

# TOSHIBA

## MICROWAVE SEMICONDUCTOR

### TECHNICAL DATA

## MICROWAVE POWER GaAs FET

### TIM4450-60SL

### FEATURES

- **LOW INTERMODULATION DISTORTION**
  - IM3=-45 dBc at Pout= 36.5dBm
  - Single Carrier Level
- **HIGH POWER**
  - P1dB=48.0dBm at 4.4GHz to 5.0GHz
- **HIGH GAIN**
  - G1dB=9.5dB at 4.4GHz to 5.0GHz
- **BROAD BAND INTERNALLY MATCHED FET**
- **HERMETICALLY SEALED PACKAGE**

### RF PERFORMANCE SPECIFICATIONS ( Ta= 25°C )

CHARACTERISTICS	SYMBOL	CONDITIONS	UNIT	MIN.	TYP.	MAX.
Output Power at 1dB Gain Compression Point	P1dB	VDS= 10V f = 4.4 to 5.0GHz IDSset≒9.5A	dBm	47.0	48.0	—
Power Gain at 1dB Gain Compression Point	G1dB		dB	8.5	9.5	—
Drain Current	IDS1		A	—	13.2	15.0
Gain Flatness	ΔG		dB	—	—	±0.8
Power Added Efficiency	ηadd		%	—	42	—
3rd Order Intermodulation Distortion	IM3	Two-Tone Test Po=36.5dBm	dBc	-42	-45	—
Drain Current	IDS2	(Single Carrier Level)	A	—	—	11.8
Channel Temperature Rise	ΔTch	VDS X IDS X Rth(c-c)	°C	—	—	100

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

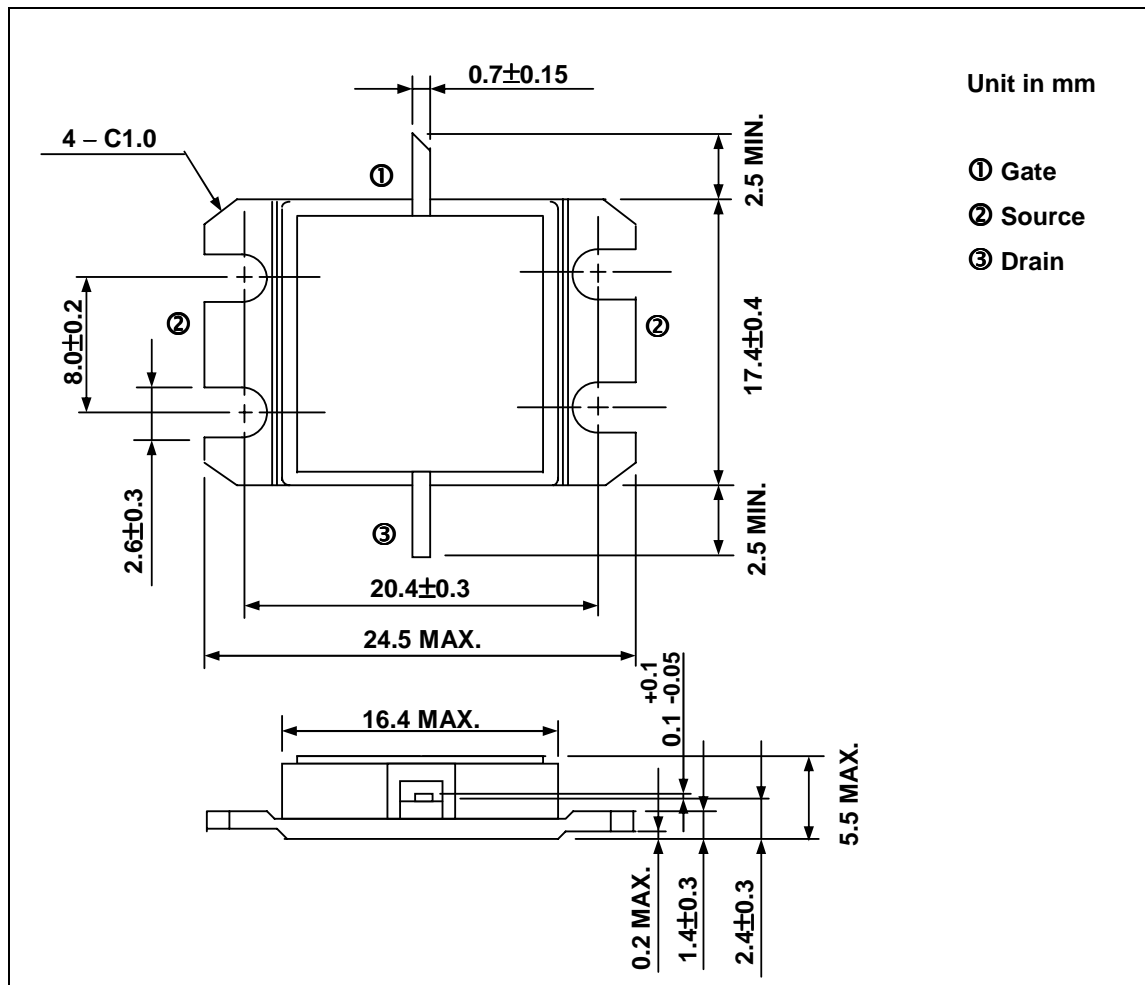
### ELECTRICAL CHARACTERISTICS ( Ta= 25°C )

