

TOSHIBA
MICROWAVE SEMICONDUCTOR
TECHNICAL DATA

MICROWAVE POWER GaAs FET
TIM7179-6UL

FEATURES

- **HIGH POWER**
P1dB=38.5dBm at 7.1GHz to 7.9GHz
- **HIGH GAIN**
G1dB=9.0dB at 7.1GHz to 7.9GHz
- **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 IDSset=1.3A f = 7.1 to 7.9GHz	dBm	37.5	38.5	—
Power Gain at 1dB Gain Compression Point	G1dB		dB	8.0	9.0	—
Drain Current	IDS1		A	—	1.6	1.9
Gain Flatness	ΔG		dB	—	—	±0.6
Power Added Efficiency	ηadd		%	—	39	—
3rd Order Intermodulation Distortion	IM3		Two-Tone Test Po= 27.5dBm	dBc	-44	-47
Drain Current	IDS2	(Single Carrier Level)	A	—	1.3	1.5
Channel Temperature Rise	ΔTch	(VDS X IDS+Pin-P1dB) X Rth(c-c)	°C	—	—	80

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

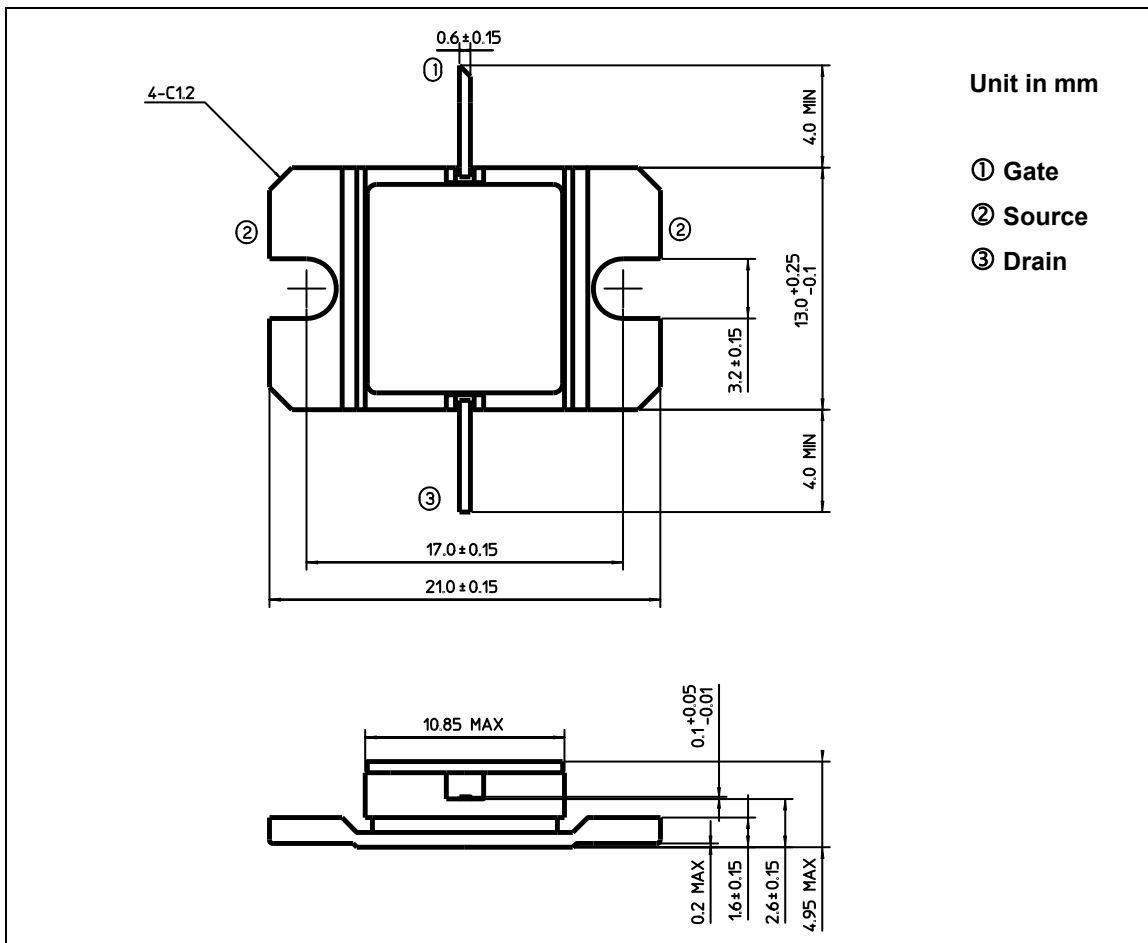
ELECTRICAL CHARACTERISTICS (Ta= 25°C)

CHARACTERISTICS	SYMBOL	CONDITIONS	UNIT	MIN.	TYP.	MAX.
Transconductance	gm	VDS= 3V IDS= 2.0A	S	—	1.24	—
Pinch-off Voltage	VGSoff	VDS= 3V IDS= 20mA	V	-1.0	-2.5	-4.0
Saturated Drain Current	IDSS	VDS= 3V VGS= 0V	A	—	3.6	—
Gate-Source Breakdown Voltage	VGSO	IGS= -70μA	V	-5	—	—
Thermal Resistance	Rth(c-c)	Channel to Case	°C/W	—	3.8	4.6

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ABSOLUTE MAXIMUM RATINGS (Ta= 25°C)

