TOSHIBA

MICROWAVE SEMICONDUCTOR

TECHNICAL DATA

MICROWAVE POWER GaAs FET

TIM1414-2L

FEATURES

- **HIGH POWER**
  P1dB=33.5dBm at 14.0GHz to 14.5GHz
- **HIGH GAIN**
  G1dB=6.5dB at 14.0GHz to 14.5GHz
- **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= 9V f= 14.0 to 14.5GHz	dBm	32.5	33.5	—
Power Gain at 1dB Gain Compression Point	G1dB		dB	5.5	6.5	—
Drain Current	IDS1		A	—	0.85	1.1
Gain Flatness	ΔG		dB	—	—	±0.8
Power Added Efficiency	ηadd		%	—	23	—
3rd Order Intermodulation Distortion	IM3	Two-Tone Test Po=22.0dBm (Single Carrier Level)	dBc	-42	-45	—
Drain Current	IDS2		A	—	0.85	1.1
Channel Temperature Rise	ΔTch	(VDS X IDS + Pin – P1dB) X Rth(c-c)	°C	—	—	60

Recommended Gate Resistance(Rg): 150 Ω (Max.)

ELECTRICAL CHARACTERISTICS (Ta= 25°C)

CHARACTERISTICS	SYMBOL	CONDITIONS	UNIT	MIN.	TYP.	MAX.
Transconductance	gm	VDS= 3V IDS= 1.0A	mS	—	600	—
Pinch-off Voltage	VGSoff	VDS= 3V IDS= 30mA	V	-2.0	-3.5	-5.0
Saturated Drain Current	IDSS	VDS= 3V VGS= 0V	A	—	2.0	—
Gate-Source Breakdown Voltage	VGSO	IGS= -30μA	V	-5	—	—
Thermal Resistance	Rth(c-c)	Channel to Case	°C/W	—	5.0	6.0

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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	2.6
Total Power Dissipation (Tc= 25 °C)	PT	W	25
Channel Temperature	Tch	°C	175
Storage Temperature	Tstg	°C	-65 to +175

PACKAGE OUTLINE (2-9D1B)

