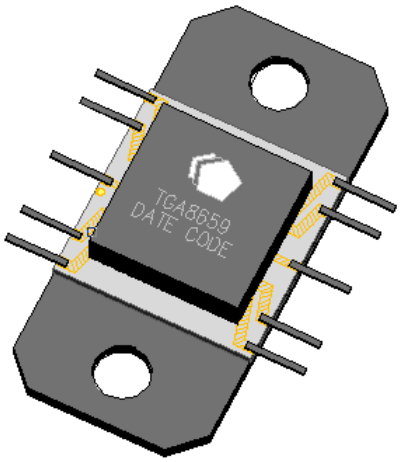
13 - 15 GHz 4W Power Amplifier

TGA8659-EPU-FL

Ceramic Flange Mounted Package



Key Features

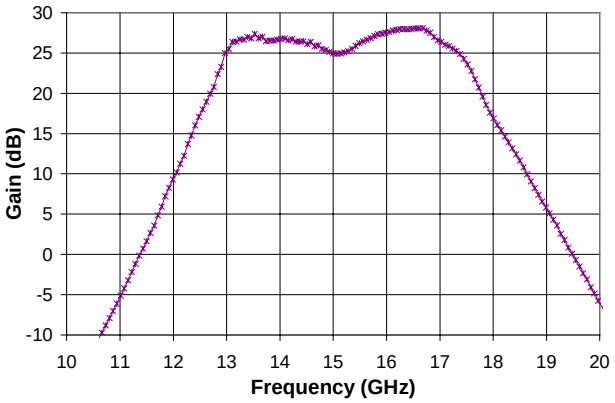
- 0.5 um pHEMT Technology
- >25 dB Nominal Gain
- >36 dBm Nominal Psat
- Bias 7V @ 1.3A Idq
- Package Dimensions: 8.4 x 17.8 x 3.0 mm^3 (0.3 x 0.7 x 0.1 in^3)

Primary Applications

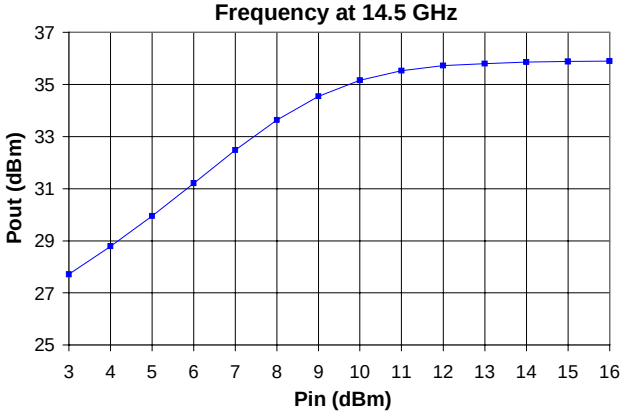
- Ku-Band VSAT Transmit
- Point-to-Point Radio

Fixtured Measured Performance

Bias Conditions: Vd = 7V, Idq = 1.3A ± 5%



Bias Conditions: Vd = 7V, Idq = 1.3A ± 5 %
Frequency at 14.5 GHz



Note: Devices designated as EPU are typically early in their characterization process prior to finalizing all electrical and process specifications. Specifications are subject to change without notice.

TABLE I
MAXIMUM RATINGS 1/

Symbol	Parameter	Value	Notes
V^+	Positive Supply Voltage	8V	
I^+	Positive Supply Current (Quiescent)	1.7 A	2/
P_D	Power Dissipation	TBD	
P_{IN}	Input Continuous Wave Power	24 dBm	
T_{CH}	Operating Channel Temperature	150 °C	3/, 4/
T_M	Mounting Temperature (30 seconds)	320 °C	
T_{STG}	Storage Temperature	-65 °C to 150 °C	

1/ These values represent the maximum operable values of this device
2/ Total current for the entire MMIC
3/ These ratings apply to each individual FET
4/ Junction operating temperature will directly affect the device mean time to failure (MTTF). For maximum life it is recommended that junction temperatures be maintained at the lowest possible levels.

