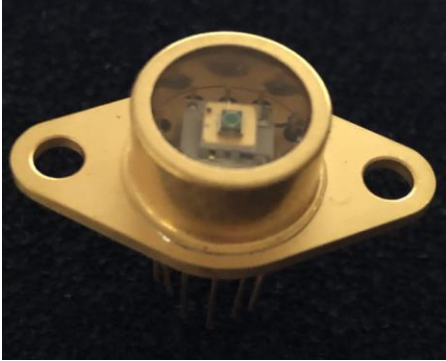


## Extended InGaAs

### PHOTODIODE



### Description

IGA1000TE2-T66 is a panchromatic PIN photodiode with a Nominal cut-off wavelength at 2.6um.

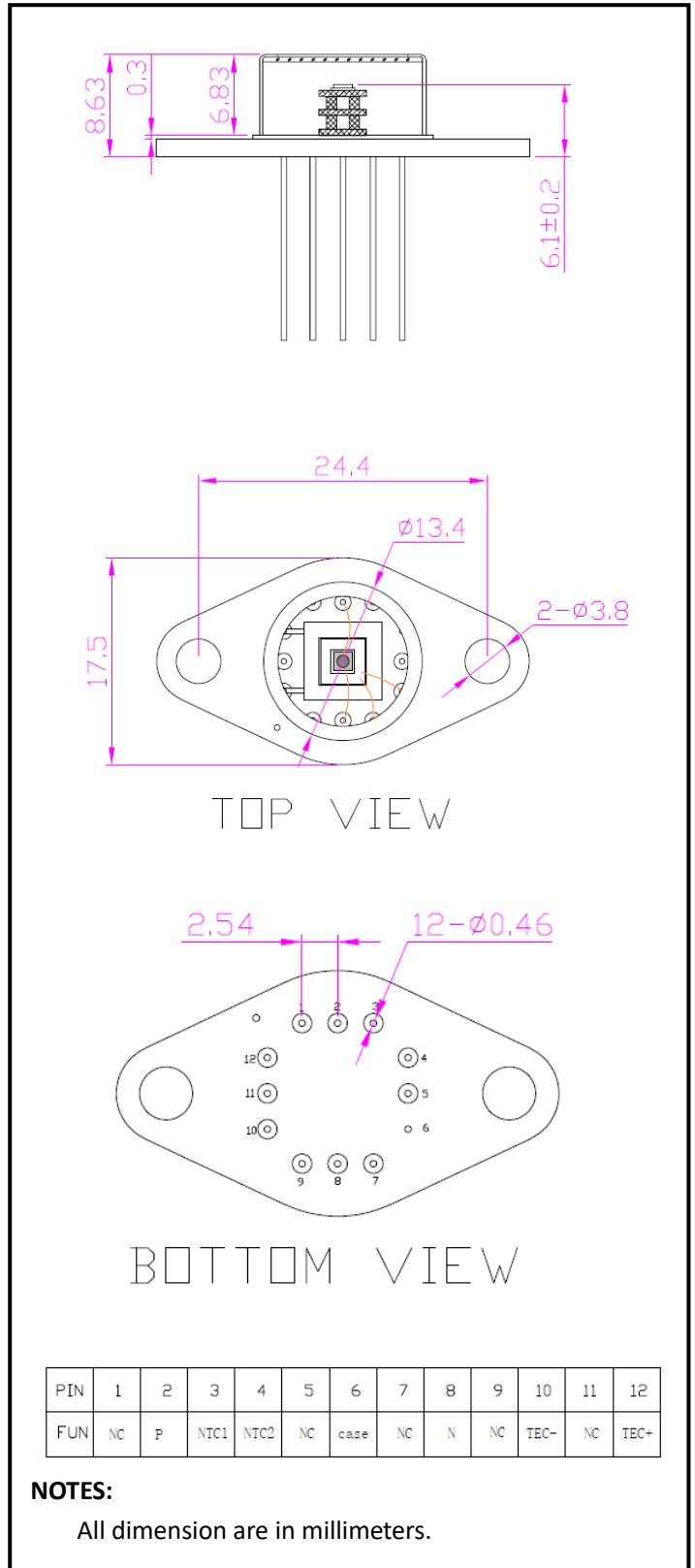
It's packaged into TO-66 with two stage TE-cooled.

### Features

- \* 50% cut-off wavelength > 2.45um
- \* TEC for temperature control

### Applications

- \* Spectrophotometer
- \* Diode laser monitoring
- \* Non-contact temperature measurement
- \* Gas analysis



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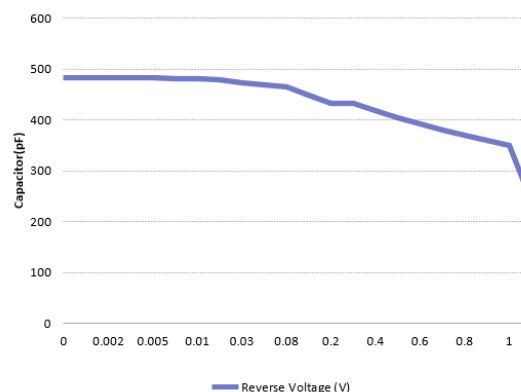
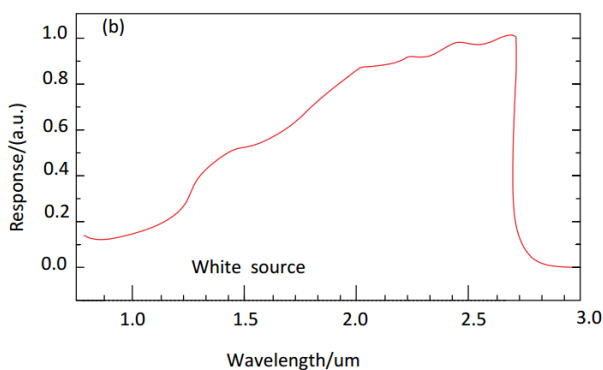
## Absolute Maximum Ratings (Ta=25°C)

