

OA4SMM5 40Gb/s 3.3V EA Modulator Driver Amplifier

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.

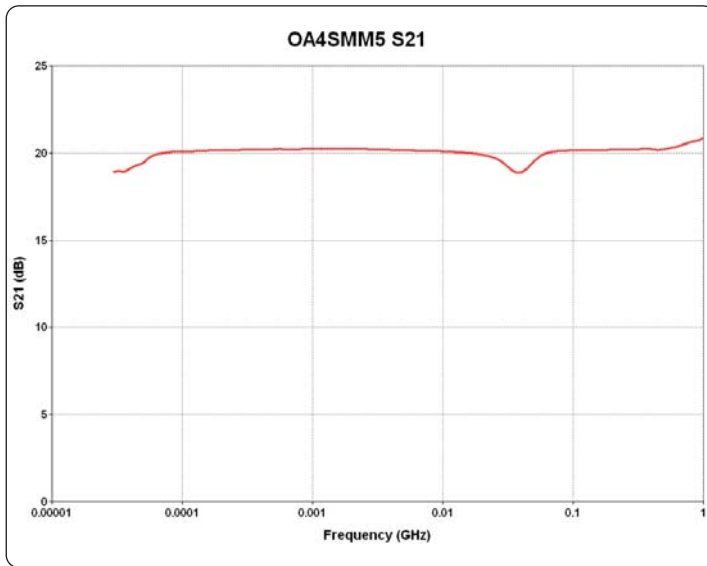
Application

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.

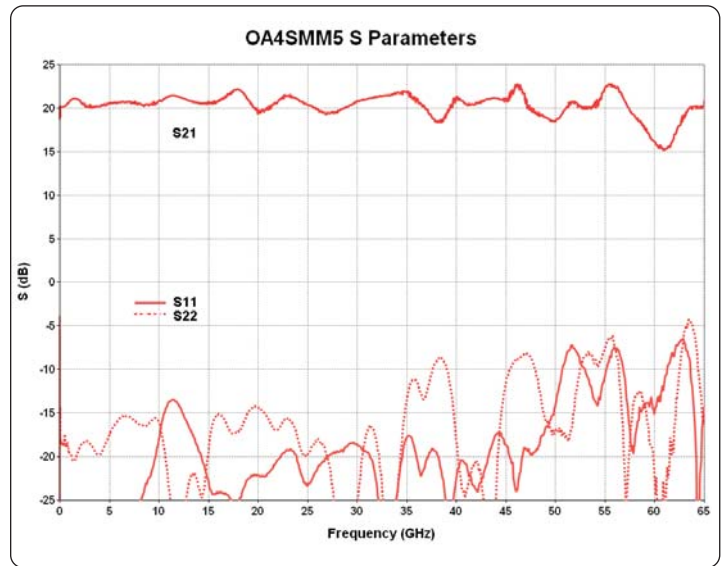
Key Specifications @ 25°C

$V_{dd1}=V_{dd2}=5.0V$, $V_{g1}=V_{g2}=-0.10V$, $V_{b1}=V_{b2}=N/C$, $Z_o=50\Omega$

Parameter	Description	0.01 - 26GHz			26 - 40GHz			40 - 45GHz			40Gbps		
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max
S21 (dB)	Small Signal Gain	18	21		15	17		13	15				
S11 (dB)	Input Match			-10 -8			-10			-10			
S22 (dB)	Output Match			-12 -10			-10			-10			
Amplitude (V)	Eye Amplitude										3.0	3.3	
Jitter (ps)	Added RMS Jitter											0.5	0.6
Tr / Tf (ps)	Rise / Fall Time											5.7	9



