

56Gbaud Wideband OE Converter AD44198A

◆ Features

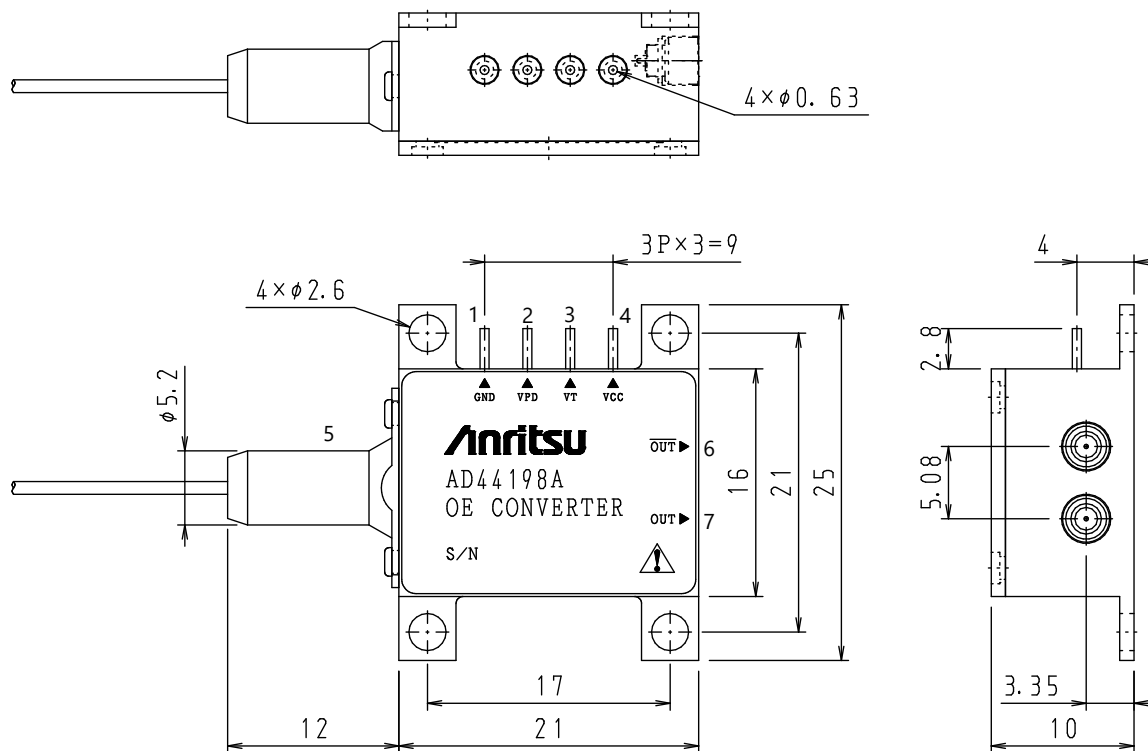
- Operating wavelength : 1260 to 1620 nm
- Wideband : 30 kHz to 45 GHz
- Responsivity : 0.7 A/W
- Conversion gain : 250 V/W
- Power consumption : 0.7 W typ.
- Output interface : Differential
- Package size : 25 mm×21 mm×10 mm



◆ Applications

- Receiver for optical modulator

◆ Dimensions (Unit : mm)



◆ PIN Configuration

No.	Symbol	Function	Remarks
1	GND	Ground	-
2	V _{PD}	Photodiode power supply	+4 V
3	V _T	Amplifier power supply	+4.5 V
4	V _{CC}	Amplifier power supply	+4.5 V
5	IN	Optical input	SM fiber / FC connector
6	OUT ⁻	Electrical output port (invert)	GPPO connector
7	OUT	Electrical output port (non-invert)	GPPO connector

◆ Absolute maximum ratings

Item	Symbol	Condition	Rating		Unit
			Min.	Max.	
Optical Input Power	P_{IN}	CW Input	-	+6	dBm
Supply Voltage	V_{PD}	-	0	+6	V
	V_{CC}	-	0	+6	
	V_T	-	0	+6	
Operating Temperature	T_a	Ambient temperature Non-condensing	5	45	°C
Storage Temperature	T_{stg}	Non-condensing	-20	70	°C

Note : Exceeding the absolute maximum ratings may cause a failure.

◆ Specifications

Optical characteristics ($T_a=25^\circ\text{C}$)

Item	Condition	Specification			Unit
		Min.	Typ.	Max.	
Wavelength Range	CW Input	1260	1310	1620	nm
Responsivity	@1310 nm	-	0.7	-	A/W
Conversion Gain	@1310 nm, Single-ended	-	250	-	V/W
Optical Return Loss	@1310 nm	-	-30	-24	dB
Dark Current	@25°C	-	1	20	nA

Electrical characteristics ($T_a=25^\circ\text{C}$)

Item	Condition	Specification			Unit
		Min.	Typ.	Max.	
Bandwidth	-3dBc (low end)	-	30	-	kHz
	-3dBc (high end)	35	45	-	GHz
Output Swing	Single-ended	-	300	-	mVpp
Output Return Loss	40 MHz to 30 GHz	-	-10	-	dB
Internal Output Coupling	-	AC-coupled			-

Power supplies

Item	Symbol	Specification			Unit
		Min.	Typ.	Max.	
Photodiode Supply Voltage	V_{PD}	3	4	5	V
Amplifier Supply Voltage	V_{CC}	-	4.5	-	V
	V_T	-	4.5	5	V
Amplifier Supply Current	I_{CC}	-	100	-	mA
	I_T	-	50	-	mA
Power Consumption	-	-	0.7	-	W

Turn on/off Sequence (V_{PD} , V_T , V_{CC})

For Turn on - Supply voltage V_{PD} first or turn on all three at the same time.

