

TOSHIBA

MICROWAVE SEMICONDUCTOR

TECHNICAL DATA

MICROWAVE POWER GaAs FET

TIM1414-18L

FEATURES

- **HIGH POWER**
P1dB=42.5dBm at 14.0GHz to 14.5GHz
- **HIGH GAIN**
G1dB=6.0dB at 14.0GHz to 14.5GHz
- **LOW INTERMODULATION DISTORTION**
IM3(Min.)=-25dBc at Po=36dBm Single Carrier Level
- **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 IDSQ \geq 4.4A f = 14.0 to 14.5GHz	dBm	42.0	42.5	—
Power Gain at 1dB Gain Compression Point	G1dB		dB	5.0	6.0	—
Drain Current	IDS1		A	—	5.5	6.0
Power Added Efficiency	η_{add}		%	—	28	—
3rd Order Intermodulation Distortion	IM3	Two-Tone Test Po= 36.0dBm	dBc	-25	—	—
Drain Current	IDS2	(Single Carrier Level)	A	—	5.5	6.0
Channel Temperature Rise	ΔT_{ch}	(VDS X IDS + Pin - P1dB) X Rth(c-c)	°C	—	—	100

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

ELECTRICAL CHARACTERISTICS (Ta= 25°C)

CHARACTERISTICS	SYMBOL	CONDITIONS	UNIT	MIN.	TYP.	MAX.
Transconductance	gm	VDS= 3V IDS= 4.8A	mS	—	4500	—
Pinch-off Voltage	VGSoff	VDS= 3V IDS= 145mA	V	-0.7	-2.8	-4.5
Saturated Drain Current	IDSS	VDS= 3V VGS= 0V	A	—	10.0	—
Gate-Source Breakdown Voltage	VGSO	IGS= -145 μ A	V	-5	—	—
Thermal Resistance	Rth(c-c)	Channel to Case	°C/W	—	1.8	2.3

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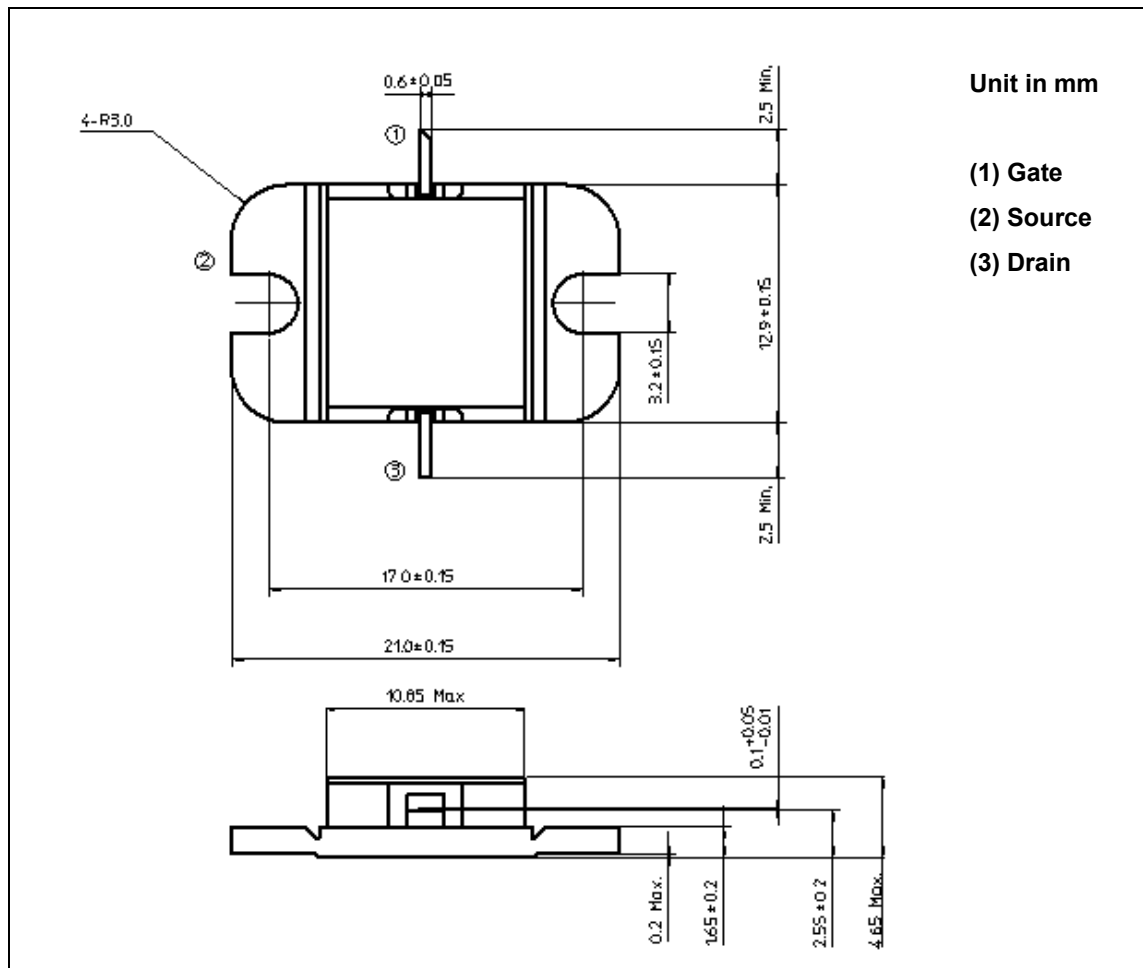
The information contained herein is subject to change without prior notice. It is therefor advisable to contact TOSHIBA before proceeding with design of equipment incorporating this product.

