TOSHIBA

MICROWAVE SEMICONDUCTOR

TECHNICAL DATA

MICROWAVE POWER GaAs FET

TIM5359-16UL

FEATURES

- **HIGH POWER**
  P1dB=42.5dBm at 5.3GHz to 5.9GHz
- **HIGH GAIN**
  G1dB=10.0dB at 5.3GHz to 5.9GHz
- **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	P_{1dB}	V_{DS}= 10V f = 5.3 to 5.9GHz	dBm	41.5	42.5	—
Power Gain at 1dB Gain Compression Point	G_{1dB}		dB	9.0	10.0	—
Drain Current	I_{DS1}		A	—	4.4	5.0
Gain Flatness	ΔG		dB	—	—	±0.6
Power Added Efficiency	η_{add}		%	—	36	—
3rd Order Intermodulation Distortion	IM3	Two-Tone Test Po= 31.5dBm (Single Carrier Level)	dBc	-44	-47	—
Drain Current	I_{DS2}		A	—	4.4	5.0
Channel Temperature Rise	ΔTch	(VDS X IDS +Pin-P1dB) X Rth(c-c)	°C	—	—	80

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

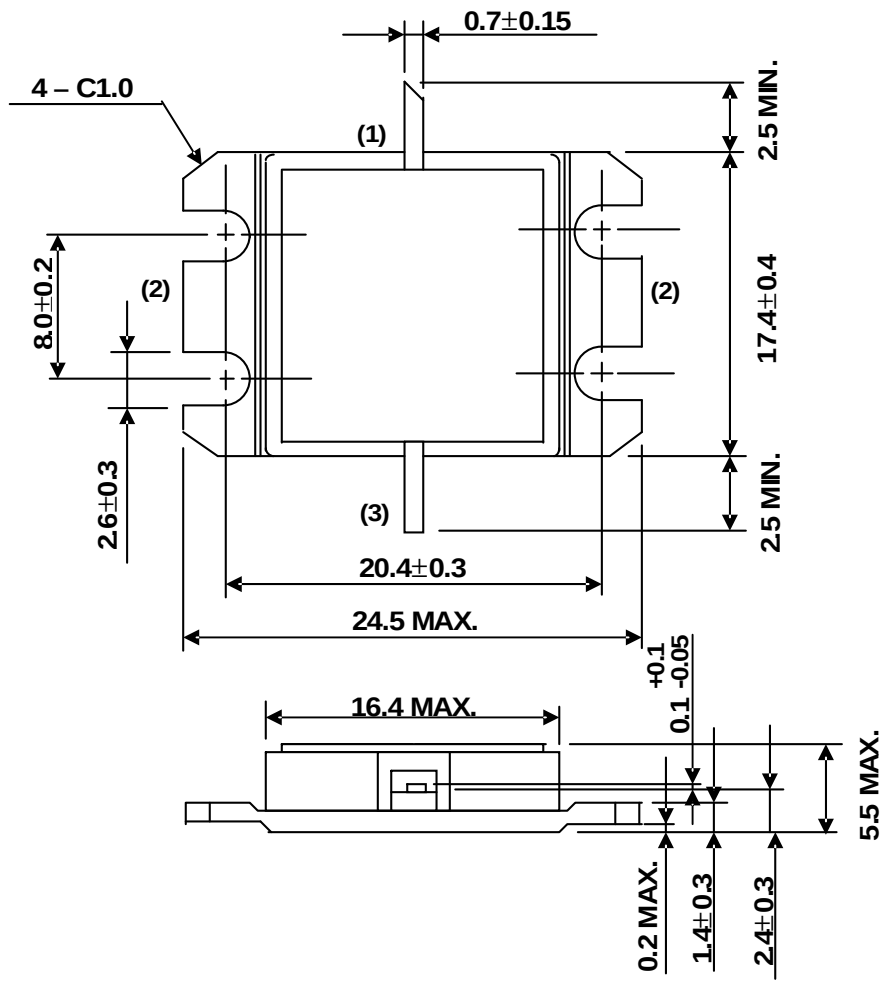
ELECTRICAL CHARACTERISTICS (Ta= 25°C)