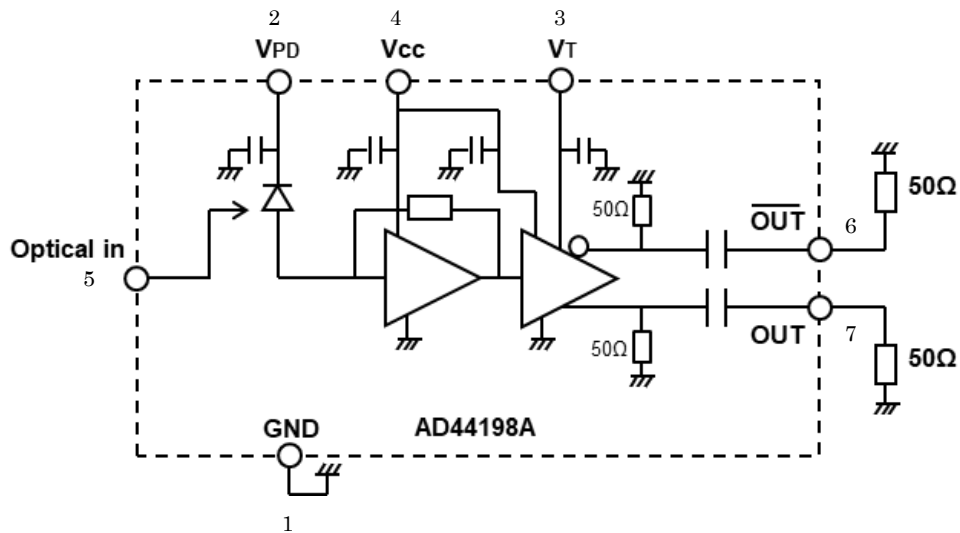
For Turn off - Turn off all three at the same time or turn off V_{PD} at last.

Note : Incorrect turn on and off sequence can cause PD failure.

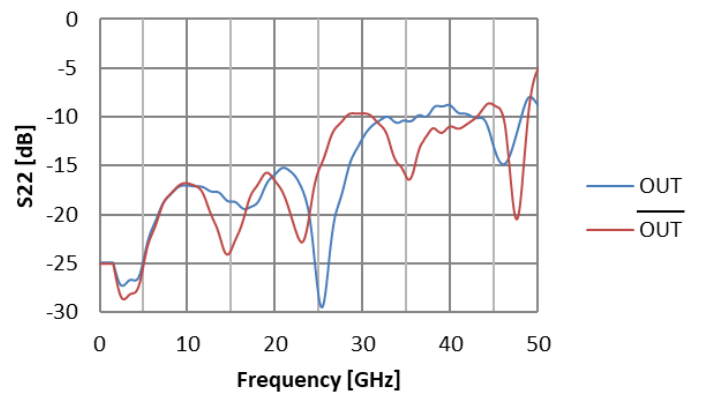
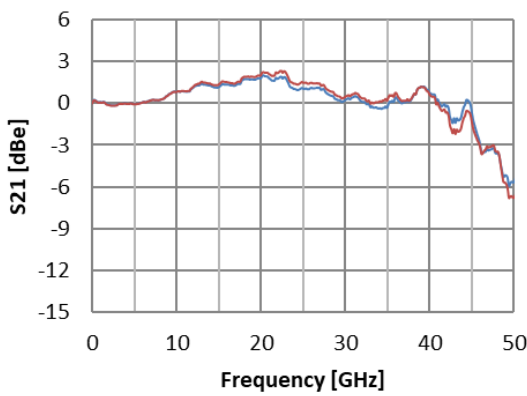
Mechanical characteristics

Item	Condition	Specification			Unit
		Min.	Typ.	Max.	
Package Style	-	4-pin coaxial			-
Output Connector	-	Dual GPPO			-
Fiber Type	-	Single-Mode			-
Fiber Connector	-	FC / SPC			-
Fiber Length	-	120	-	-	cm
Fiber Bend Radius	-	3	-	-	cm
Lead Soldering	Soldering iron	350°C, 5sec max.			-

◆ Block Diagram

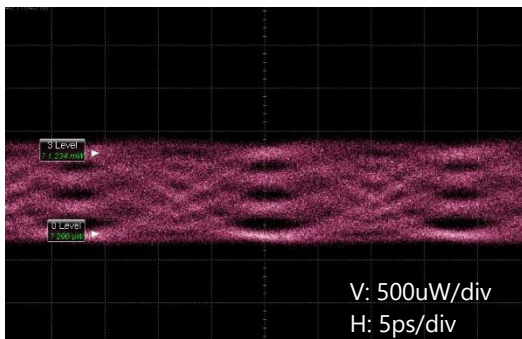


◆ Frequency Response

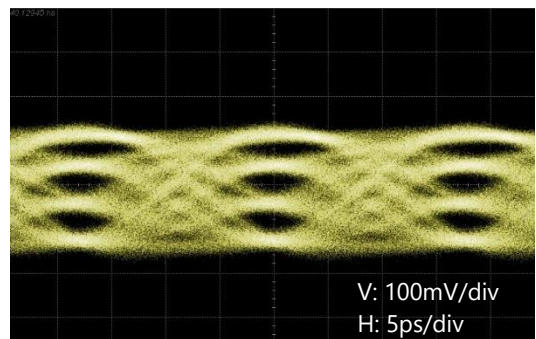


◆ Pulse Response (Single-ended)

56Gbaud PAM4



Input Waveform (Pin=1mW)



Output Waveform (Vout=230mVpp)

- Output waveform has been optimized with equalizer of oscilloscope.

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