

TOSHIBA

MICROWAVE SEMICONDUCTOR

TECHNICAL DATA

MICROWAVE POWER GaAs FET

TIM4450-16UL

FEATURES

n HIGH POWER

P1dB=42.5dBm at 4.4GHz to 5.0GHz

n HIGH GAIN

G1dB=10.0dB at 4.4GHz to 5.0GHz

n BROAD BAND INTERNALLY MATCHED FET

n 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	41.5	42.5	—
Power Gain at 1dB Gain Compression Point	G1dB		dB	9.0	10.0	—
Drain Current	IDS1		A	—	4.4	5.0
Gain Flatness	ΔG		dB	—	—	±0.6
Power Added Efficiency	η _{add}		%	—	36	—
3rd Order Intermodulation Distortion	IM3		Two-Tone Test Po= 31.5dBm	dBc	-44	-47
Drain Current	IDS2	(Single Carrier Level)	A	—	4.4	5.0
Channel Temperature Rise	ΔT _{ch}	(VDS X IDS + P _{in} - P1dB) X R _{th(c-c)}	°C	—	—	80

Recommended gate resistance(Rg) : Rg= 100 W(MAX.)

ELECTRICAL CHARACTERISTICS (Ta= 25°C)

CHARACTERISTICS	SYMBOL	CONDITIONS	UNIT	MIN.	TYP.	MAX.
Transconductance	gm	VDS= 3V IDS= 6.0A	mS	—	3600	—
Pinch-off Voltage	VGS _{off}	VDS= 3V IDS= 60mA	V	-1.0	-2.5	-4.0
Saturated Drain Current	IDSS	VDS= 3V VGS= 0V	A	—	10.5	—
Gate-Source Breakdown Voltage	VGS0	IGS= -200μA	V	-5	—	—
Thermal Resistance	R _{th(c-c)}	Channel to Case	°C/W	—	1.5	1.8

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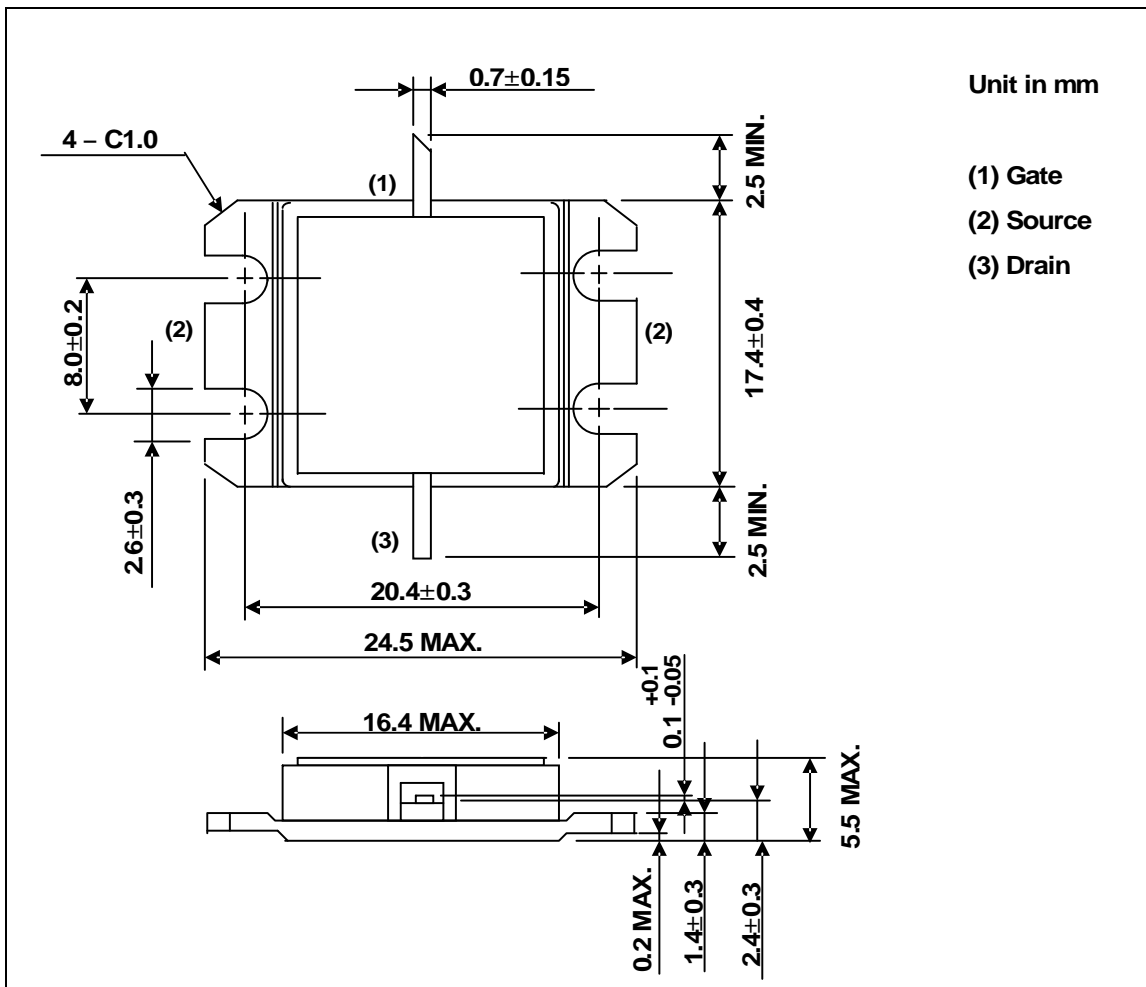
The information contained herein is subject to change without prior notice. It is therefor advisable to contact TOSHIBA before proceeding with design of equipment incorporating this product.

