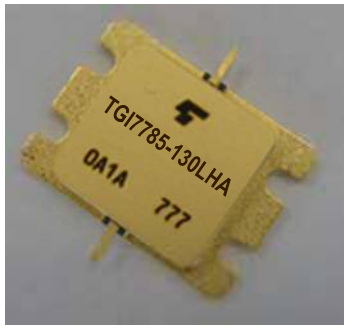
MICROWAVE POWER GaN HEMT
TGI7785-130LHA

FEATURES

- **BROAD BAND INTERNALLY MATCHED HEMT**
- **HIGH POWER**
  Pout= 51.0dBm at Pin= 44dBm
- **HIGH GAIN**
  GL= 11.5dB at Pin= 20dBm
- **LOW INTERMODULATION DISTORTION**
  IM3= -25dBc(Min.) at Pout= 44dBm (Single Carrier Level)
- **HERMETICALLY SEALED PACKAGE**



RF PERFORMANCE SPECIFICATIONS (Ta= 25°C)

CHARACTERISTICS	SYMBOL	CONDITIONS	UNIT	MIN.	TYP.	MAX.
Output Power	Pout	VDS= 40V IDSset= 0.8A f= 7.7 to 8.5GHz @Pin= 44dBm	dBm	50.0	51.0	—
Drain Current	IDS1		A	—	7.0	9.0
Power Added Efficiency	ηadd		%	—	36	—
Linear Gain	GL	@Pin= 20dBm	dB	10.5	11.5	—
Gain flatness	ΔG		dB	—	—	±0.8
3rd Order Intermodulation Distortion	IM3	Two-Tone Test Po= 44dBm (Single Carrier Level) Δf= 5MHz (IM3) Δf= 150MHz (IM3-2)	dBc	-25	-30	—
	IM3-2		dBc	-25	-27	—
Drain Current	IDS2		A	—	—	5.0
Channel Temperature Rise *1	ΔTch		°C	—	120	140

Recommended Gate Resistance(Rg): 10 Ω

*1: $\Delta Tch = (VDS \times IDS2 + Pin(two\text{-}tone) - Po(two\text{-}tone)) \times Rth(c\text{-}c)$, calculated using parameters of IM3 test

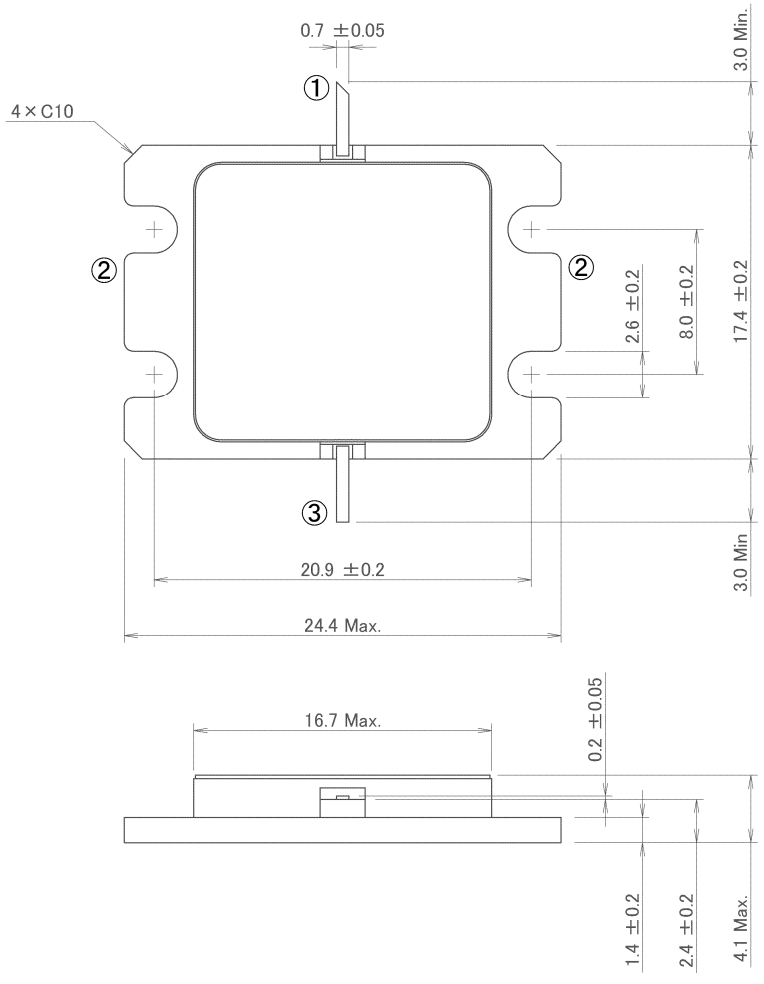
ELECTRICAL CHARACTERISTICS (Ta= 25°C)

