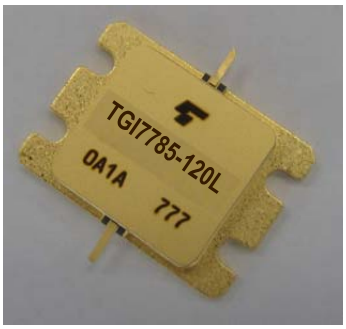
MICROWAVE POWER GaN HEMT
TGI7785-120L

FEATURES

- **BROAD BAND INTERNALLY MATCHED HEMT**
- **HIGH POWER**
  Pout= 51.0dBm at Pin= 44.0dBm
- **HIGH GAIN**
  GL= 11.0dB at Pin= 20.0dBm
- **LOW INTERMODULATION DISTORTION**
  IM3(Min.)= −25dBc at Po=44.0dBm
  Single Carrier Level
- **HERMETICALLY SEALED PACKAGE**



RF PERFORMANCE SPECIFICATIONS (Ta= 25°C)

CHARACTERISTICS	SYMBOL	CONDITIONS	UNIT	MIN.	TYP.	MAX.
Output Power	Pout	VDS= 24V IDSset= 4.0A f= 7.7 to 8.5 GHz @Pin= 44dBm	dBm	50.0	51.0	—
Drain Current	IDS1		A	—	10.0	12.0
Power Added Efficiency	ηadd		%	—	42	—
Linear Gain	GL	@Pin= 20dBm	dB	10.0	11.0	—
Gain flatness	ΔG		dB	—	—	±0.8
3rd Order Intermodulation Distortion	IM3	Two-Tone Test Po= 44.0dBm, Δf = 5MHz (Single Carrier Level)	dBc	-25	-30	—
Drain Current	IDS2		A	—	—	8.0
Channel Temperature Rise	ΔTch	(VDS X IDS + Pin – P1dB) X Rth(c-c)	°C	—	120	140

Recommended Gate Resistance(Rg): 28 Ω (Max.)

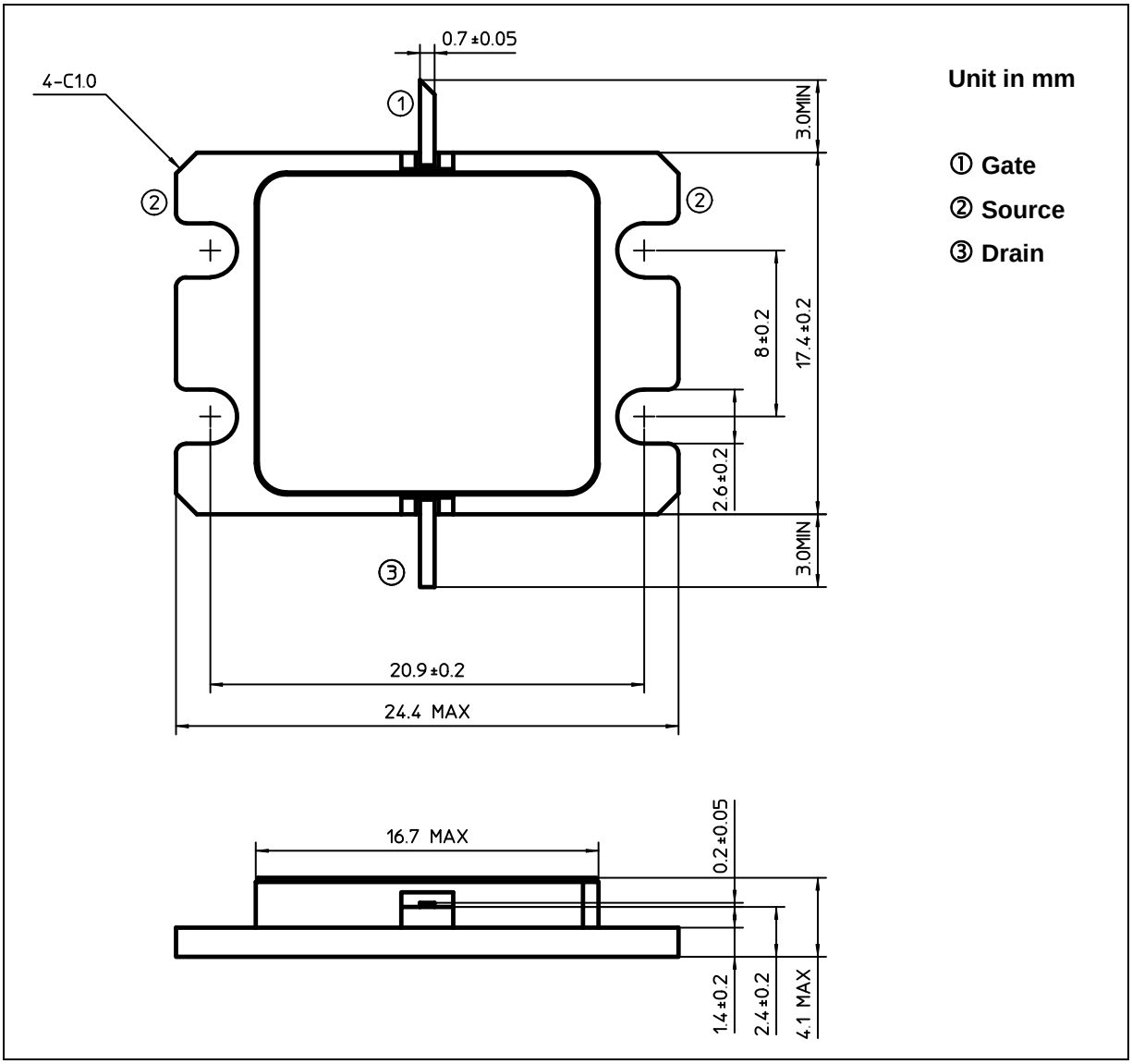
ELECTRICAL CHARACTERISTICS (Ta= 25°C)

