

DESCRIPTION

Sanland’s SG211 is a GaAs pHEMT RF balanced amplifier IC operating as return path amplifier capable of supporting DOCSIS 4.0 applications. The SG211 is designed to provide a low noise, high gain option for 5 – 700 MHz interface using a 5 V power supply to provide lower overall power dissipation and packaged in 8-pin SOIC.

Major Applications

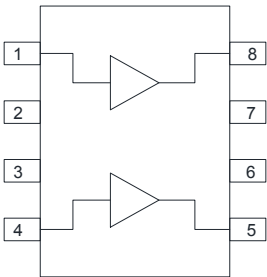
- Head End CMTS Equipment
- Post Amp for Return Path Optical Receivers
- Full Duplex Upstream
- DOCSIS 4.0 Optical Nodes
- DOCSIS 4.0 Amplifiers

KEY FEATURES

- 5 MHz to 700 MHz Operation
- 5V Operation
- Gain: 27 dB Typical
- P1dB: +23dBm
- OIP3: +38dBm
- Noise Figure: 1.5dB @700MHz
- RoHS Compliant



Pin Assignment



Pin Details

Pin	Name	Function
1	RFIN+	RF Input +
4	RFIN-	RF Input -
5	RFOUT- /VDD2	RF output - and VDD through RF choke
8	RFOUT+ /VDD1	RF output + and VDD through RF choke
2,3,6,7	GND	Ground

Absolute Maximum Ratings

Important Note:

The information provided in this datasheet is deemed to be accurate and reliable only at present time. Sanland Technology Corp. reserves the right to make any changes to the specifications in this datasheet without prior notice.



Caution: ESD Sensitive
Appropriate precaution in handling, packaging
And testing devices must be observed.

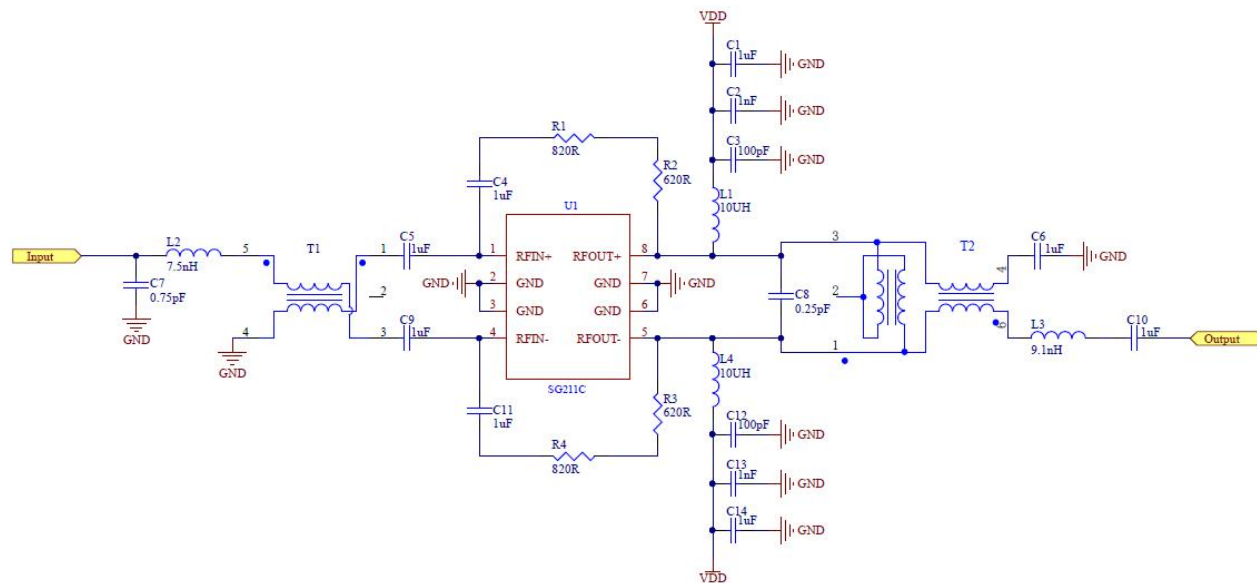
Parameter	Rating	Unit
Supply Voltage (VDD)	+8	V
Supply Current (I _{DD})	400	mA
Maximum RF Input Level	+1	dBm
Operating Ambient Temperature	-40~100	°C
Storage Temperature	-65~150	°C
Max. Junction Temp. (T _J)	+150	°C

