

**TOSHIBA****MICROWAVE SEMICONDUCTOR**  
**TECHNICAL DATA****MICROWAVE POWER GaAs FET**  
**TIM4450-4SL**

## FEATURES

**■ LOW INTERMODULATION DISTORTION**

IM3=-45 dBc at Pout= 25.5dBm

Single Carrier Level

**■ HIGH POWER**

P1dB=36.5dBm at 4.4GHz to 5.0GHz

**■ HIGH GAIN**

G1dB=10.0dB 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	dBm	35.5	36.5	—
Power Gain at 1dB Gain Compression Point	G1dB		dB	9.0	10.0	—
Drain Current	IDS1		A	—	1.1	1.3
Gain Flatness	ΔG		dB	—	—	±0.6
Power Added Efficiency	ηadd		%	—	36	—
3 <sup>rd</sup> Order Intermodulation Distortion	IM3		dBc	-42	-45	—
Drain Current	IDS2	Two-Tone Test Po=25.5dBm (Single Carrier Level)	A	—	1.1	1.3
Channel Temperature Rise	ΔTch	(VDS X IDS +Pin-P1dB) X Rth(c-c)	°C	—	—	80

Recommended Gate Resistance(Rg): 150 Ω (Max.)

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

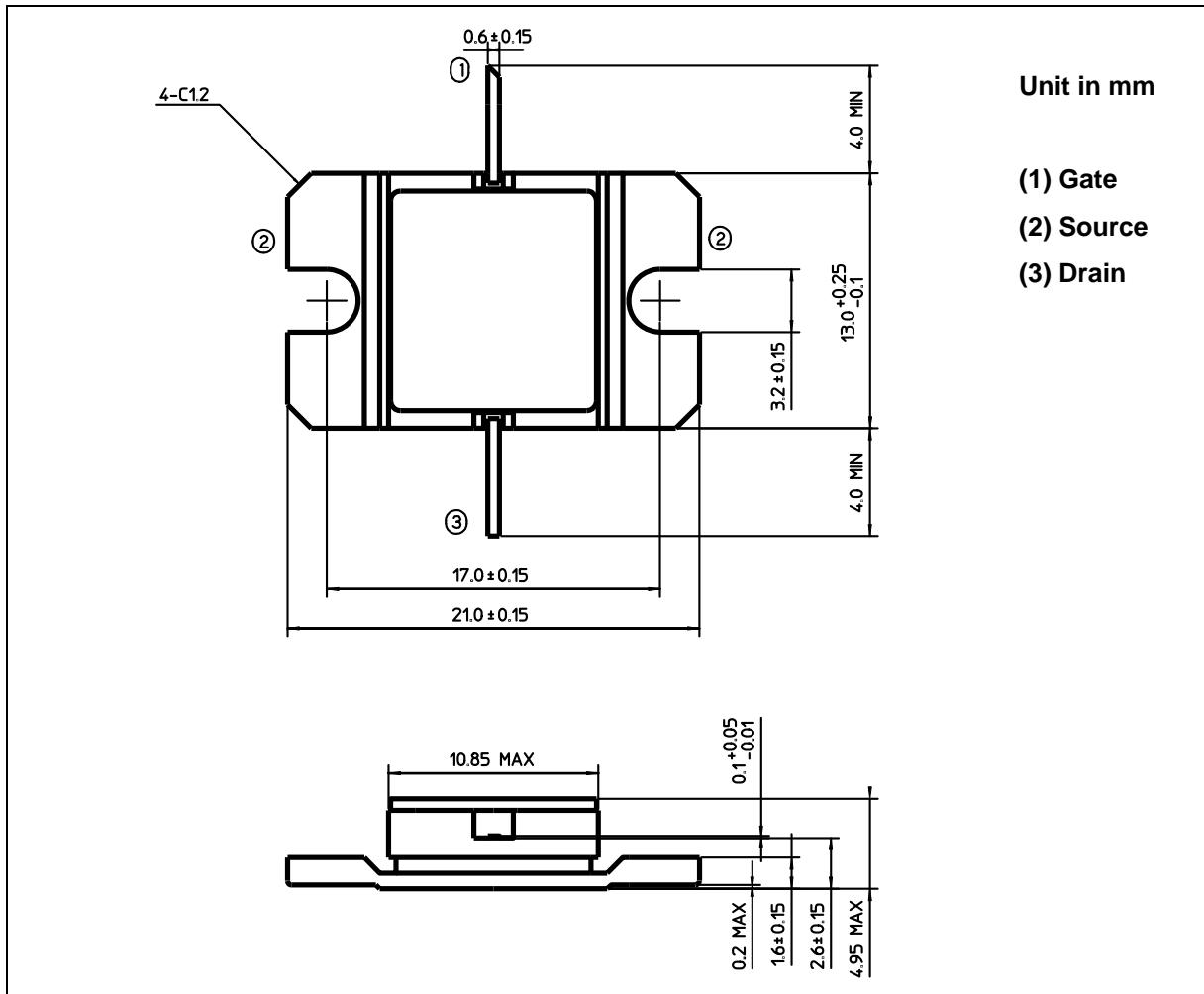
CHARACTERISTICS	SYMBOL	CONDITIONS	UNIT	MIN.	TYP.	MAX.
Transconductance	gm	VDS= 3V IDS= 1.5A	mS	—	900	—
Pinch-off Voltage	VGSoff	VDS= 3V IDS= 15mA	V	-1.0	-2.5	-4.0
Saturated Drain Current	IDSS	VDS= 3V VGS= 0V	A	—	2.6	—
Gate-Source Breakdown Voltage	VGSO	IGS= -50μA	V	-5	—	—
Thermal Resistance	Rth(c-c)	Channel to Case	°C/W	—	4.5	6.5