CHARACTERISTICS	SYMBOL	CONDITIONS	UNIT	MIN.	TYP.	MAX.
Transconductance	gm	VDS= 5V IDS= 10.0A	S	—	8.0	—
Pinch-off Voltage	VGSoff	VDS= 5V IDS= 46mA	V	-1	-4	-6
Gate-Source Breakdown Voltage	VGSO	IGS= -20mA	V	-10	—	—
Thermal Resistance	Rth(c-c)	Channel to Case	°C/W	—	0.6	0.8

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	18.0
Total Power Dissipation (Tc= 25 °C)	PT	W	280
Channel Temperature	Tch	°C	250
Storage Temperature	Tstg	°C	-65 to +175

PACKAGE OUTLINE (7-AA06A)



HANDLING PRECAUTIONS FOR PACKAGE MODEL

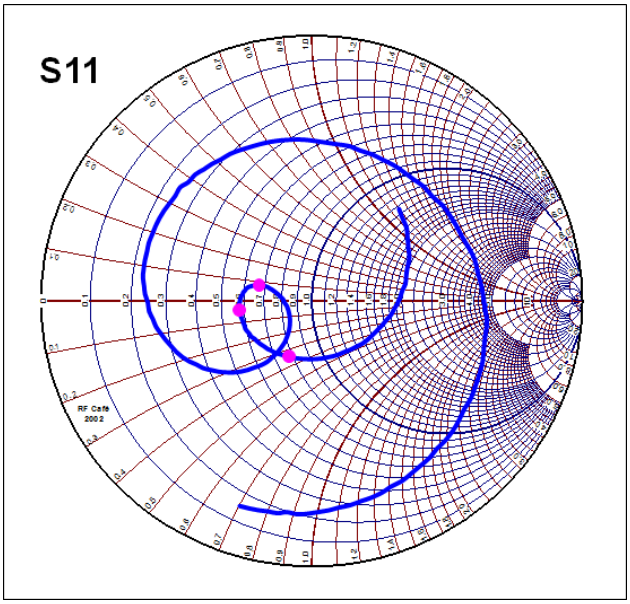
Soldering iron should be grounded and the operating time should not exceed 10 seconds at 260°C or 3 seconds at 350°C.

