

TOSHIBA

MICROWAVE SEMICONDUCTOR

TECHNICAL DATA

MICROWAVE POWER GaAs FET

TIM1011-8L

FEATURES

- **LOW INTERMODULATION DISTORTION**
IM3=-45 dBc at Pout= 28.0dBm
Single Carrier Level
- **HIGH POWER**
P1dB=39.5 dBm at 10.7 GHz to 11.7 GHz
- **HIGH GAIN**
G1dB=6.0 dB at 10.7 GHz to 11.7 GHz
- **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= 10.7 to 11.7GHz	dBm	38.5	39.5	—
Power Gain at 1dB Gain Compression Point	G1dB		dB	5.0	6.0	—
Drain Current	IDS1		A	—	3.4	4.4
Power Added Efficiency	η_{add}		%	—	22	—
3 rd Order Intermodulation Distortion	IM3	Two-Tone Test Po=28. 0dBm	dBc	-42	-45	—
Drain Current	IDS2	(Single Carrier Level)	A	—	3.4	4.4
Channel Temperature Rise	ΔT_{ch}	(VDS X IDS + Pin - P1dB) X Rth(c-c)	°C	—	—	80

Recommended gate resistance(Rg) : Rg= 150 Ω (MAX.)

ELECTRICAL CHARACTERISTICS (Ta= 25°C)

CHARACTERISTICS	SYMBOL	CONDITIONS	UNIT	MIN.	TYP.	MAX.
Transconductance	gm	VDS= 3V IDS= 4.0 A	mS	—	2400	—
Pinch-off Voltage	VGSoff	VDS= 3V IDS= 120mA	V	-2.0	-3.5	-5.0
Saturated Drain Current	IDSS	VDS= 3V VGS= 0V	A	—	8.0	—
Gate-Source Breakdown Voltage	VGSO	IGS= -120 μ A	V	-5	—	—
Thermal Resistance	Rth(c-c)	Channel to Case	°C/W	—	1.6	2.5

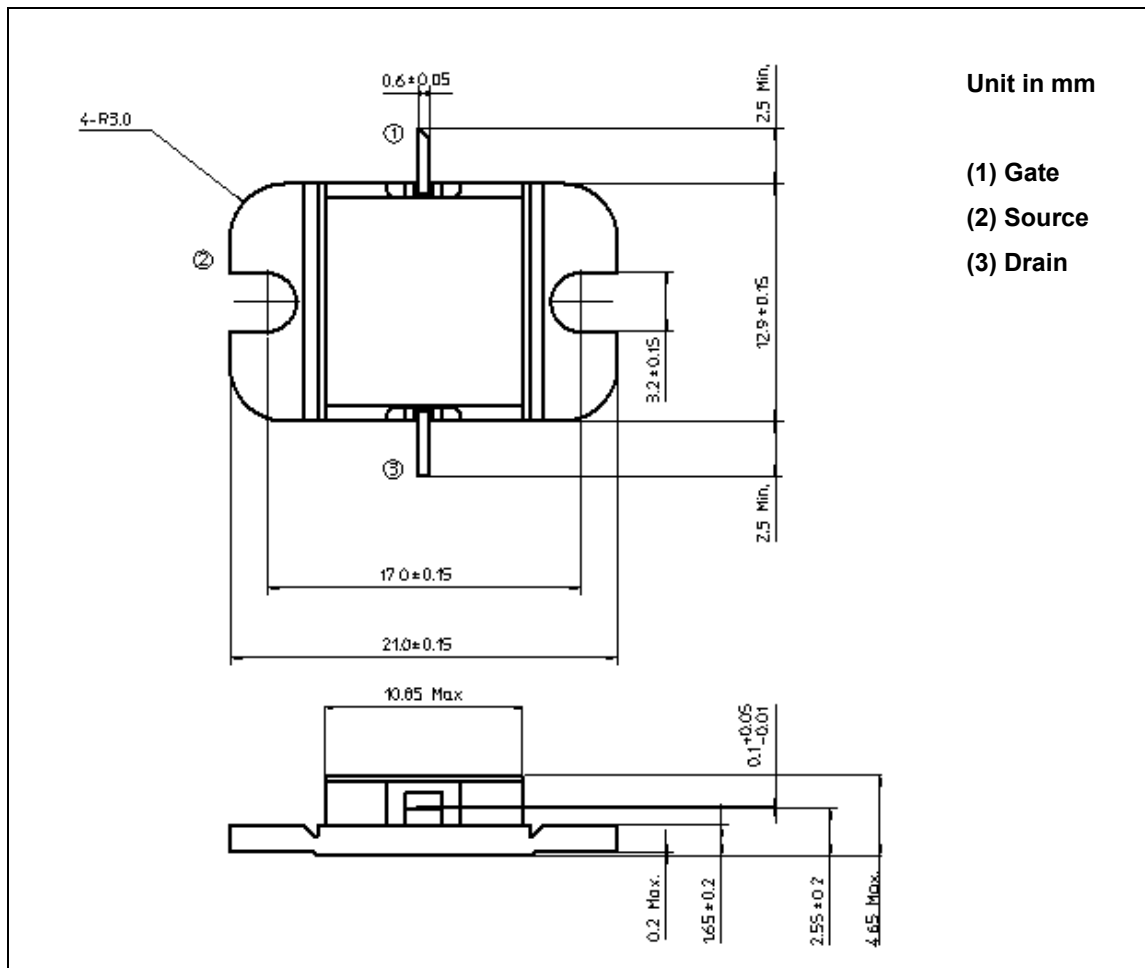
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TOSHIBA CORPORATION

