OA4SMM5 Datasheet



OA4SMM5 40Gb/s 3.3V EA Modulator Driver Amplifer

Product Highlights

- 3.3Vp-p output swing
- 0.5ps added RMS jitter
- · 6ps rise / fall time
- 20dB gain to 45GHz
- 900mW power dissipation
- Size: 0.77 x 1.19 x 0.26 inch
- Standard GPPO RF connectors
- Optional formed leads





Description

The OA4SMM5 is a small high performance broadband 40Gb/s Electro-Absorption optical modulator driver amplifier with low jitter, 3.3V amplitude, and excellent gain and group delay flatness to 45GHz. The driver is designed for electro-optical test equipment and SONET OC-768 / STM-256 optical modulator driver applications.

Application

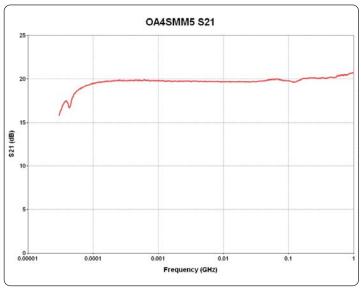
The OA4SMM5 is offered in a small modularized package with excellent performance, and is intended for transponder integration. The OA4SMM5 has gain and power levels that are ideally suited for driving 40G electro-absorption modulators. The driver has low power dissipation, ample drive signal, low added jitter, fast rise/fall times, and is easy to use with simple bias voltages. The OA4SMM5 can be biased from a standard 5V supply.

Key Specifications @ 25°C

Vdd1=Vdd2=5.0V, Vg1=Vg2=-0.10V, Zo= 50Ω

	5	0.01 - 26GHz	26 - 40GHz	40 - 45GHz	40Gbps
Parameter	Description	Min Typ Max	Min Typ Max	Min Typ Max	Min Typ Max
S21 (dB) S11 (dB)	Small Signal Gain Input Match	18 21 -10 -8	15 17 -10	13 15 -10	
S22 (dB)	Output Match	-12 -10	-10	-10	
Amplitude (V) Jitter (ps) Tr / Tf (ps)	Eye Amplitude Added RMS Jitter Rise / Fall Time				3.0 3.3 0.5 1 5.7 9

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OA4SMM5 S Parameters

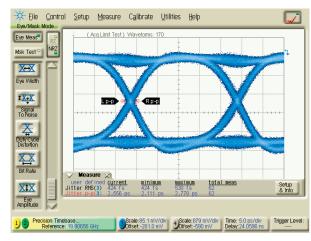
25
20
321
15
10
5
10
5
10
15
20
25
30
30
35
40
45
50
55
60
65
Frequency (GHz)

Typical module performance

Typical module performance

Supplemental Specifications

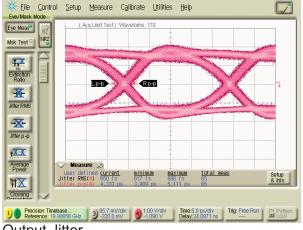
Parameter	Description	Min	Тур	Max
Vd1	Drain Bias Voltage FET1	_	5V	V8
ld1	Drain Bias Current FET1	_	85mA	120mA
Vd2	Drain Bias Voltage FET2	_	5V	8V
ld2	Drain Bias Current FET2	_	85mA	120mA
Vg1	Gate Bias Voltage FET1	-2V	-0.1V	0.5V
Vg2	Gate Bias Voltage FET2	-2V	-0.1V	0.5V
P _{in}	Input Power (CW)	_	_	20dBm
P _{dc}	Power Dissipation	_	850mW	_
T _{bs}	Backside Case Temperature	_	_	75°C



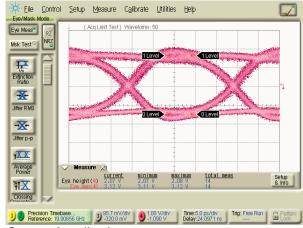
40Gbps input signal to OA4SMM5:

- 322mV height, 393mV amplitude
- 424fS RMS, 2.556ps p-p jitter
- 7.56ps rise, 6.56ps fall

OA4SMM5 STANDARD



Output Jitter 650fS RMS, 4.3ps p-p jitter



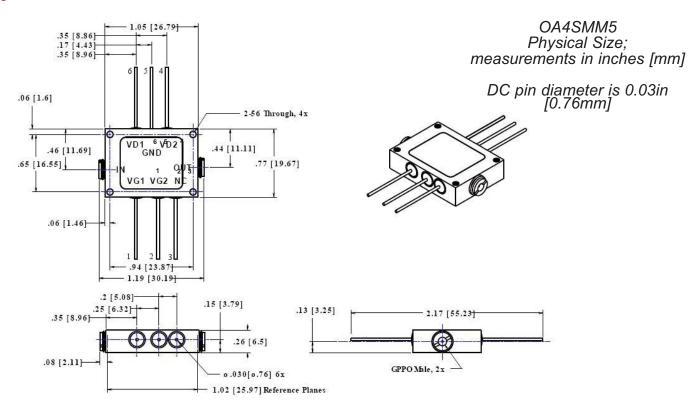
Output Amplitude 2.1V height, 3.1V amplitude 8.22ps rise, 8.33ps fall

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Physical Characteristics



Pin Definition

Pin	Function	Notes
RFin	RF input	GPPO Connector
RFout	RF output	GPPO Connector
1: (Vg1)	1st stage gate bias	Set at typical operating specification, adjust for desired eye crossover and jitter
2: (Vg2)	2nd stage gate bias	Set at typical operating specification, adjust for desired eye crossover and jitter
3: (NC)	No connection	No connection
4: (Vd2)	2nd stage drain bias	Set at typical operating specification, adjust for eye amplitude
5: (Gnd)	Ground	Ground
6: (Vd1)	1st stage drain bias	Set at typical operating specification, adjust for eye amplitude

OA4SMM5 Options

with Female Input 2.92mm (K) Connectors	OPT253	with Male Output Precision 2.4mm Connectors
with Male Input 2.92mm (K) Connectors	OPT260	with Female Input 1.85mm (V) Connectors
with Female Output 2.92mm (K) Connectors	OPT261	with Male Input 1.85mm (V) Connectors
with Male Output 2.92mm (K) Connectors	OPT262	with Female Output 1.85mm (V) Connectors
with Female Input Precision 2.4mm Connectors	OPT263	with Male Output 1.85mm (V) Connectors
with Male Input Precision 2.4mm Connectors	OPTBLU	with Bent Leads (Up)
with Female Output Precision 2.4mm Connectors	OPTBLD	with Bent Leads (Down)
	with Male Input 2.92mm (K) Connectors with Female Output 2.92mm (K) Connectors with Male Output 2.92mm (K) Connectors with Female Input Precision 2.4mm Connectors with Male Input Precision 2.4mm Connectors	with Male Input 2.92mm (K) Connectors with Female Output 2.92mm (K) Connectors OPT261 with Male Output 2.92mm (K) Connectors OPT262 with Female Input Precision 2.4mm Connectors With Male Input Precision 2.4mm Connectors OPTBLU