Electrical Specifications at +5 V

Temp = +25 ° C, VDD = +5 V, 75Ω system, Full band unless otherwise noted

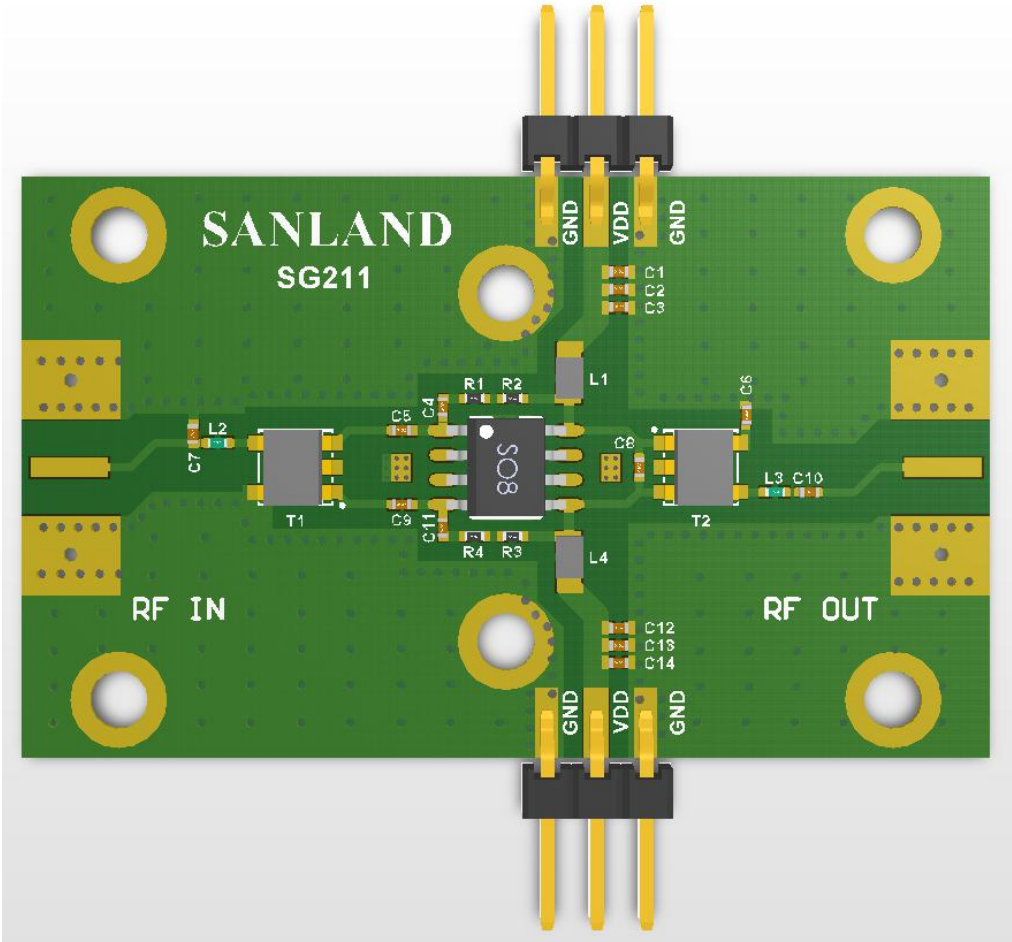
Parameter	Specification			Unit	Notes
	Min	Typ.	Max		
Frequency	5	-	700	MHz	
Supply Voltage (VDD)		5		V	
Supply Current (IDD)		256		mA	
Gain		27		dB	
Gain Slope		1		dB	
Reverse Isolation		31		dB	
Input return loss	19	20		dB	
Output return loss	16	19		dB	
Noise Figure		1.1	1.5	dB	
OIP2L		62		dBm	Tone Spacing=6MHz F1=300MHz, F2=306MHz, +5dBm / tone output
OIP2U		65		dBm	
OIP3	36	38		dBm	Tone Spacing=1MHz, +5dBm / tone output
OP1dB	21.5	23		dBm	
Thermal Resistance		57		°C/W	