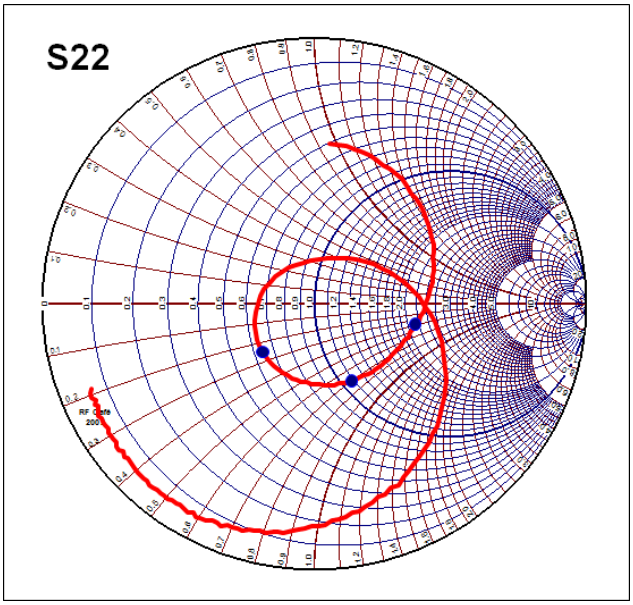
TYPICAL RF PERFORMANCE

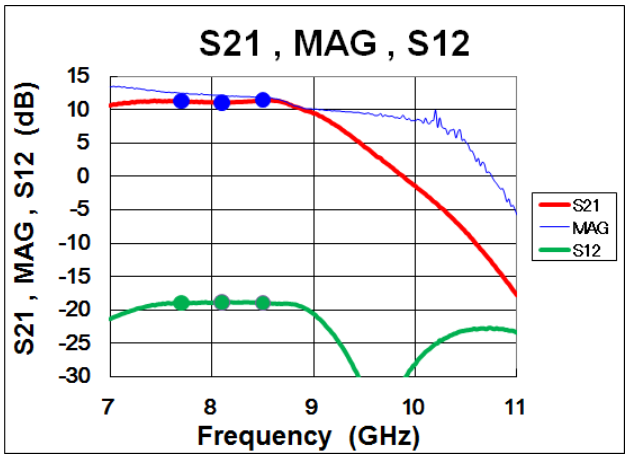
·S-Parameters

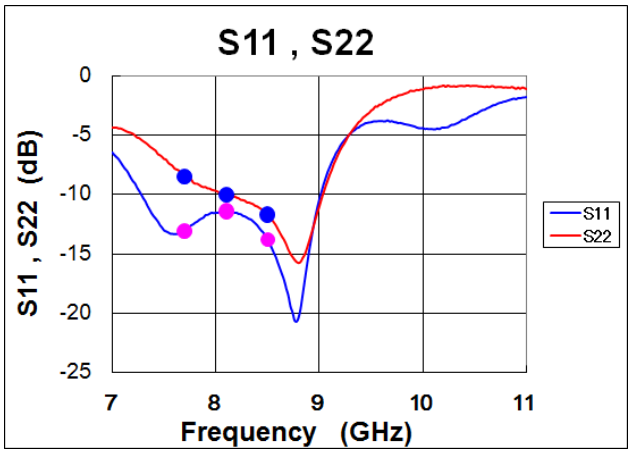
VDS= 24 (V) , IDSset= 4.0 (A) , f=7.0 to 11.0 (GHz)

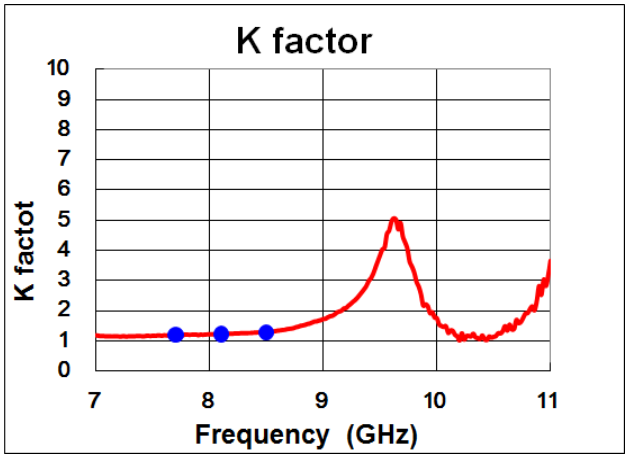
Marker : 7.7 , 8.1 , 8.5 (GHz)





