

TOSHIBA

MICROWAVE SEMICONDUCTOR

TECHNICAL DATA

MICROWAVE POWER GaAs FET

TIM3742-4SL-341

FEATURES

- **LOW INTERMODULATION DISTORTION**
IM3=-45 dBc at Pout= 25.5dBm
Single Carrier Level
- **HIGH POWER**
P1dB=36.5dBm at 3.3GHz to 3.6GHz
- **HIGH GAIN**
G1dB=10.0dB at 3.3GHz to 3.6GHz
- **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= 3.3 to 3.6GHz	dBm	35.5	36.5	—
Power Gain at 1dB Gain Compression Point	G1dB		dB	10.0	—	—
Drain Current	IDS1		A	—	1.1	1.3
Gain Flatness	ΔG		dB	—	—	±0.6
Power Added Efficiency	ηadd		%	—	37	—
3 rd Order Intermodulation Distortion	IM3	Two-Tone Test Po=25.5dBm	dBc	-42	-45	—
Drain Current	IDS2	(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)

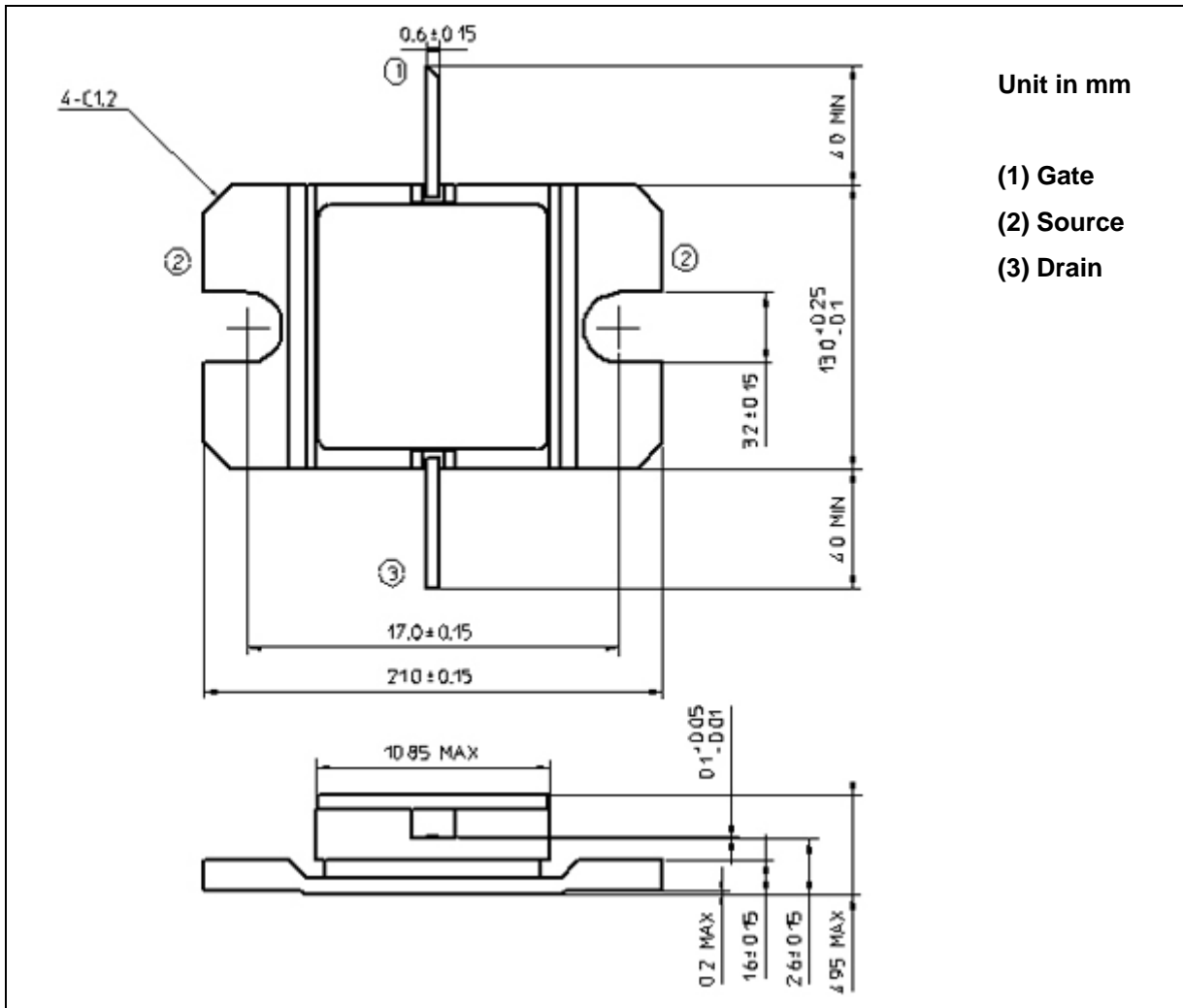
CHARACTERISTICS	SYMBOL	CONDITIONS	UNIT	MIN.	TYP.	MAX.
Transconductance	gm	VDS= 3V IDS= 1.5A	mS	—	900	—
Pinch-off Voltage	VGSoff	VDS= 3V IDS= 15mA	V	-1.0	-2.5	-4.0
Saturated Drain Current	IDSS	VDS= 3V VGS= 0V	A	—	2.6	—
Gate-Source Breakdown Voltage	VGSO	IGS= -50μA	V	-5	—	—
Thermal Resistance	Rth(c-c)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