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ABSOLUTE MAXIMUM RATINGS (Ta= 25°C)

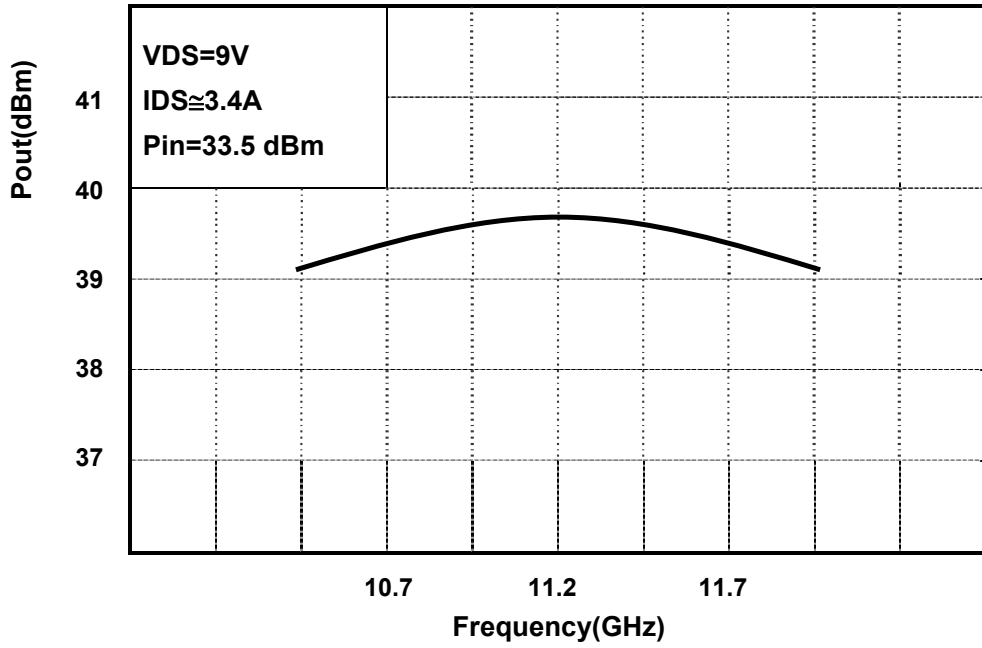
CHARACTERISTICS	SYMBOL	UNIT	RATING
Drain-Source Voltage	VDS	V	15
Gate-Source Voltage	VGS	V	-5
Drain Current	IDS	A	10.4
Total Power Dissipation (Tc= 25 °C)	PT	W	60
Channel Temperature	Tch	°C	175
Storage Temperature	Tstg	°C	-65 to +175

