

2522 Microwave Packaged Photodiode

The 2522 packaged photodiode incorporates a high-speed planar PIN photodiode to provide a highly reliable, high-power photodiode component. This package is well suited for receiver applications with optical preamplification. The diode is well matched over the operating frequency band, thereby simplifying high-speed integration.

Applications

- Optically amplified systems (following EDFA or Raman amplifiers)
- Linear receiver applications
- FEC and Super-FEC to 12.5 Gb/s

Features

- Highly reliable planar photodiode technology
- High power capability
- dc coupled
- High breakdown voltage
- Bandwidth up to 21 GHz
- Good RF matching, 12 dB typical
- Hermetically sealed

Performance Highlights

	Min	Typ	Max	Units
Operating Temperature	-40	25	+85	°C
Bandwidth	15	-	21	GHz
Responsivity, 1550 nm	0.7	-	-	A/W
Dark Current _{25C}	-	-	5	nA
RF Return Loss	8	12	-	dB
Group Delay	-10	-	30	ps
Optical Wavelength Range	1280	-	1580	nm
Breakdown Voltage ($I_R = 10 \mu A$)	15	-	-	V
Optical Return Loss	-	-	-40	dB
Photodiode Bias Voltage	-	5	12	V
Storage Temperature	-40	-	+85	°C

Absolute Maximum Ratings

Stresses in excess of the absolute maximum ratings can cause permanent damage to the device. These are absolute stress ratings only. Functional operation of the device is not implied at these or any other conditions in excess of those given in the operational sections of the data sheet. Exposure to absolute maximum ratings for extended periods can adversely affect device reliability.

Parameter	Symbol	Min	Max	Unit
Operating Case Temperature Range	T_{op}	-40	+85	°C
Storage Case Temperature Range	T_{stg}	-40	+85	°C
Optical Input Power	P_{IN}	-	+10	mW
Forward Current	I_F	-	5	mA
Reverse Bias Voltage	V_R	-	15	V
Lead Soldering Temperature/Time	-	-	250/5	°C/sec
Relative Humidity (non-condensing)	RH	-	85	%
ESD Susceptibility (all pins) ¹	-	-	±500	V

1. Based on human-body model of $R = 1500 \text{ W}$, $C = 100 \text{ pF}$. In general, ESD precautions should be taken to avoid damage.

Electrical/Optical Characteristics¹

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Operating Temperature	T_{op}	Referenced to base of package	-40	25	85	°C
Bias Voltage	V_R	-	-	5	12	V
Capacitance	C	-	-	-	0.15	pF
Responsivity	R	1550 nm	0.7	-	-	A/W
Dark Current	I_{dark}	25°C	-	-	5	nA
		85°C	-	-	50	
Optical Return Loss	ORL	-	-	-	-40	dB
Wavelength	λ	-	1280	-	1580	nm

1. Specified characteristics apply for the recommended operating conditions at beginning of life, 25°C, unless noted otherwise.

RF Characteristics¹

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Bandwidth	f_{3dB}	Relative to 100 MHz	15	-	-	GHz
Impedance	Z	Resistively matched SMA connector	-	50	-	Ω
S21 Flatness ²	-	At 2 GHz At 15 GHz, 15 GHz option At 18 GHz, 18 GHz option At 21 GHz, 21 GHz option	-1 -1 -2 -3	- - - -	+3 +3 +3 +3	dB
Group Delay Flatness ³	GD	0.5 GHz to 15 GHz, 15 GHz option 0.5 GHz to 18 GHz, 18 GHz option 0.5 GHz to 21 GHz, 21 GHz option	-10	-	+30	ps
Output RF Return Loss	RL_{RF}	DC to 15 GHz, 15 GHz option DC to 18 GHz, 18 GHz option DC to 21 GHz, 21 GHz option	8	-	-	dB

