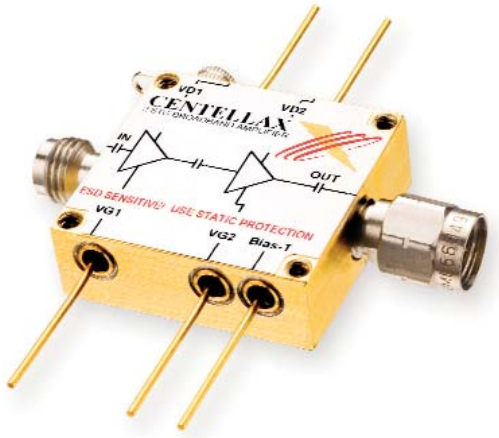
OA4SMM2 Datasheet

CENTELLAX

43Gb/s Broadband 3.3V Electroabsorption Modulator Driver Amplifier

Product Highlights

- 3.3Vp-p output swing
- 0.5ps added RMS jitter
- 6ps rise / fall time
- 21dB gain to 45GHz
- 16dBm saturated output power
- 900mW power dissipation
- Size: 1.05 x 1.37 x 0.36 inch
- Optional integrated bias tee
- Optional GPPO RF connectors



Description

The OA4SMM2 is a high performance broadband 43Gb/s Electro-Absorption optical modulator driver amplifier with very low jitter, 3.3V amplitude, with 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. It is available with either ground pin, or DC bias tee or peak amplitude detector options.

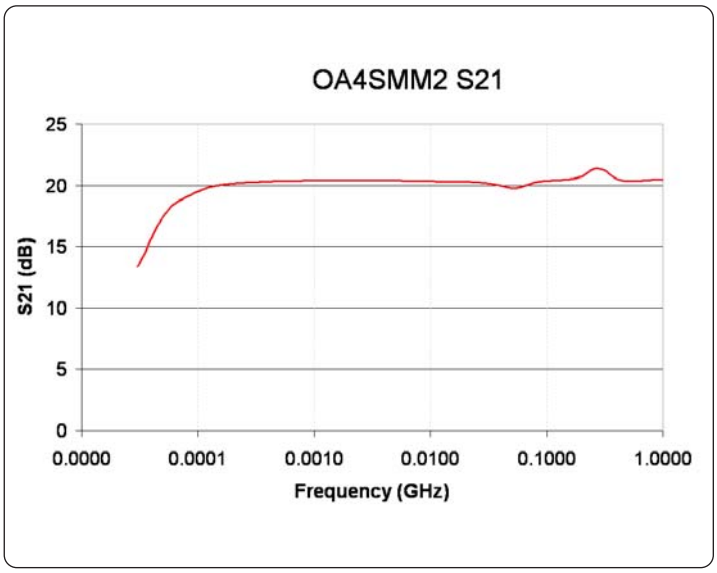
Application

The OA4SMM2 is offered in a small modularized package with superb performance, and is intended for lab use or transponder integration. The OA4SMM2 has gain and power levels that are ideally suited for driving 40G electro-absorption modulators with an optional DC bias tee. The driver has low power dissipation, ample drive signal, very low added jitter, fast rise/fall times, and is easy to use with simple bias voltages. The OA4SMM2 can be biased from a standard 5V supply.

