

TOSHIBA

MICROWAVE SEMICONDUCTOR

TECHNICAL DATA

MICROWAVE POWER GaAs FET

TIM5964-30LA

FEATURES :

- LOW INTERMODULATION DISTORTION
 $IM_3 = -45$ dBc at $P_o = 34.5$ dBm,
 Single Carrier Level

- HIGH POWER

$P_{1dB} = 45$ dBm at 5.9 GHz to 6.4 GHz

- HIGH GAIN

$G_{1dB} = 9.0$ dB at 5.9 GHz to 6.4 GHz

- BROAD BAND INTERNALLY MATCHED

- HERMETICALLY SEALED PACKAGE

RF PERFORMANCE SPECIFICATIONS ($T_a = 25^\circ\text{C}$)

CHARACTERISTICS	SYMBOL	CONDITION	UNIT	MIN.	TYP.	MAX.
Output Power at 1dB Compression Point	P_{1dB}	$V_{DS} = 10$ V $f = 5.9-6.4$ GHz	dBm	44.5	45.0	-
Power Gain at 1dB Compression Point	G_{1dB}		dB	8.0	9.0	-
Drain Current	I_{DS}		A	-	8.0	9.0
Power Added Efficiency	η_{add}		%	-	35	-
3rd Order Intermodulation Distortion	IM_3	Note 1	dBc	-42	-45	-
Channel-Temperature Rise	ΔT_{ch}	$V_{DS} \times I_{DS} \times R_{th}(c-c)$	$^\circ\text{C}$	-	-	80

ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

CHARACTERISTICS	SYMBOL	CONDITION	UNIT	MIN.	TYP.	MAX.
Trans-conductance	g_m	$V_{DS}=3$ V $I_{DS}=10.5$ A	mS	-	6300	-
Pinch-off Voltage	V_{GSoff}	$V_{DS}=3$ V $I_{DS}=140$ mA	V	-2	-3.5	-5.0
Saturated Drain Current	I_{DSS}	$V_{DS}=3$ V $V_{GS}=0$ V	A	-	20	26
Gate-Source Breakdown Voltage	V_{GSO}	$I_{GS}=-420$ μ A	V	-5	-	-
Thermal Resistance	$R_{th}(c-c)$	Channel to Case	$^\circ\text{C/W}$	-	0.8	1.0

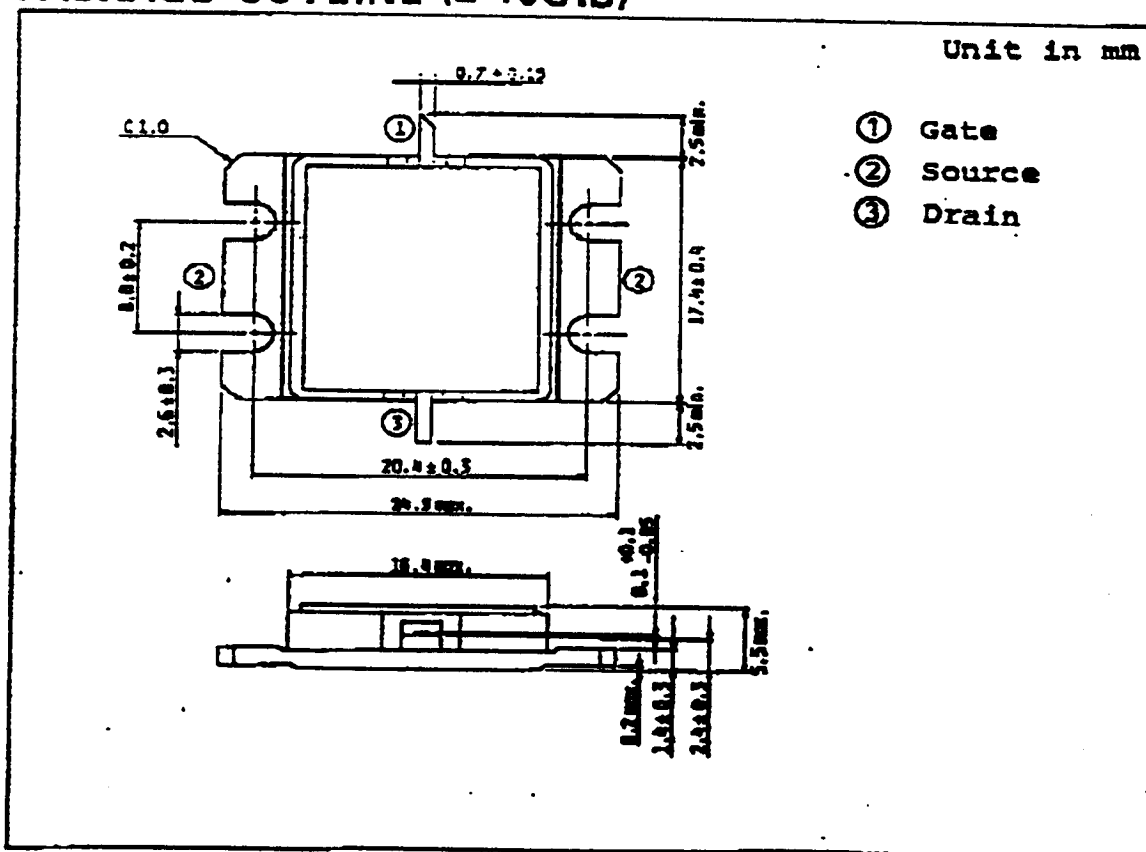
Note 1: 2 tone Test $P_{out} = 34.5$ dBm Single Carrier Level.

