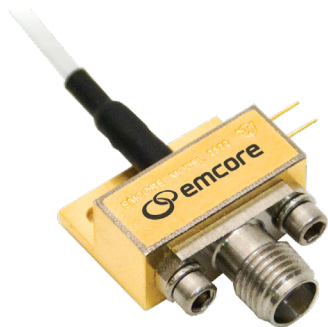




Applications

- Antenna Remoting
- Military Communications
- Phased Arrays
- Electronic Warfare (EW) Systems
- Delay Lines

Features

- Highly Reliable Planar Photodiode Technology
- FC/APC or SC/APC
- High Power Capability
- High Breakdown Voltage
- Bandwidth up to 22 GHz
- Good RF matching, 12 dB typ.
- Hermetically Sealed

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 microwave frequency band, thereby simplifying high-speed integration.



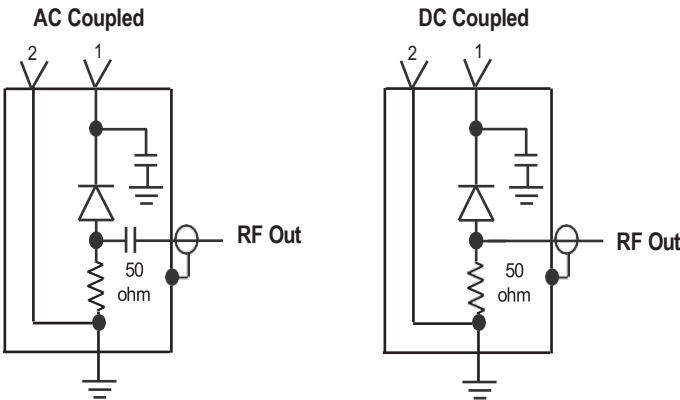
Performance Highlights

Parameter	Min	Typical	Max	Units
Operating Temperature	-40	25	+85	°C
Bandwidth	DC	-	22	GHz
Responsivity, 1310 / 1550 nm	0.7	-	-	A/W
Dark Current (25 C)	-	-	5	nA
Max Optical Input	-	-	10	dBm
Max Current	-	-	12	mA
RF Return Loss	8	12	-	dB
Group Delay	-	40	-	ps, p-p
Optical Wavelength Range	1280	-	1580	nm
Breakdown Voltage (IR = 10 μA)	15	-	-	V
Optical Return Loss	-	-	-40	dB
Photodiode Bias Voltage	-	5	12	V
Storage Temperature	-40	-	+85	°C

Pinout

Model Number	Symbol	Function
1	V _{PD}	Photodiode Bias
2	GND	Case Ground

Schematic



- For DC coupled version, do not connect RF output to a DC voltage greater than the photodiode's bias voltage.

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	Units
Storage Case Temperature Range	T _{STG}	-40	85	°C
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	%

Electrical/Optical Characteristics

Parameter	Symbol	Condition	Min	Typical	Max	Units
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
Optical Input			-	-	10	dBm
Responsivity	R	1310 / 1550 nm	0.7	-	-	AW
Dark Current	I _{DARK}	25°C 85°C	- -	- -	5 50	nA
Optical Return Loss	ORL	-	-	-	-40	dB
Wavelength	λ	-	1280	-	1580	nm

RF Characteristics

Parameter	Symbol	Condition	Min	Typical	Max	Units
Bandwidth	f					
AC Coupled		2522A	0.01	-	10	GHz
		2522B	0.01	-	20	
		2522C	0.01	-	22	
DC Coupled		2522A	DC	-	10	
		2522B	DC	-	20	
		2522C	DC	-	22	
Impedance	Z	Resistively matched SMA connector	-	50	-	Ohm
Flatness - AC Coupled	S21	50 MHz – 10 GHz	-	2	4	dB p-p
		50 MHz – 20 GHz (B & C only)	-	3	5	
		50 MHz – 22 GHz (C only)	-	4	6	
Flatness - DC Coupled		10 MHz – 10 GHz	-	2	4	
		10 MHz – 20 GHz (B & C only)	-	3	5	
		10 MHz – 22 GHz (C only)	-	4	6	
Return Loss	RL		8	12	-	dB
Group Delay Flatness ²	GD		-	< 40	-	ps, p-p

1. Specified characteristics apply for the recommended operating conditions at beginning of life, 25°C, unless noted otherwise.
2. 5% smoothing.

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MICROWAVE

Model Number	Description	Model Number	Description
2522A-SF-AC-SA	Photodiode 10 GHz, SMA, AC Coupled, SC/APC	2522A-SF-AC-FA	Photodiode 10 GHz, SMA, AC Coupled, FC/APC
2522B-SF-AC-SA	Photodiode 20 GHz, SMA, AC Coupled, SC/APC	2522B-SF-AC-FA	Photodiode 20 GHz, SMA, AC Coupled, FC/APC
2522C-SF-AC-SA	Photodiode 22 GHz, SMA, AC Coupled, SC/APC	2522C-SF-AC-FA	Photodiode 22 GHz, SMA, AC Coupled, FC/APC
2522A-SF-DC-SA	Photodiode 10 GHz, SMA, DC Coupled, SC/APC	2522A-SF-DC-FA	Photodiode 10 GHz, SMA, DC Coupled, FC/APC
2522B-SF-DC-SA	Photodiode 20 GHz, SMA, DC Coupled, SC/APC	2522B-SF-DC-FA	Photodiode 20 GHz, SMA, DC Coupled, FC/APC
2522C-SF-DC-SA	Photodiode 22 GHz, SMA, DC Coupled, SC/APC	2522C-SF-DC-FA	Photodiode 22 GHz, SMA, DC Coupled, FC/APC

The figure consists of two vertically stacked spectral plots. The top plot, labeled S21, shows the magnitude response with a reference level of 2 dB/REF -2.954 dB. It features a small peak at 16.411 GHz. The bottom plot, labeled S22, shows the magnitude response with a reference level of 5 dB/REF -8 dB, highlighting a deep notch at 15.411 GHz. Both plots have a frequency range from 0.050 GHz to 21.500 GHz.