TOSHIBA CORPORATION

Rev. Jun. 2006

ABSOLUTE MAXIMUM RATINGS (Ta= 25°C)

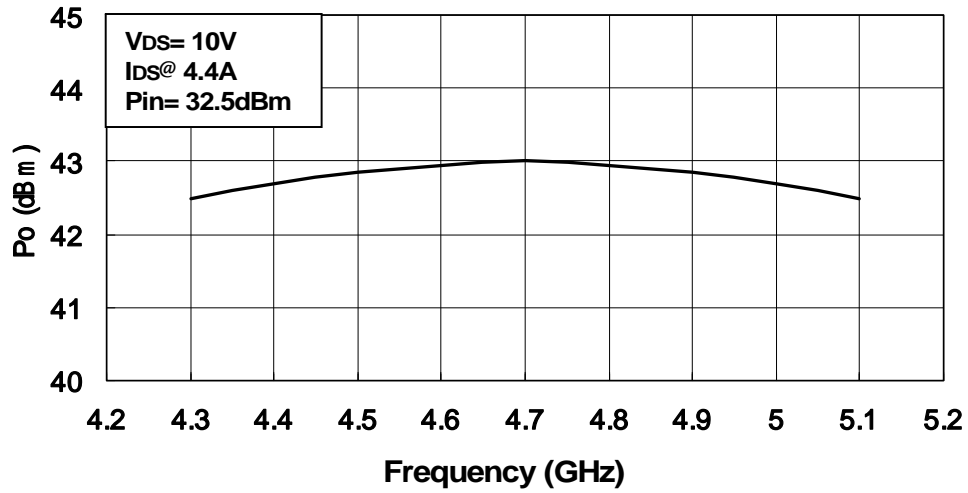
CHARACTERISTICS	SYMBOL	UNIT	RATING
Drain-Source Voltage	V _{DS}	V	15
Gate-Source Voltage	V _{GS}	V	-5
Drain Current	I _{DS}	A	14
Total Power Dissipation (T _c = 25 °C)	PT	W	83.3
Channel Temperature	T _{ch}	°C	175
Storage	T _{stg}	°C	-65 to +175

