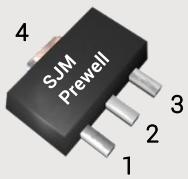
SJM PREWELL
PG885
CATV Amplifier

Features
- 40MHz – 1.2GHz
- Gain 26.4dB @ 40MHz
- CSO 65.5dBc @ 25dBmV
- CTB 74.7dBc @ 25dBmV
- OIP3 43.7dBm @ 40MHz
- Lead-free / Green / RoHS compliant SOT-89 Package

Applications
- Headend
- Indoor Amplifier
- Drop Amplifier
- Cable Modem
- Laser Diode Driver
- FTTH Receiver
- Optical Transmitter
- RFoG / MOCA

Functional Diagram

RF IN 1 RF OUT / Bias 3
GND 2,4



ESD/MSL
1 ESD sensitive device. Observe handling precautions.
2 HBM: Class 1C, JS-001-2014
3 CDM: Class C3 , JESD22-C101F
4 MSL 3, J-STD-020

Description
The PG885 is a high performance InGaP HBT MMIC Amplifier that is internally matched to 75Ω input/output. The features of PG885 are broadband, high gain, excellent gain flatness and high reliability as a CATV amplifier. The PG885 operates from a single supply voltage and requires minimal external components for operation. The purpose of using PG885 is that offers high dynamic range in a low cost surface - mounted plastic SOT-89 package. All devices are 100% RF and DC tested.

Specifications

Parameter	Units	Min.	Typ.	Max.
Test Frequency	MHz		550	
S21	dB	25.3	26.3	
S11	dB	-8.0	-9.8	
S22	dB	-15.0	-19.1	
OIP3 [2]	dBm	35.0	37.5	
P1dB	dBm	17.2	19.2	
NF	dB		4.39	4.7
CSO [3]	dBc		65.5	
CTB [3]	dBc		74.7	
V / I	V / mA		5 / 90	
Rth	°C/W		73	

1) Test Conditions : T=25°C, Supply Voltage=5V, 75ohm System
2) OIP3 is measured with two tones, 1MHz Spacing, 5dBm per Tone at Output
3) 99 channels, 25dBmV/channel flat loading

Absolute Maximum Ratings

Parameter	Rating	Unit
Device Voltage	7	V
Device Current	248	mA
RF Power Input	20	dBm
Storage Temperature	-55 to 150	°C
Ambient Operating Temperature	-40 to 85	°C
Junction Temperature	185	°C

1) Stresses above the maximum values listed have may cause permanent damage to the device.
2) MTTF is more than 100 years.

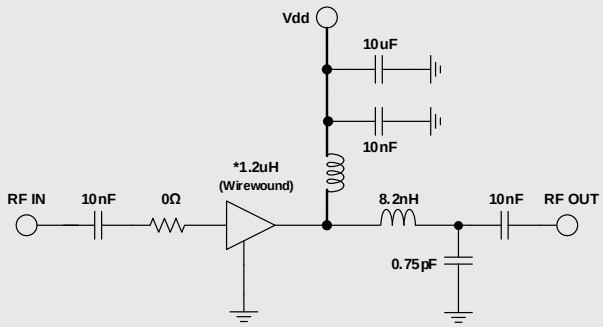
PRELIMINARY

SJM PREWELL

PG885

CATV Amplifier

40MHz – 1.2GHz Application Circuit

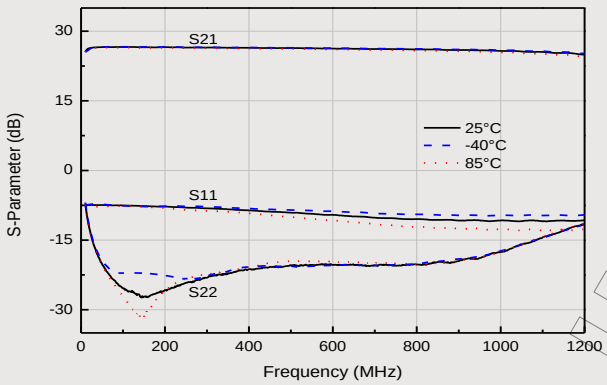


Note 1. Measurement for our datasheet was made on 1.6mm thick FR-4 Board and 75 ohm microstrip line