CHARACTERISTICS	SYMBOL	CONDITIONS	UNIT	MIN.	TYP.	MAX.
Transconductance	gm	VDS= 3V IDS= 12.0A	S	—	20	—
Pinch-off Voltage	VGSoff	VDS= 3V IDS= 200mA	V	-1.0	-1.8	-3.0
Saturated Drain Current	IDSS	VDS= 3V VGS= 0V	A	—	38	—
Gate-Source Breakdown Voltage	VGSO	IGS= -1.0mA	V	-5	—	—
Thermal Resistance	Rth(c-c)	Channel to Case	°C/W	—	0.6	0.8

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**ABSOLUTE MAXIMUM RATINGS ( Ta= 25°C )**

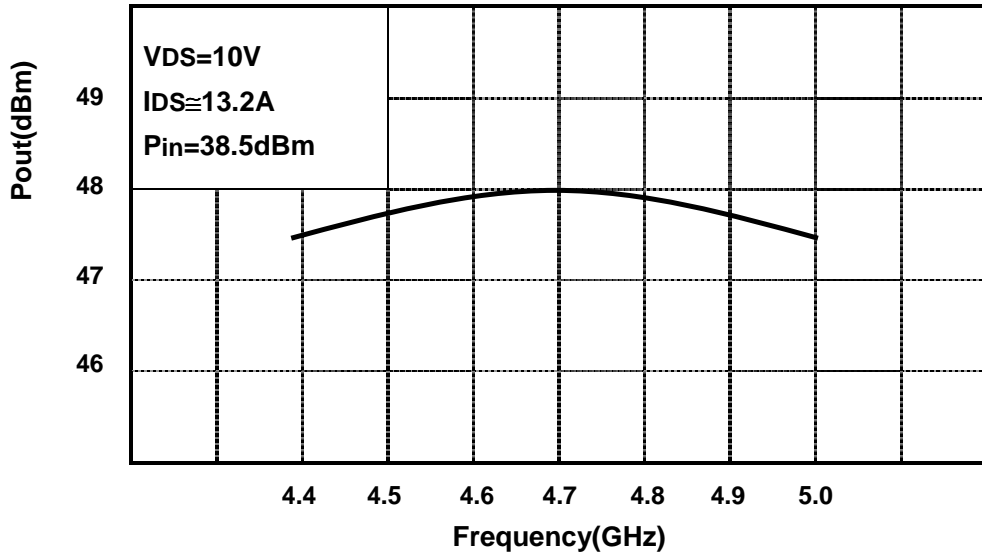
CHARACTERISTICS	SYMBOL	UNIT	RATING
Drain-Source Voltage	VDS	V	15
Gate-Source Voltage	VGS	V	-5
Drain Current	IDS	A	26
Total Power Dissipation (Tc= 25 °C)	PT	W	187
Channel Temperature	Tch	°C	175
Storage Temperature	Tstg	°C	-65 to +175

