

# HIGH SPEED DETECTORS

## Optical Receivers for RF over Fiber Applications

### PRODUCT DATASHEET

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The EM169 high speed detector module is designed for both digital and analog applications with 50 ohm impedance matched RF connections.

The module contains an InGaAs PIN photodiode and necessary matching electronics. The package is hermetically sealed with a SMA compatible RF connector. The module has a ripple free and linear response from DC to 20 GHz.



### Features

- $S_{21} > 20$  GHz,  $S_{22} < -8$  dB
- 3 mW average, 6 mW max power handling
- Responsivity  $> 0.80$  A/W
- Extended temperature range
- SMF-28, PM, or specialty MFD fiber

### Applications

- RF links
- OC-192, STM-64
- Heterodyne detection

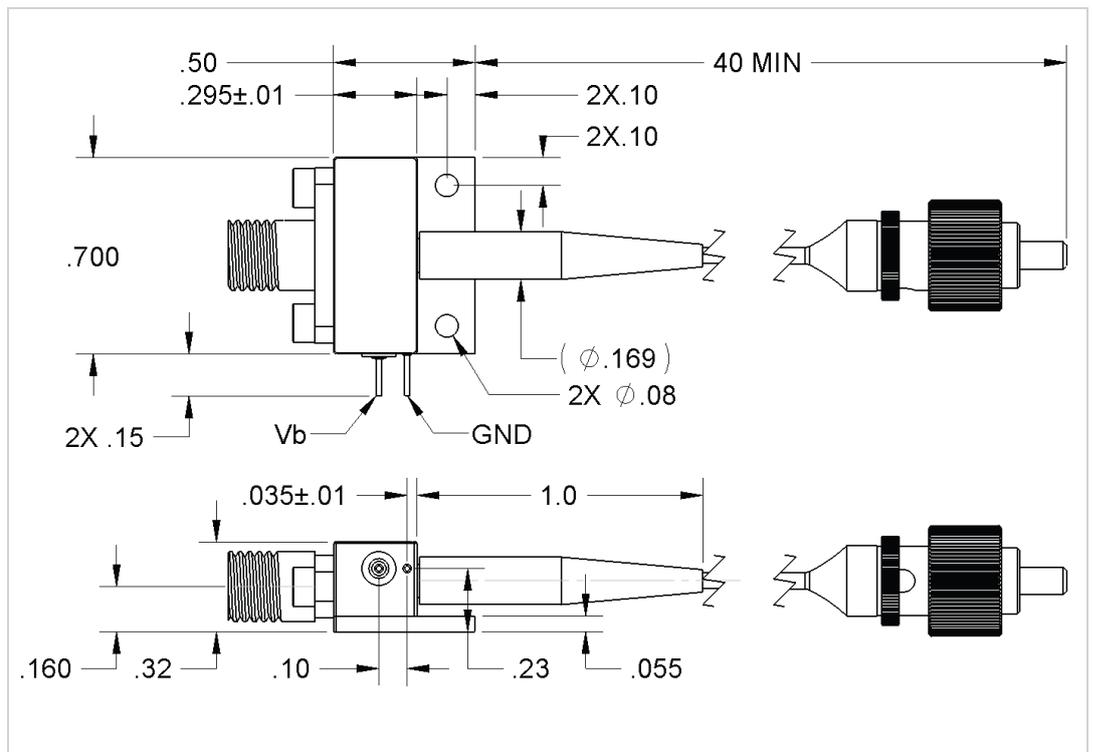
## Electrical and Optical Performance Characteristics

$V_B = 5V$  unless otherwise noted.

	Symbol	Condition	Min	Typical	Max	Unit
Wavelength range	$\lambda$		1280		1620	nm
Optical input power	$P_{opt}$				6	mW
Responsivity	R	$\lambda = 1545$ nm	0.80	0.95		A/W
Dark current	$I_D$	No optical input power			100	nA
3dB bandwidth	BW		20			GHz
Electrical return loss	$S_{22}$	DC – 18 GHz			-10	dB
		18 – 20 GHz			-8	dB
Flatness	$\Delta G$	DC – 20 GHz	-3		2	dB
Optical return loss	ORL	DC to 3 dB BW		-35	-32	dB
Output termination	$Z_{22}$	DC to 3 dB BW		50		$\Omega$
Operating temperature			-40		85	$^{\circ}C$