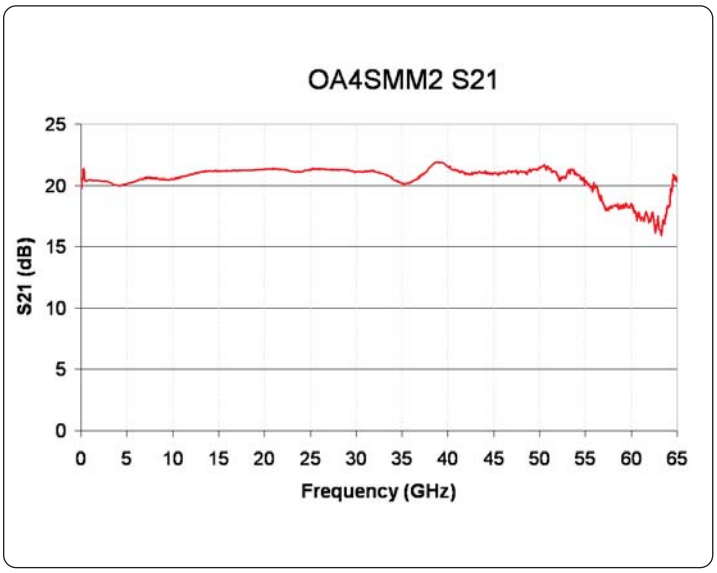
Key Specifications @ 25°C

Vdd1=Vdd2=5.0V, Vg1=Vg2=-0.10V, Vb1=Vb2=N/C, Zo=50Ω

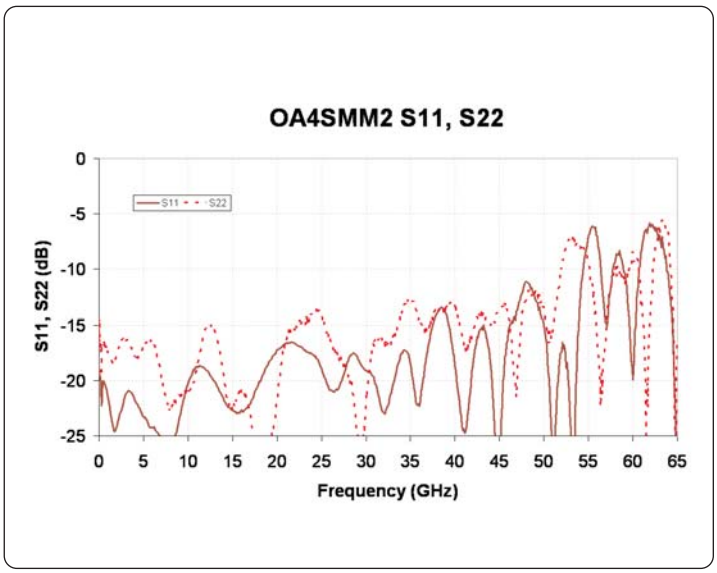
Parameter	Description	0.01 - 30GHz Min	Typ	Max	30 - 45GHz Min	Typ	Max	43Gbps Min	Typ	Max
S21 (dB)	Small Signal Gain	18	21		15	17				
S11 (dB)	Input Match		-15	-12		-12	-8			
S22 (dB)	Output Match		-14	-12		-11	-8			
P_{sat} (dBm)	Saturated Output Power		16			14				
Amplitude (V)	Eye Amplitude							3.0	3.3	
Jitter (ps)	Added RMS Jitter								0.45	0.6
Tr / Tf (ps)	Rise / Fall Time								5.7	9