CHARACTERISTICS	SYMBOL	CONDITIONS	UNIT	MIN.	TYP.	MAX.
Transconductance	gm	VDS= 5V IDS= 10.0A	S	—	8.0	—
Pinch-off Voltage	VGSoff	VDS= 5V IDS= 30mA	V	-2.0	-3.0	-5.0
Gate-Source Breakdown Voltage	VGSO	IGS= -25mA	V	-10	—	—
Thermal Resistance	Rth(c-c)	Channel to Case	°C/W	—	0.8	1.0

ABSOLUTE MAXIMUM RATINGS (Ta= 25°C)

CHARACTERISTICS	SYMBOL	UNIT	RATING
Drain-Source Voltage	VDS	V	50
Gate-Source Voltage	VGS	V	-10
Drain Current	IDS	A	12
Total Power Dissipation (Tc= 25°C)	PT	W	200
Channel Temperature	Tch	°C	225
Storage Temperature	Tstg	°C	-65 to +175

PACKAGE OUTLINE (7-AA06A)



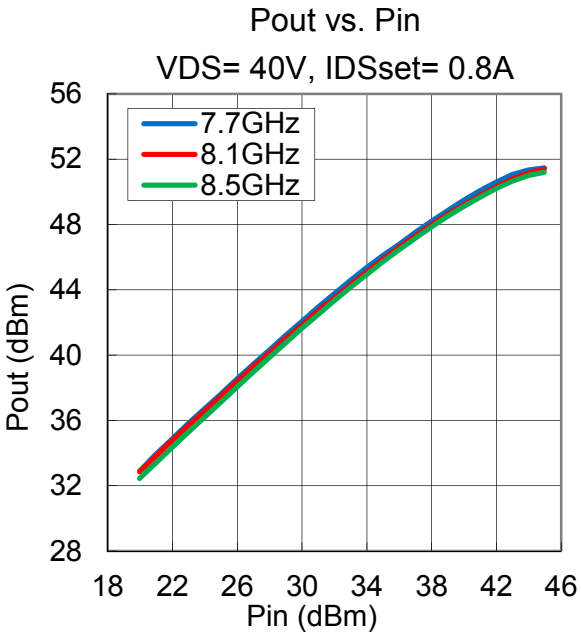
HANDLING PRECAUTIONS FOR PACKAGE MODEL

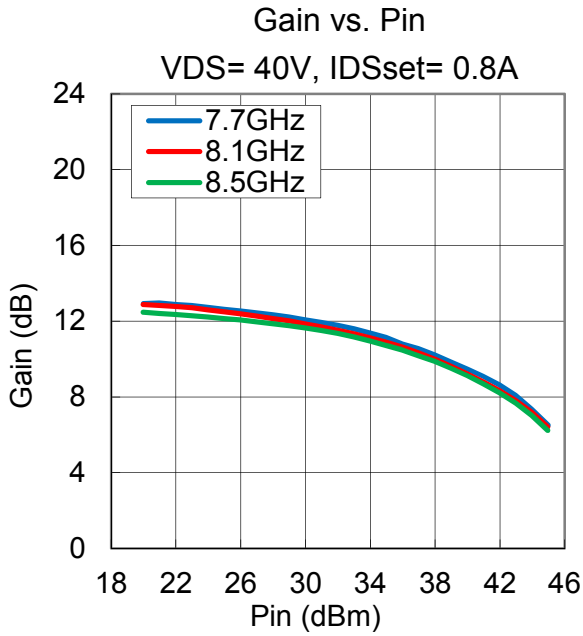
Soldering iron should be grounded and the operating time should not exceed 10 seconds at 260°C or 3 seconds at 350°C