Application Circuit



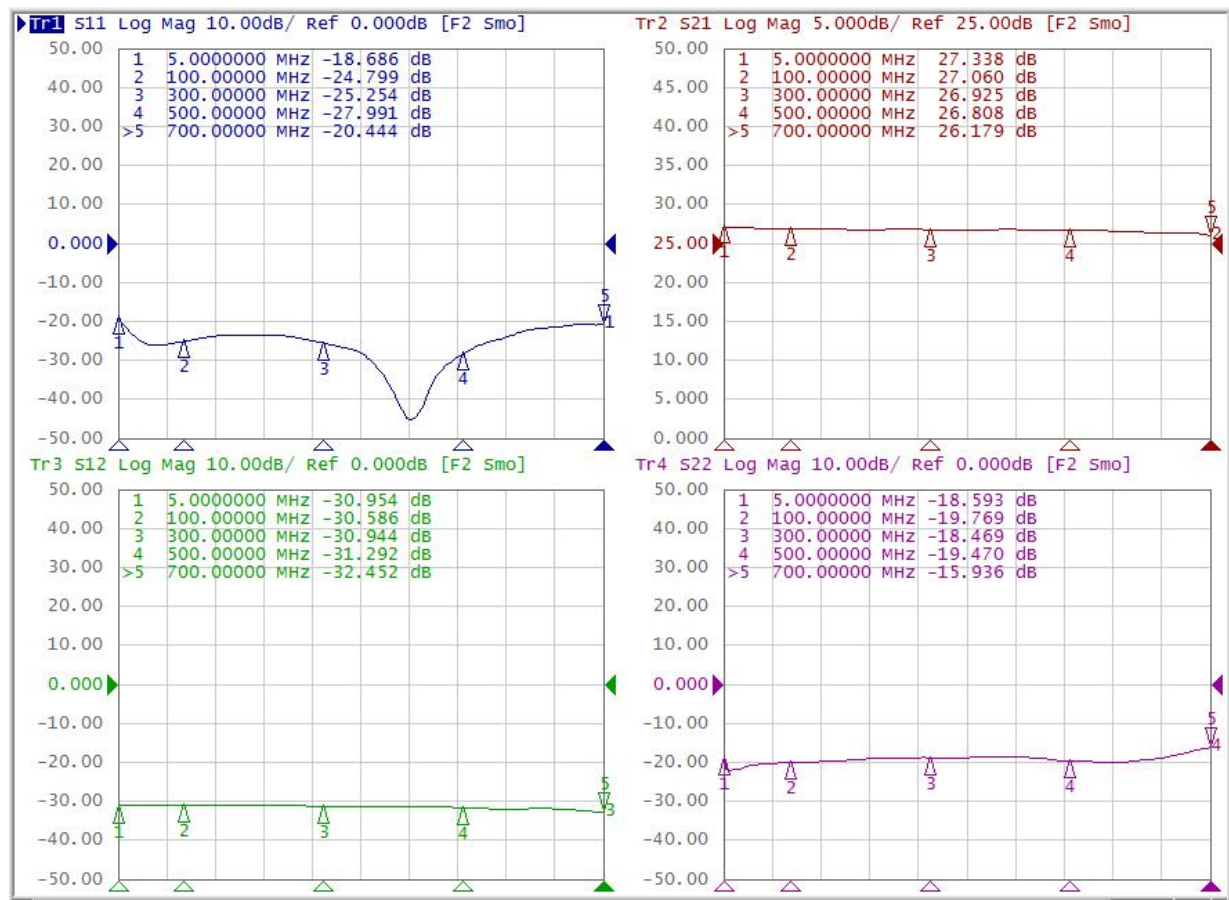
Component	Value	Size	Vendor	Part Number
U1	-	-	SANLAND	SG211
PCB	-	-	SANLAND	-
C1,C4,C5,C6,C9,C10,C11, C14	1uF	0402	MURATA	GRM155R61E105KA12D
C2,C13	1nF	0402	MURATA	GRM1555C1H102JA01D
C3,C12	100pF	0402	MURATA	GRM1555C1H101JA01D
C7	0.75pF	0402	MURATA	GRM1555C1HR75CA01D
C8	0.25pF	0402	MURATA	GJM1555C1HR25RB12D
L1,L4	10uH	1008	COILCRAFT	1008LS-103XJLC
L2	7.5nH	0402	MURATA	LQG15HS7N5S02D
L3	9.1nH	0402	MURATA	LQG15HS9N1S02D
R1,R4	820R	0402	UNI-ROYAL	0402WGF8200TCE
R2,R3	620R	0402	UNI-ROYAL	0402WGF6200TCE
T1	1:1, 5-1250MHz		EASTEVER	EBE1094-A013187
T2	1.33:1, 5-1800MHz		MINI	TC1.33-182X-75+