TOSHIBA CORPORATION

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ABSOLUTE MAXIMUM RATINGS (Ta= 25°C)

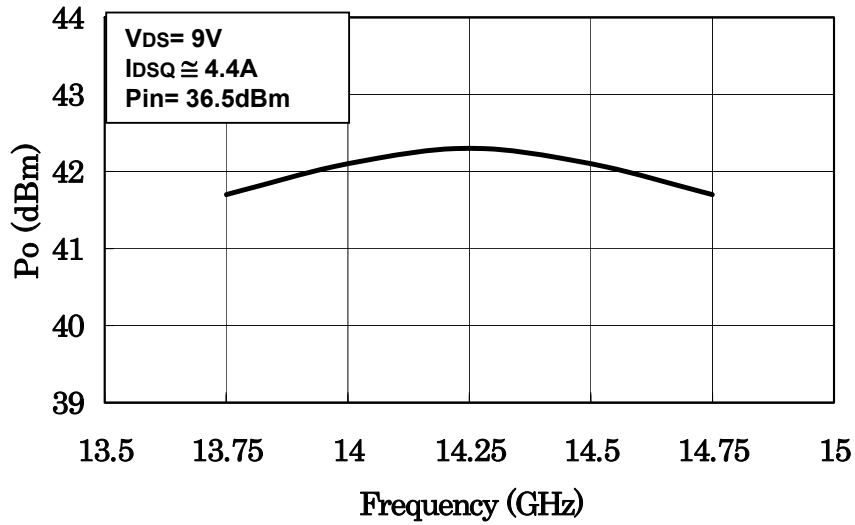
CHARACTERISTICS	SYMBOL	UNIT	RATING
Drain-Source Voltage	VDS	V	15
Gate-Source Voltage	VGS	V	-5
Drain Current	IDS	A	11.5
Total Power Dissipation (Tc= 25 °C)	PT	W	65
Channel Temperature	Tch	°C	175
Storage	Tstg	°C	-65 to +175

PACKAGE OUTLINE (2-11C1B)**HANDLING PRECAUTIONS FOR PACKAGE MODEL**

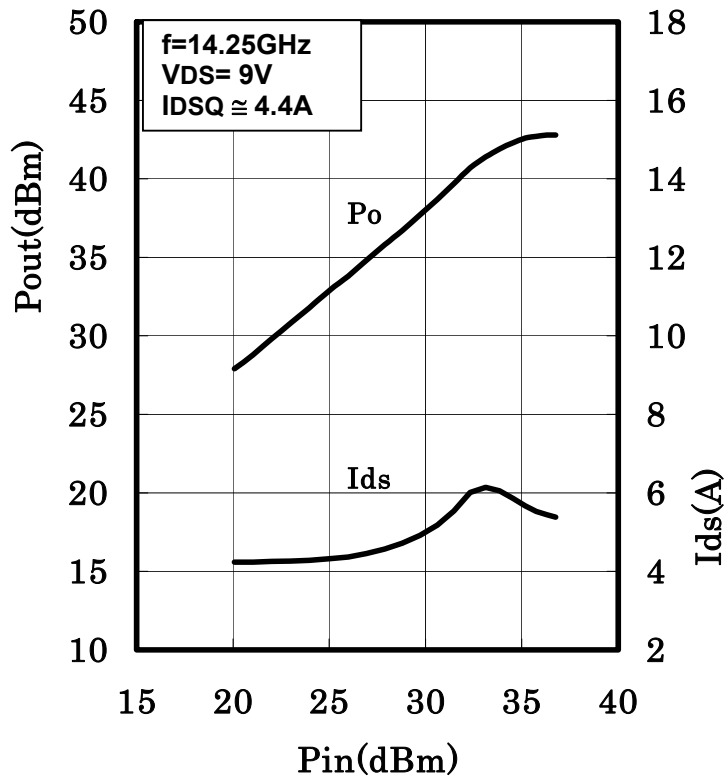
Soldering iron should be grounded and the operating time should not exceed 10 seconds at 260°C.

RF PERFORMANCE

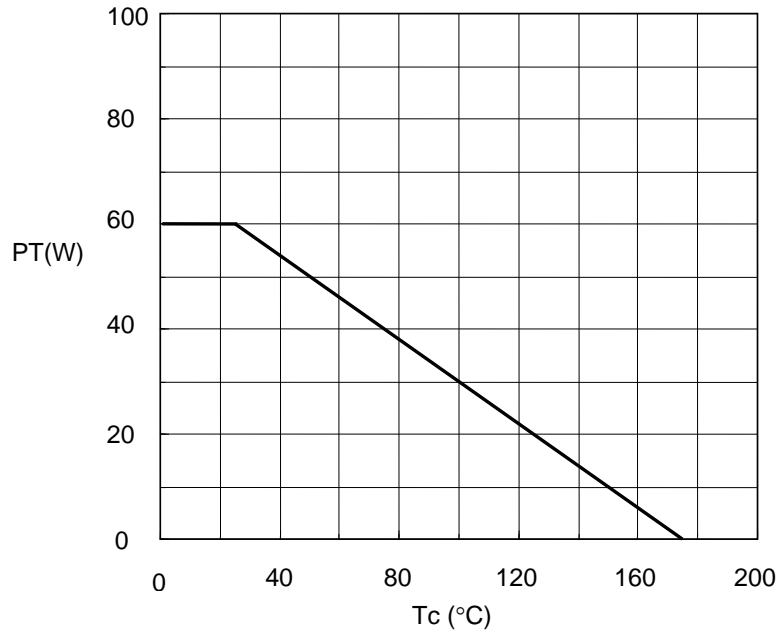
Output Power vs. Frequency



Output power vs. Input power



Power Dissipation vs. Case Temperature



IM3 vs. Output Power Characteristics

