

TOSHIBA

MICROWAVE SEMICONDUCTOR

TECHNICAL DATA

MICROWAVE POWER GaAs FET

TIM0910-5

FEATURES

n HIGH POWER

P1dB=37.5dBm at 9.5GHz to 10.5GHz

n HIGH GAIN

G1dB=7.0dB at 9.5GHz to 10.5GHz

n BROAD BAND INTERNALLY MATCHED

n HERMETICALLY SEALED PACKAGE

RF PERFORMANCE SPECIFICATIONS (Ta= 25°C)

CHARACTERISTICS	SYMBOL	CONDITIONS	UNIT	MIN.	TYP.	MAX.
Output Power at 1dB Compression Point	P1dB	VDS= 9V f= 9.5 to 10.5GHz	dBm	37.0	37.5	—
Power Gain at 1dB Compression Point	G1dB		dB	6.0	7.0	—
Drain Current	IDS1		A	—	2.0	2.5
Gain Flatness	ΔG		dB	—	—	± 0.8
Power Added Efficiency	η_{add}		%	—	25	—
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= 2.4A	mS	—	1500	—
Pinch-off Voltage	VGSoff	VDS= 3V IDS= 72mA	V	-1.5	-3.0	-4.5
Saturated Drain Current	IDSS	VDS= 3V VGS= 0V	A	—	5.0	—
Gate-Source Breakdown Voltage	VGSO	IGS= -72 μ A	V	-5	—	—
Thermal Resistance	Rth(c-c)	Channel to Case	°C/W	—	3.0	3.7

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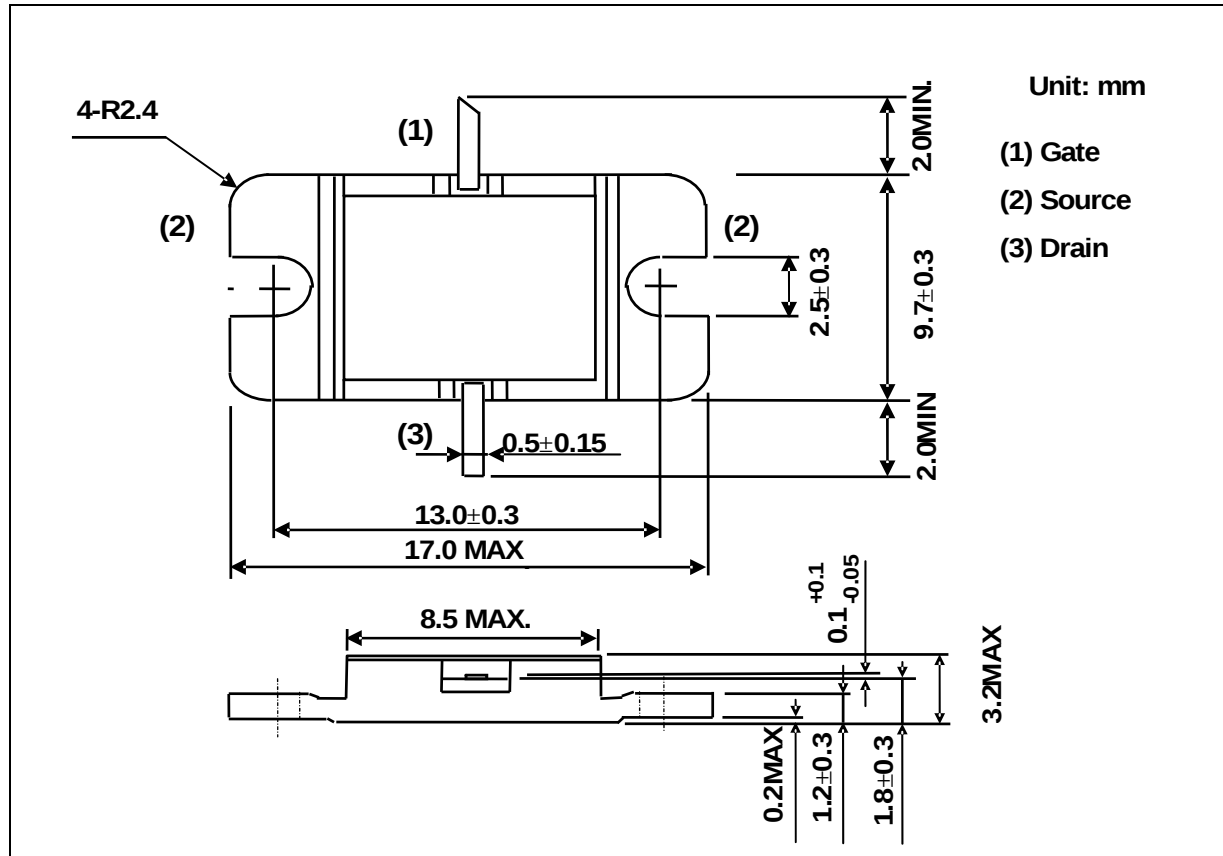
TOSHIBA CORPORATION

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ABSOLUTE MAXIMUM RATINGS (Ta= 25°C)

