

# TOSHIBA

## MICROWAVE SEMICONDUCTOR

### TECHNICAL DATA

## MICROWAVE POWER GaAs FET

### TIM4450-4UL

#### FEATURES

##### ■ HIGH POWER

P1dB=36.5dBm at 4.4GHz to 5.0GHz

##### ■ HIGH GAIN

G1dB=11.0dB at 4.4GHz to 5.0GHz

##### ■ BROAD BAND INTERNALLY MATCHED

##### ■ HERMETICALLY SEALED PACKAGE

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

CHARACTERISTICS	SYMBOL	CONDITION	UNIT	MIN.	TYP.	MAX.
Output Power at 1dB Compression Point	P1dB	VDS= 10V f = 4.4 – 5.0GHz	dBm	35.5	36.5	—
Power Gain at 1dB Compression Point	G1dB		dB	10.0	11.0	—
Drain Current	IDS1		A	—	1.1	1.3
Gain Flatness	ΔG		dB	—	—	±0.6
Power Added Efficiency	ηadd		%	—	37	—
3rd Order Intermodulation Distortion	IM3	Two Tone Test Po= 25.5dBm	dBc	-44	-47	—
Drain Current	IDS2	(Single Carrier Level)	A	—	1.1	1.3
Channel Temperature Rise	ΔTch	VDS X IDS X Rth(c-c)	°C	—	—	80

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

CHARACTERISTICS	SYMBOL	CONDITION	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	3.5
Gate-Source Breakdown Voltage	VGSO	IGS= -50μA	V	-5	—	—
Thermal Resistance	Rth(c-c)	Channel to Case	°C/W	—	4.5	6.0

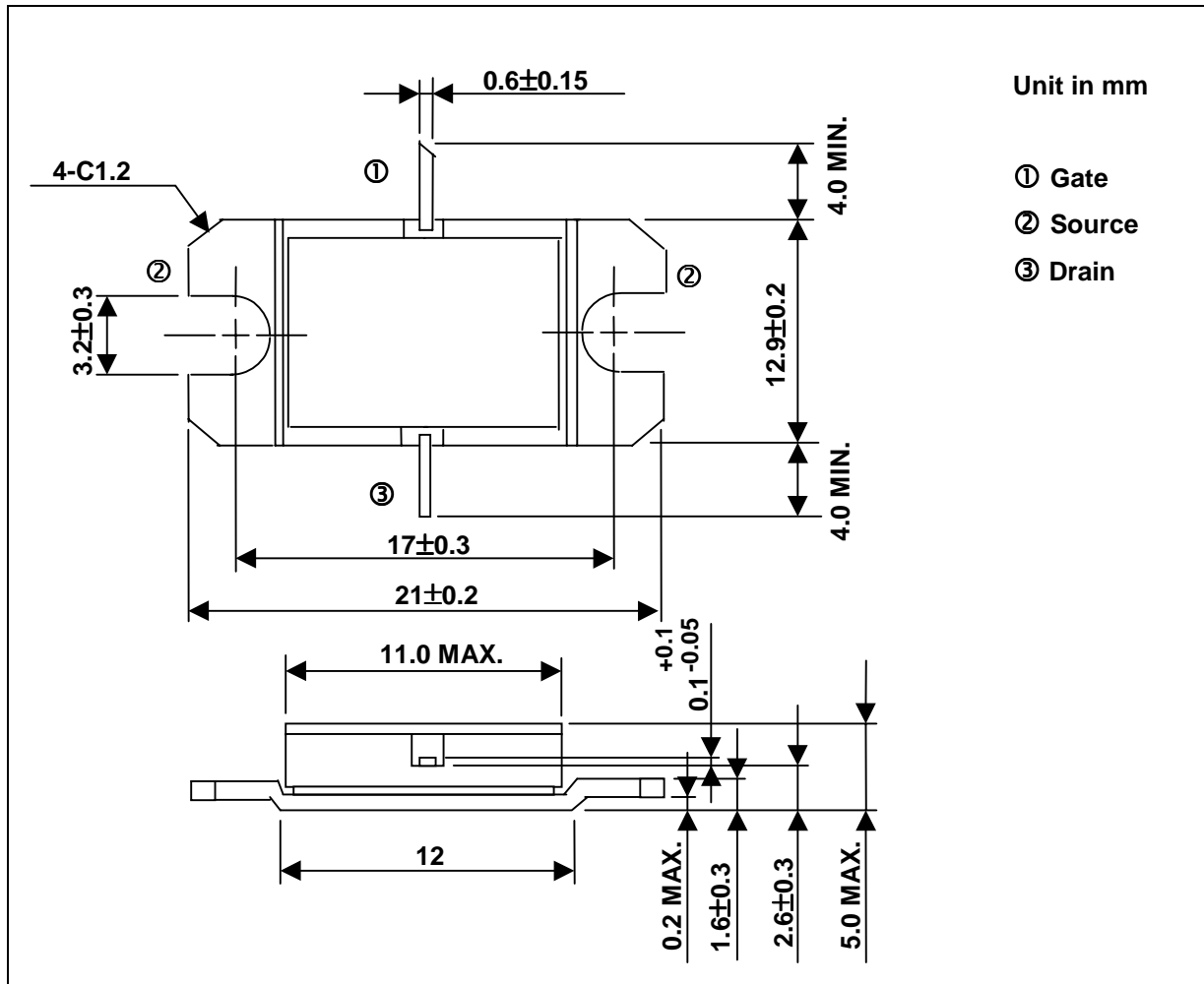
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The information contained herein is subject to change without prior notice. It is therefor advisable to contact TOSHIBA before proceeding with design of equipment incorporating this product.

