

TOSHIBA
MICROWAVE SEMICONDUCTOR
TECHNICAL DATA

MICROWAVE POWER GaAs FET
TIM3742-8UL

FEATURES

■ **HIGH POWER**

P1dB=39.5dBm at 3.7GHz to 4.2GHz

■ **HIGH GAIN**

G1dB=11.0dB at 3.7GHz to 4.2GHz

■ **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 = 3.7 - 4.2GHz	dBm	38.5	39.5	—
Power Gain at 1dB Compression Point	G1dB		dB	10.0	11.0	—
Drain Current	IDS1		A	—	2.2	2.6
Gain Flatness	ΔG		dB	—	—	±0.6
Power Added Efficiency	ηadd		%	—	37	—
3rd Order Intermodulation Distortion	IM3	Two Tone Test Po= 28.5dBm	dBc	-44	-47	—
Drain Current	IDS2	(Single Carrier Level)	A	—	2.2	2.6
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= 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	7.0
Gate-Source Breakdown Voltage	VGSO	IGS= -100μA	V	-5	—	—
Thermal Resistance	Rth(c-c)	Channel to Case	°C/W	—	2.5	3.5

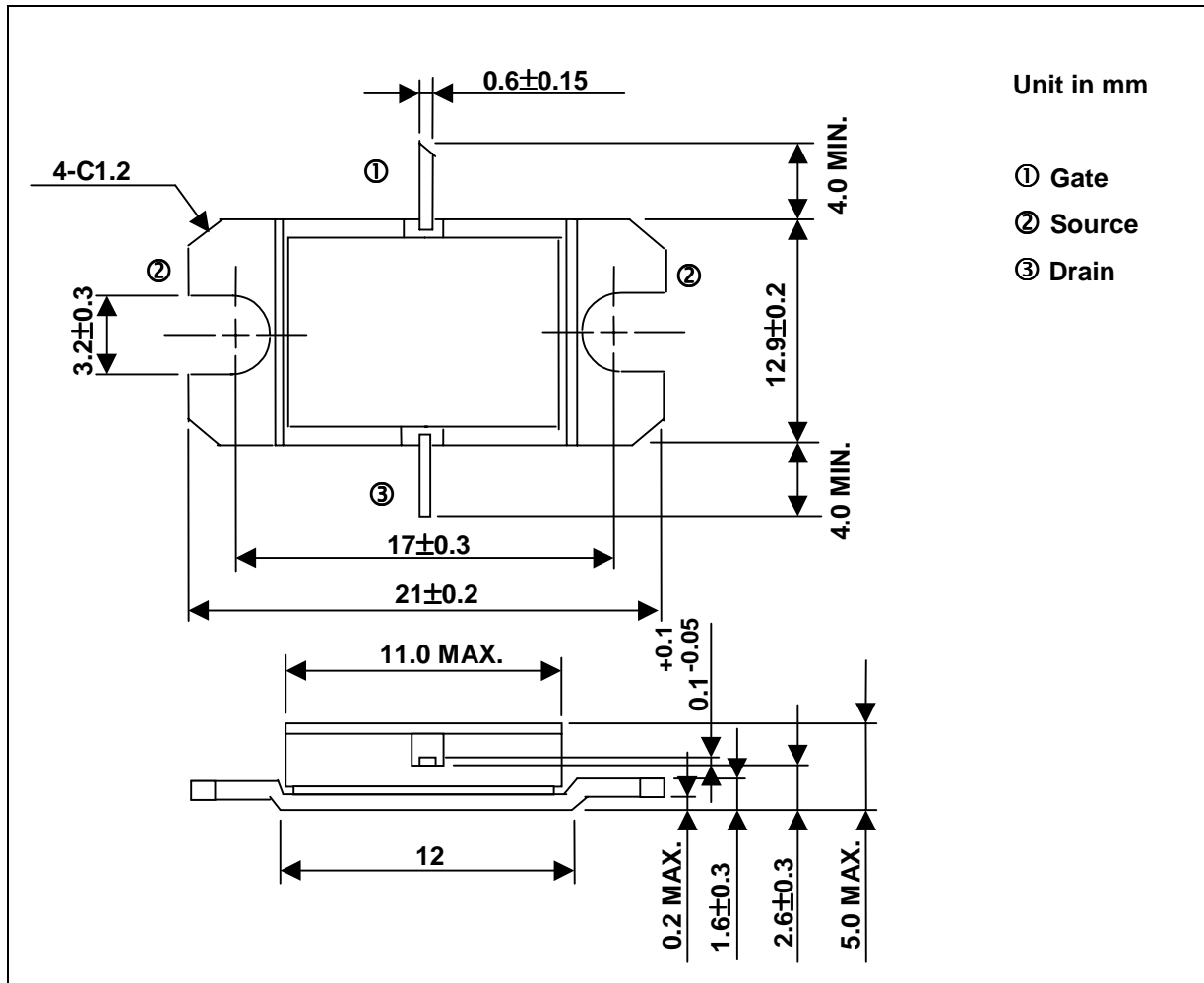
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ABSOLUTE MAXIMUM RATINGS (Ta= 25°C)