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ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTICS	SYMBOL	UNIT	RATING
Drain-Source Voltage	V_{DS}	V	15
Gate-Source Voltage	V_{GS}	V	-5
Drain Current	I_{DS}	A	26
Total Power Dissipation ($T_C=25^{\circ}\text{C}$)	P_T	W	120
Channel Temperature	T_{ch}	$^{\circ}\text{C}$	175
Storage Temperature	T_{stg}	$^{\circ}\text{C}$	-65~175

PACKAGE OUTLINE (2-16G1B)



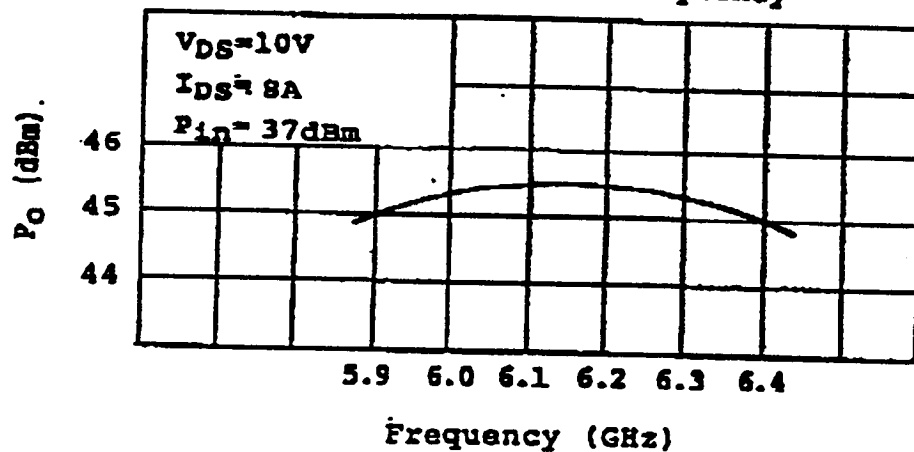
HANDLING PRECAUTIONS FOR PACKAGED TYPE

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

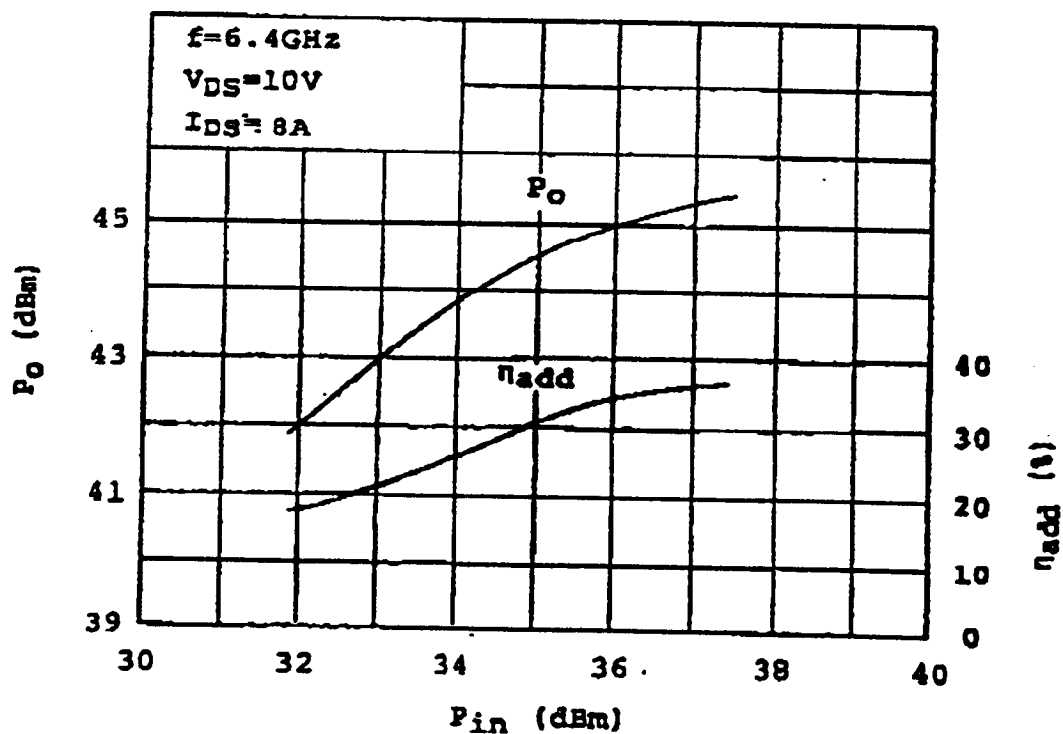
RF PERFORMANCES

TIM5964-30LA

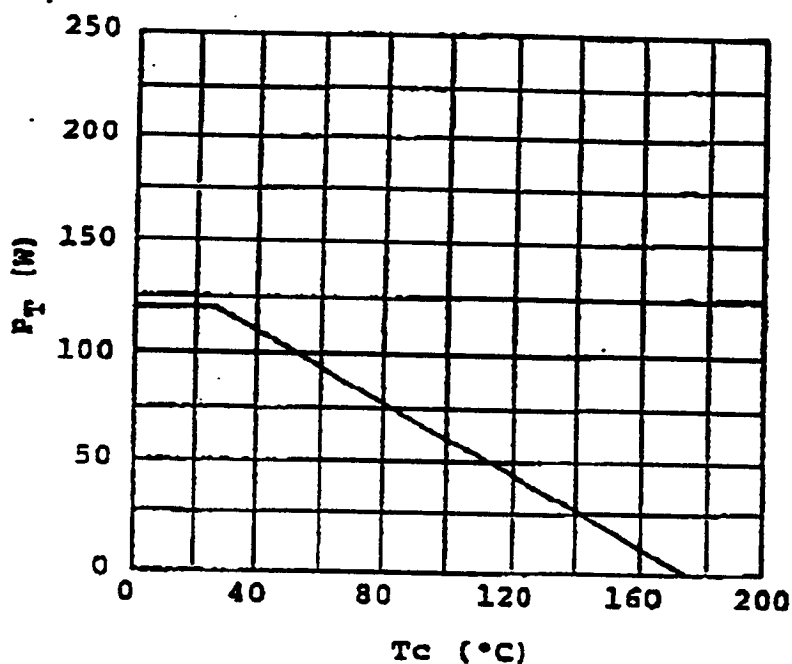
Output Power vs. Frequency



Output Power vs. Input Power



POWER DISSIPATION VS. CASE TEMPERATURE



IM₃ VS. OUTPUT POWER CHARACTERISTICS