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

CHARACTERISTICS	SYMBOL	UNIT	RATING
Drain-Source Voltage	VDS	V	15
Gate-Source Voltage	VGS	V	-5
Drain Current	IDS	A	3.5
Total Power Dissipation (Tc= 25 °C )	PT	W	23
Channel Temperature	Tch	°C	175
Storage	Tstg	°C	-65 ~ +175

**PACKAGE OUTLINE (2-11D1B)**

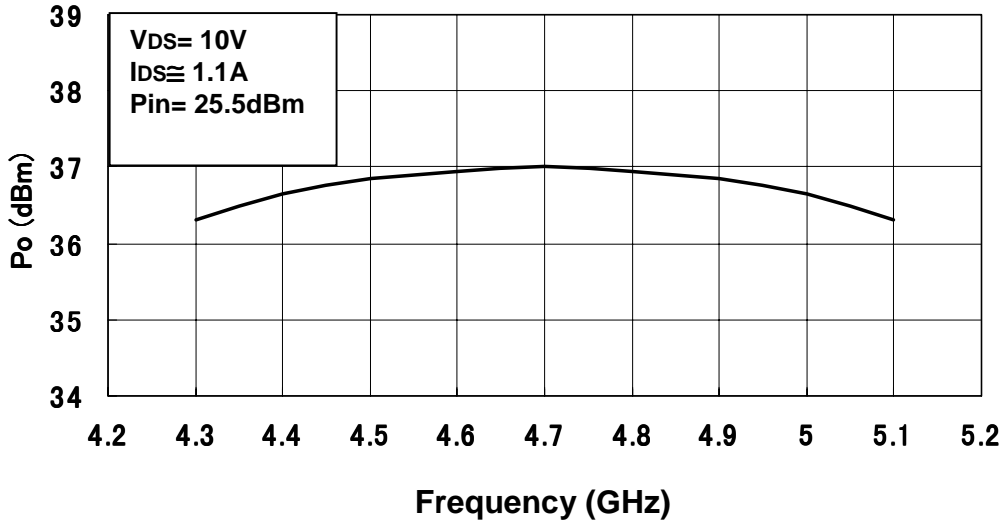


