TOSHIBA

MICROWAVE SEMICONDUCTOR

TECHNICAL DATA

MICROWAVE POWER GaAs FET

TIM5964-35SLA-251

FEATURES

- **LOW INTERMODULATION DISTORTION**
  IM3=-45 dBc at Po= 35.0dBm,
  Single Carrier Level
- **HIGH POWER**
  P1dB=45.5dBm at 5.9GHz to 6.75GHz
- **HIGH EFFICIENCY**
  ηadd=39% at 5.9 to 6.75GHz
- **HIGH GAIN**
  G1dB=8.5dB at 5.9GHz to 6.75GHz
- **BROAD BAND INTERNALLY MATCHED**
- **HERMETICALLY SEALED PACKAGE**

RF PERFORMANCE SPECIFICATIONS (Ta= 25°C)

CHARACTERISTICS	SYMBOL	CONDITION	UNIT	MIN.	TYP.	MAX.
Output Power at 1dB Compression Point	P_{1dB}	V_{DS}= 10V f = 5.9 – 6.75GHz	dBm	45.0	45.5	—
Power Gain at 1dB Compression Point	G_{1dB}		dB	8.0	9.0	—
Drain Current	I_{DS1}		A	—	8.0	9.0
Gain Flatness	ΔG		dB	—	—	±0.8
Power Added Efficiency	η_{add}		%	—	39	—
3rd Order Intermodulation Distortion	IM3	Two Tone Test Po=35.0dBm (Single Carrier Level)	dBc	-42	-45	—
Drain Current	I_{DS2}		A	—	8.0	9.0
Channel Temperature Rise	ΔTch	V_{DS} X I_{DS} X $R_{th(c-c)}$	°C	—	—	100

Recommended gate resistance(Rg) : Rg=Rg1(10 Ω)+Rg2(18 Ω)= 28 Ω (MAX.)

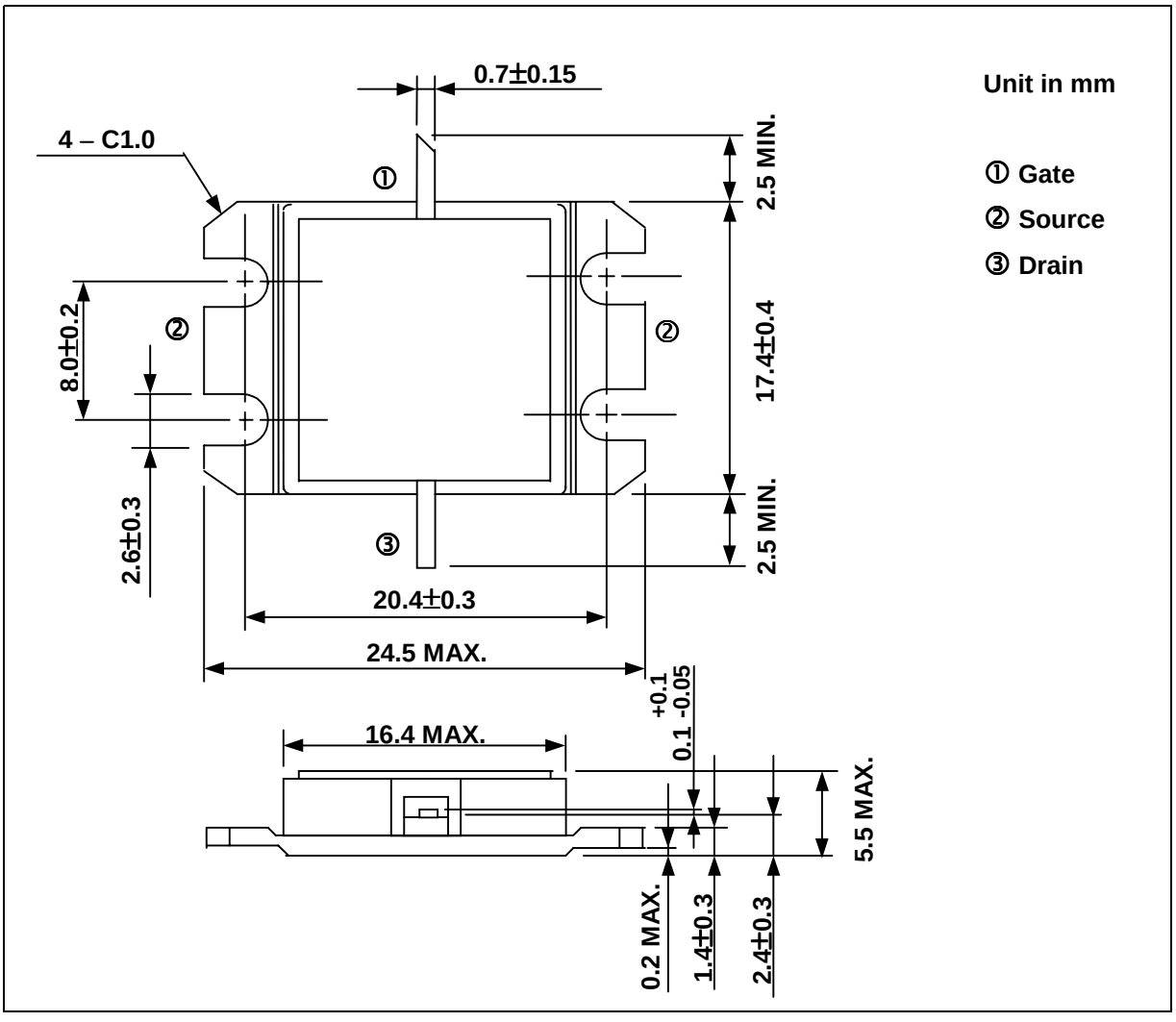
ELECTRICAL CHARACTERISTICS (Ta= 25°C)