TABLE II
ELECTRICAL CHARACTERISTICS
(Ta = 25ºC ± 5ºC)

Parameter	Units	Typical
Drain Operating Voltage	V	7
Quiescent Current	A	1.3
Small Signal Gain	dB	25
Gain Flatness (Freq = 13.5 - 15 GHz)	dB/100MHz	0.1
Input Return Loss (Linear Small Signal)	dB	10
Output Return Loss (Linear Small Signal)	dB	10
Reverse Isolation	dB	> 50
CW Output Power @Psat at 14.5GHz	dBm	36
TOI at 14.5 GHz with Pout/tone of 28 dBm	dBm	41
Power Added Efficiency@Psat	%	30
P1dB temperature coeff. TC (-40 to +70 °C)	dB/deg C	0.01

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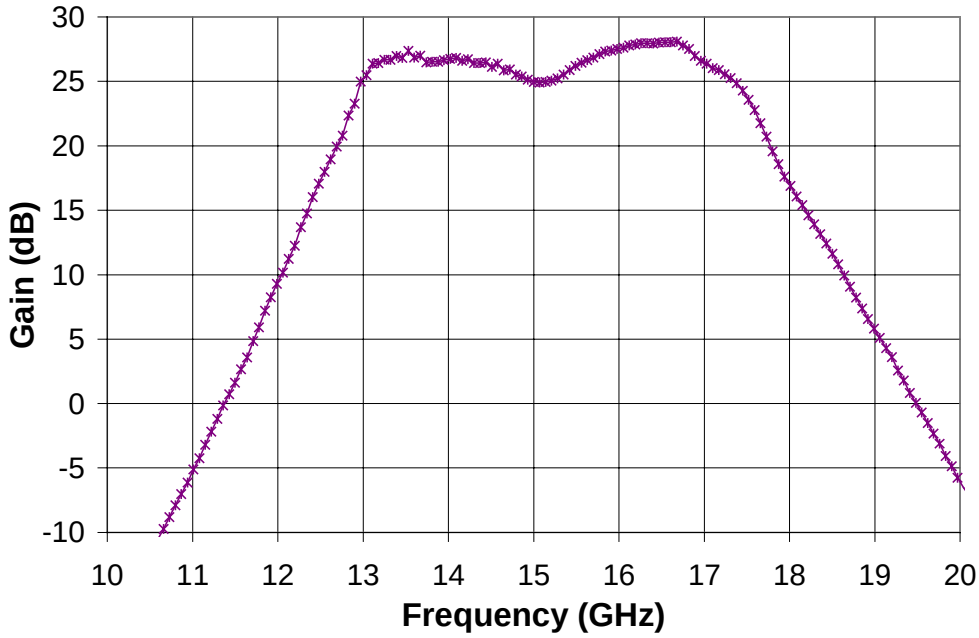
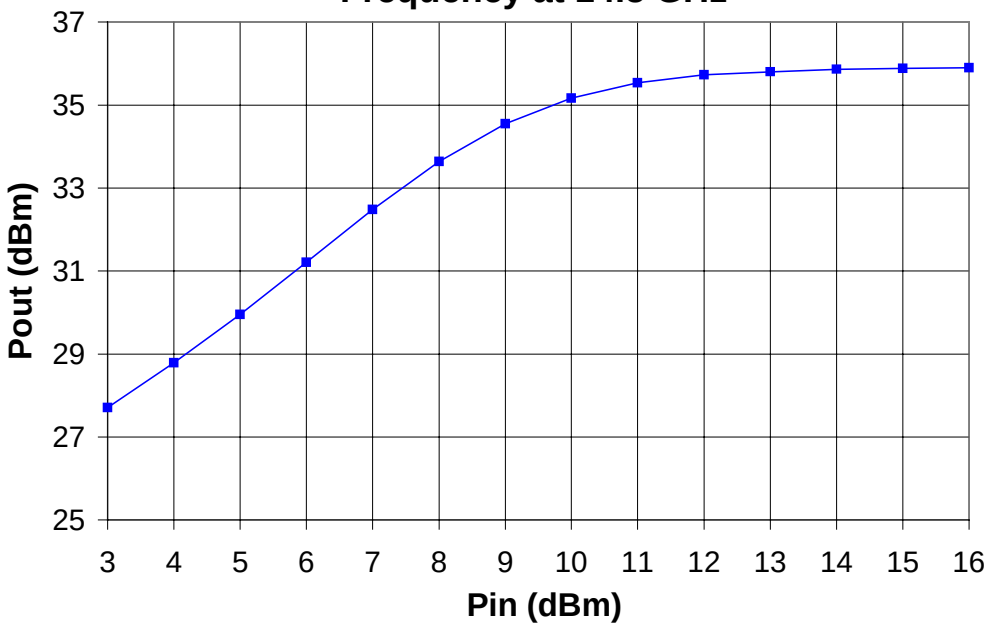
Measured Fixtured Data