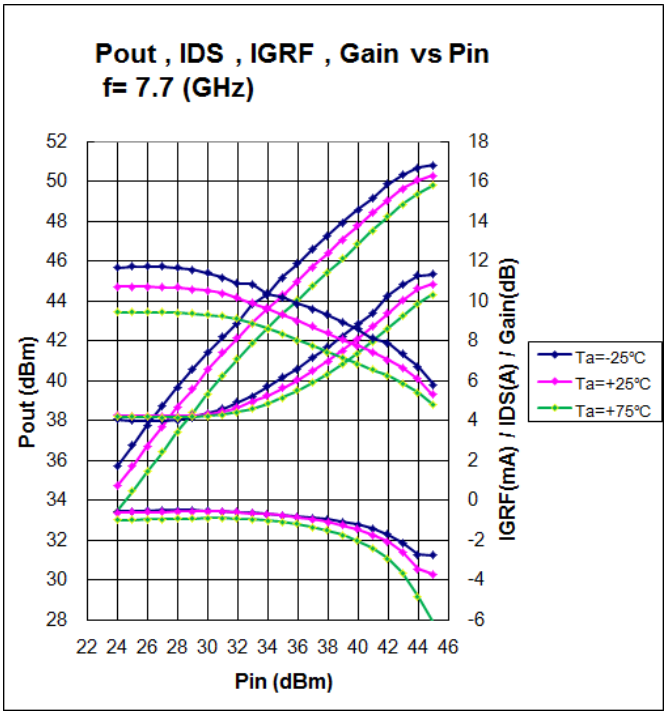


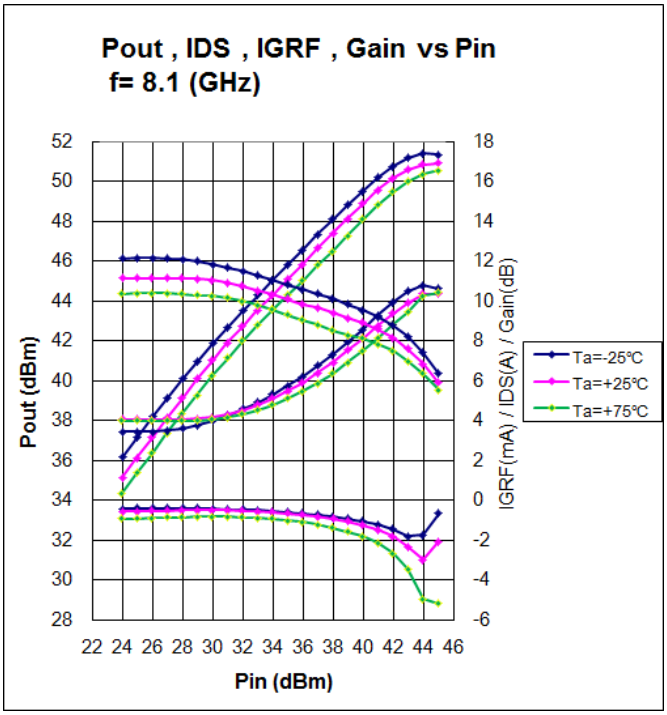


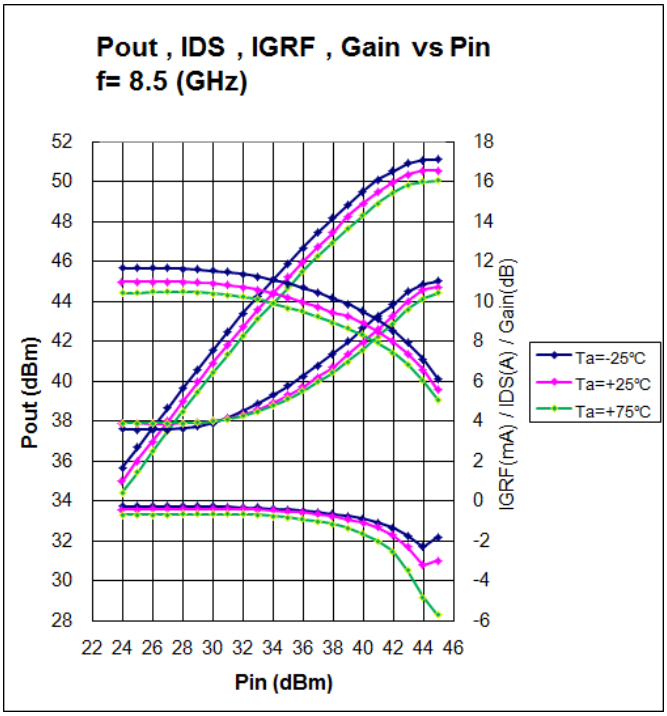


·Pout , IDS , IGRF , Gain vs. Pin vs. Temperature

VDS= 24 (V) , IDSset= 4.0 (A) , f= 7.7 , 8.1 , 8.5 (GHz)







·IM3 vs. Pout

VDS= 24 (V) , IDSset= 3.0 , 4.0 , 5.0 (A) , f= 7.7 , 8.1 , 8.5 (GHz)