

# TOSHIBA

## MICROWAVE SEMICONDUCTOR TECHNICAL DATA

## MICROWAVE POWER GaAs FET

### TIM6472-30SL

#### FEATURES :

- LOW INTERMODULATION DISTORTION  
 $IM_3 = -45$  dBc at  $P_o = 34.5$  dBm  
 Single Carrier Level
- HIGH POWER  
 $P_{1dB} = 45$  dBm at 6.4 GHz to 7.2 GHz
- HIGH EFFICIENCY  
 $\eta_{add} = 36\%$  at 6.4 GHz to 7.2 GHz
- HIGH GAIN  
 $G_{1dB} = 7.0$  dB at 6.4 GHz to 7.2 GHz
- BROAD BAND INTERNALLY MATCHED
- HERMETICALLY SEALED PACKAGE

#### RF PERFORMANCE SPECIFICATIONS ( $T_a = 25^\circ C$ )

CHARACTERISTICS	SYMBOL	CONDITION	UNIT	MIN.	TYP.	MAX.
Output Power at 1 dB Compression Point	$P_{1dB}$	$V_{DS} = 10$ V $f = 6.4 \sim 7.2$ GHz	dBm	44.0	45.0	—
Power Gain at 1 dB Compression Point	$G_{1dB}$		dB	6.0	7.0	—
Drain Current	$I_{DS}$		A	—	7.0	8.0
Power Added Efficiency	$\eta_{add}$		%	—	36	—
3rd Order Intermodulation Distortion	$IM_3$	Note 1	dBc	-42	-45	—
Channel-Temperature Rise	$\Delta T_{ch}$	$V_{DS} \times I_{DS} \times R_{th(c-c)}$	$^\circ C$	—	—	100

#### ELECTRICAL CHARACTERISTICS ( $T_a = 25^\circ C$ )

CHARACTERISTICS	SYMBOL	CONDITION	UNIT	MIN.	TYP.	MAX.
Transconductance	gm	$V_{DS} = 3$ V $I_{DS} = 10$ A	mS	—	6300	—
Pinch-off Voltage	$V_{GSoff}$	$V_{DS} = 3$ V $I_{DS} = 100$ mA	V	-1.0	-2.5	-4.0
Saturated Drain Current	$I_{DSS}$	$V_{DS} = 3$ V $V_{GS} = 0$ V	A	—	18	22
Gate-Source Breakdown Voltage	$V_{GSO}$	$I_{GS} = -350$ $\mu A$	V	-5	—	—
Thermal Resistance	$R_{th(c-c)}$	Channel to Case	$^\circ C/W$	—	1.0	1.3

Note 1 : 2 tone Test  $P_{out} = 34.5$  dBm Single Carrier Level.

Recommended Gate Resistance( $R_g$ ) :  $R_g = R_{g1}(10 \Omega) + R_{g2}(18 \Omega) = 28 \Omega$  (MAX.)