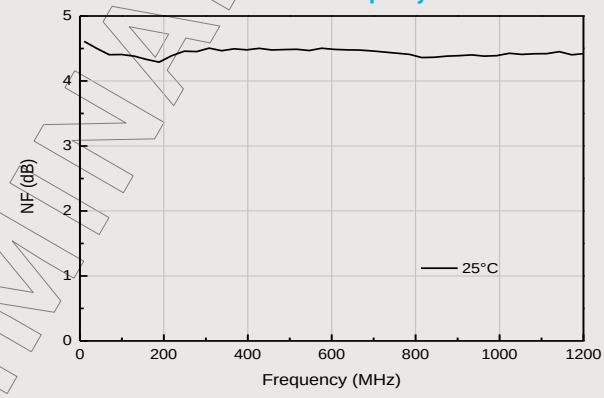
Parameters	Units	40MHz	550MHz	1000MHz	1200MHz
S21	dB	26.4	26.3	25.7	24.9
S11	dB	-7.6	-9.8	-11.1	-10.6
S22	dB	-18.0	-19.1	-18.4	-11.2
P1dB	dBm	19.2	19.2	18.4	16.8
OIP3 2)	dBm	43.7	37.5	31.4	29.0
NF	dB	4.43	4.39	4.31	4.35
CSO 3)	dBc		65.5		
CTB 3)	dBc		74.7		

1) Test Conditions : T=25°C, Supply Voltage=5V, 75ohm System
2) OIP3 is measured with two tones, 1MHz Spacing, 5dBm per Tone at Output
3) 99 channels, 25dBmV/channel flat loading

