TOSHIBA

MICROWAVE SEMICONDUCTOR

TECHNICAL DATA

MICROWAVE POWER GaAs FET

TIM5964-6UL

FEATURES

- **HIGH POWER**
  P1dB=38.5dBm at 5.9GHz to 6.4GHz
- **HIGH GAIN**
  G1dB=10.0dB at 5.9GHz to 6.4GHz
- **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	P_{1dB}	V_{DS}= 10V f = 5.9 to 6.4GHz	dBm	37.5	38.5	—
Power Gain at 1dB Gain Compression Point	G_{1dB}		dB	9.0	10.0	—
Drain Current	I_{DS1}		A	—	1.6	1.9
Gain Flatness	ΔG		dB	—	—	±0.6
Power Added Efficiency	η_{add}		%	—	40	—
3rd Order Intermodulation Distortion	IM_3	Two-Tone Test Po= 27.5dBm (Single Carrier Level)	dBc	-44	-47	—
Drain Current	I_{DS2}		A	—	1.6	1.9
Channel Temperature Rise	ΔT_{ch}	(VDS X IDS +Pin-P1dB) X Rth(c-c)	°C	—	—	80

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

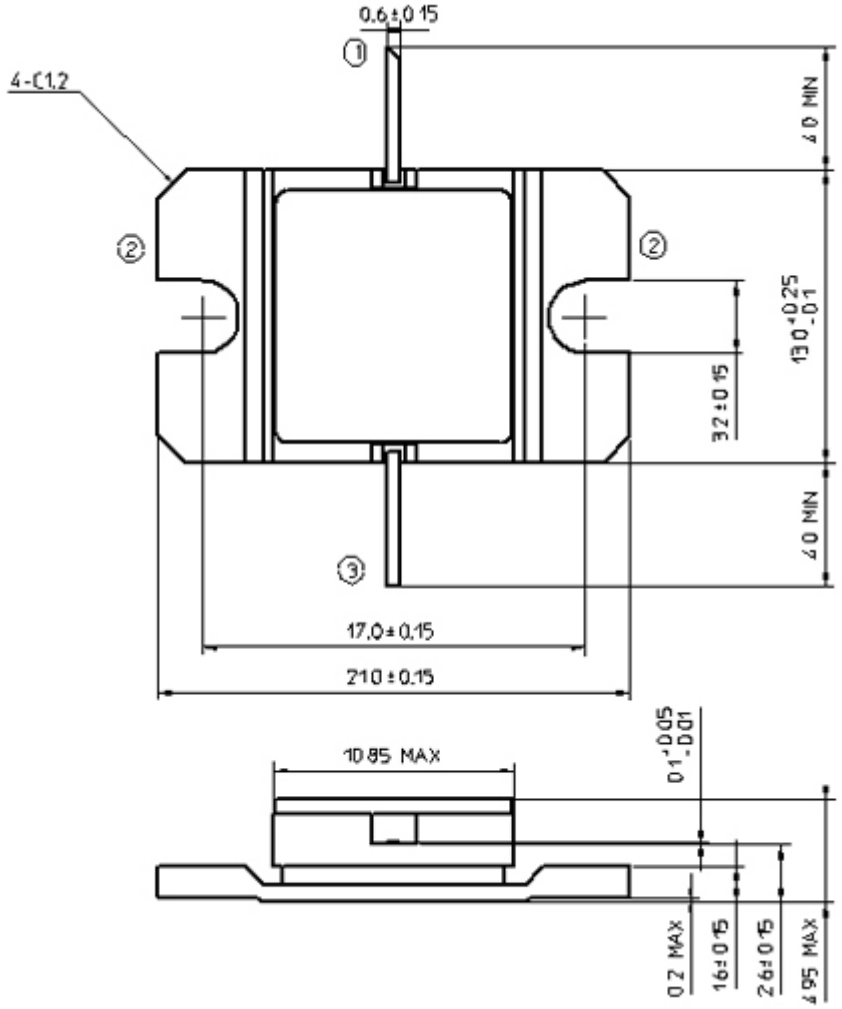
ELECTRICAL CHARACTERISTICS (Ta= 25°C)

CHARACTERISTICS	SYMBOL	CONDITIONS	UNIT	MIN.	TYP.	MAX.
Transconductance	gm	VDS= 3V IDS= 2.0A	mS	—	1240	—
Pinch-off Voltage	V_{GSoff}	VDS= 3V IDS= 20mA	V	-1.0	-2.5	-4.0
Saturated Drain Current	I_{DSS}	VDS= 3V VGS= 0V	A	—	3.6	—
Gate-Source Breakdown Voltage	V_{GSO}	IGS= -70μA	V	-5	—	—
Thermal Resistance	$R_{th(c-c)}$	Channel to Case	°C/W	—	3.8	4.6

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)