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The information contained herein is subject to change without prior notice. It is therefore advisable to contact TOSHIBA before proceeding with design of equipment incorporating this product.

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

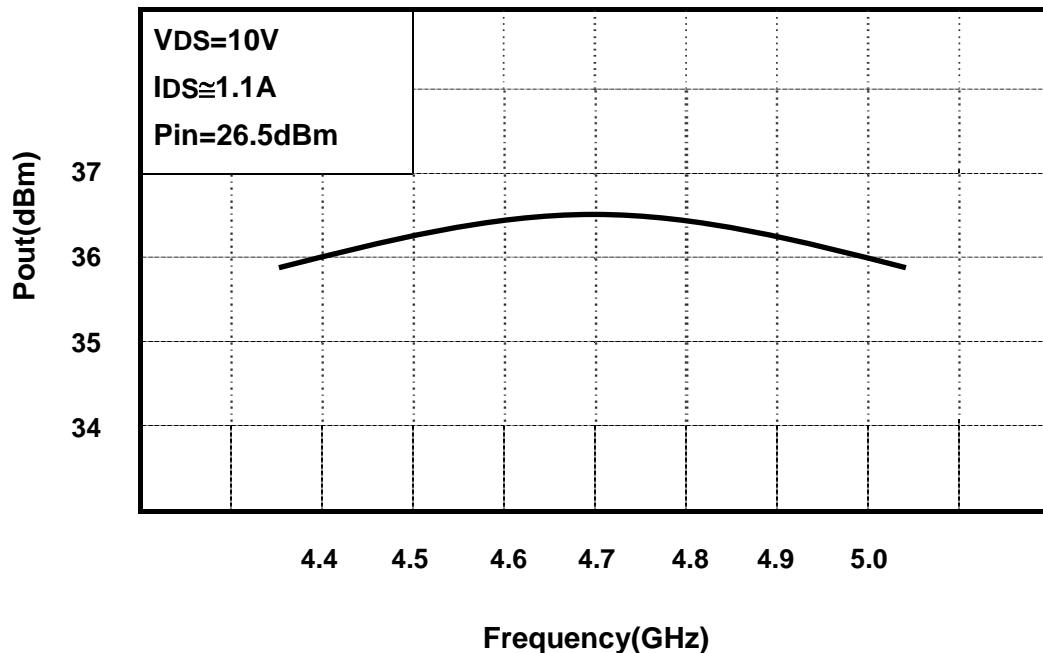
CHARACTERISTICS	SYMBOL	UNIT	RATING
Drain-Source Voltage	V <sub>DS</sub>	V	15
Gate-Source Voltage	V <sub>GS</sub>	V	-5
Drain Current	I <sub>DS</sub>	A	3.5
Total Power Dissipation (T <sub>c</sub> = 25 °C)	P <sub>T</sub>	W	23.1
Channel Temperature	T <sub>ch</sub>	°C	175
Storage Temperature	T <sub>stg</sub>	°C	-65 to +175