Symbol	Characteristic	min	typ	max	Unit
Dtmax	Maximum temperature difference at I=Imax			83	k
Qmax	Maximum heat pumping capacity at I=Imax			0.9	W
Imax	Maximum current			1.4	A
Umax	Maximum voltage drop			2	V
Topr	Operating temperature	-40		+100	°C
Tstg	Storage temperature	-55		+125	°C

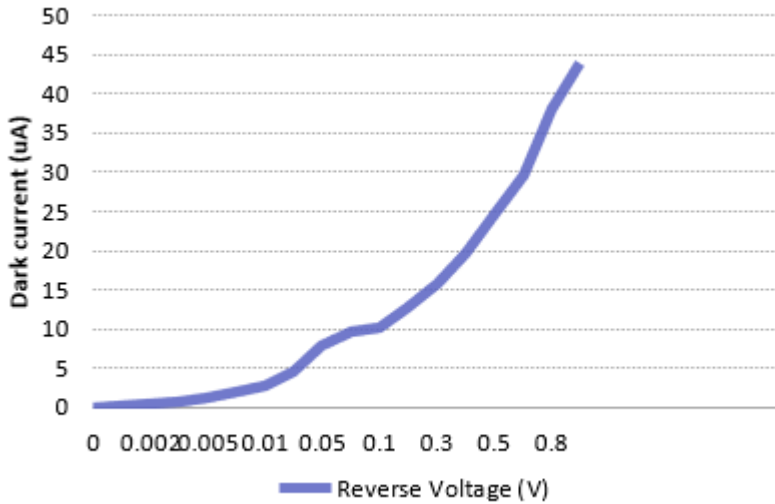
## Electrical and optical characteristics

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Active area	Dia.			Φ1		mm
Dark current	I <sub>d</sub>	V <sub>r</sub> =0.5V		24		μA
Shunt resistance	R <sub>sh</sub>	V <sub>r</sub> =10mV		3.75		kΩ
Junction Capacitance	C <sub>J</sub>	V <sub>r</sub> =0V, f=1MHz		484		pF
Cut frequency		V <sub>r</sub> =0V, R <sub>L</sub> =50Ω		2		MHz
Detectivity	D*	λ=λ <sub>p</sub>		1.1*10 <sup>-12</sup>		cm*Hz <sup>1/2</sup> /W
Noise equivalent power	NEP	λ=λ <sub>p</sub>		9.1*10 <sup>-13</sup>		W/Hz <sup>1/2</sup>
Photo sensitivity	S <sub>R</sub>	λ=λ <sub>p</sub>		1.0		A/W
Spectral Application Range	λ <sub>range</sub>		800		2600	nm
Spectral Response-Peak	λ <sub>p</sub>			2550		nm
Temp. sensor resistance		NTC, Beta (25/50)=3930K	9900	10000	10100	Ω
Heat transported by TEC		Performance under standard conditions			4.6	W
Angular Resp 50% Resp Pt	θ <sub>1/2</sub>			±70		Degrees

### ■ Spectral response (M=100, Ta=25°C) ■ Capacitance vs. UR( per segment)



## ■ Dark current vs. UR (per segment)



## Temperature Sensor (NTC)

Temp		Resistance (kohm)		
K	°C	min	typ	max
233.15	-40	321.904	336.795	352.339
238.15	-35	233.56	243.573	253.99
243.15	-30	171.306	178.091	185.127
248.15	-25	126.93	131.559	136.343
253.15	-20	94.955	98.129	101.4
258.15	-15	71.424	73.6	75.835
263.15	-10	54.238	55.735	57.268
268.15	-5	41.558	42.59	43.644
273.15	0	32.114	32.826	33.551
278.15	5	24.988	25.478	25.974
283.15	10	19.603	19.938	20.277
288.15	15	15.498	15.726	15.955
293.15	20	12.344	12.496	12.649
298.15	25	9.9	10	10.1
303.15	30	7.959	8.056	8.155
308.15	35	6.439	6.532	6.626
313.15	40	5.242	5.328	5.416
318.15	45	4.292	4.372	4.452
323.15	50	3.535	3.607	3.68
328.15	55	2.929	2.995	3.061
333.15	60	2.441	2.5	2.56

B (K)	3969.3	3930	3890.7
T <sub>N</sub> (K)	298.15		

$$T = \frac{B \times T_n}{B + \ln\left(\frac{R_T}{R_N}\right) \times T_N}$$



# IGA1000TE2-T66

338.15	65	2.045	2.098	2.152
343.15	70	1.721	1.769	1.818
348.15	75	1.456	1.499	1.543
353.15	80	1.237	1.275	1.315
358.15	85	1.057	1.092	1.127
363.15	90	0.908	0.939	0.971
368.15	95	0.783	0.811	0.84
373.15	100	0.678	0.703	0.729
378.15	105	0.589	0.612	0.635
383.15	110	0.514	0.534	0.556
388.15	115	0.45	0.468	0.488
393.15	120	0.395	0.412	0.43
398.15	125	0.348	0.364	0.38

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