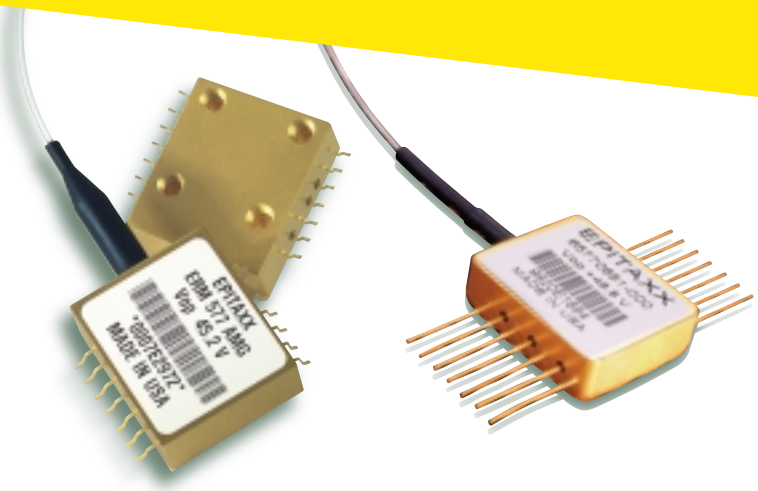
JDS Uniphase

Product Bulletin



ERM 577

2.5 Gb/s High Gain Avalanche Photodiode Optical Receiver Modules

EPITAXX ERM 577 series are high gain, high bandwidth, differential output, Avalanche Photodiode (APD) receivers with GaAs transimpedance amplifiers. The high gain of the receivers provides system designers with a large output at low optical power levels. Also, the differential output can be used for added gain or for signal monitoring.

Specifications

Conditions (unless noted):
Temperature = 25°C, λ = 1550 nm, R_L = 50Ω, V_{ss} = -5.2V
All specifications without connector.

Parameter	Measurement Conditions	Min	Typ	Max	Units
Sensitivity	2.5 Gb/s 1E-10 BER R_{APD} = 8.5 A/W		-34	-32	dBm
Small Signal Gain	Single-ended f = 1.2 GHz R_{APD} = 8.5 A/W	30	50		kV/W
Bandwidth	R_{APD} = 2.5 to 10 A/W	1.5	1.8		GHz
Overload	R_{APD} = 2.5 A/W	-7.0	-3.0		dBm
Optical Back Reflection			-40	-30	dB
Output Impedance	Single-ended		50		Ω
Maximum Output Voltage	Single-ended Voltage (p-p)		550		mV (p-p)

Key Features

Electro-optical

- InGaAs photodiode with Transimpedance Amplifiers
- High gain: 50,000 V/W typical
- High dynamic range: 31 dB typical
- Low dark current: 10 nA typical

Packaging

- 14-pin butterfly with single mode 900 µm loose jacketed fiber pigtail

  or

  AMG package with single mode 900 µm loose jacketed fiber pigtail
- Both packages available with LC, SC or FC connectors

Applications

- High sensitivity digital receivers
- Long haul SONET/SDH receivers

DC Electrical Characteristics

Parameter	Measurement Conditions	Min	Typ	Max	Units
APD Breakdown Voltage, V_b	I_d = 10 µA	40	50	70	V
APD Responsivity R_{APD}	1 µW Optical Power, $V_{APD} = V_b - 1.5$	8.5			A/W
Dark Current	$V_{APD} = V_b - 1.5$		10	40	nA
Thermistor			3		kΩ
Supply Voltage (-)		-4.95	-5.2	-5.45	V
Supply Current			130		mA

Note: APD breakdown voltage is equal to V_b

Maximum Ratings

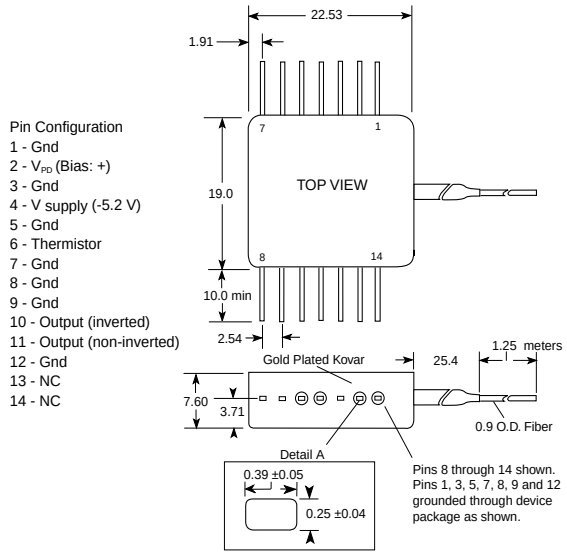
Parameter	Min	Typ	Max	Units
Operating Temperature	0		70	℃
Storage Temperature	-40		85	℃
Supply Voltage (-)	-6			VDC
APD Supply Voltage			V_b	V
Optical Input Power			1.0	mW