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ABSOLUTE MAXIMUM RATINGS (Ta= 25°C)

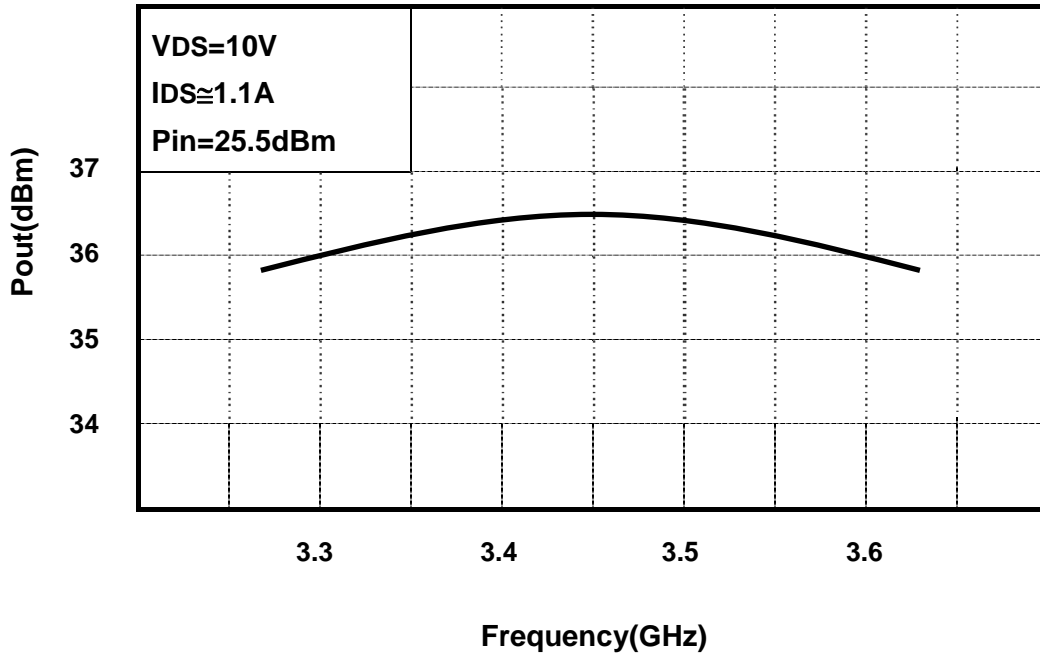
CHARACTERISTICS	SYMBOL	UNIT	RATING
Drain-Source Voltage	VDS	V	15
Gate-Source Voltage	VGS	V	-5
Drain Current	IDS	A	3.5
Total Power Dissipation (Tc= 25 °C)	PT	W	23.1
Channel Temperature	Tch	°C	175
Storage Temperature	Tstg	°C	-65 to +175