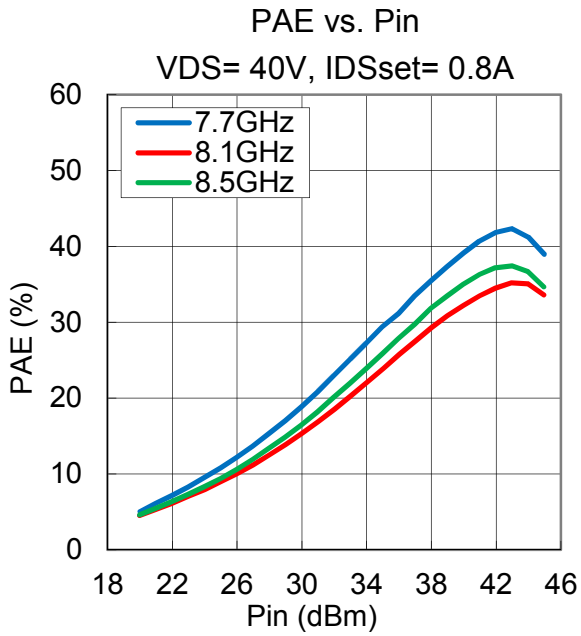
TYPICAL RF PERFORMANCE

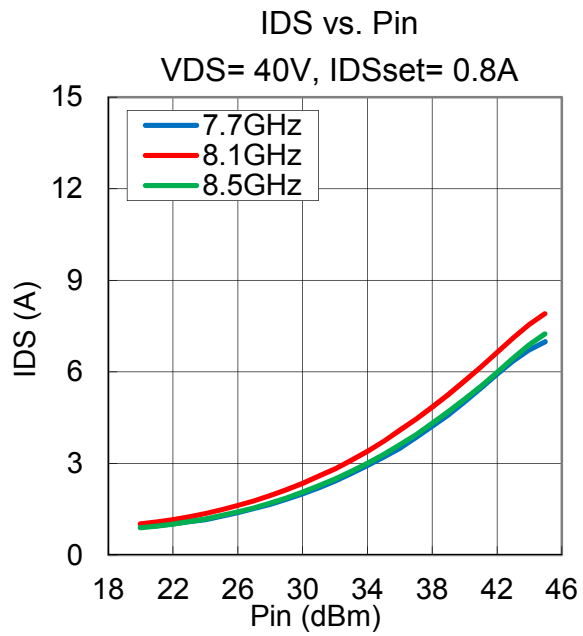
・Pout, Gain, PAE, IDS vs. Pin

VDS= 40V, IDSset= 0.8A, f= 7.7, 8.1, 8.5GHz, Ta= +25°C



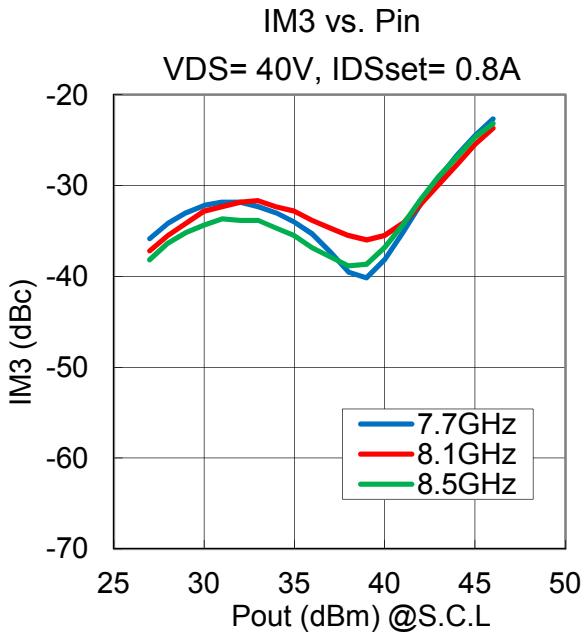


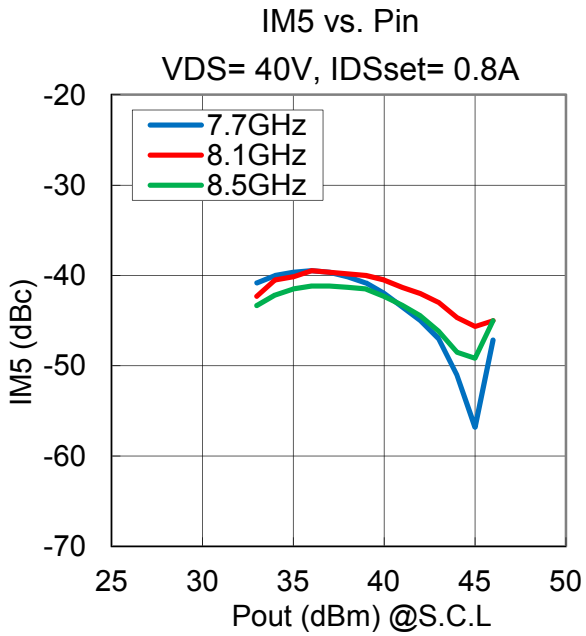




・IM3, IM5 vs. Pout