Ordering Information

Product Model	Description
ERM 577	2.5 Gb/s APD, 14-pin Butterfly 900 µm buffer without connector
ERM 577AMG	2.5 Gb/s APD, AMG Package 900 µm buffer without connector
ERM 577xxx FJS LC/SPC	900 µm buffer with LC/SPC connector
ERM 577xxx FJS SC/SPC	900 µm buffer with SC/SPC connector
ERM 577xxx FJS SC/APC	900 µm buffer with SC/APC connector
ERM 577xxx FJS FC/SPC	900 µm buffer with FC/SPC connector
ERM 577xxx FJS FC/APC	900 µm buffer with FC/APC connector

Mechanical Dimensions - ERM 577

All dimensions in mm (nominal)



Mechanical Dimensions - ERM 577AMG

All dimensions in mm (nominal)

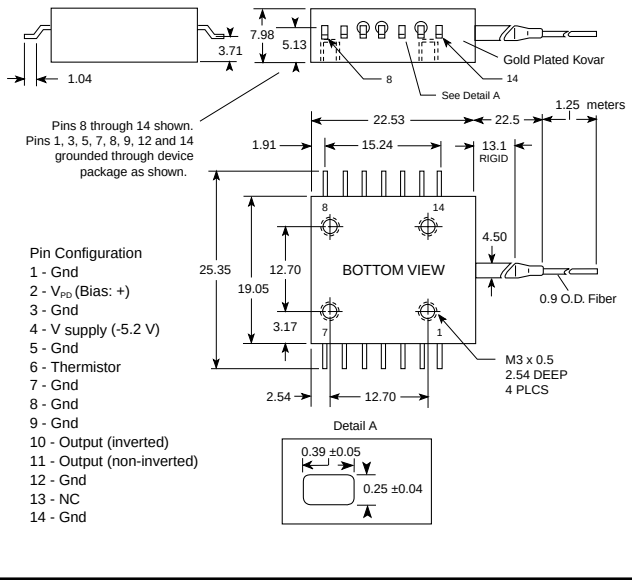


Figure 1

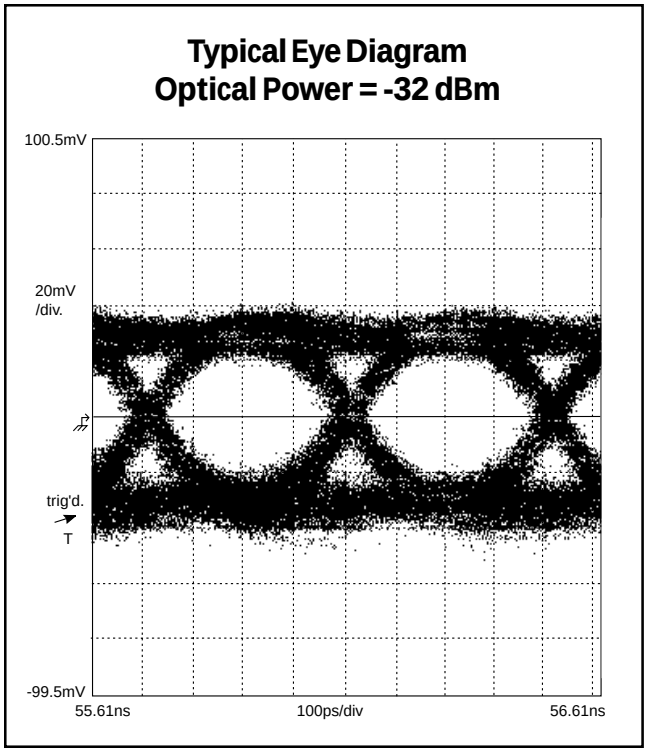


Figure 2

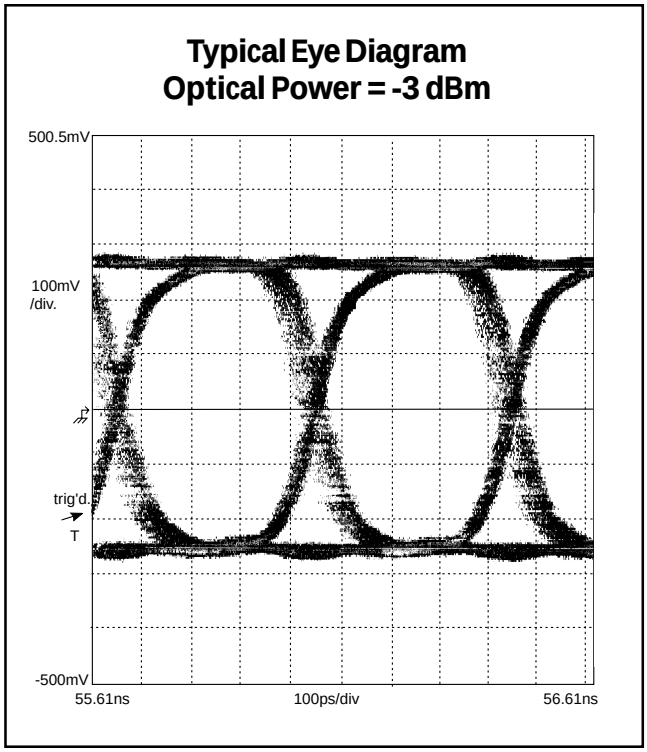
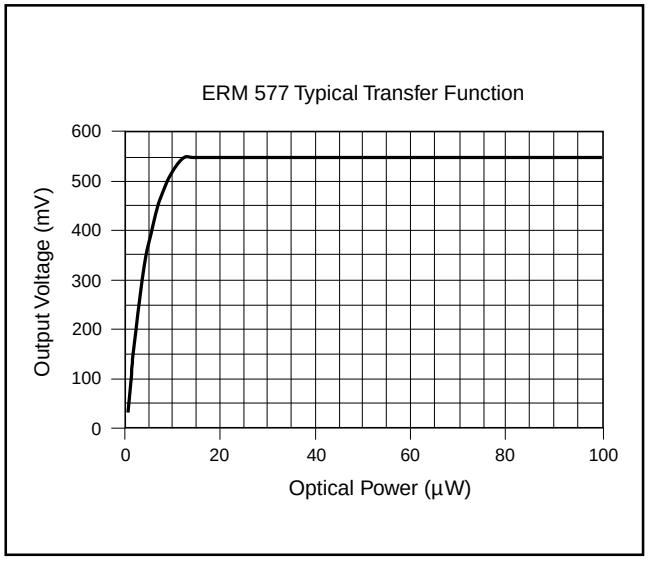
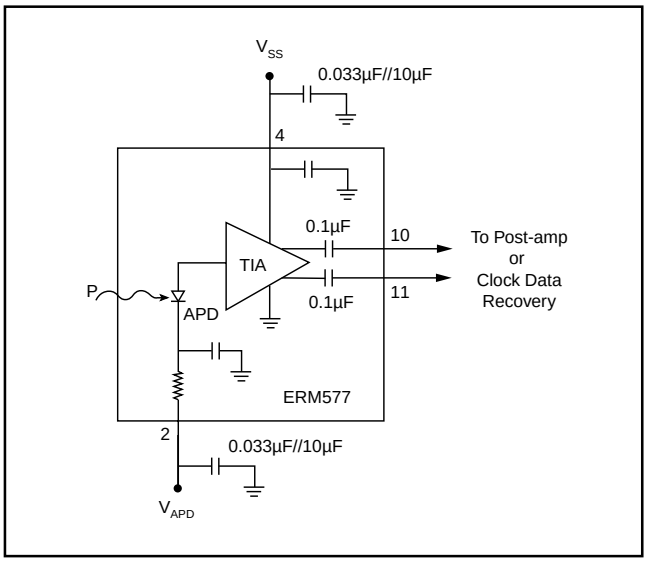


Figure 3



ERM 577 Application Circuit



Precautions for Use

ESD protection is imperative. Use of grounding straps, anti-static mats, and other standard ESD protective equipment is recommended when handling or testing an InGaAs PIN or any other junction photodiode.

Soldering temperature of the leads should not exceed 260 °C for more than 10 seconds.

Fiber feed through tube temperature should not exceed 120 °C.

Fiber pigtails should be handled with less than 10 N pull and with a bending radius greater than 1".

Quality Vision

EPITAXX has a leadership position in the optoelectronic industry with a vision for excellence in quality. The division is committed to providing customers with the highest levels of quality and reliability in design and manufacturing. The top priorities remain continuous process improvement and total customer satisfaction. EPITAXX obtained ISO 9001 certification in 1996 for both design and manufacturing operations. In addition, EPITAXX maintains a strict quality control program to ensure that all products meet or surpass customer requirements.

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