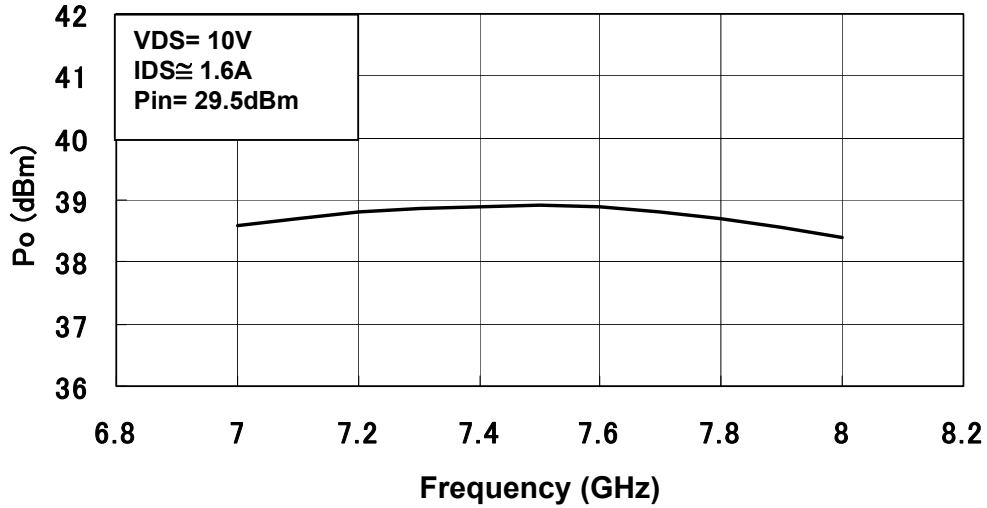
CHARACTERISTICS	SYMBOL	UNIT	RATING
Drain-Source Voltage	VDS	V	15
Gate-Source Voltage	VGS	V	-5
Drain Current	IDS	A	5.0
Total Power Dissipation (Tc= 25 °C)	PT	W	32.6
Channel Temperature	Tch	°C	175
Storage	Tstg	°C	-65 to +175

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

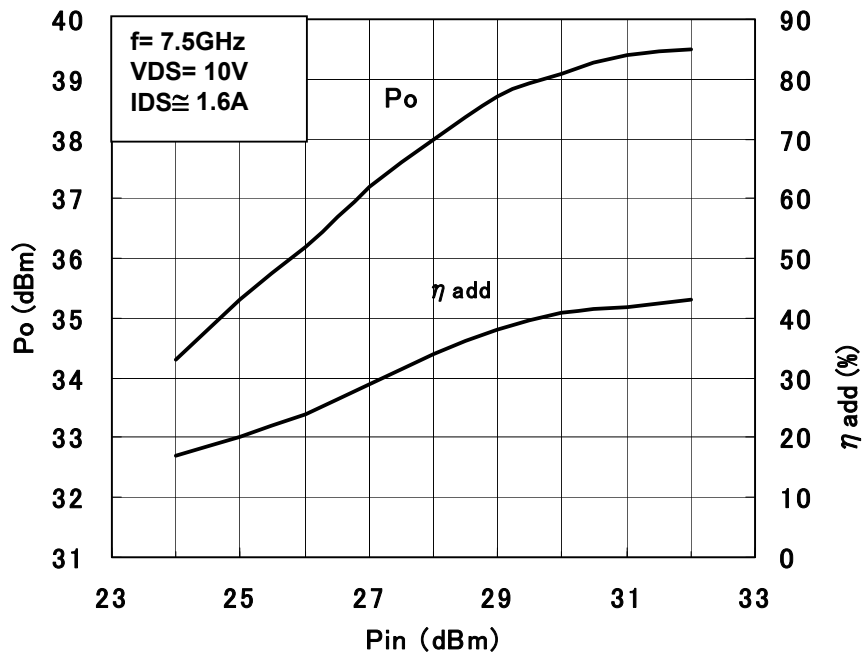
Soldering iron should be grounded and the operating time should not exceed 10 seconds at 260°C.

RF PERFORMANCE

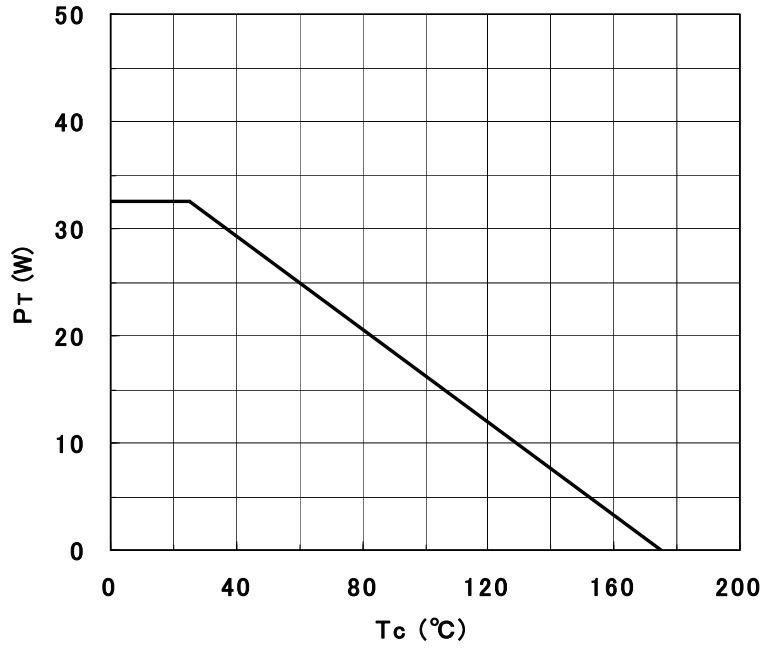
Output Power vs. Frequency



Output Power vs. Input Power



Power Dissipation vs. Case Temperature



IM3 vs. Output Power Characteristics