Bias Conditions: Vd = 7V, Idq = 1.3A ± 5%



Bias Conditions: Vd = 7V, Idq = 1.3A ± 5 %
Frequency at 14.5 GHz



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Measured Fixtured Data

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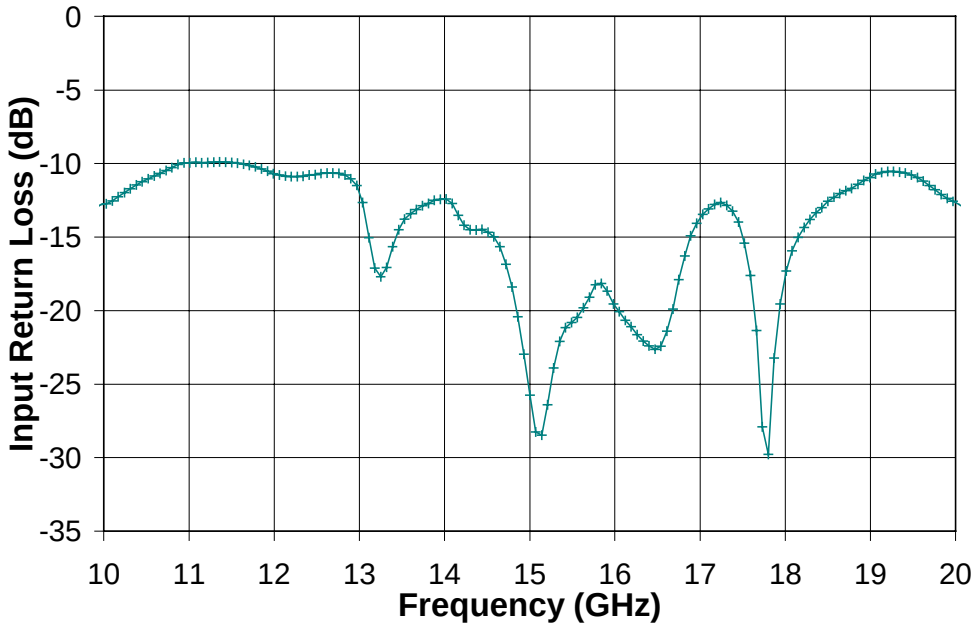