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

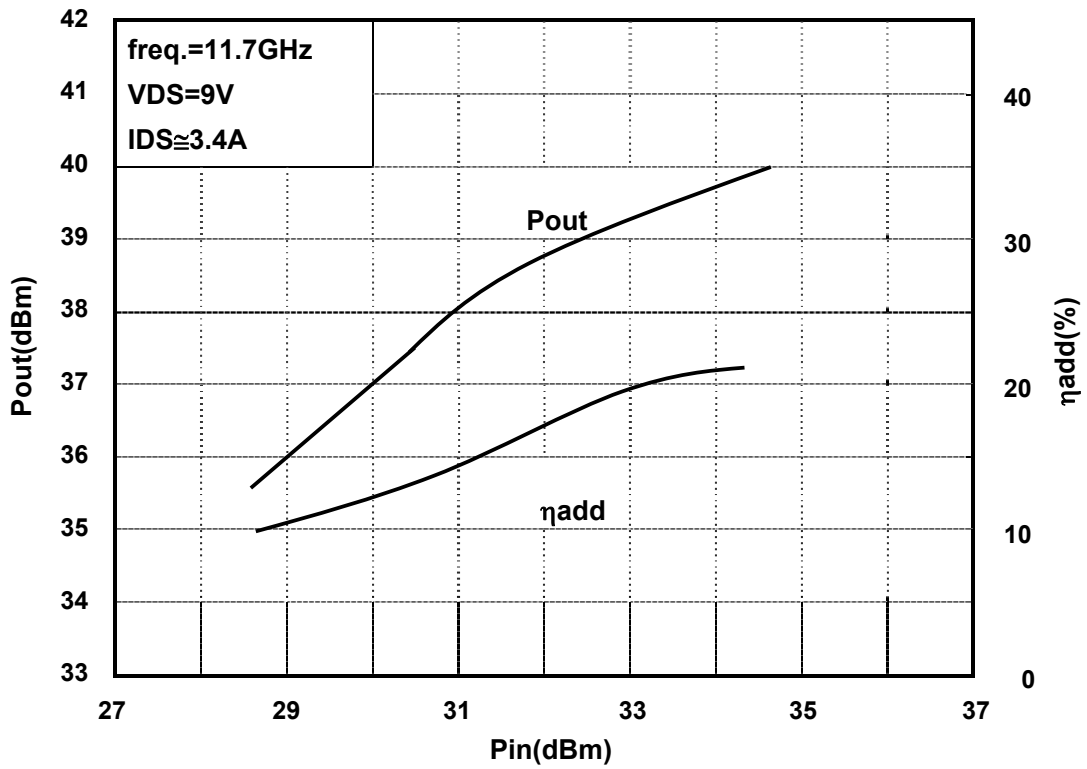
Soldering iron should be grounded and the operating time should not exceed 10 seconds at 260°C.

RF PERFORMANCE

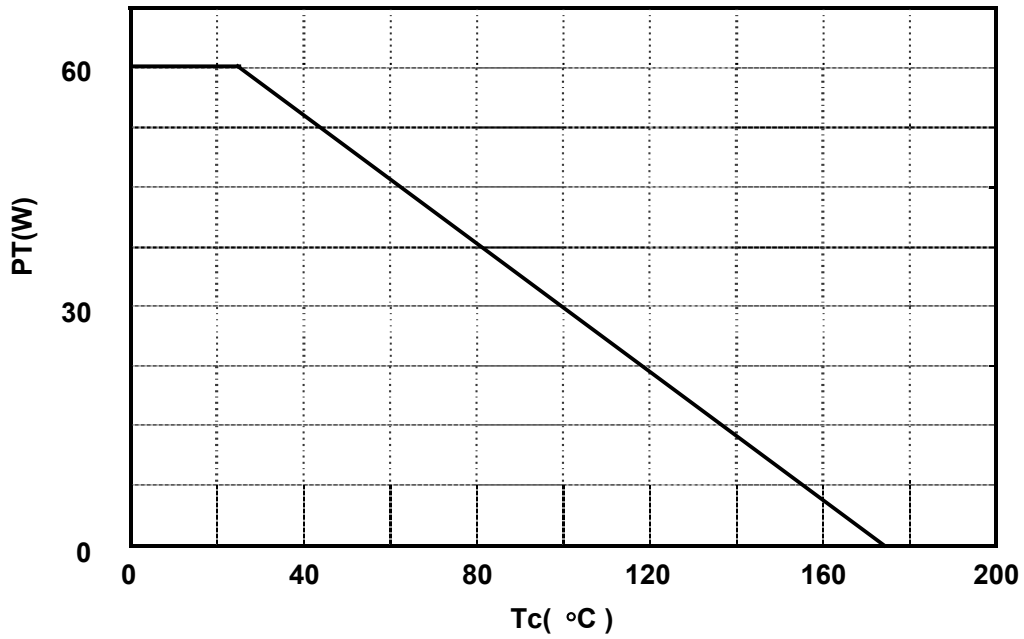
Output Power (Pout) vs. Frequency



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



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



IM3 vs. Output Power Characteristics