CHARACTERISTICS	SYMBOL	CONDITIONS	UNIT	MIN.	TYP.	MAX.
Transconductance	gm	V_{DS}= 3V I_{DS}= 6.0A	mS	—	3600	—
Pinch-off Voltage	V_{GSoff}	V_{DS}= 3V I_{DS}= 60mA	V	-1.0	-2.5	-4.0
Saturated Drain Current	I_{DSS}	V_{DS}= 3V V_{GS}= 0V	A	—	10.5	—
Gate-Source Breakdown Voltage	V_{GSO}	I_{GS}= -200μA	V	-5	—	—
Thermal Resistance	$R_{th(c-c)}$	Channel to Case	°C/W	—	1.5	1.8

ABSOLUTE MAXIMUM RATINGS (Ta= 25◦C)

CHARACTERISTICS	SYMBOL	UNIT	RATING
Drain-Source Voltage	V_{DS}	V	15
Gate-Source Voltage	VGS	V	-5
Drain Current	IDS	A	14
Total Power Dissipation (Tc= 25 °C)	PT	W	83.3
Channel Temperature	Tch	°C	175
Storage	Tstg	°C	-65 to +175

PACKAGE OUTLINE (2-16G1B)

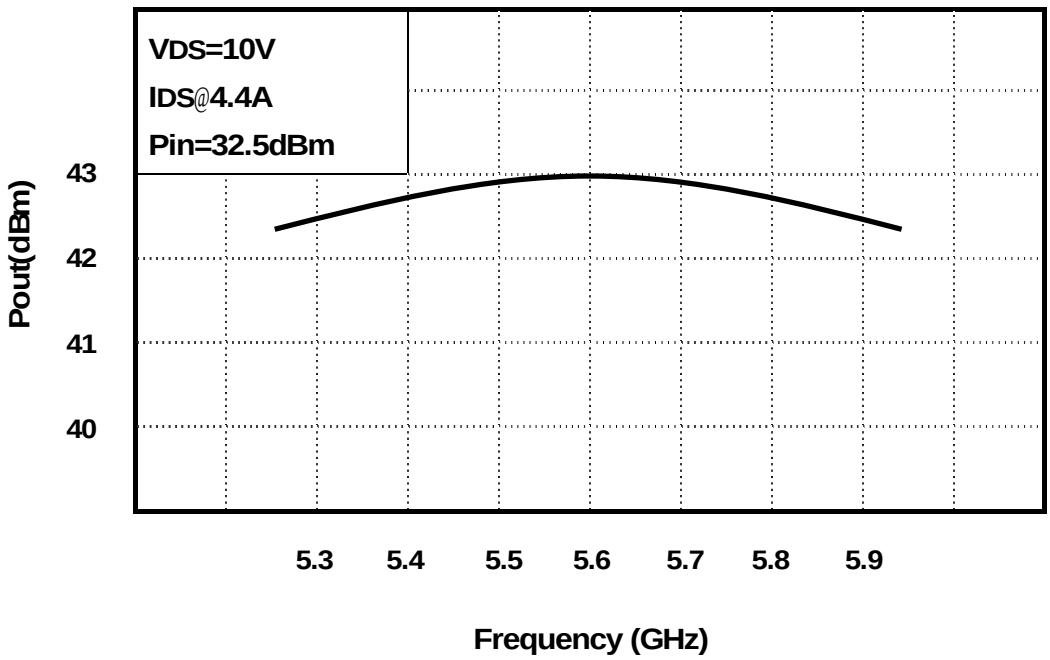


HANDLING PRECAUTIONS FOR PACKAGE MODEL

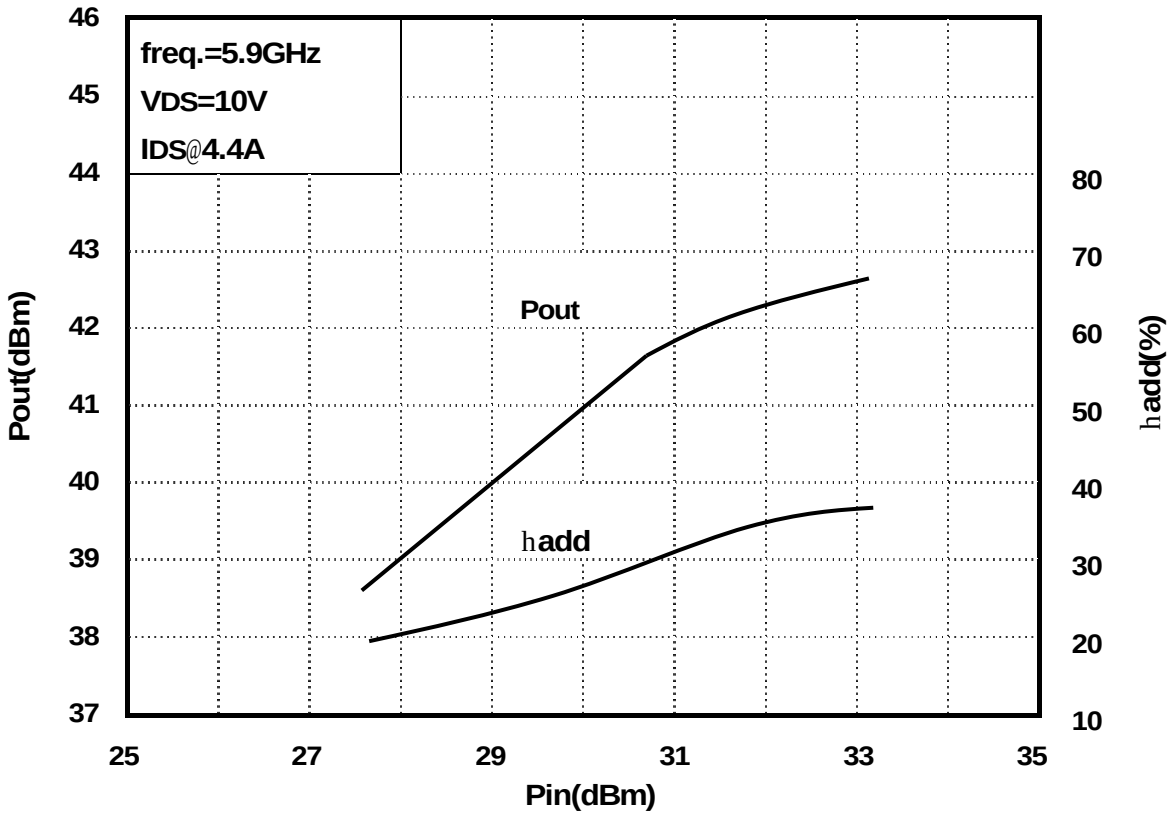
Soldering iron should be grounded and the operating time should not exceed 10 seconds at 260°C.

RF PERFORMANCE

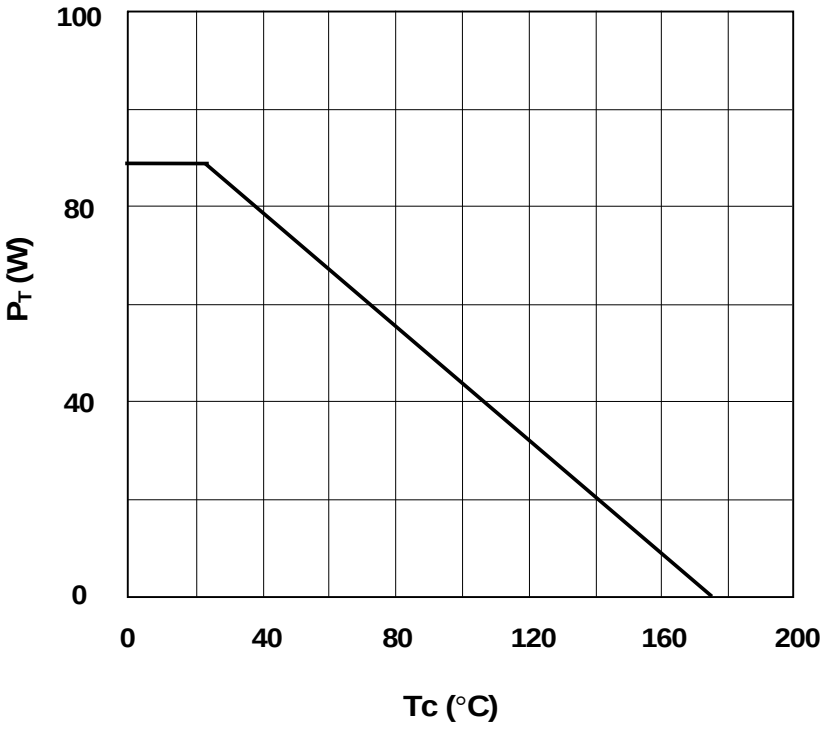
Output Power (Pout) vs. Frequency



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



Power Dissipation vs. Case Temperature



IM3 vs. Output Power Characteristics