20 GHz Amplified Photoreceivers



Description

The PL-MPR0020A is a high-performance photoelectric converter used to perform photoelectric conversion and then output the signal before amplification of the RF signal using a built-in low-noise amplifier. The optical output has a small-signal bandwidth of 3 dB ≥ 20 GHz, with S22 ≤ -10dB within the bandwidth. It features an integrated AC-coupled output port and a broadband transimpedance gain controller with an automatic gain control (AGC mode) for differential output. This product can be used in instrumentation and measurement, high-speed communication, and other technical fields.

Features

- ＞20GHz Bandwidth
- PIN/TIA/AGC Configuration
- Single Mode or Multimode Models
- Auto Gain Control
- Dual GPPO® Output Connectors

Specifications

Parameters	Symbol	Test Condition	Min	Typ	Max	Unit
Operation Wavelength	λ		900	1550	1620	nm
Detector responsivity	R	Vcc =0 V; λ=1550 nm		0.8		A/W
		Vcc =0 V; λ=1310 nm		0.8		

Detector dark current	Id	Vcc =+3.3 V			50	nA
Transimpedance gain	ZT				6000	Ω
Conversion gain	Gain			3000		V/W
Output voltage swing1	Vpp				700	mV
Lower cutoff frequency	fcut-off			100		MHz
3 dB bandwidth	BW	Vcc =+3.3V ; P Optical=-3 dBm		20		GHz
Input saturation power	Psat	Vcc =+3.3V		3		dBm
RF return loss	S22	Vcc=+3.3 V ; 3dB Within Bandwidth			-10	dB
Operating current	I	Vcc=+3.3 V		70	75	mA

Note: Unless otherwise specified, the test temperature is 25℃.

1. The value after differential combining will have a swing of half if single-ended output is used.

Recommended working conditions

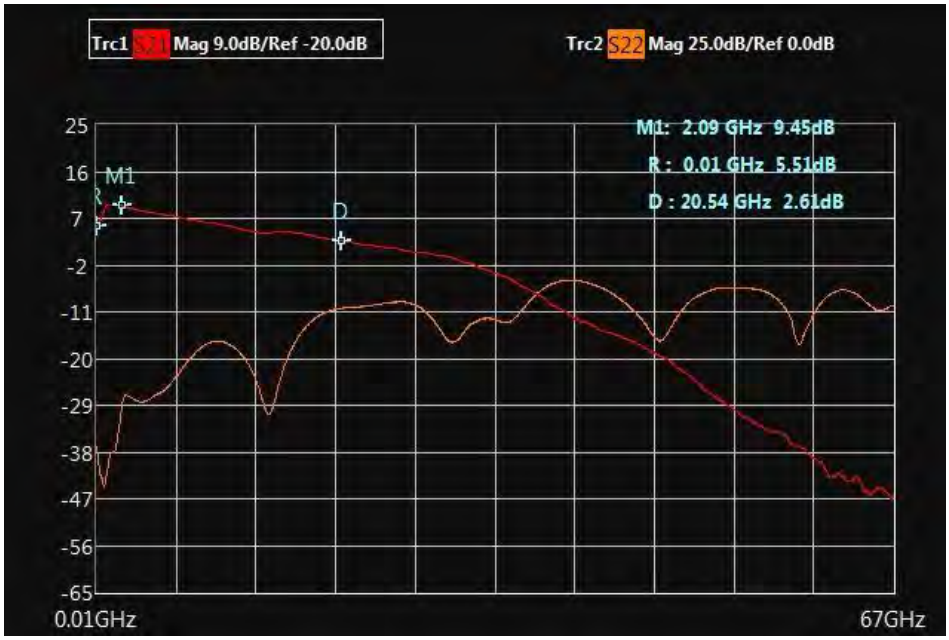
Parameters	Symbol	Value	Unit
Optical Power	Ps	-3	dBm
Chip Voltage	Vcc	+3-+3.5	V
AGC Mode Voltage	VAGC	+2.7-+3.3	V
Control Voltage	VM	0-+1	V

Max Ratings:

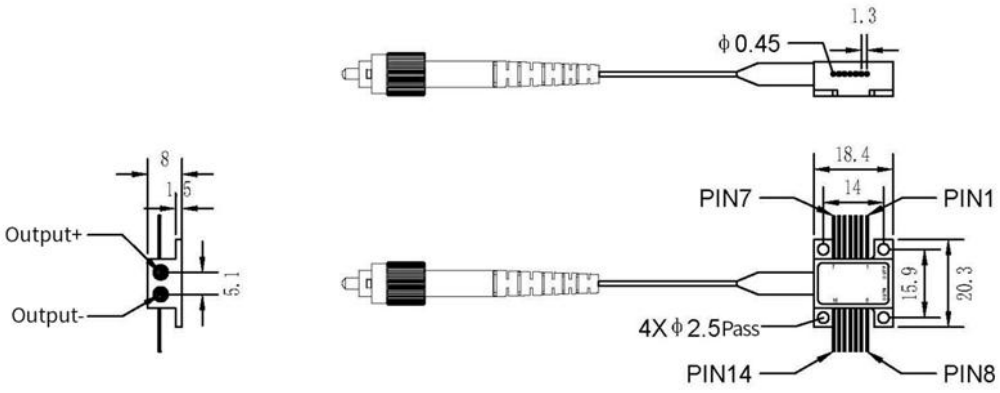
Parameter name	Symbol	Rating	Unit
Optical Power	Ps	7	dBm
Chip voltage	Vcc	4	V
AGC mode voltage	VAGC	4	V
Control voltage	VM	1.2	V
Working temperature	Top	-40 ~ +70	°C
Storage temperature	Tstg	-40 ~ +85	°C

Welding temperature	Ts	260（10s）	°C

Bandwidth S21/S22 Curve with Small Signal



Dimensions and Pin definitions



PIN	Description	Function	Remark
PIN1	NC	No internal pins	Control PIN
PIN2	NC	No internal pins	
PIN3	Vcc	Chip power supply	
PIN4	NC	No internal pins	

PIN5	NC	No internal pins	
PIN6	NC	No internal pins	
PIN7	GND	Casing ground	
PIN8	NC	No internal pins	
PIN9	VAGC	AGC mode enabled, set to +2.7-+3.3V	
PIN10	VM	Output swing adjustment, 0-+1V, maximum output swing at +1V	
PIN11	RSSI	Detector current monitoring, output value is 25% of detector photocurrent	
PIN12	NC	No internal pins	
PIN13	NC	No internal pins	
PIN14	NC	No internal pins	
OUTP	Output+	Differential positive output	RF output port
OUTN	Output-	Differential inverted output	
Optin	Optical Input	9um-SMF ， APC/FC Interface	Optical input port

Application

- Test and Measurement
- High-Speed Communications
- Instrumentation O-E Front End
- OEM Integration