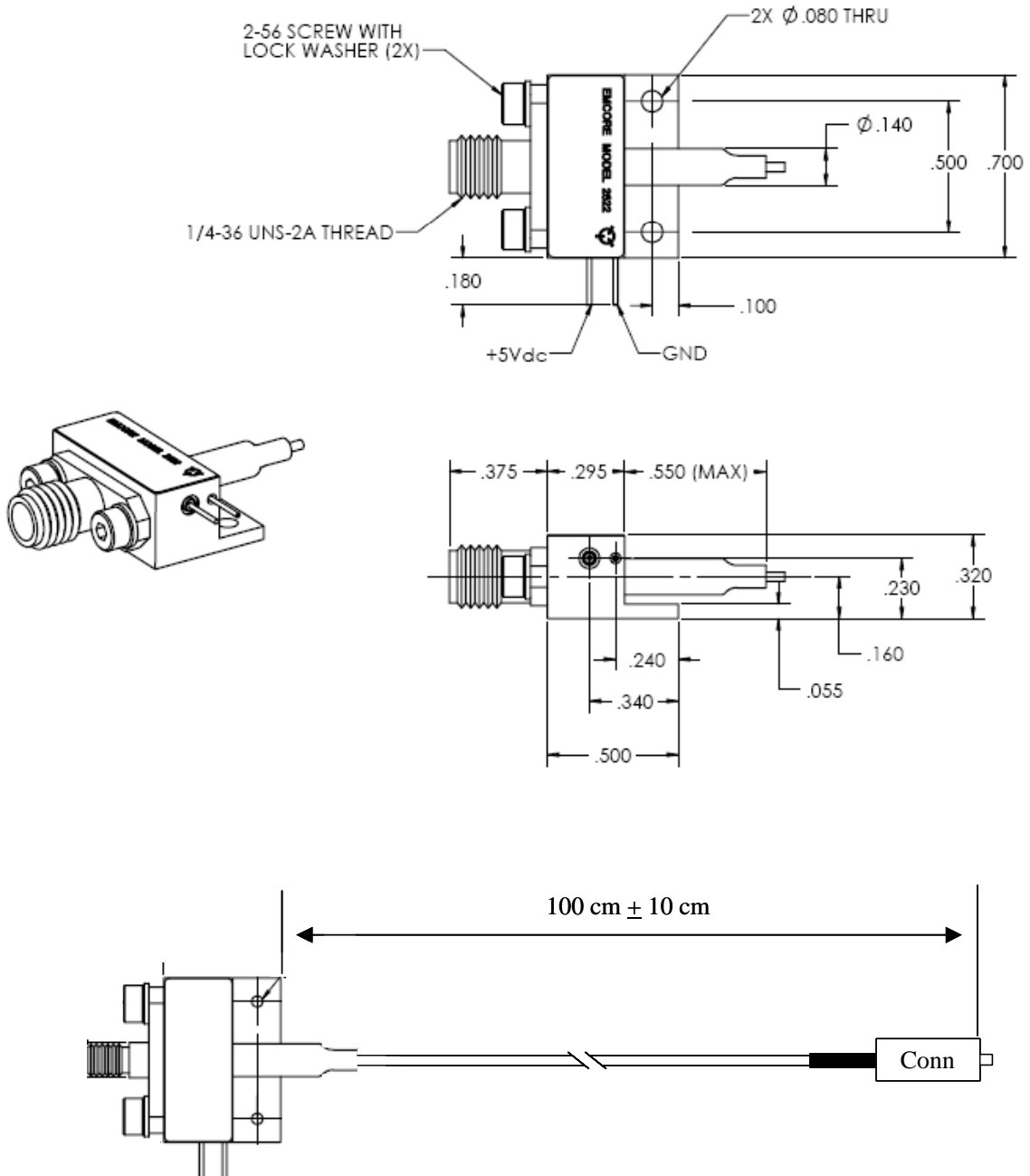
1. Specified characteristics apply for the recommended operating conditions at beginning of life, 25°C, unless noted otherwise.
2. Measured relative to 250 MHz.
3. 5% smoothing, relative to 2 GHz.

Pinout

Pin	Symbol	Function
1	V_{pd}	Photodiode Bias
2	GND	Case Ground

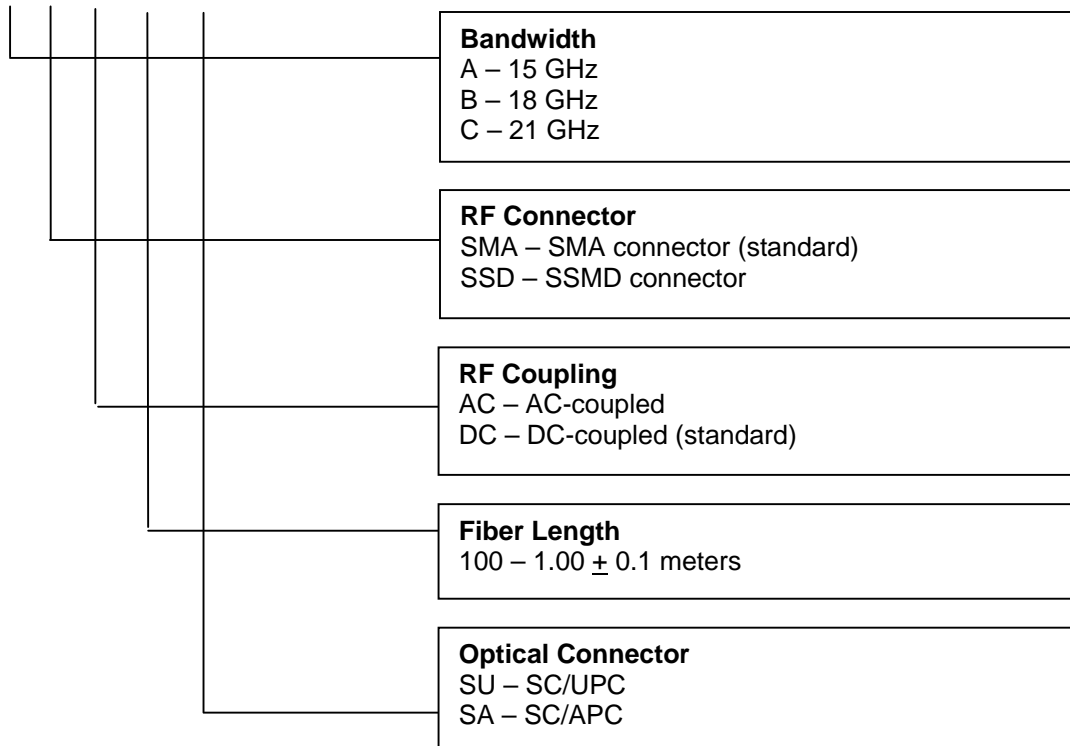
Outline Drawing

Dimensions are in inches.



Ordering Information – Model Number Options

2522x-yyy-zz-aaa-bb



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EMCORE CORPORATION
 2015 West Chestnut Street
 Alhambra, California 91803-1542
 Tel: 626-293-3400
 Fax: 626-293-3428
 www.emcore.com

