

TOSHIBA**MICROWAVE SEMICONDUCTOR
TECHNICAL DATA****MICROWAVE POWER GaAs FET
TIM3742-8SL****FEATURES****■ LOW INTERMODULATION DISTORTION**

IM3=-45 dBc at Pout= 28.5dBm
Single Carrier Level

■ HIGH POWER

P1dB=39.5dBm at 3.7GHz to 4.2GHz

■ HIGH GAIN

G1dB=10.0dB at 3.7GHz to 4.2GHz

■ 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= 3.7 to 4.2GHz	dBm	38.5	39.5	—
Power Gain at 1dB Gain Compression Point	G1dB		dB	9.0	10.0	—
Drain Current	IDS1		A	—	2.2	2.6
Gain Flatness	ΔG		dB	—	—	± 0.6
Power Added Efficiency	η_{add}		%	—	36	—
3 rd Order Intermodulation Distortion	IM3	Two-Tone Test Po=28.5dBm (Single Carrier Level)	dBc	-42	-45	—
Drain Current	IDS2		A	—	2.2	2.6
Channel Temperature Rise	ΔT_{ch}		°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= 3.0A	mS	—	1800	—
Pinch-off Voltage	VGSoff	VDS= 3V IDS= 30mA	V	-1.0	-2.5	-4.0
Saturated Drain Current	IDSS	VDS= 3V VGS= 0V	A	—	5.2	—
Gate-Source Breakdown Voltage	VGSO	IGS= -100 μ A	V	-5	—	—
Thermal Resistance	Rth(c-c)	Channel to Case	°C/W	—	2.5	3.8

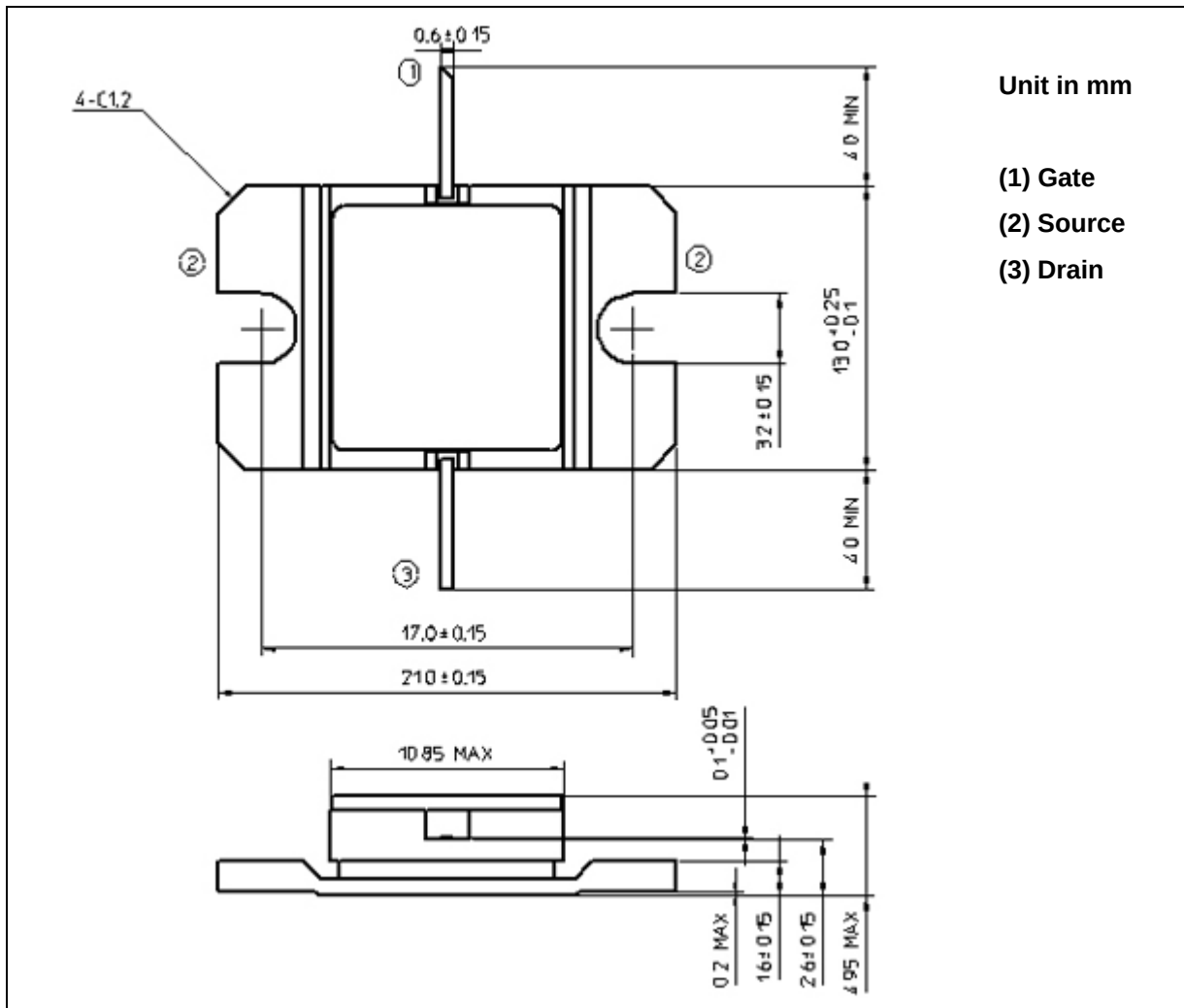
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The information contained herein is subject to change without prior notice. It is therefor advisable to contact TOSHIBA before proceeding with design of equipment incorporating this product.