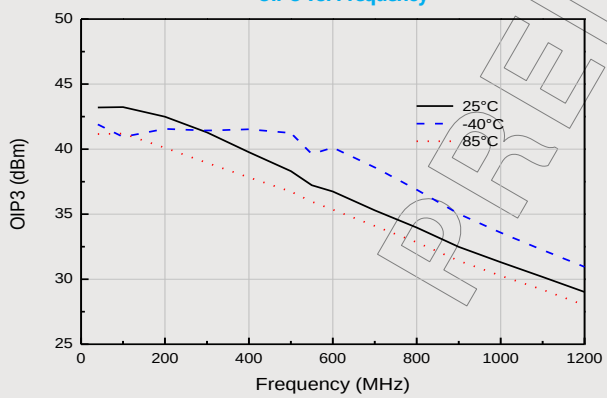
S-Parameter



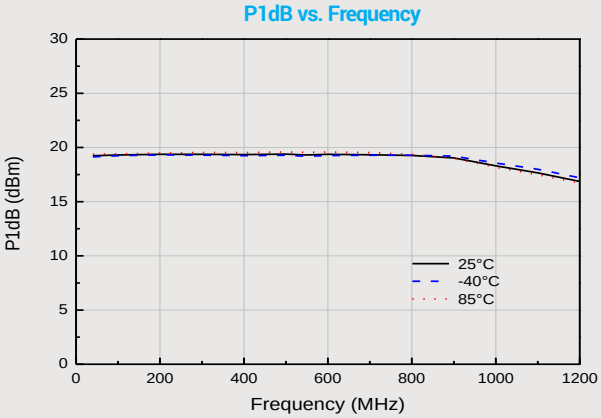
NF vs. Frequency



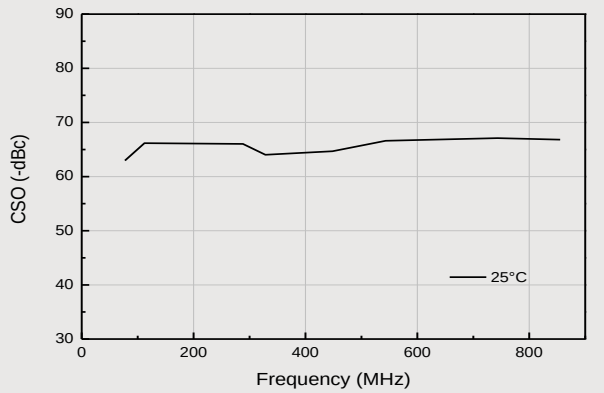
OIP3 vs. Frequency



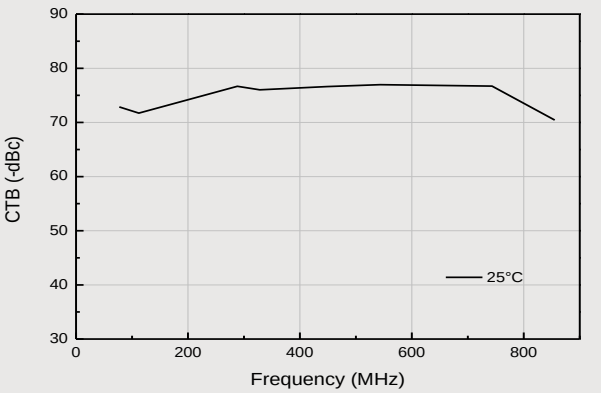
P1dB vs. Frequency



CSO vs. Frequency



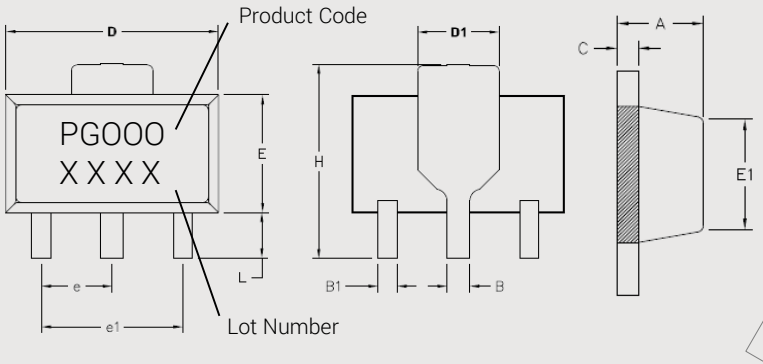
CTB vs. Frequency



PRELIMINARY

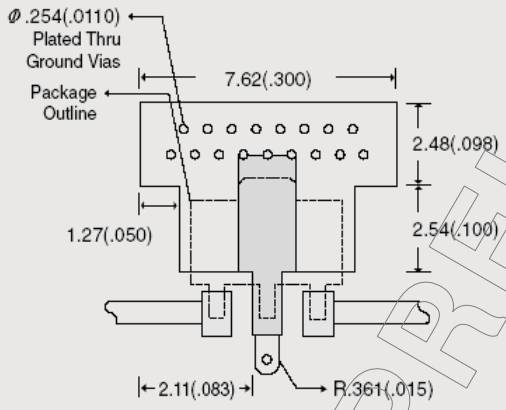
SJM PREWELL
PG885
CATV Amplifier

Lead-free /RoHS Compliant / Green SOT-89 Package Outline

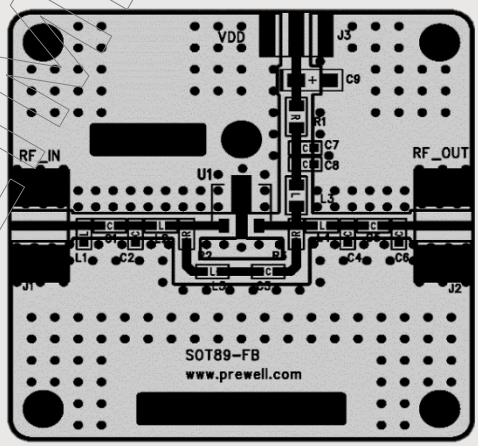


REF.	DIMENSIONS (mm)	
	Min.	Max.
A	1.40	1.60
B	0.43	0.58
B1	0.36	0.54
C	0.35	0.46
D	4.30	4.70
D1	1.50	1.87
E	2.29	2.70
E1	2.13	2.18
e	1.5	
e1	3.0	
H	3.43	5.10
L	0.74	1.20

Land Pattern



Evaluation Board Layout (40x40)



Mounting Instructions

1 Use a large ground pad area with many plated through-holes as shown.
2 We recommend 1 oz copper minimum.
3 Measurement for our data sheet was made on 1.6mm thick FR-4 Board 2 layer.
4 RF trace width depends on the board material and construction.
5 Add mounting screws near the part to fasten the board to a heatsink.
6 Add as much copper as possible to inner and outer layers near the part to ensure optimal thermal performance.

PRELIMINARY