Evaluation Board Assembly Drawing



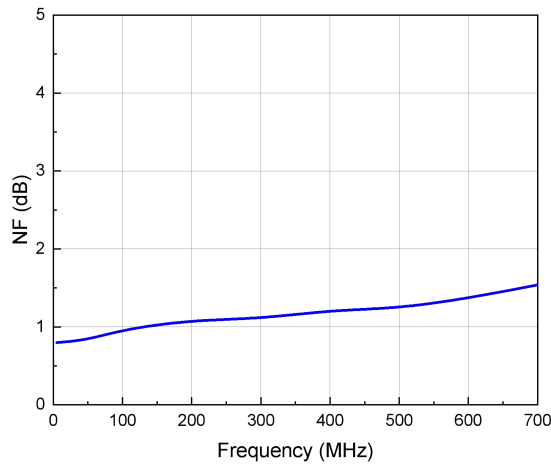
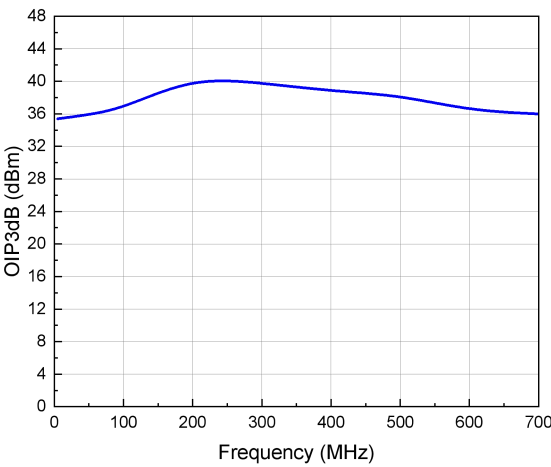
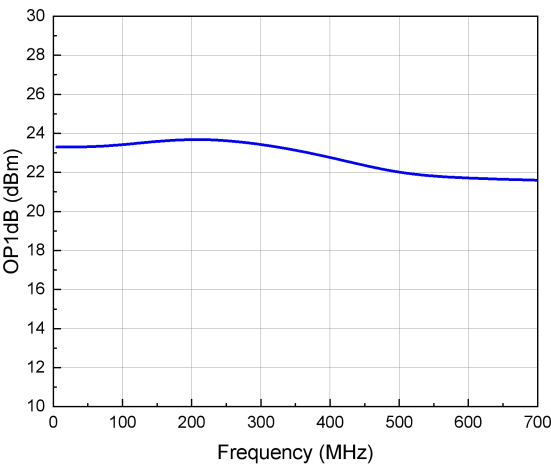
Performance Data at +5V

(VDD = +5V, Temp = +25C, Zo = 75Ω)



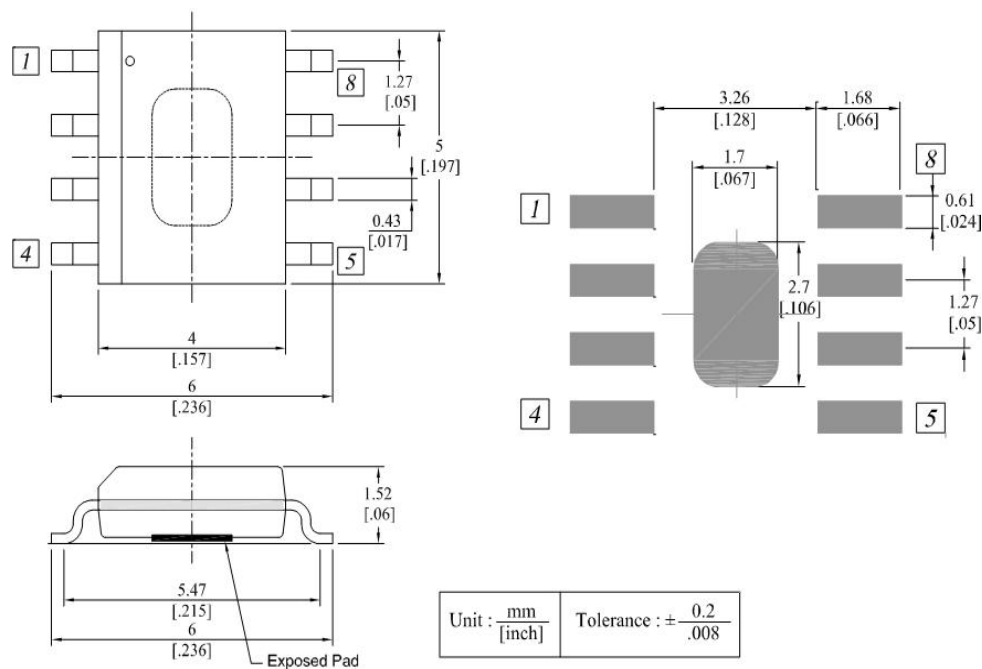
Performance Data at +5V

(VDD = +5V, Temp = +25C, Zo = 75Ω)



Note:
(1) OIP3: +5dBm / tone output

Package Outline



Recommended Mounting Pattern