Unit: mm

(1) Gate

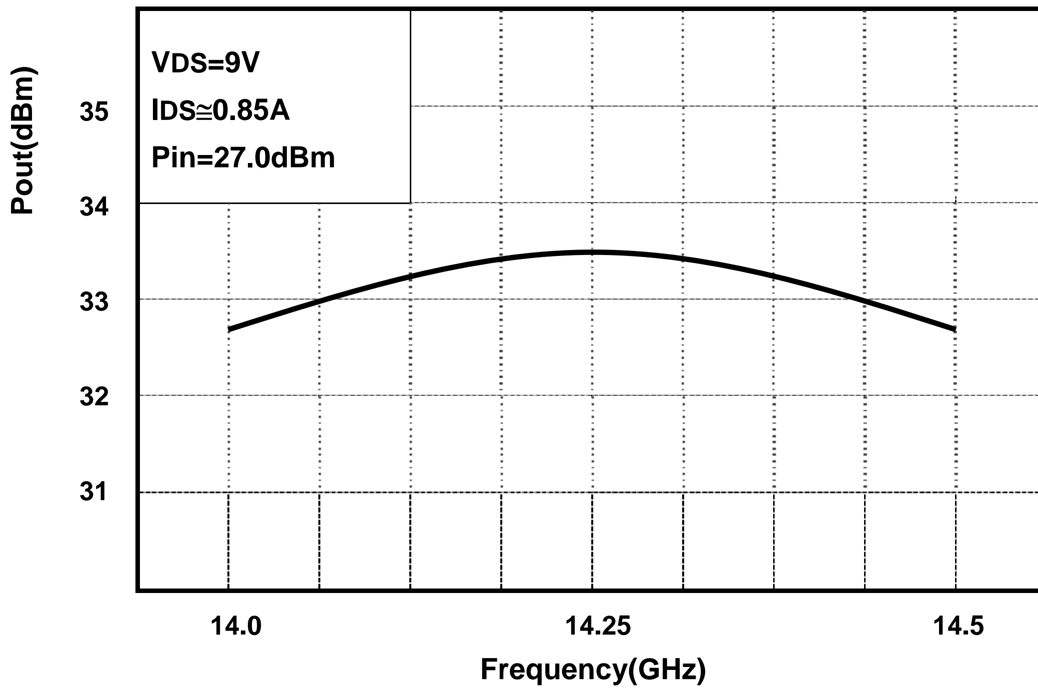
(2) Source

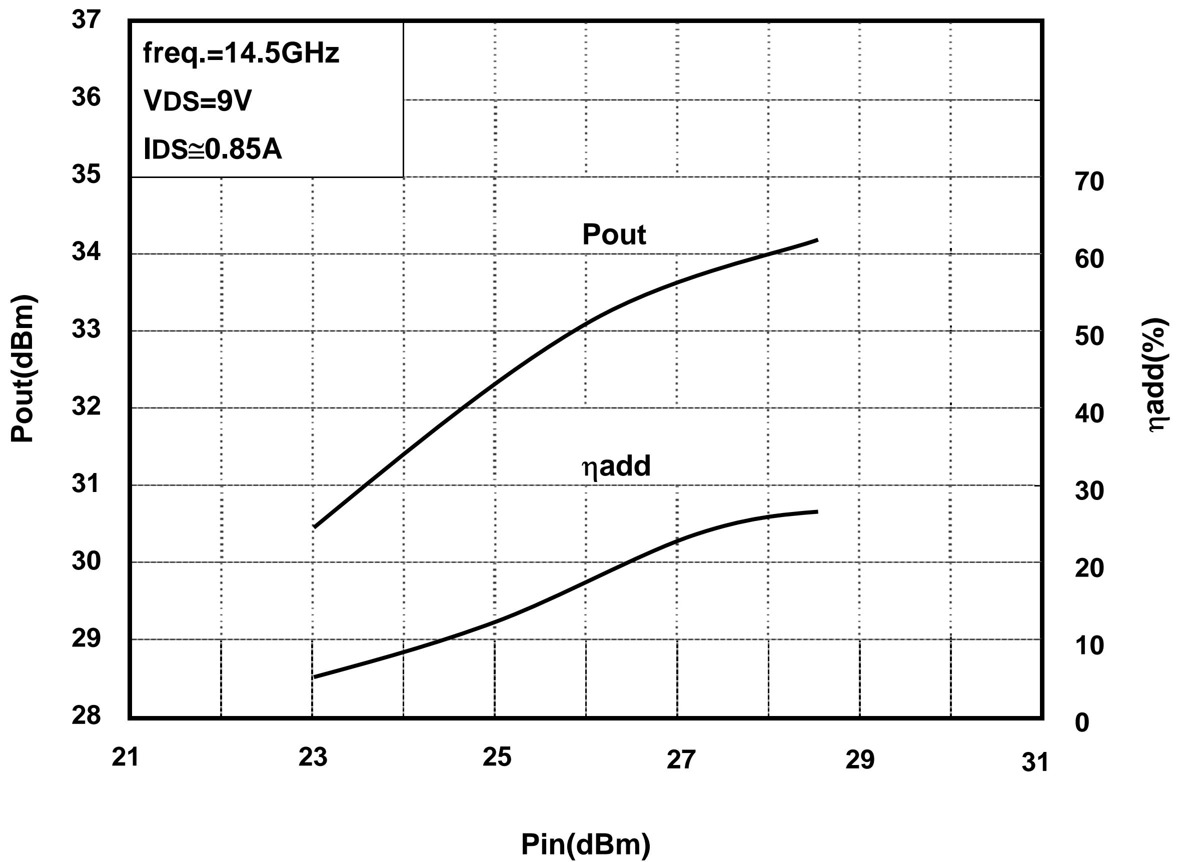
(3) Drain

HANDLING PRECAUTIONS FOR PACKAGE MODEL

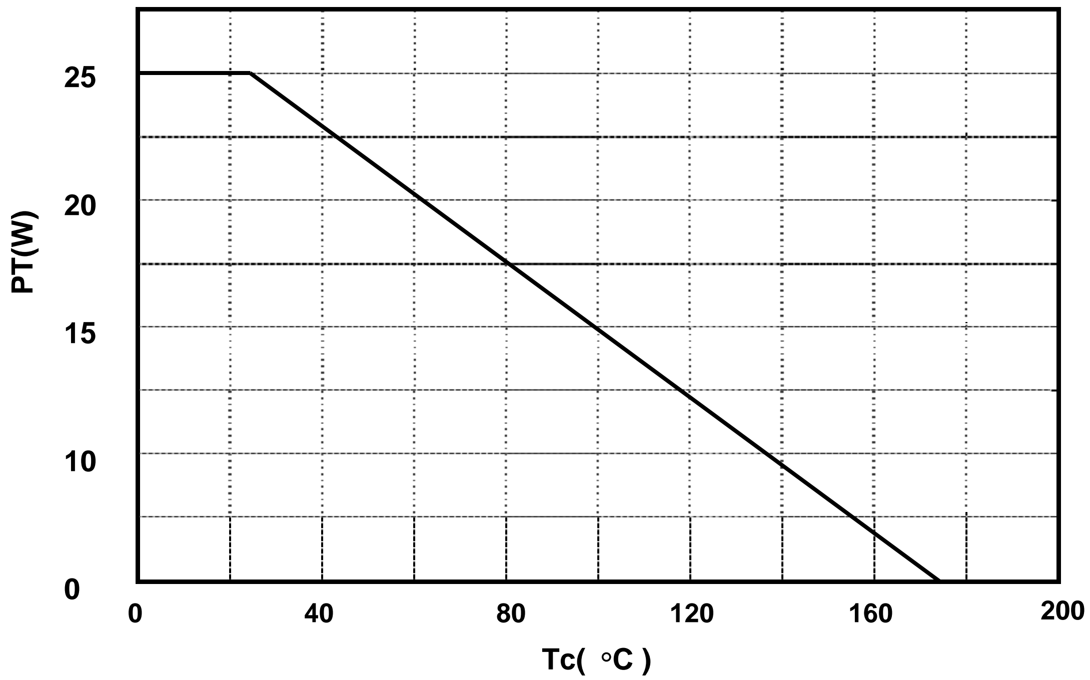
Soldering iron should be grounded and the operating time should not exceed 10 seconds at 260°C.

RF PERFORMANCE





Power Dissipation(PT) vs. Case Temperature(Tc)



IM3 vs. Output Power Characteristics