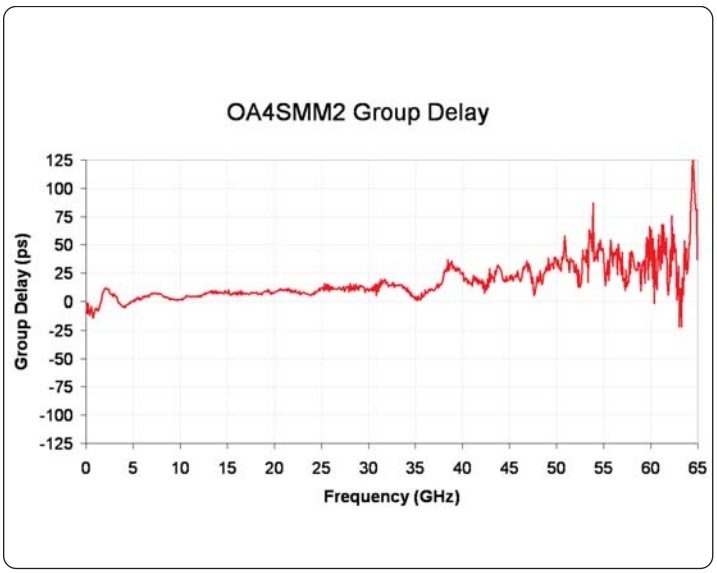
Typical module performance



Typical module performance



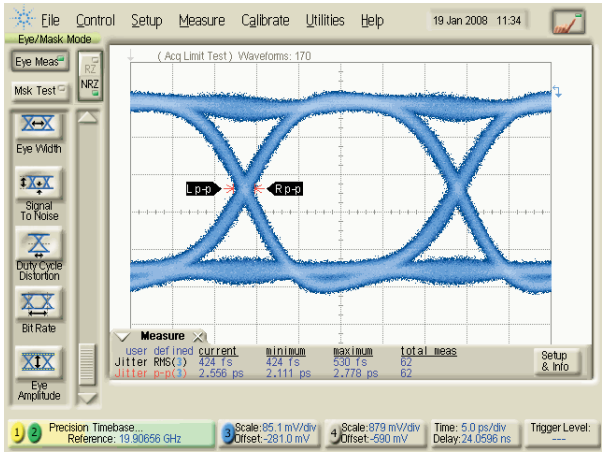
Typical module performance



Typical module performance

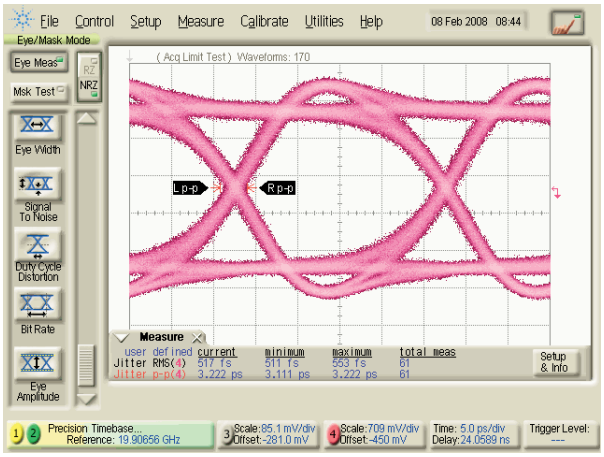
Supplemental Specifications

Parameter	Description	Min	Typ	Max
Vdd1	Drain Bias Voltage FET1	—	5V	8V
Idd1	Drain Bias Current FET1	—	85mA	120mA
Vdd2	Drain Bias Voltage FET2	—	5V	8V
Idd2	Drain Bias Current FET2	—	85mA	120mA
Vgg1	Gate Bias Voltage FET1	-4V	-100	+0.5V
Vgg2	Gate Bias Voltage FET2	-4V	-100	+0.5V
P_{in}	Input Power (CW)	—	—	20dBm
P_{dc}	Power Dissipation	—	850mW	—
T_{bs}	Backside Case Temperature	—	—	75°C

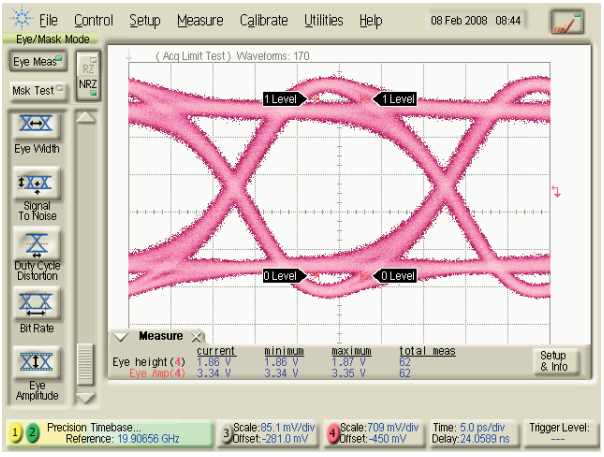


40Gbps input signal to OA4SMM2:
- 322mV height, 393mV amplitude
- 424fS RMS, 2.556ps p-p jitter
- 7.56ps rise, 6.56ps fall