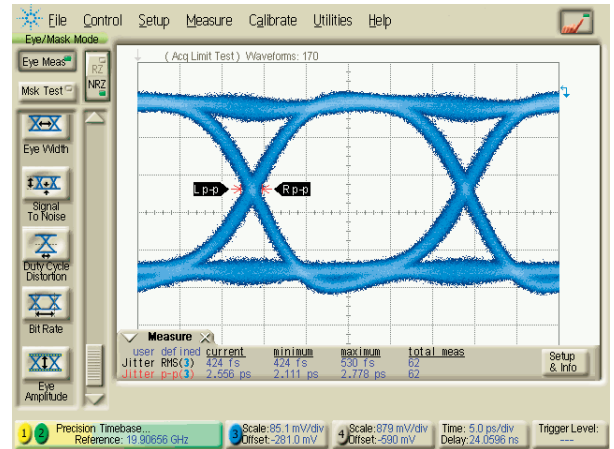
Typical module performance



Typical module performance

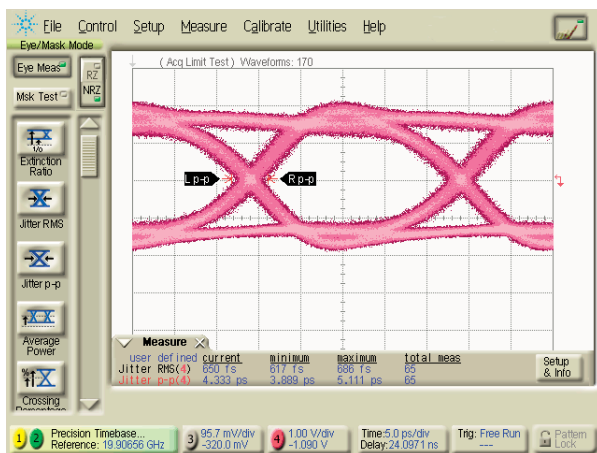
Supplemental Specifications

Parameter	Description	Min	Typ	Max
Vd1	Drain Bias Voltage FET1	—	5V	8V
Id1	Drain Bias Current FET1	—	85mA	120mA
Vd2	Drain Bias Voltage FET2	—	5V	8V
Id2	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

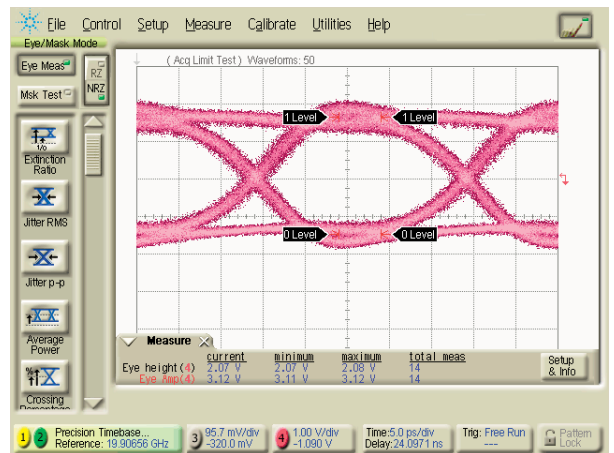


40Gbps input signal to OA4SMM5:
 - 322mV height, 393mV amplitude
 - 424fS RMS, 2.556ps p-p jitter
 - 7.56ps rise, 6.56ps fall

OA4SMM5 STANDARD

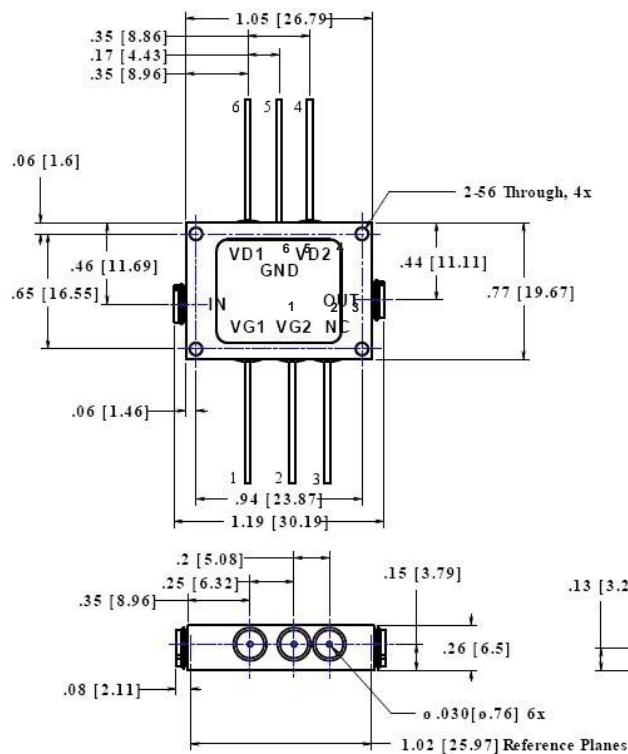


Output Jitter
 650fS RMS, 4.3ps p-p jitter



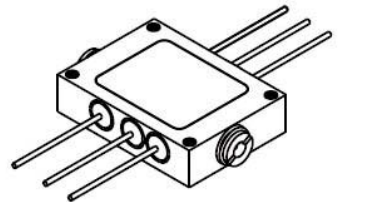
Output Amplitude
 2.1V height, 3.1V amplitude
 8.22ps rise, 8.33ps fall

Physical Characteristics



OA4SMM5
Physical Size;
measurements in inches [mm]

DC pin diameter is 0.03in
[0.76mm]



Pin Definition

Pin	Function	Notes
RFin	RF input	GPPO Connector (male)
RFout	RF output	GPPO 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: (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

OPT240	with Female Input 2.92mm (K) Connectors	OPT253	with Male Output Precision 2.4mm Connectors
OPT241	with Male Input 2.92mm (K) Connectors	OPT260	with Female Input 1.85mm (V) Connectors
OPT242	with Female Output 2.92mm (K) Connectors	OPT261	with Male Input 1.85mm (V) Connectors
OPT243	with Male Output 2.92mm (K) Connectors	OPT262	with Female Output 1.85mm (V) Connectors
OPT250	with Female Input Precision 2.4mm Connectors	OPT263	with Male Output 1.85mm (V) Connectors
OPT251	with Male Input Precision 2.4mm Connectors	OPTBLU	with Bent Leads (Up)
OPT252	with Female Output Precision 2.4mm Connectors	OPTBLD	with Bent Leads (Down)