## Outline drawing

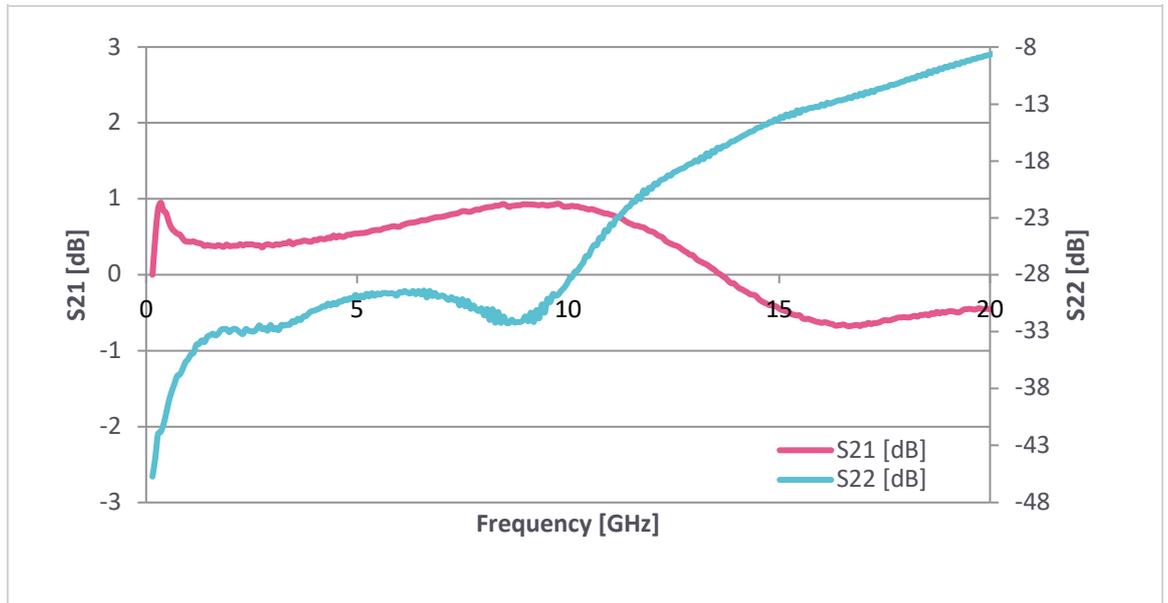
(units in inches)



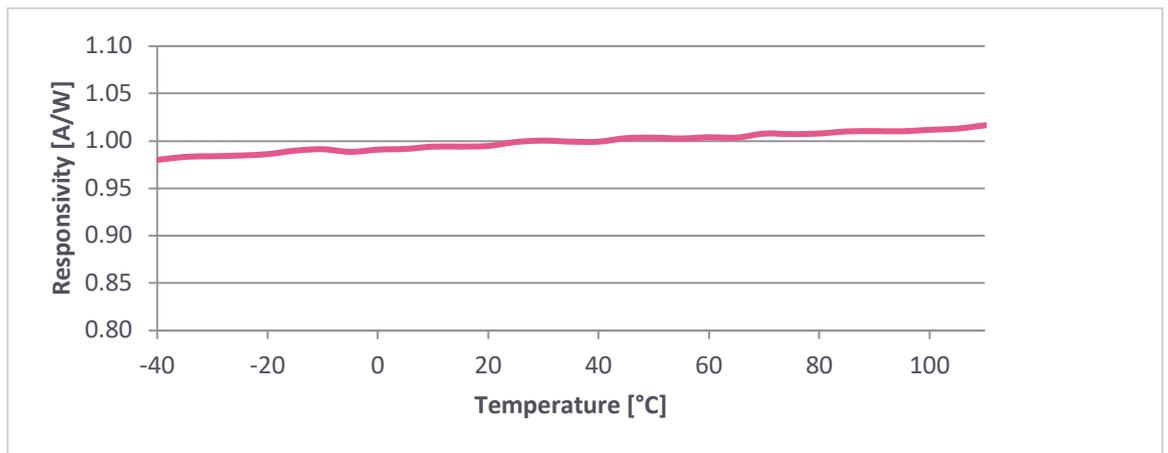
## Performance Graphs

$V_B=5\text{ V}$ ,  $\lambda=1545\text{ nm}$ ,  $P_{opt}=1\text{ mW}$

$S_{21}$  &  $S_{22}$



Responsivity



Absolute Maximum Ratings*	Symbol	Min	Max	Unit
Storage temperature	$T_{STG}$	-55	85	°C
Operating case temperature	$T_{op}$	-40	85	°C
Bias voltage	$V_B$	0	15	V
Optical input power	$P_{opt}$		10	mW
Lead soldering time			10	s
Lead soldering temperature			250	°C
ESD (HBM)			500	V

\* Stresses beyond those listed under “absolute maximum ratings” may cause permanent damage to the device. These are stress ratings only and operation of the device at or beyond these conditions is not implied. Exposure to absolute maximum ratings for extended periods of time may affect device reliability.

## Ordering Information

Order code

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E	M	1	6	9	-		
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①	Model	SM fiber FC/APC connectors	SM fiber SC/APC connector	PM fiber FC/APC connector
	Code	03	04	09

### For further information

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