VDS= 40V, IDSset= 0.8A, f= 7.7, 8.1, 8.5GHz, Δf= 5MHz, Ta= +25°C





・IM3-2, IM5-2 vs. Pout

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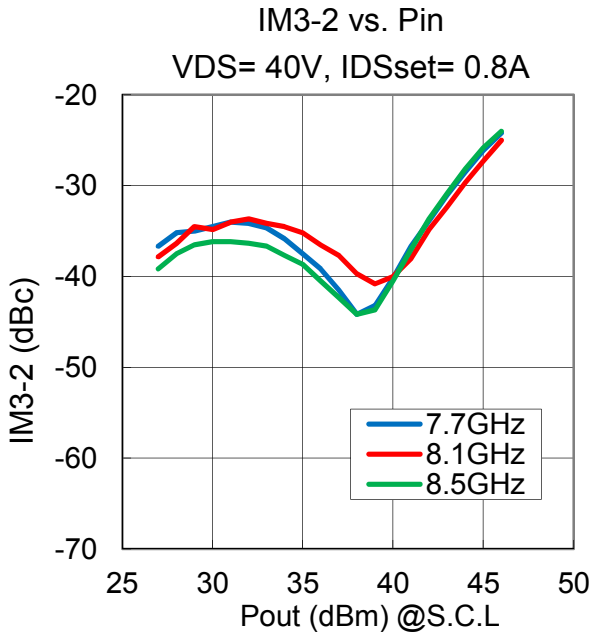
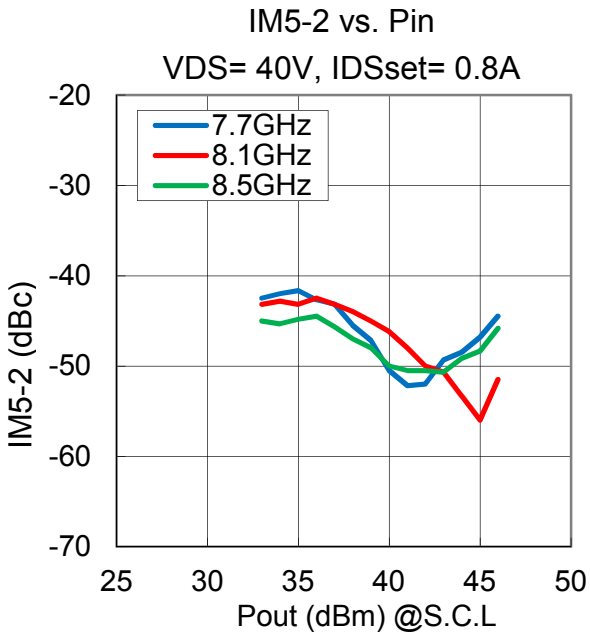
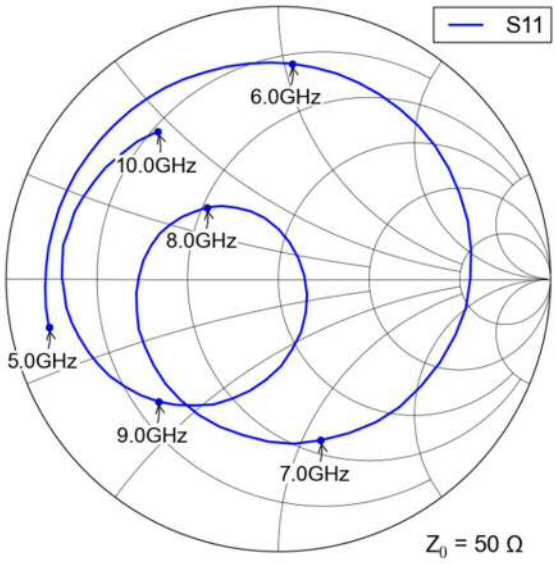
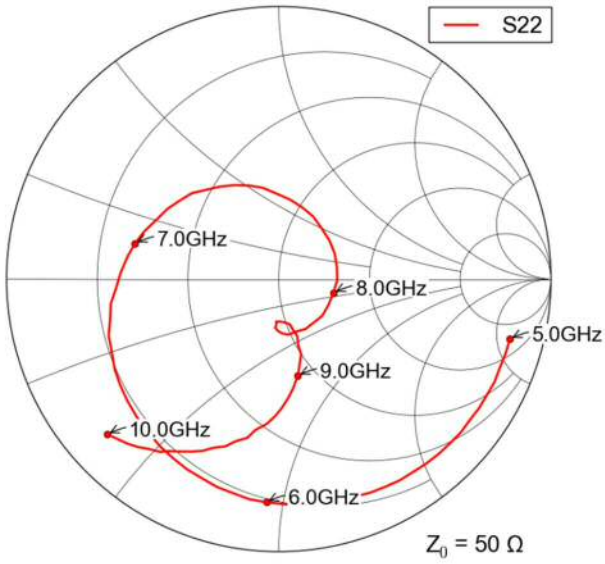