CHARACTERISTICS	SYMBOL	CONDITION	UNIT	MIN.	TYP.	MAX.
Transconductance	gm	V_{DS}= 3V I_{DS}= 10.5A	mS	—	6500	—
Pinch-off Voltage	V_{GSoff}	V_{DS}= 3V I_{DS}= 140mA	V	-1.0	-2.5	-4.0
Saturated Drain Current	I_{DSS}	V_{DS}= 3V V_{GS}= 0V	A	—	20	26
Gate-Source Breakdown Voltage	V_{GSO}	I_{GS}= -420μA	V	-5	—	—
Thermal Resistance	$R_{th(c-c)}$	Channel to Case	°C/W	—	1.0	1.3

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	26
Total Power Dissipation (Tc= 25 °C)	PT	W	115
Channel Temperature	Tch	°C	175
Storage	Tstg	°C	-65 ~ +175

PACKAGE OUTLINE (2-16G1B)

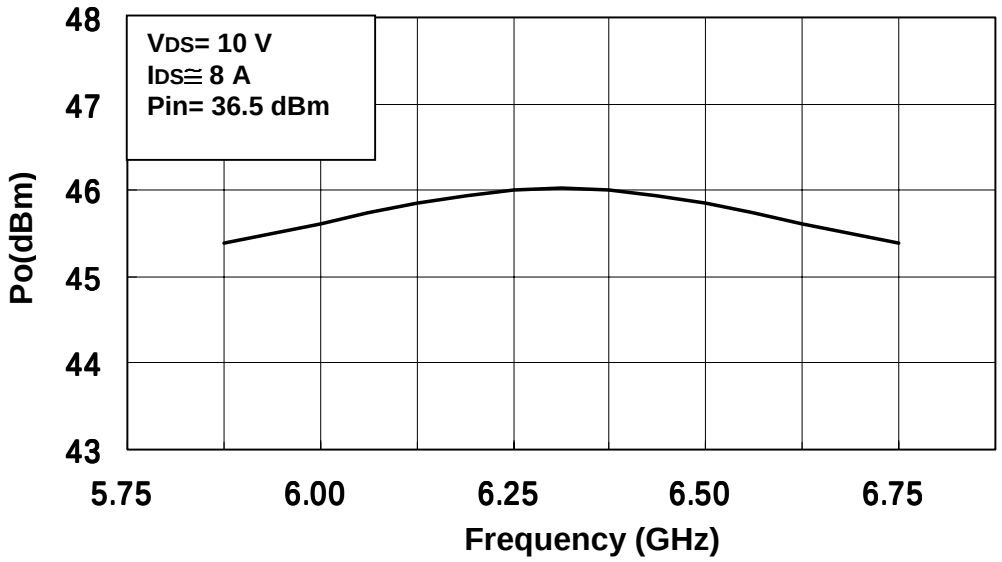


HANDLING PRECAUTIONS FOR PACKAGED TYPE

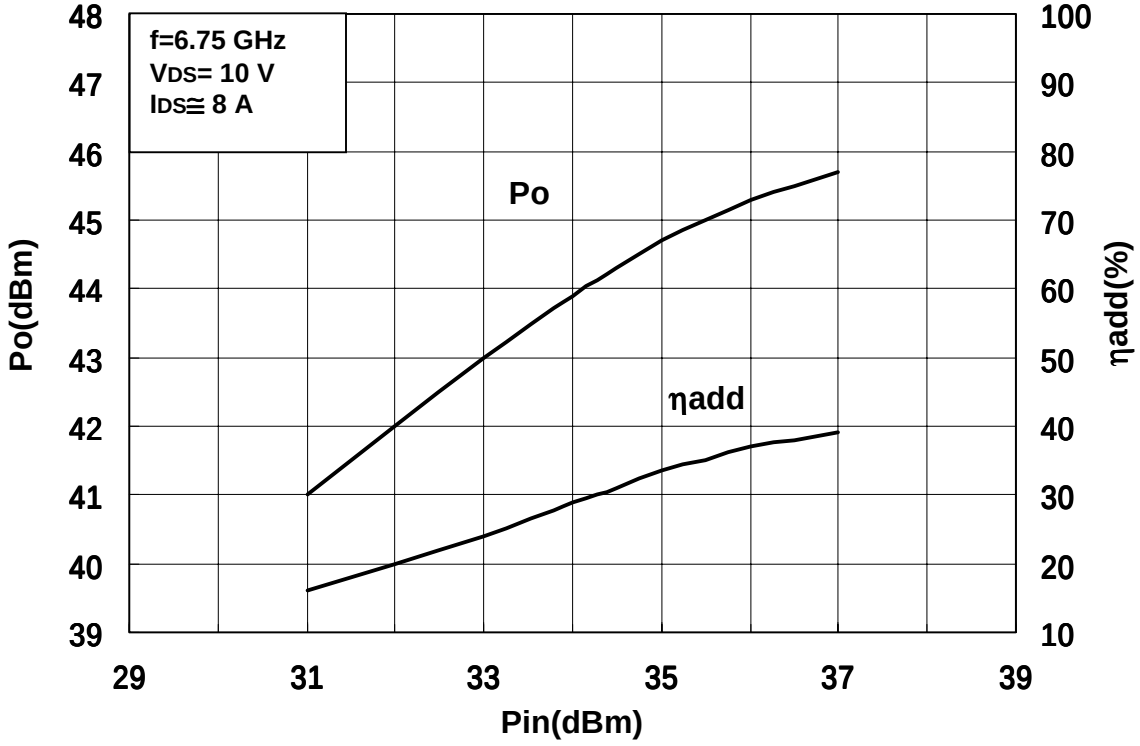
Soldering iron should be grounded and the operating time should not exceed 10 seconds at 260°C.

RF PERFORMANCES

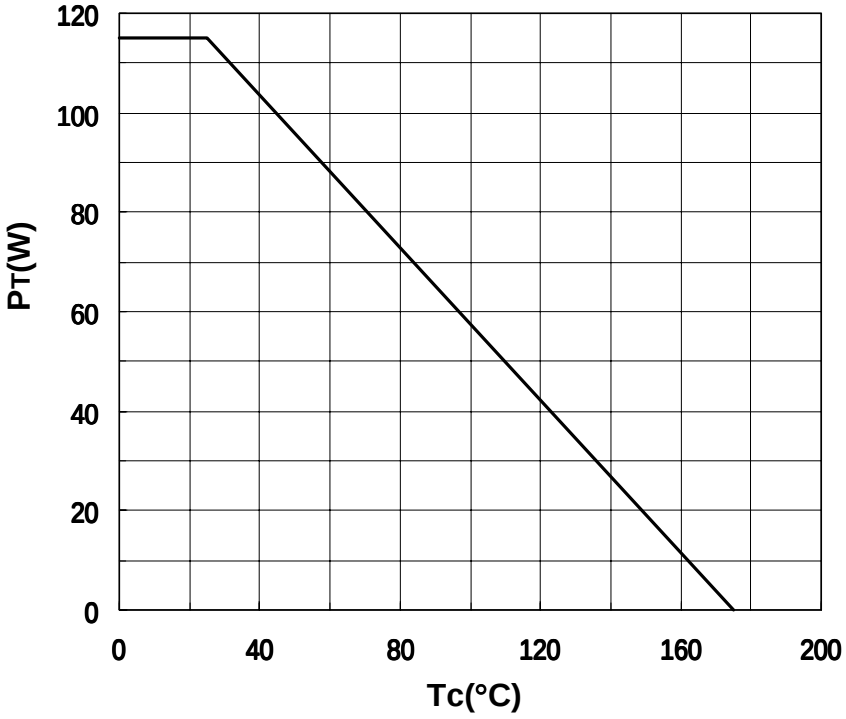
Output Power vs. Frequency



Output Power vs. Input Power



POWER DISSIPATION vs. CASE TEMPERATURE



IM3 vs. OUTPUT POWER CHARACTERISTICS