

Large Area InGaAs Photodiodes

Thermoelectrically Cooled

Features

– Electro-Optical

- InGaAs PIN photodiode
- Responsivity above 0.9 A/W
- D^* to 10^{13} cm-Hz^{1/2}/W
- Photovoltaic operation
- Active diameters of 1, 2 or 3mm

– Packaging

- Hermetic, miniature package
- TE-Cooled TO-37
 - Two stages for 55°C range
 - Built-in calibrated thermistor

Applications

- NIR spectroscopy
- Remote sensing
- Optical power meters
- Radiometry
- Temperature sensing / Fire detection
- Process monitoring

Preliminary Specifications – Optical / Electrical Characteristics

(At 25°C, $V_f = -10$ mV unless otherwise noted)

MODEL	ETX 1000TE			ETX 2000TE			ETX 3000TE			Units
	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	
Active Diameter		1.0			2.0			3.0		mm
Peak Wavelength @ 25°C	1.50	1.55	1.60	1.50	1.55	1.60	1.50	1.55	1.60	μm
Peak Wavelength @ -30°C	1.50	1.55	1.60	1.50	1.55	1.60	1.50	1.55	1.60	μm
Responsivity at λ_{peak}^1	0.9	1.0		0.9	1.0		0.9	1.0		A/W
Change in λ_{cutoff} w.r.t. temperature		0.9			0.9			0.9		nm/°C
Responsivity at 1.3μm ¹	0.80	0.90		0.80	0.90		0.80	0.90		A/W
Cutoff Wavelength ² @ 25°C	1.70			1.70			1.70			μm
Cutoff Wavelength ² @ -30°C	1.65			1.65			1.65			μm
Junction Capacitance ^{1,3}		100	200		450	800		800	1600	pF
Shunt Resistance @ 25°C	40	50		10	25		1	10		MΩ
Shunt Resistance @ -30°C	5000			500			50			MΩ
D^* @ 25°C	4.58			4.58			2.17			10^{12} cm-Hz ^{1/2} /W
D^* @ -30°C	5.68	10.0		3.59	10.0		1.70	10.0		10^{13} cm-Hz ^{1/2} /W
TEC Power Dissipation (DC)		3			3			3		W

NOTES: 1) At -30°C to 25°C 2) Cutoff Wavelength defined as wavelength at which responsivity is 10% of peak responsivity. 3) At 0 V.

Maximum Ratings

MODEL	ETX 1000TE	ETX 2000TE	ETX 3000TE	
Parameter	Rating	Rating	Rating	Units
Operating temperature	-30 / +25	-30 / +25	-30 / +25	°C
Storage temperature	-40 / +85	-40 / +85	-40 / +85	°C
Reverse Voltage	20	2	2	V
Optical input power	10	10	10	mW
TE Cooler current	1.4	1.4	1.4	A

Figure 1

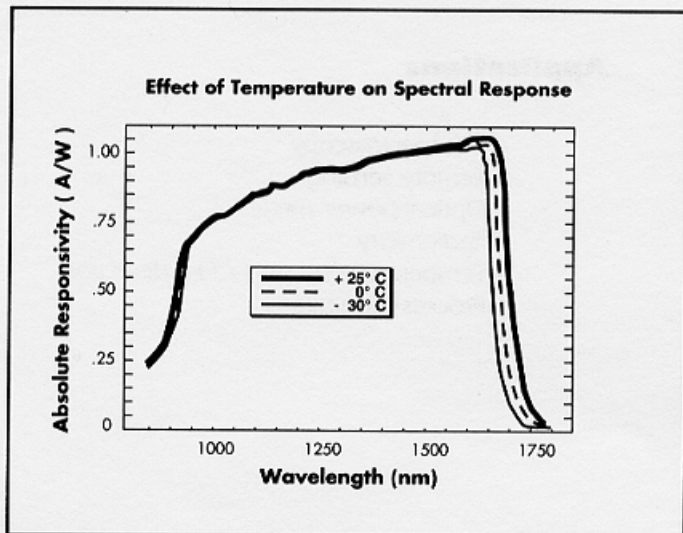
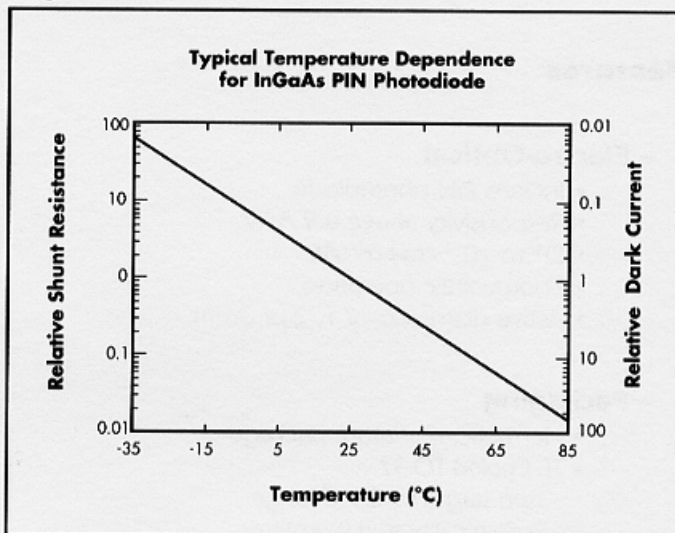
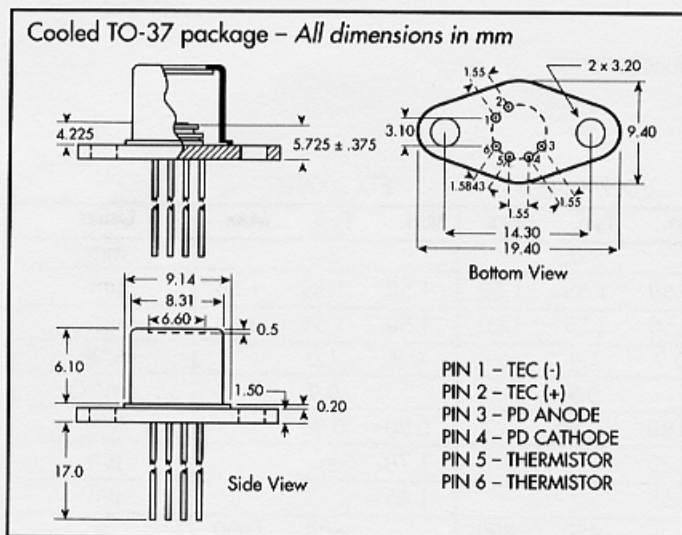


Figure 2



Mechanical Dimensions



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