CHARACTERISTICS	SYMBOL	UNIT	RATING
Drain-Source Voltage	VDS	V	15
Gate-Source Voltage	VGS	V	-5
Drain Current	IDS	A	7.0
Total Power Dissipation (Tc= 25 °C)	PT	W	37.5
Channel Temperature	Tch	°C	175
Storage	Tstg	°C	-65 ~ +175

PACKAGE OUTLINE (2-11D1B)

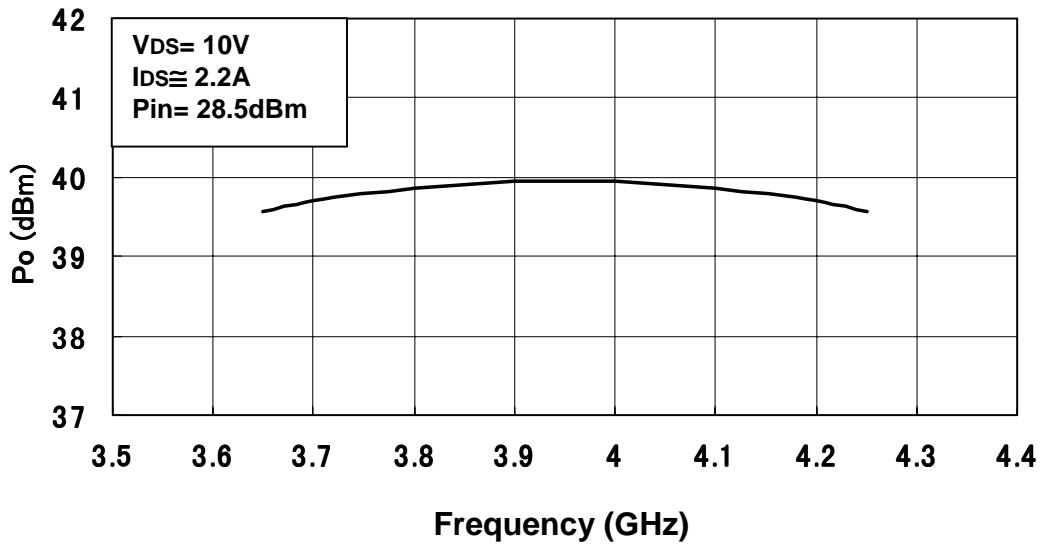


HANDLING PRECAUTIONS FOR PACKAGED TYPE