ABSOLUTE MAXIMUM RATINGS (Ta= 25°C)

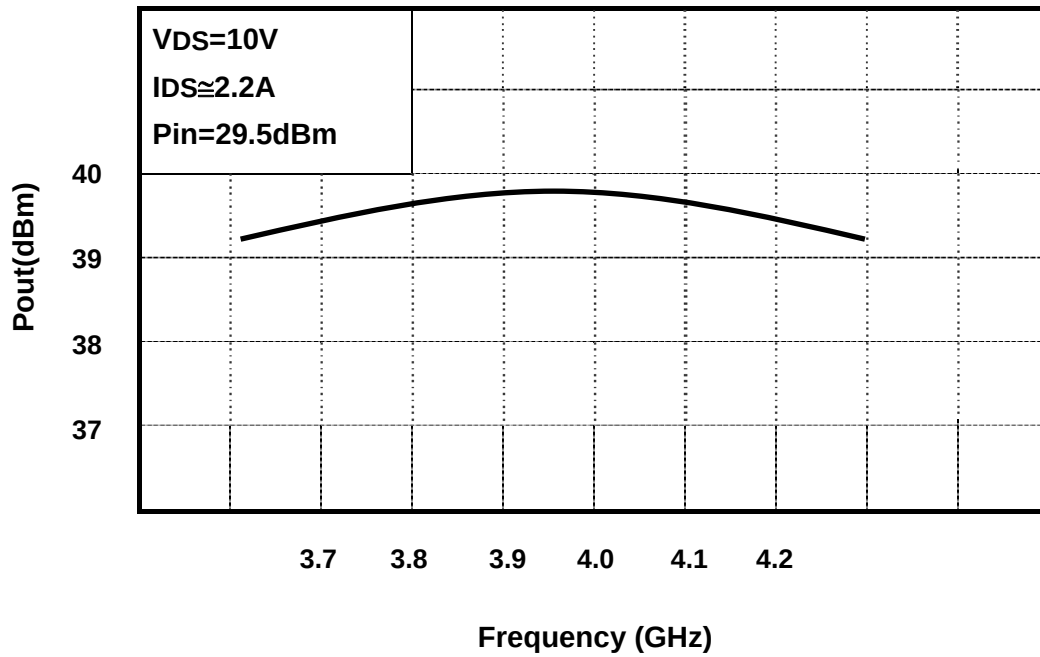
CHARACTERISTICS	SYMBOL	UNIT	RATING
Drain-Source Voltage	VDS	V	15
Gate-Source Voltage	VGS	V	-5
Drain Current	IDS	A	7.0
Total Power Dissipation (Tc= 25 °C)	PT	W	39.5
Channel Temperature	Tch	°C	175
Storage Temperature	Tstg	°C	-65 to +175