OA4SMM2 STANDARD

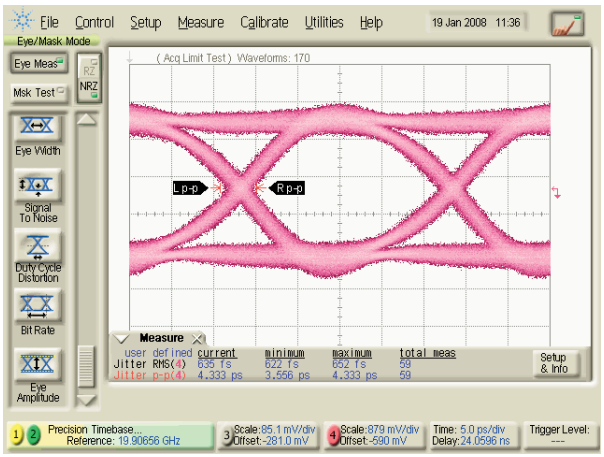


Output Jitter
517fS RMS, 3.2ps p-p jitter

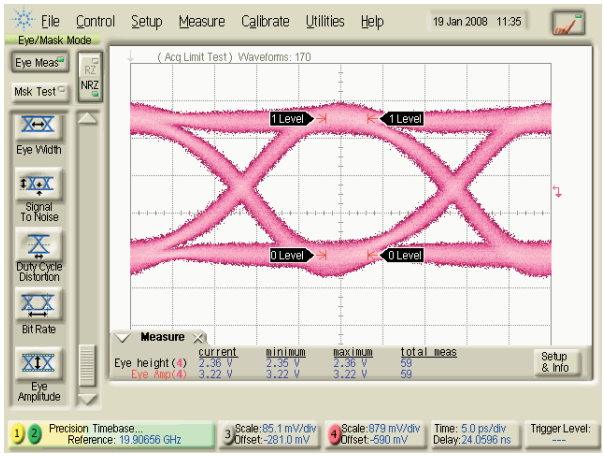


Output Amplitude
1.9V height, 3.3V amplitude
8.67ps rise, 8.56ps fall

OA4SMM2 BIAS TEE OPTION

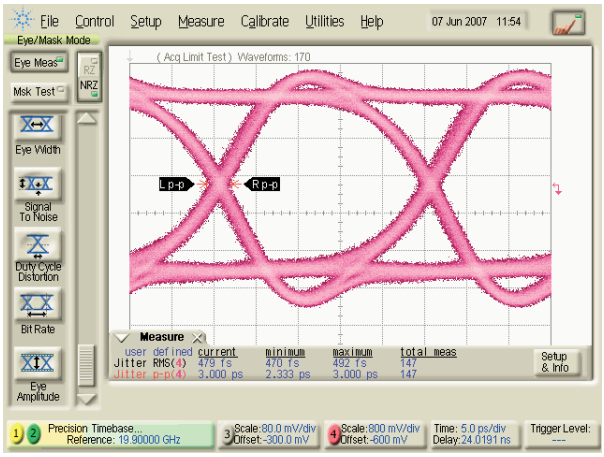


Output Jitter
635fS RMS, 3.6ps p-p jitter



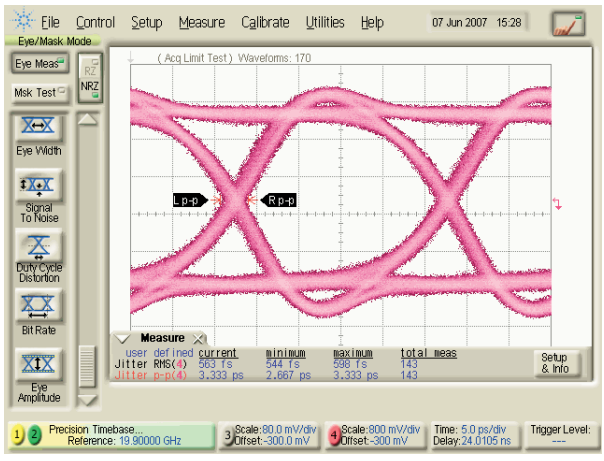
Output Amplitude
2.4V height, 3.2V amplitude
9.67ps rise, 8.89ps fall