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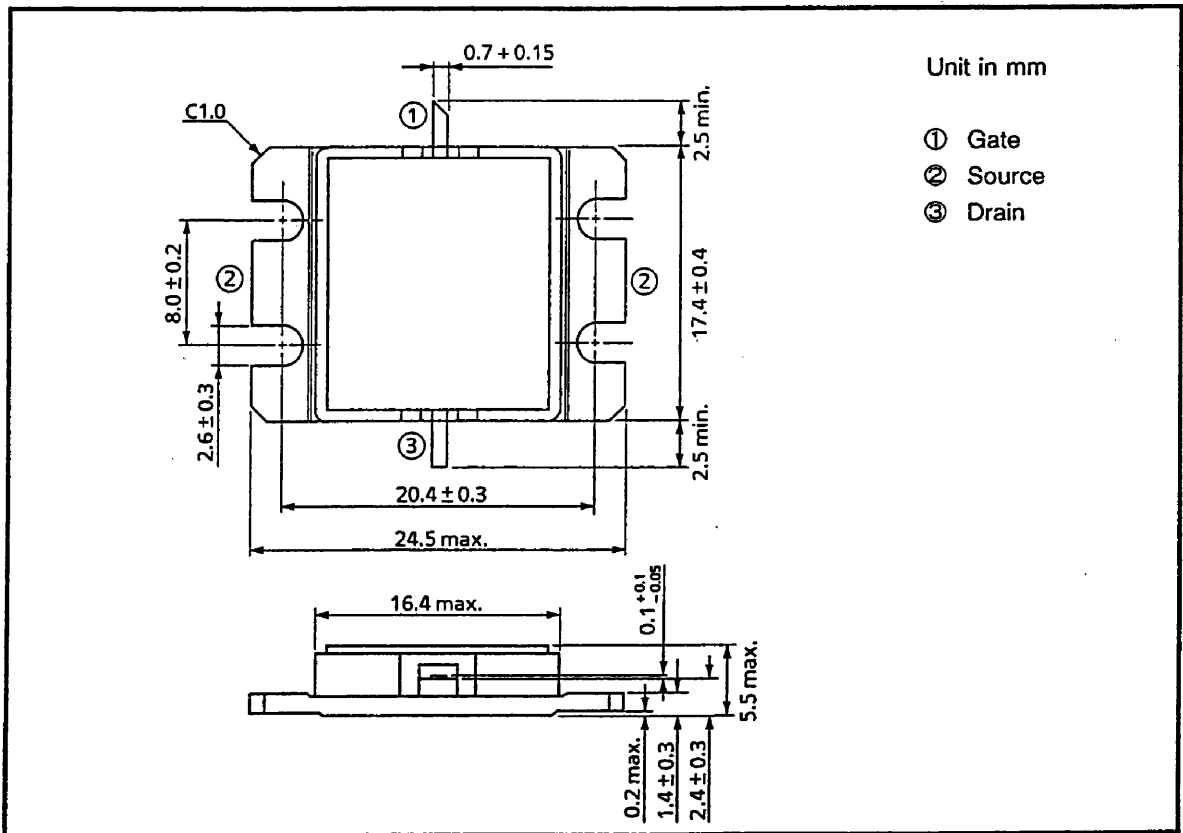
★ The information contained herein may be changed without prior notice. It is therefore advisable to contact TOSHIBA before proceeding with the design of equipment incorporating this product.

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## ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTICS	SYMBOL	UNIT	RATING
Drain-Source Voltage	V <sub>DS</sub>	V	15
Gate-Source Voltage	V <sub>GS</sub>	V	-5
Drain Current	I <sub>DS</sub>	A	22
Total Power Dissipation (T <sub>C</sub> = 25°C)	P <sub>T</sub>	W	115
Channel Temperature	T <sub>ch</sub>	°C	175
Storage Temperature	T <sub>stg</sub>	°C	-65~175