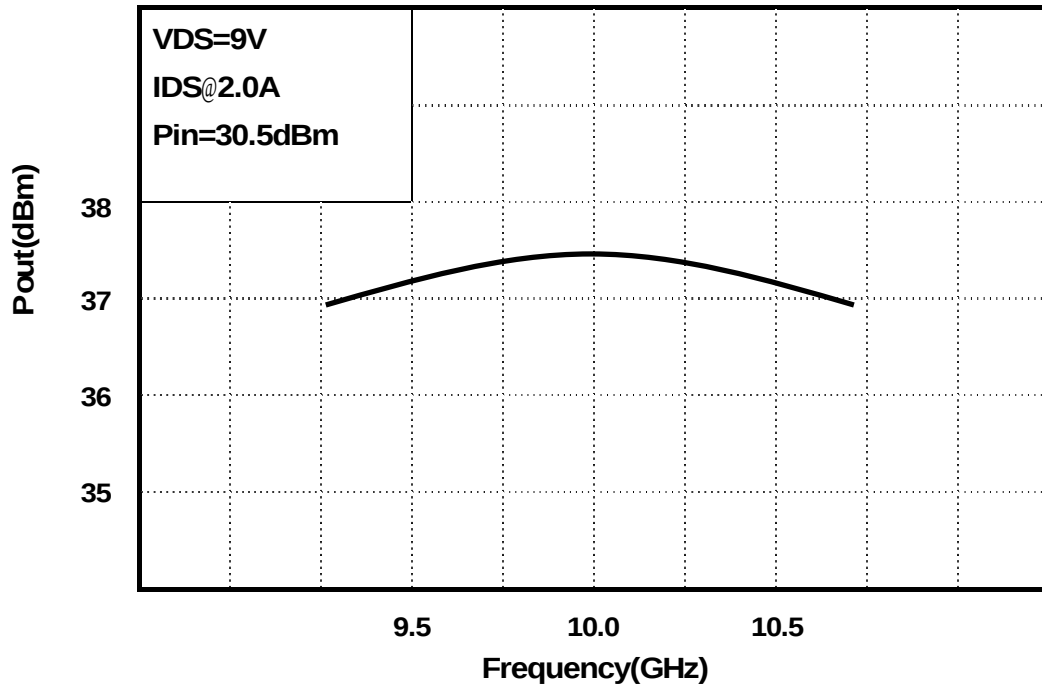
CHARACTERISTICS	SYMBOL	UNIT	RATING
Drain-Source Voltage	V _{DS}	V	15
Gate-Source Voltage	V _{GS}	V	-5
Drain Current	I _{DS}	A	5.7
Total Power Dissipation (T _c = 25 °C)	P _T	W	40.5
Channel Temperature	T _{ch}	°C	175
Storage Temperature	T _{stg}	°C	-65 to +175

PACKAGE OUTLINE (2-9D1B)**HANDLING PRECAUTIONS FOR PACKAGE MODEL**

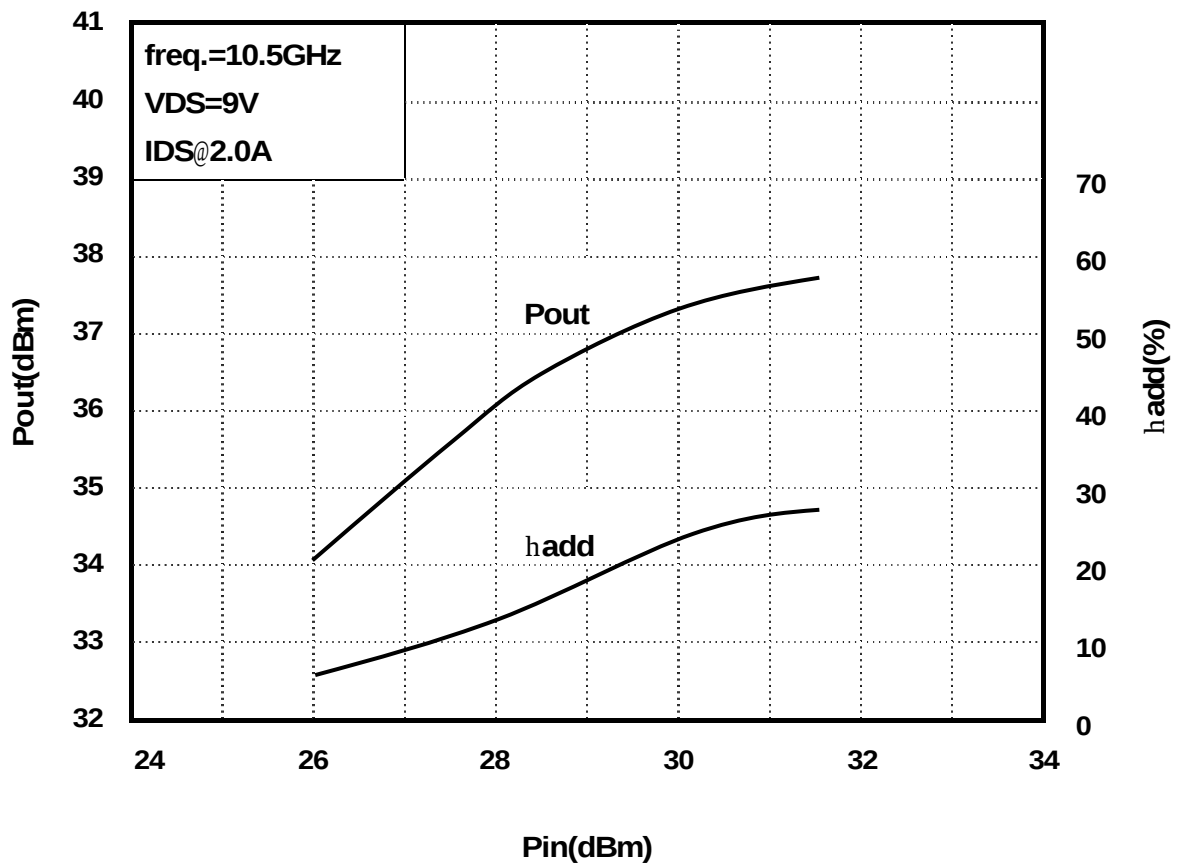
Soldering iron should be grounded and the operating time should not exceed 10 seconds at 260°C.

RF PERFORMANCES

Output Power (Pout) vs. Frequency



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



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