Unit in mm

(1) Gate

(2) Source

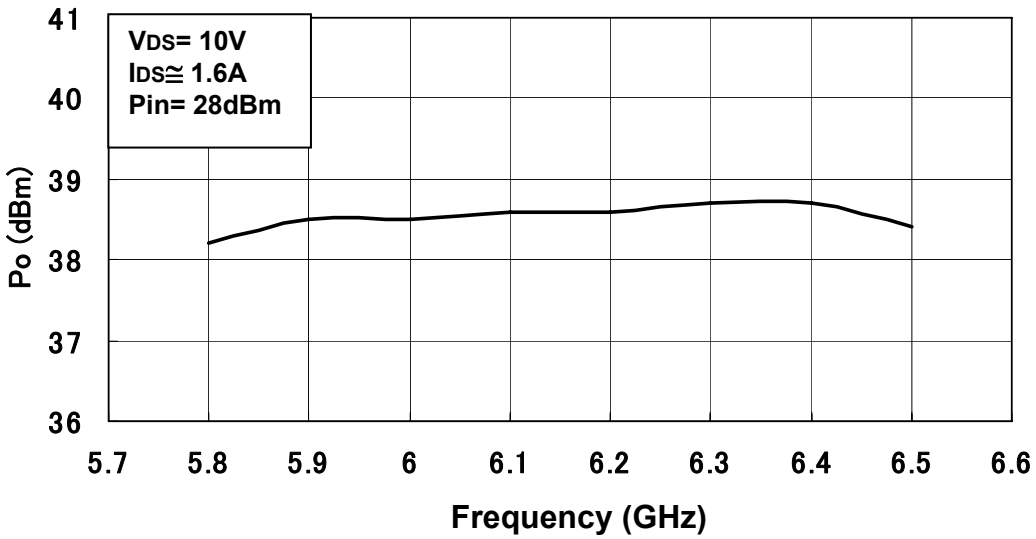
(3) Drain

HANDLING PRECAUTIONS FOR PACKAGE MODEL

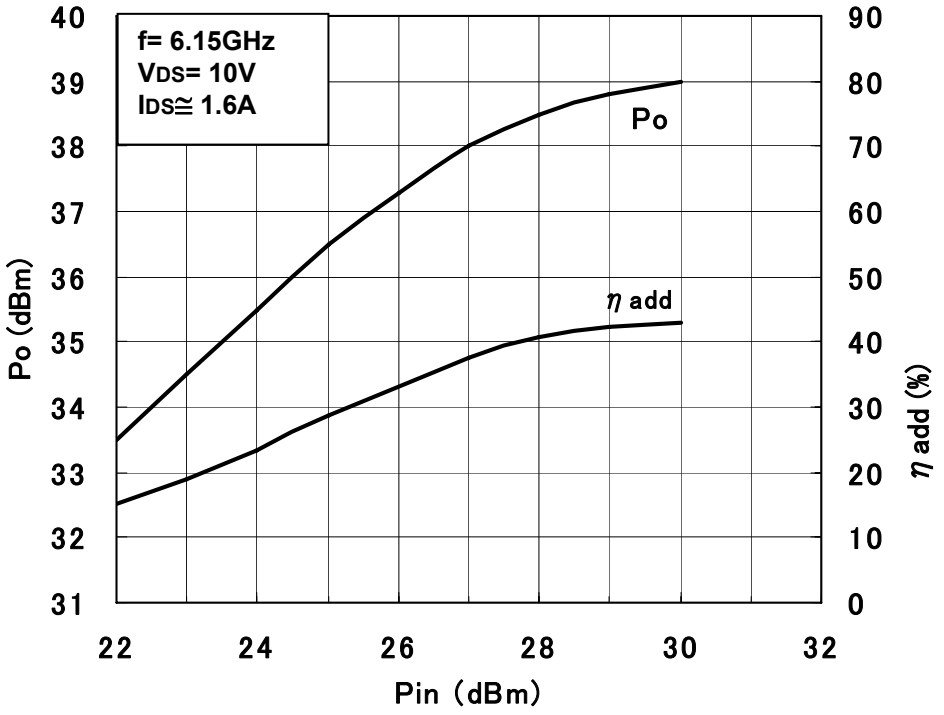
Soldering iron should be grounded and the operating time should not exceed 10 seconds at 260°C.

RF PERFORMANCE

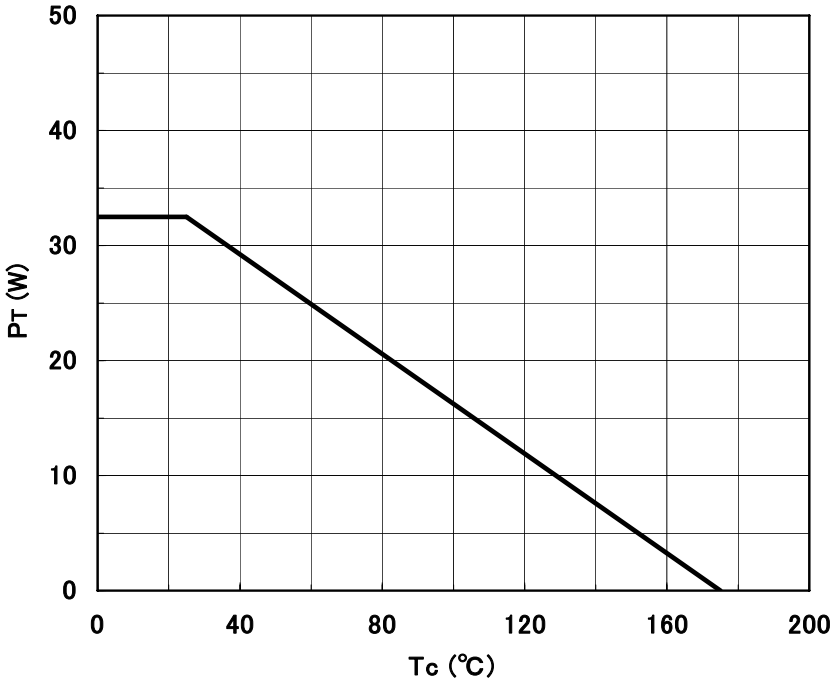
Output Power vs. Frequency



Output Power vs. Input Power



Power Dissipation vs. Case Temperature



IM3 vs. Output Power Characteristics