OA4SMM2 V Connector



Output Jitter
479fs RMS, 3.00ps p-p jitter

OA4SMM2 GPPO Connector



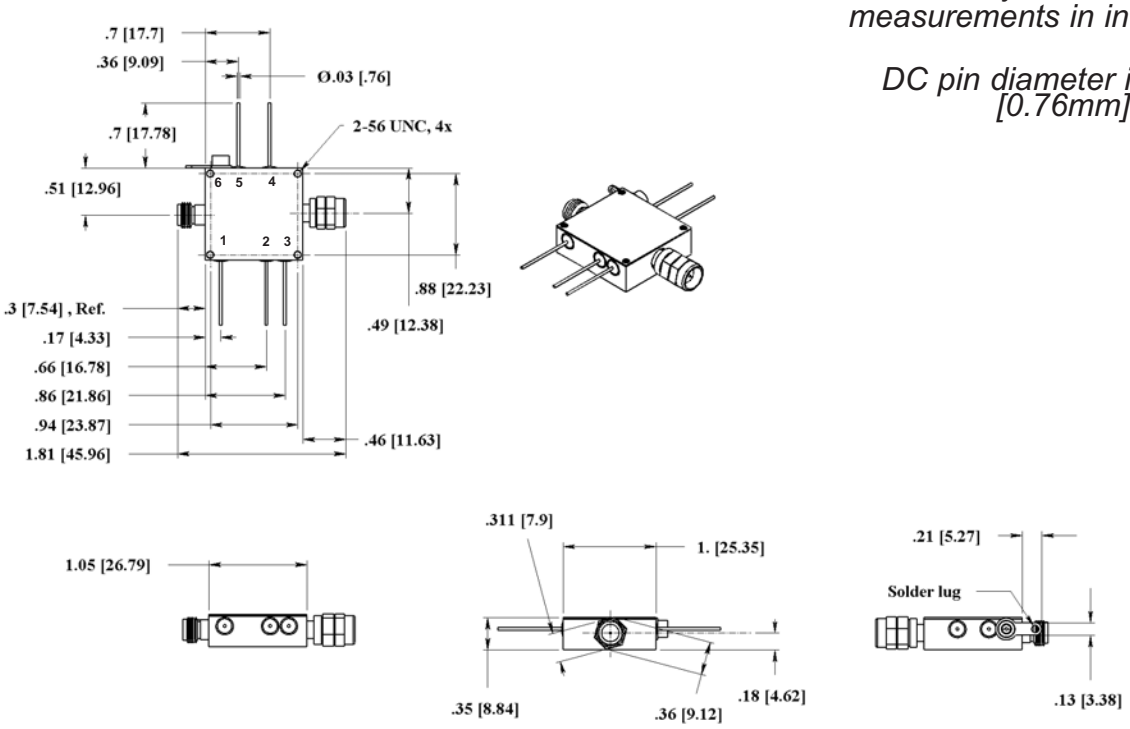
Output Jitter
563fs RMS, 3.33ps p-p jitter

OA4SMM2 Datasheet

Physical Characteristics

OA4SMM2
Physical Size;
measurements in inches [mm]

DC pin diameter is 0.03in [0.76mm]



OA4SMM2 Options

OA4SMM2 With DC Bias-T
OA4SMM2 Male Input Connector
OA4SMM2 Female Output Connector
OA4SMM2 GPPO Connectors
OA4SMM2 V Connectors

Pin Definition

Pin	Function	Notes
RFin	RF input	1.85mm RF Connector (female)
RFout	RF output	1.85mm RF Connector (male)
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: (Gnd)*	Ground Standard	(Standard) Ground
3: (Bias-T)*	DC Bias-Tee	(OPT002) DC Bias Tee Input
4: (Vd2)	2nd stage drain bias	Set at typical operating specification, adjust for eye amplitude
5: (Vd1)	1st stage drain bias	Set at typical operating specification
6: (Gnd)	Ground Lug	Ground

* Pin Definition depends on option