## PACKAGE OUTLINE (2-16G1B)

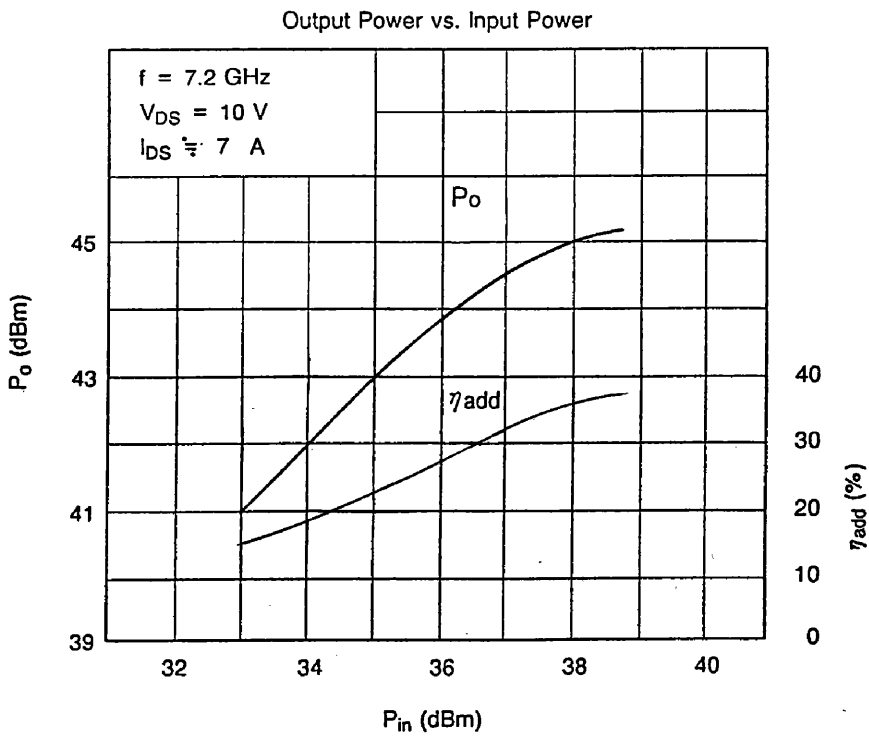
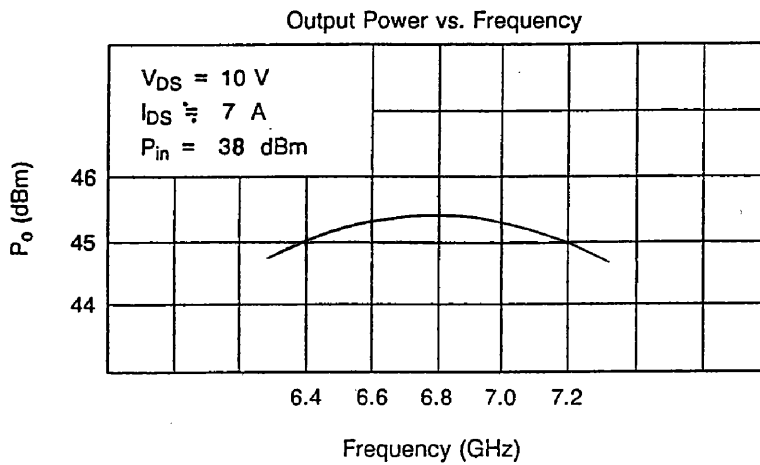


### HANDLING PRECAUTIONS FOR PACKAGED TYPE

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

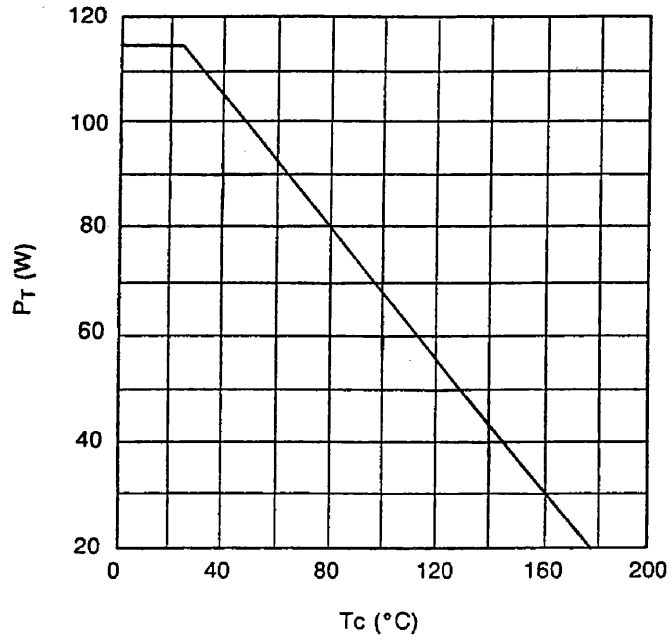
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## RF PERFORMANCES



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## POWER DISSIPATION VS. CASE TEMPERATURE



## IM<sub>3</sub> VS. OUTPUT POWER CHARACTERISTICS