**PACKAGE OUTLINE (2-11D1B)****HANDLING PRECAUTIONS FOR PACKAGE MODEL**

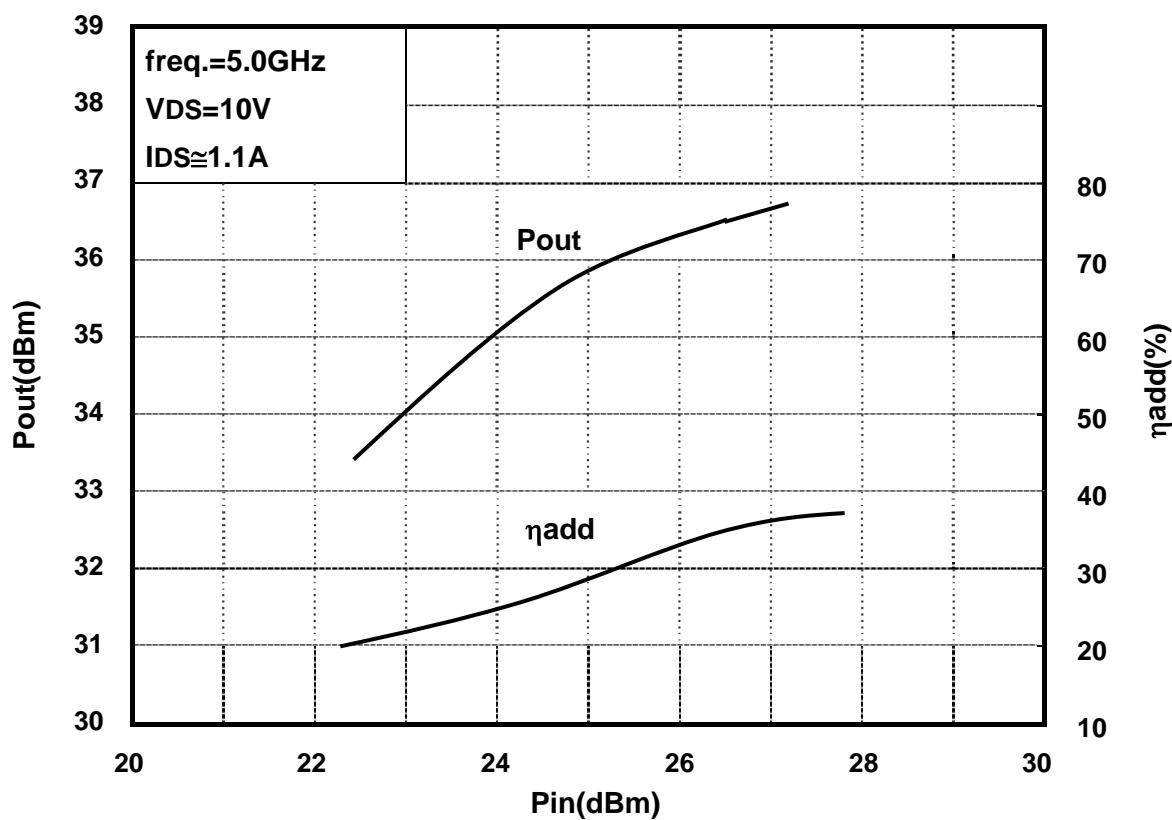
Soldering iron should be grounded and the operating time should not exceed 10 seconds at 260°C.

## RF PERFORMANCE

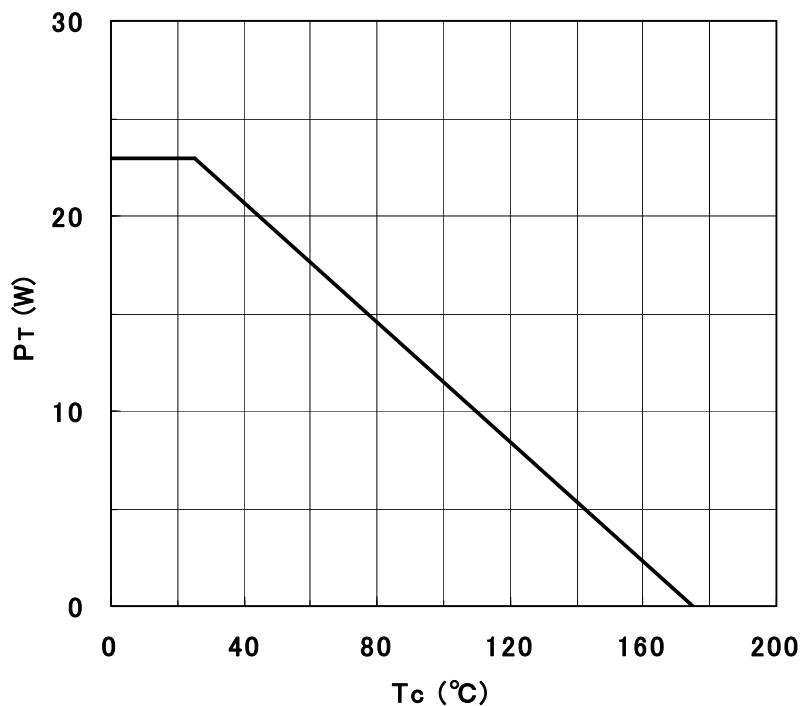
Output Power (Pout) vs. Frequency



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



### Power Dissipation vs. Case Temperature



### IM3 vs. Output Power Characteristics