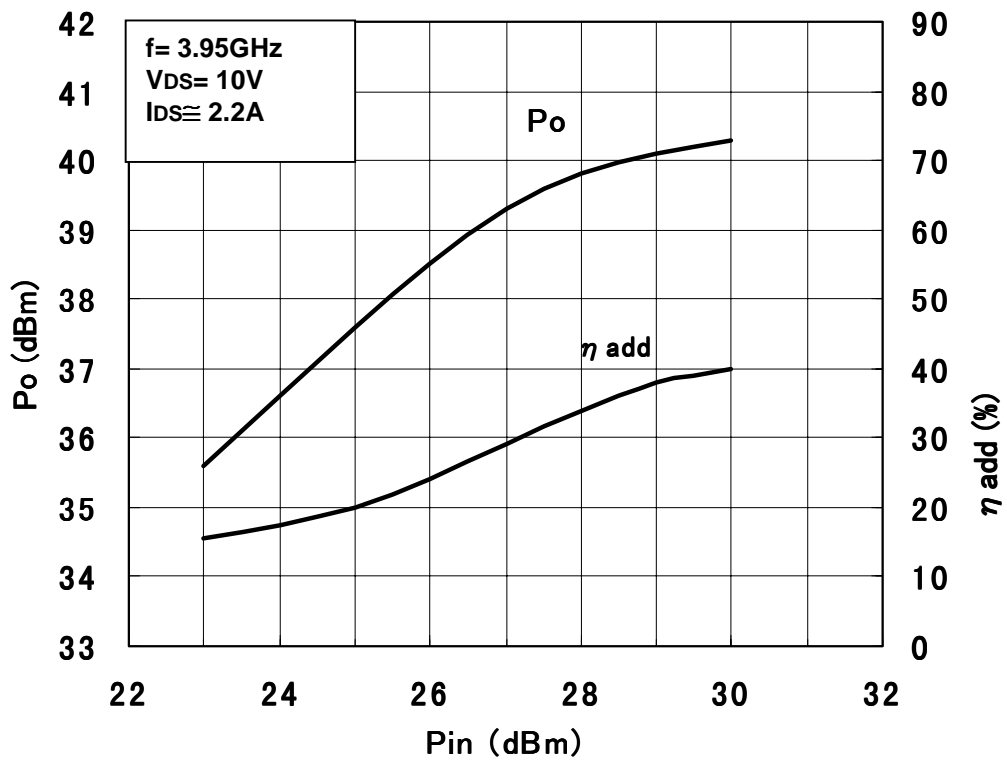
Soldering iron should be grounded and the operating time should not exceed 10 seconds at 260°C.

RF PERFORMANCES

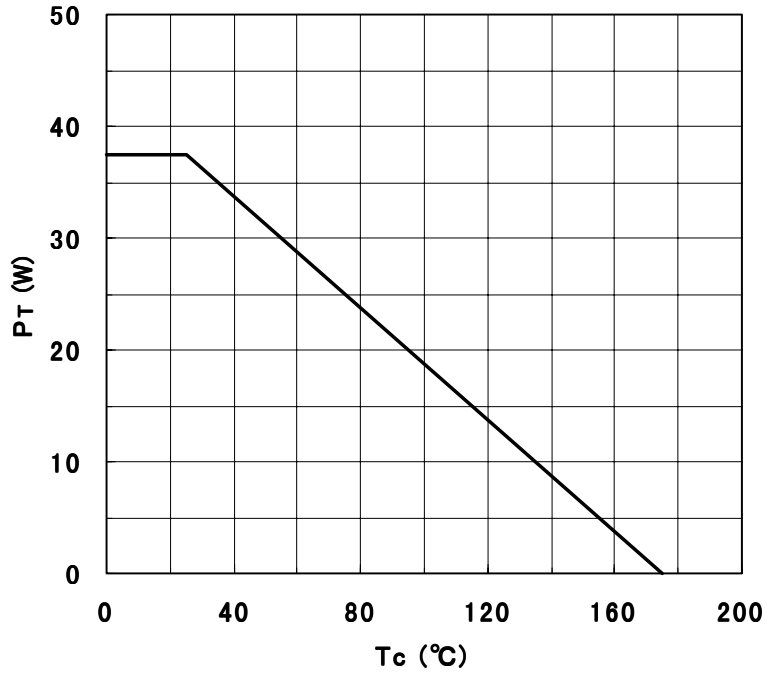
Output Power vs. Frequency



Output Power vs. Input Power



POWER DISSIPATION vs. CASE TEMPERATURE



IM3 vs. OUTPUT POWER CHARACTERISTICS