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

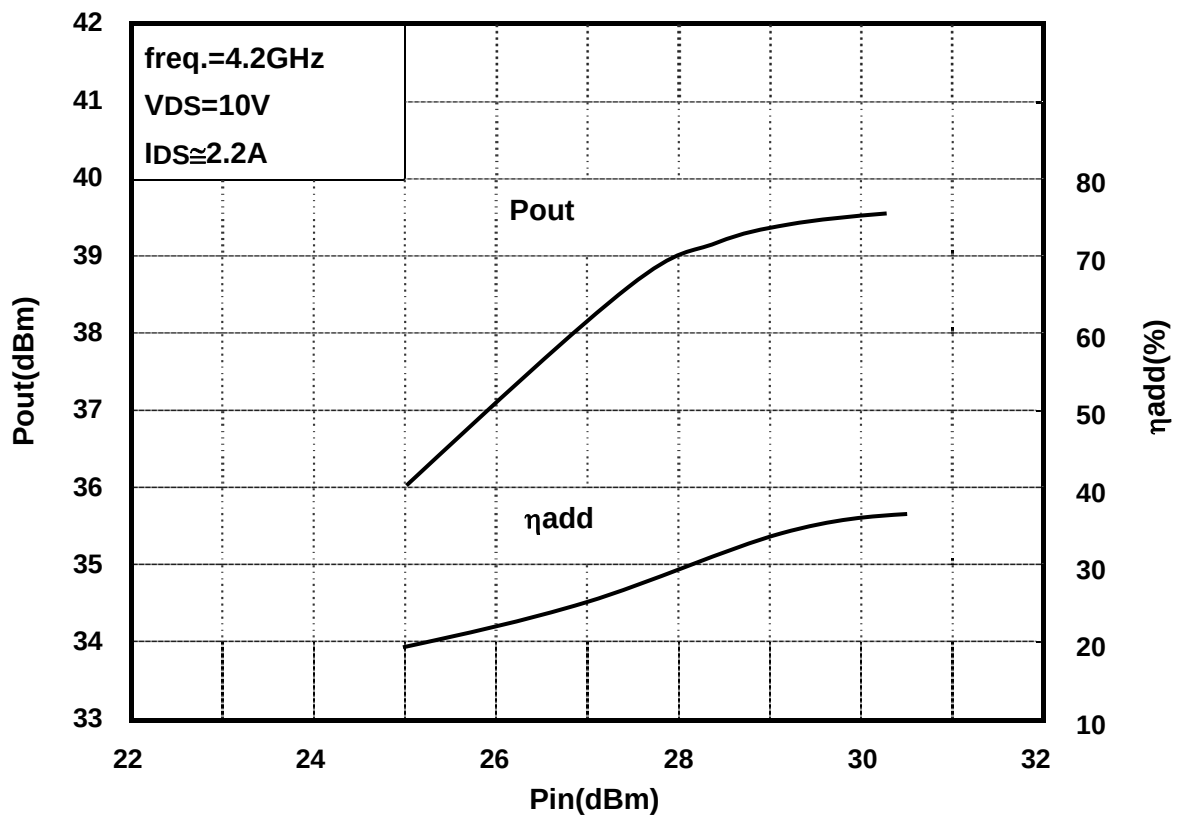
Soldering iron should be grounded and the operating time should not exceed 10 seconds at 260°C.

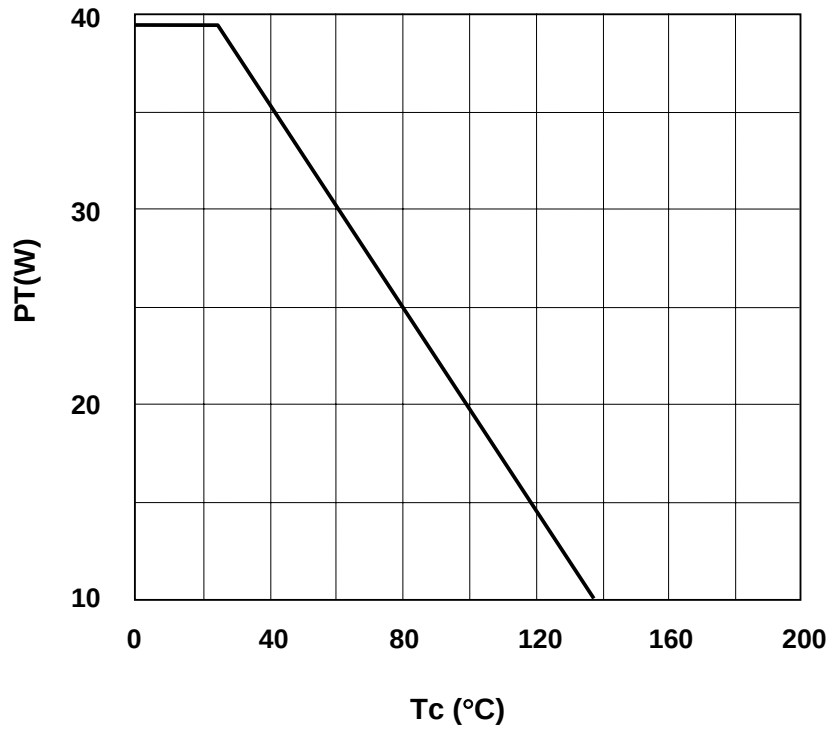
RF PERFORMANCE

Output Power (Pout) vs. Frequency



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



Power Dissipation vs. Case Temperature**IM3 vs. Output Power Characteristics**