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

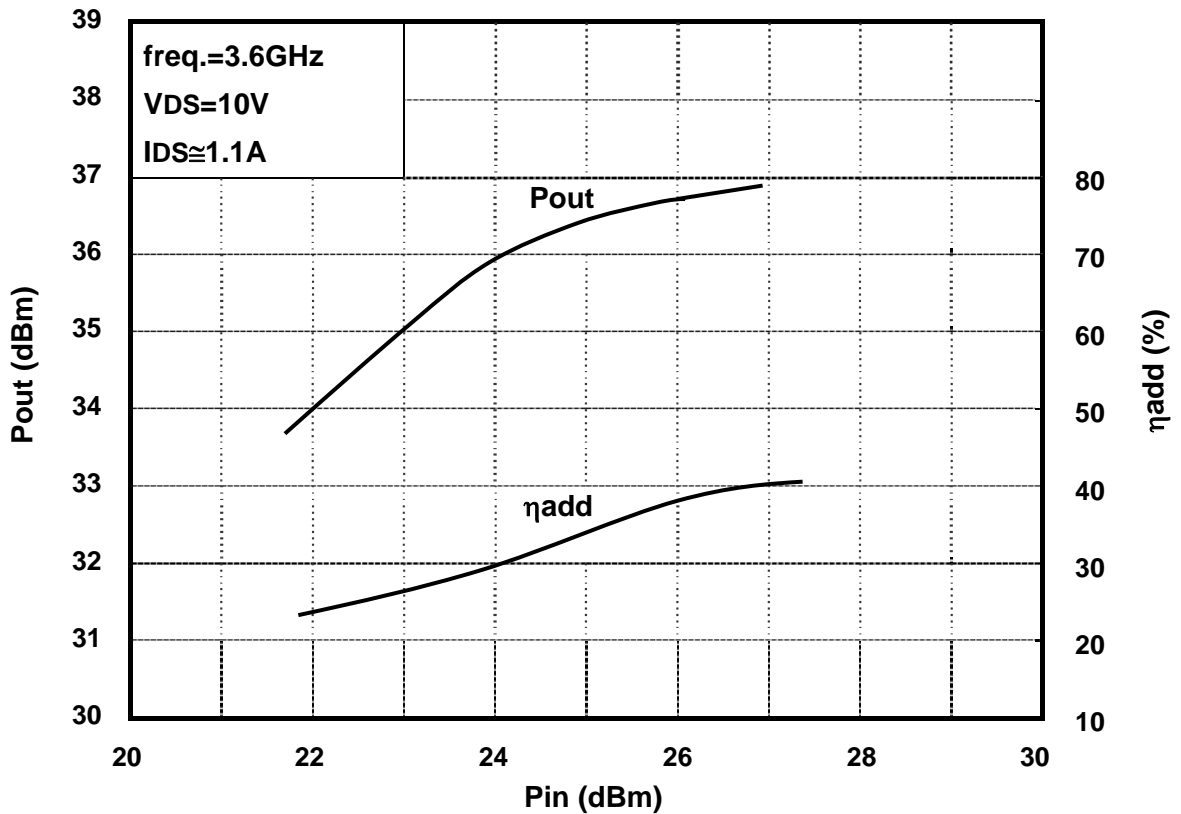
Soldering iron should be grounded and the operating time should not exceed 10 seconds at 260°C.

RF PERFORMANCE

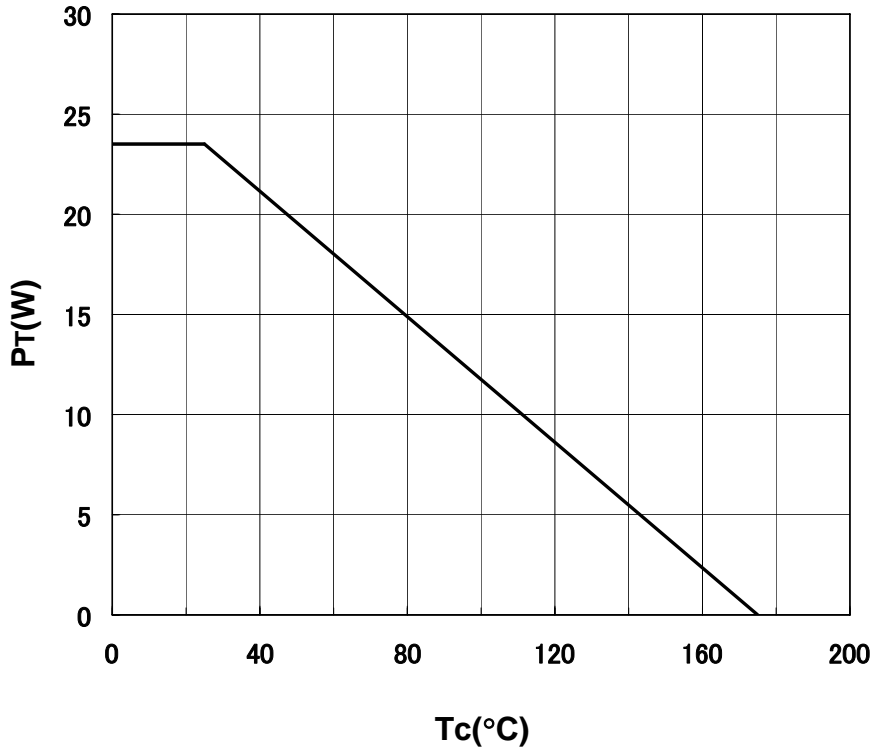
Output Power (Pout) vs. Frequency



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



Power Dissipation vs. Case Temperature



IM3 vs. Output Power Characteristics