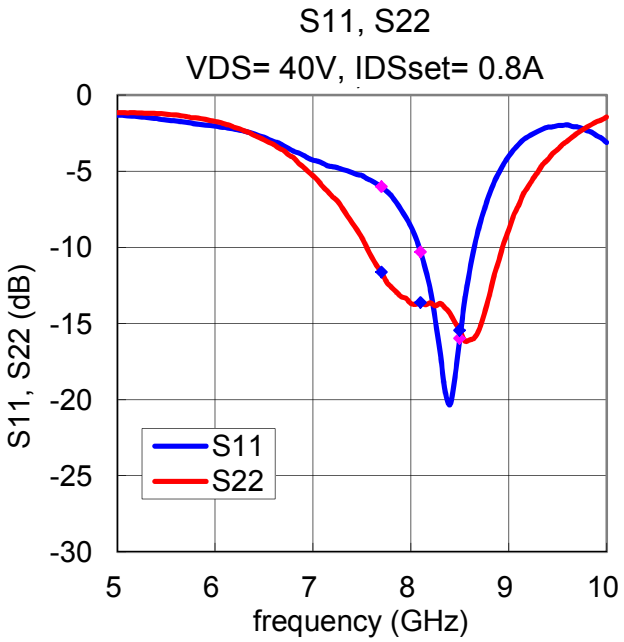


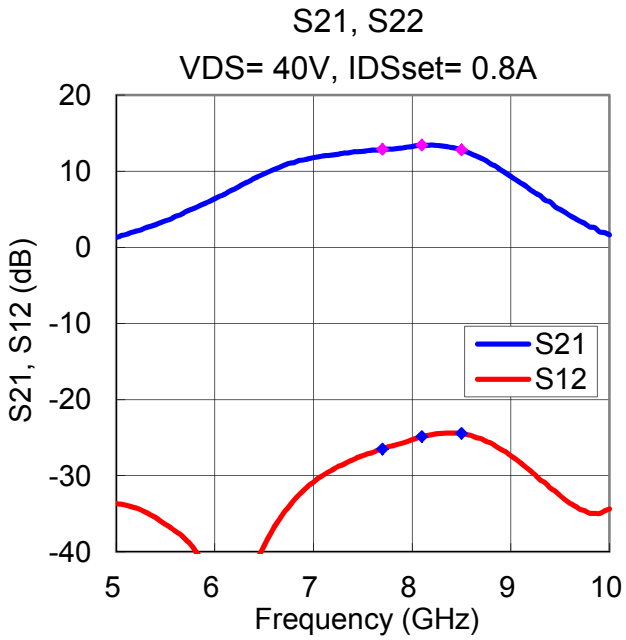
·S-Parameter

VDS= 40V, IDSset= 0.8A, f= 5 to 10GHz, Ta= +25°C









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