# **TOSHIBA**

MICROWAVE SEMICONDUCTOR
TECHNICAL DATA

# MICROWAVE POWER GaAs FET TIM5964-60SL

#### **FEATURES**

■ LOW INTERMODULATION DISTORTION

IM3=-45 dBc at Pout= 36.5dBm Single Carrier Level

**■ HIGH POWER** 

P1dB=48.0dBm at 5.9GHz to 6.4GHz

**■ HIGH GAIN** 

G1dB=8.5dB 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	P1dB		dBm	47.0	48.0	
Compression Point						
Power Gain at 1dB Gain	G1dB	VDS=10V	dB	7.5	8.5	
Compression Point		f = 5.9 to 6.4GHz				
Drain Current	IDS1	IDSset≅9.5A	Α		13.2	15.0
Gain Flatness	ΔG		dB			±0.8
Power Added Efficiency	ηadd		%		41	
3rd Order Intermodulation	IM3	Two-Tone Test	dBc	-42	-45	
Distortion		Po=36.5dBm				
Drain Current	IDS2	(Single Carrier Level)	Α			11.8
Channel Temperature Rise	ΔTch	(VDS X IDS + Pin – P1dB) X Rth(c-c)	°C			100

Recommended Gate Resistance(Rg) : 28  $\Omega$  (Max.)

## ELECTRICAL CHARACTERISTICS (Ta= 25°C)

CHARACTERISTICS	SYMBOL	CONDITIONS	UNIT	MIN.	TYP.	MAX.
Transconductance	gm	VDS= 3V	S		20	
		IDS= 12.0A				
Pinch-off Voltage	VGSoff	VDS= 3V	V	-1.0	-1.8	-3.0
		IDS= 200mA				
Saturated Drain Current	IDSS	VDS= 3V	Α		38	
		VGS= 0V				
Gate-Source Breakdown	VGSO	IGS= -1.0mA	V	-5		
Voltage						
Thermal Resistance	Rth(c-c)	Channel to Case	°C/W		0.6	0.8

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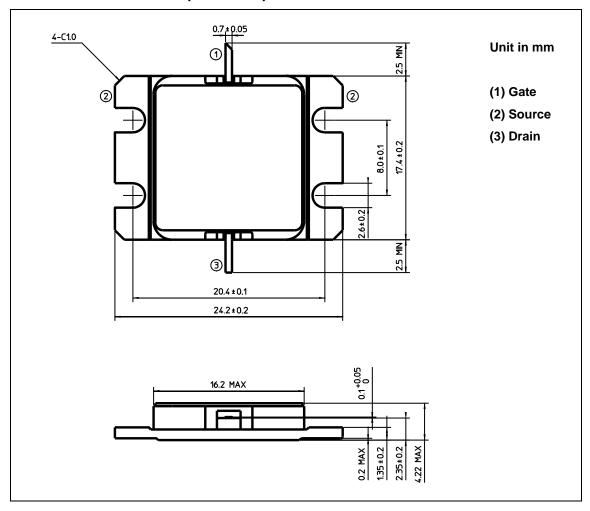
Rev. Aug. 2008

The information contained herein is subject to change without prior notice. It is therefor advisable to contact TOSHIBA before proceeding with design of equipment incorporating this product.

## 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	Α	20
Total Power Dissipation (Tc= 25 °C)	PT	W	187.5
Channel Temperature	Tch	°C	175
Storage Temperature	Tstg	°C	-65 to +175

## **PACKAGE OUTLINE (2-16G1B)**

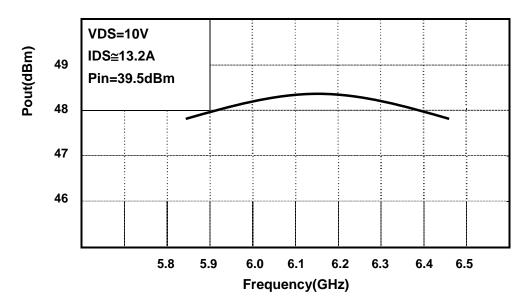


### **HANDLING PRECAUTIONS FOR PACKAGE MODEL**

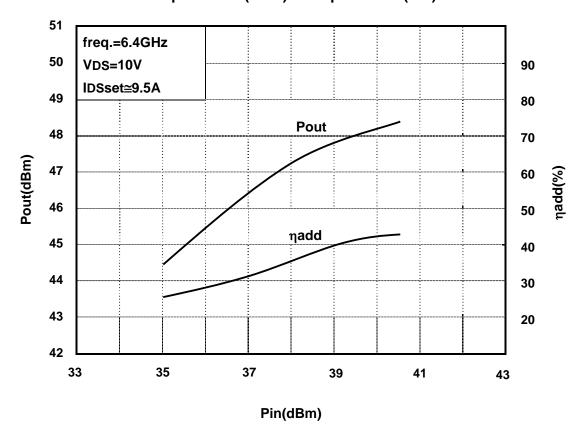
Soldering iron should be grounded and the operating time should not exceed 10 seconds at  $260^{\circ}$ C.

### **RF PERFORMANCE**

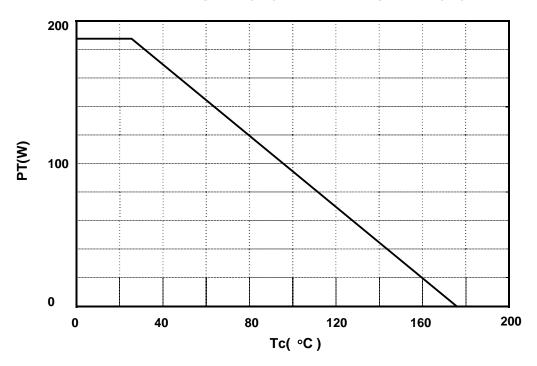
## Output Power (Pout) vs. Frequency



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



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



**IM3 vs. Power Characteristics** 