**HANDLING PRECAUTIONS FOR PACKAGED TYPE**

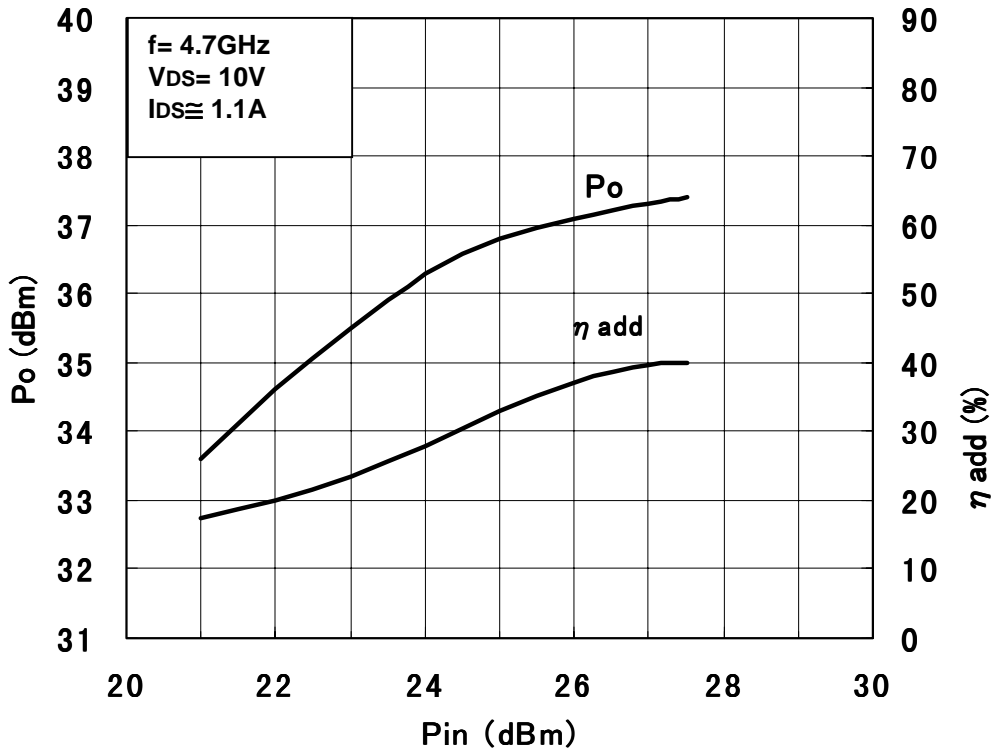
Soldering iron should be grounded and the operating time should not exceed 10 seconds at 260°C.

RF PERFORMANCES

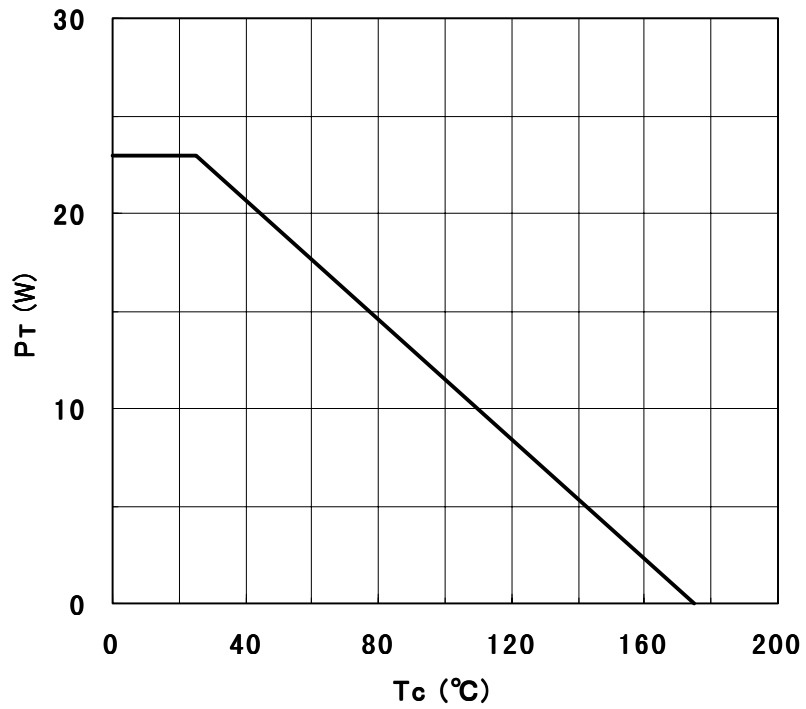
Output Power vs. Frequency



Output Power vs. Input Power



**POWER DISSIPATION vs. CASE TEMPERATURE**



**IM3 vs. OUTPUT POWER CHARACTERISTICS**

