIL100

General Description

The TIL100 is a high-speed PIN photodiode operating in a reverse-bias mode. It is spectrally matched with the TIL38 emitter. This photodiode was designed for infrared remote-control system.

Low Capacitance

High Photosensitivity With Fast Response

Absolute Maximum Ratings

Maximum Temperature

Operating Temperature -25°C to $+100^{\circ}\text{C}$ Storage Temperature -25°C to $+100^{\circ}\text{C}$ Pin Temperature (Soldering, 3 s) 260°C

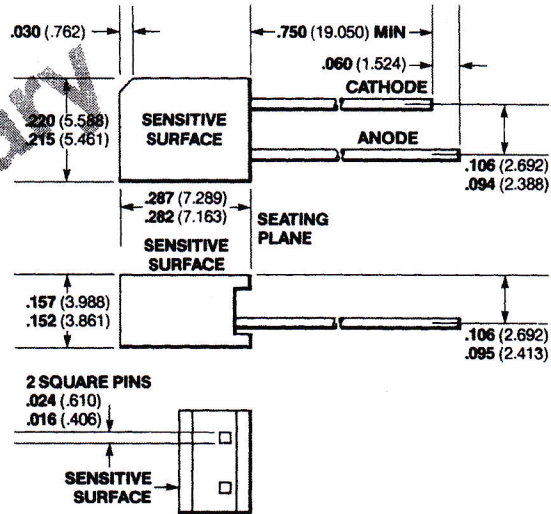
Maximum Power Dissipation

Total Dissipation at $T_A = 25^{\circ}\text{C}$ 150 mWDerate Linearly at 25°C 2 mW/ $^{\circ}\text{C}$

Maximum Voltage

BV Breakdown Voltage 30 V

Package Outline



Notes

All dimensions in inches bold and millimeters (parentheses)
Tolerance unless specified = $\pm .015$ ($\pm .381$)

Electrical Characteristics $T_A = 25^{\circ}\text{C}$

Symbol	Characteristic	Min	Typ	Max	Units	Test Conditions
C_T	Total Capacitance		35	50	pF	$V_R = 3\text{ V}$, $H = 0$, $f = 1\text{ MHz}$
t_r	Rise Time			100	ns	$V_R = 10\text{ V}$, $R_L = 1\text{ k}\Omega$
t_f	Fall Time			100	ns	$V_R = 10\text{ V}$, $R_L = 1\text{ k}\Omega$
I_L	Light Current		10		μA	$V_R = 10\text{ V}$, $H = 250\text{ W/cm}^2$ at 940 nm
I_D	Dark Current			50	nA	$V_R = 10\text{ V}$, $H = 0$