**PACKAGE OUTLINE (2-16G1B)****HANDLING PRECAUTIONS FOR PACKAGE MODEL**

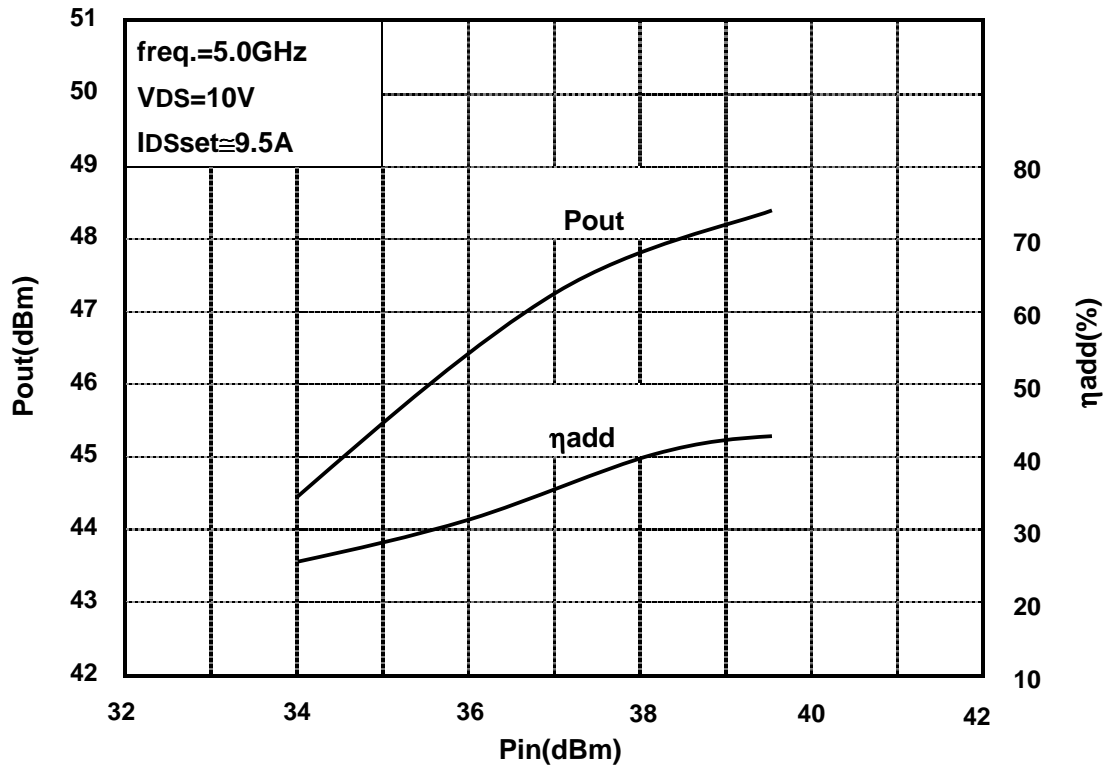
Soldering iron should be grounded and the operating time should not exceed 10 seconds at 260°C.

RF PERFORMANCE

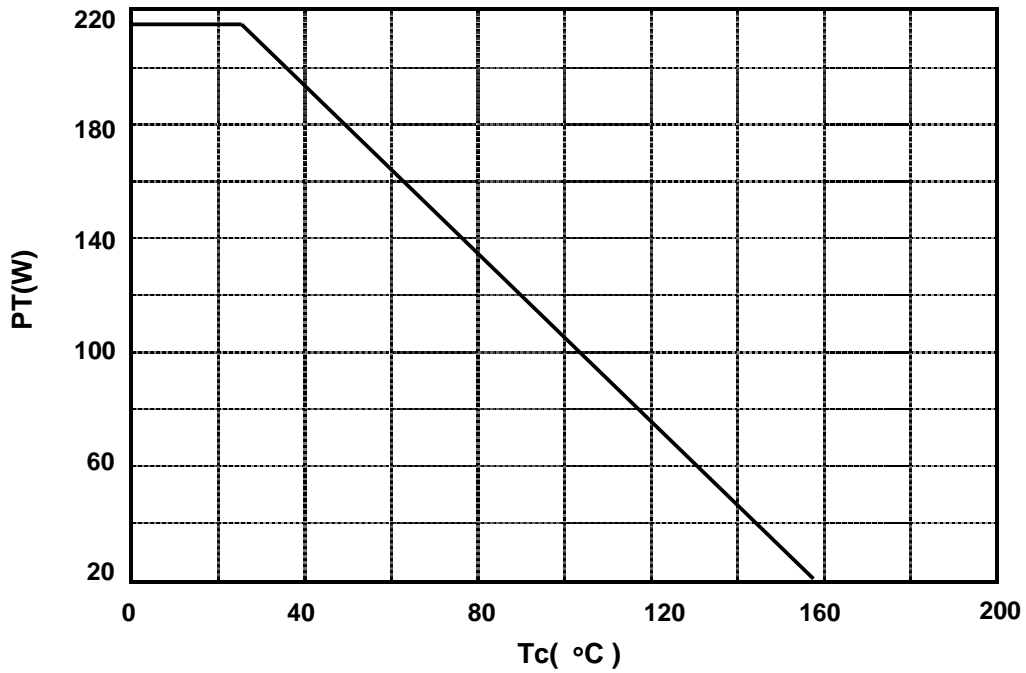
Output Power (Pout) vs. Frequency



Output Power(Pout) vs. Input Power(Pin)



Power Dissipation(PT) vs. Case Temperature(Tc)



IM3 vs. Power Characteristics