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

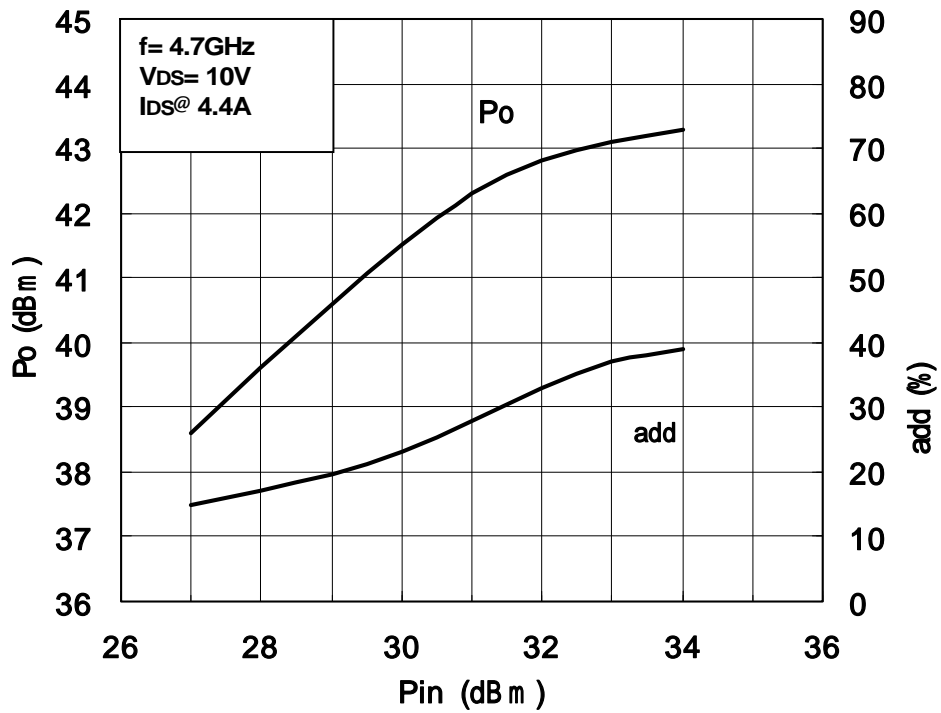
Soldering iron should be grounded and the operating time should not exceed 10 seconds at 260°C.

RF PERFORMANCE

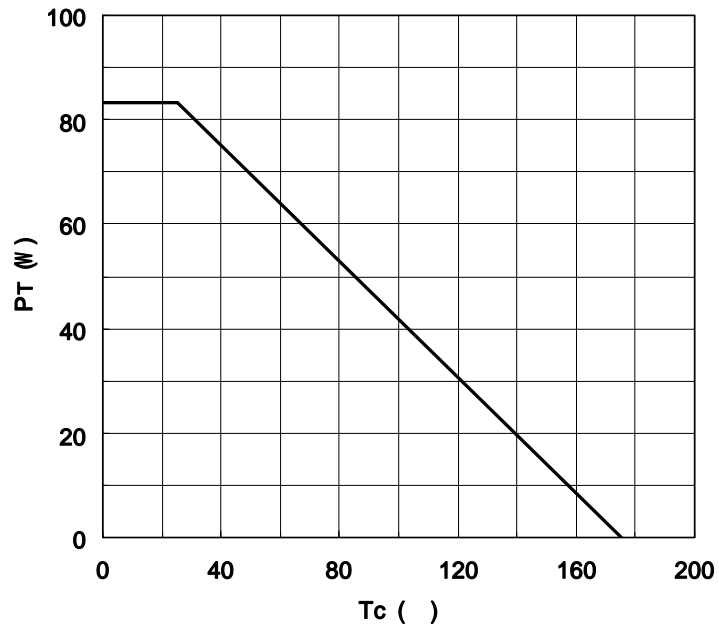
Output Power vs. Frequency



Output Power vs. Input Power



Power Dissipation vs. Case Temperature



IM3 vs. Output Power Characteristics