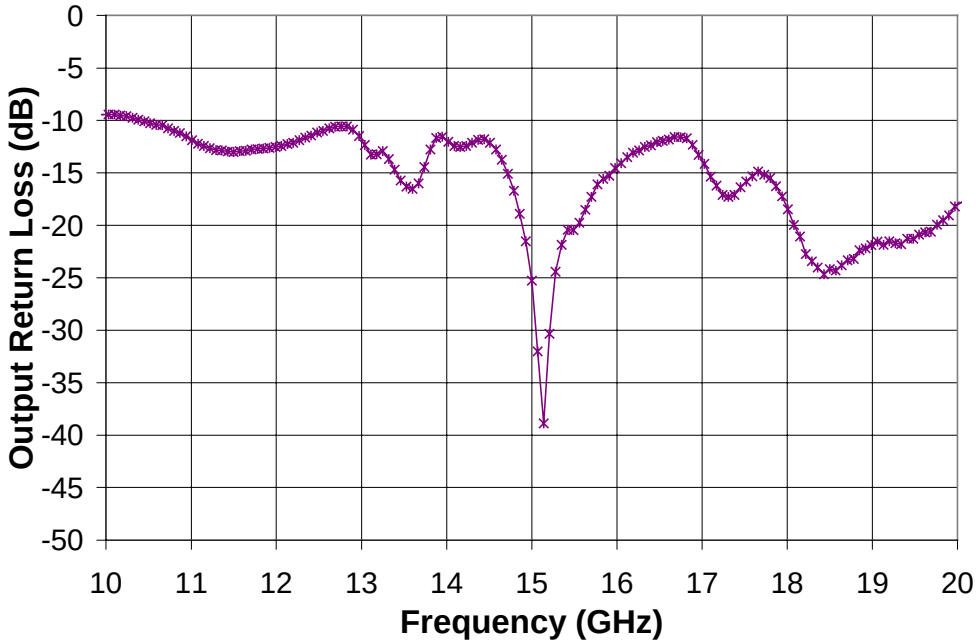

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Measured Fixtured Data

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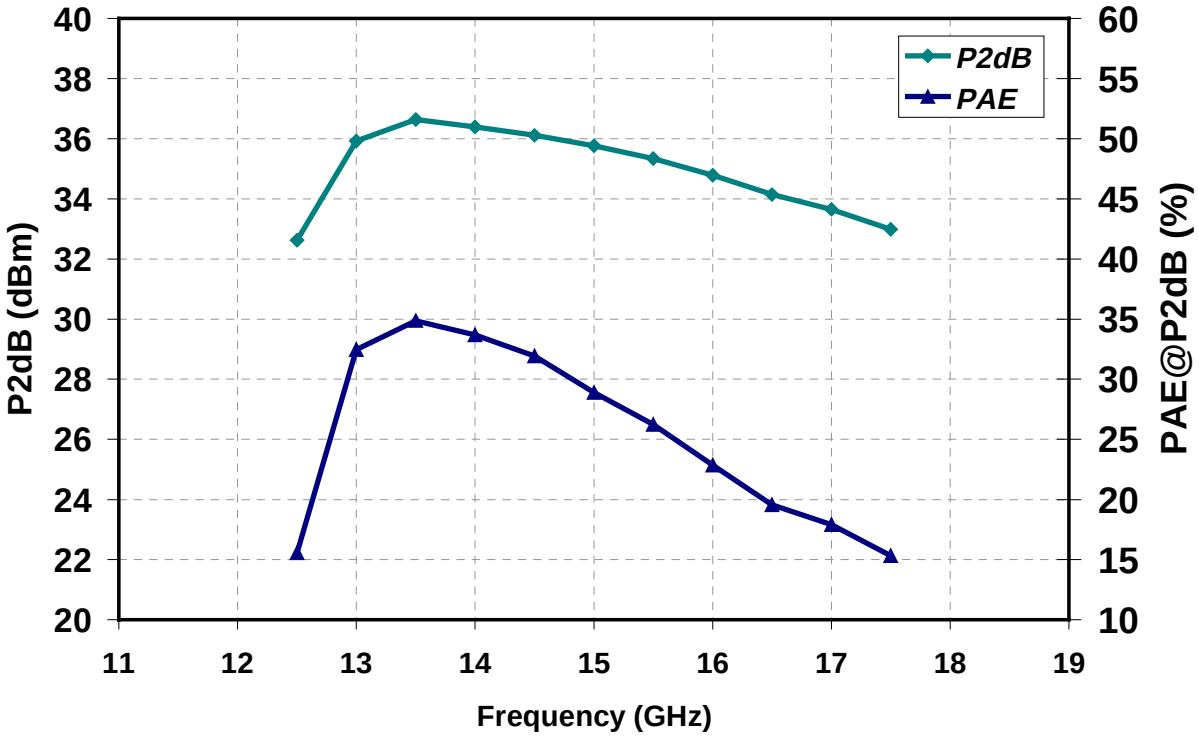
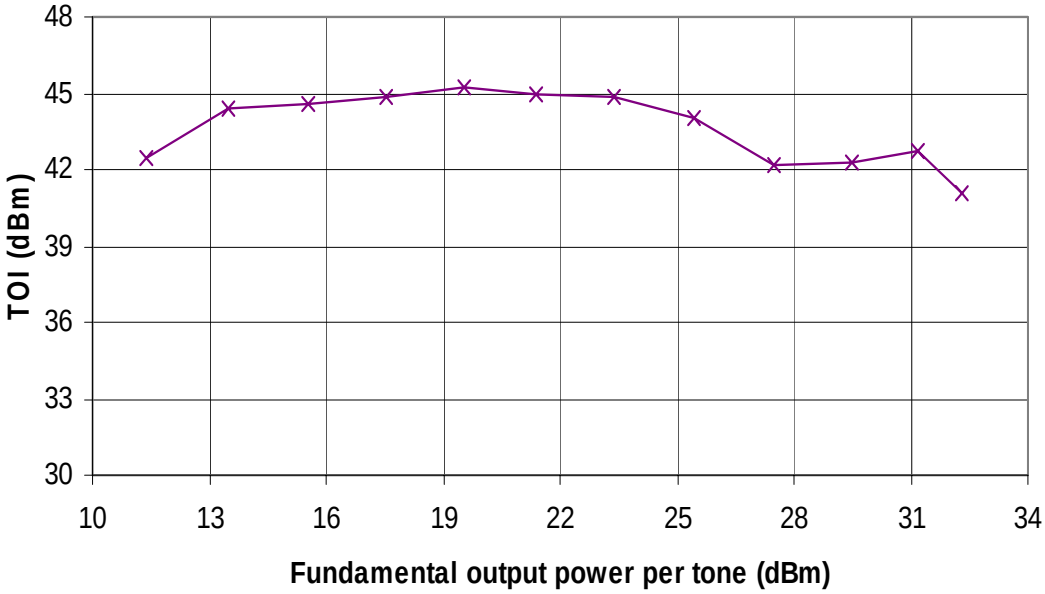


Bias Conditions: Vd = 6V, Idq = 1.3A ± 5%

Frequency @ 14.5 GHz



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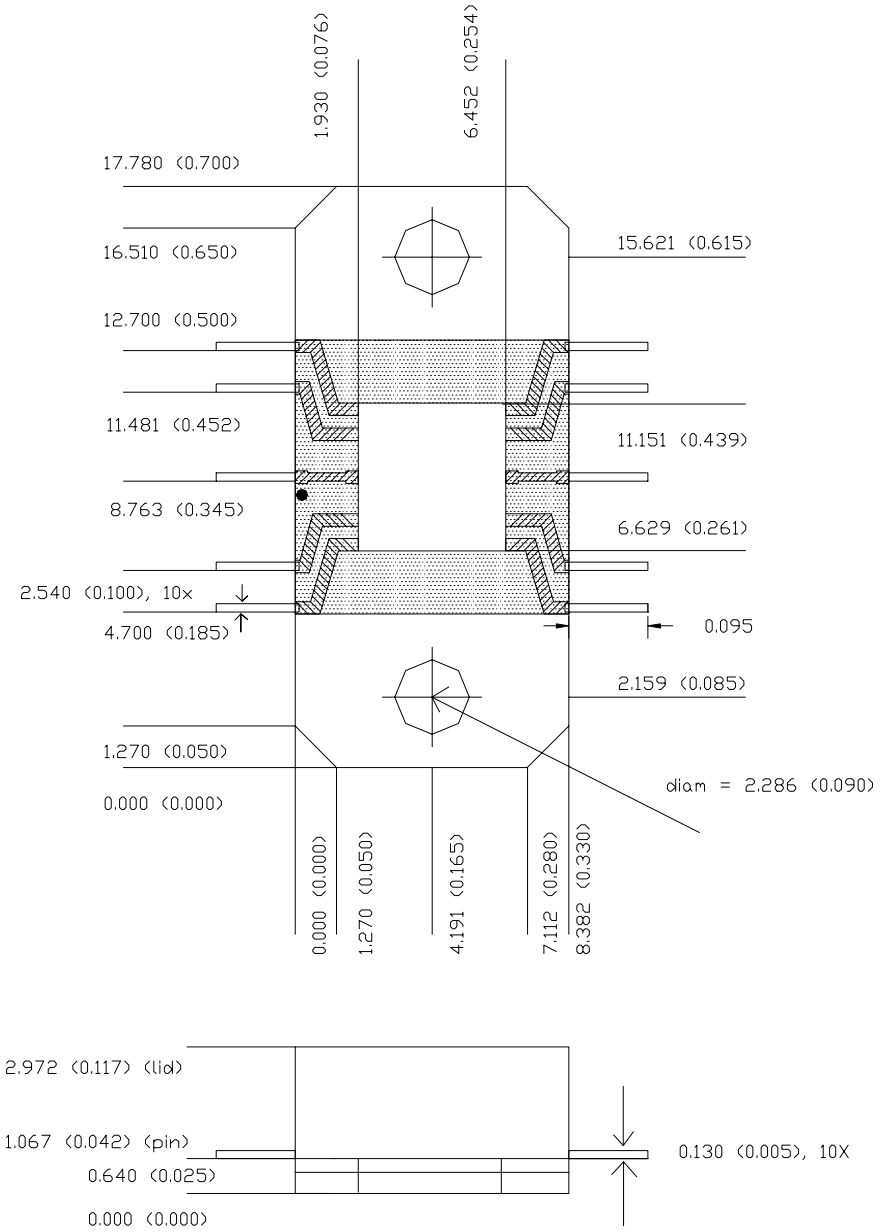
Packaged Dimensional Drawing



Units: millimeters (inches)
Package size tolerance: +/- 0.051 (0.002)

GaAs MMIC devices are susceptible to damage from Electrostatic Discharge. Proper precautions should be observed during handling, assembly and test.

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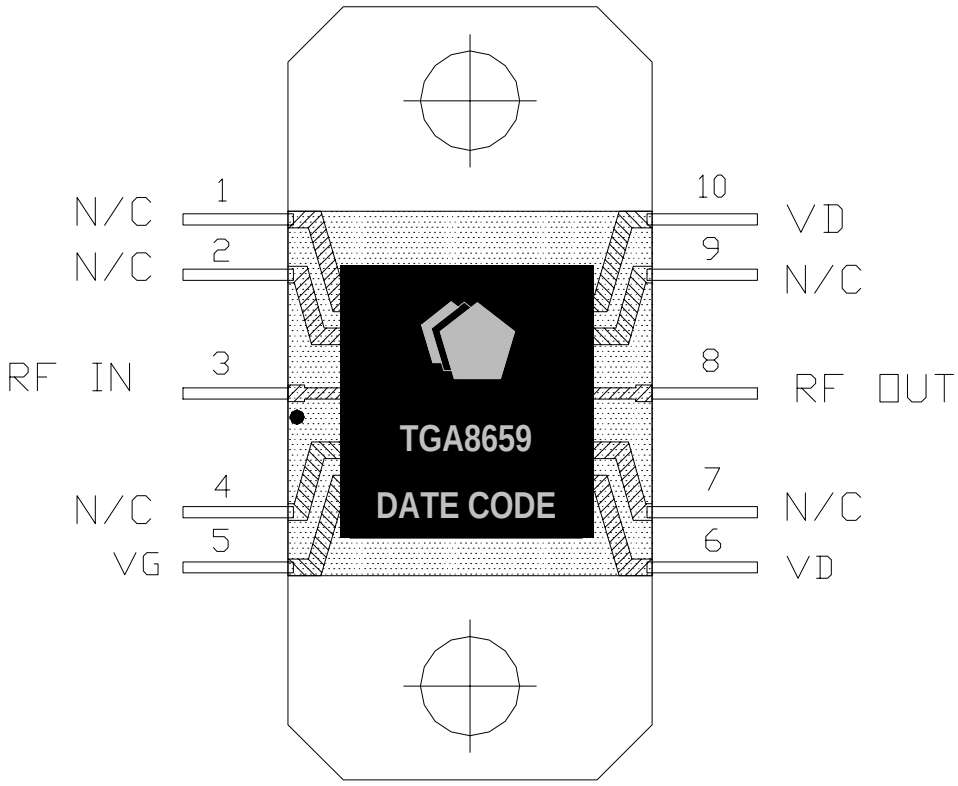

Bias Procedure

1) Make sure no RF power is applied to the device before continuing.
2) Pinch off device by setting V_G to –1.5V.
3) Raise V_D to 7.0V while monitoring drain current.
4) Raise V_G until drain current reaches 1.3 A. V_G should be between –0.6V and –0.3V.
5) Apply RF power.

Ordering Information

Part	Package Style
TGA8659-FL	Flange, leads bolted down

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