

TOSHIBA

MICROWAVE SEMICONDUCTOR

TECHNICAL DATA

MICROWAVE POWER GaAs FET

TIM5964-16LB

FEATURES:

■ LOW INTERMODULATION DISTORTION

IM₃ = -45 dBc at P_o = 31.5 dBm,
Single Carrier Level

■ HIGH POWER

P_{1dB} = 42.5 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°C)

CHARACTERISTICS	SYMBOL	CONDITION	UNIT	MIN.	TYP.	MAX.
Output Power at 1 dB Compression Point	P _{1dB}	V _{DS} = 10V f = 5.9~6.4GHz	dBm	42.0	42.5	-
Power Gain at 1 dB Compression Point	G _{1dB}		dB	8.0	9.0	-
Drain Current	I _{DS1}		A	-	4.8	5.5
Gain Flatness	ΔG		dB	-	-	±0.8
Power Added Efficiency	η _{add}		%	-	32	-
3rd Order Intermodulation Distortion	IM ₃	Note 1	dBc	-42	-45	-
Drain Current	I _{DS2}		A	-	4.8	5.5
Channel Temperature Rise	ΔT _{ch}	V _{DS} × I _{DS} × R _{th(c-c)}	°C	-	-	80

ELECTRICAL CHARACTERISTICS (T_a = 25°C)

CHARACTERISTICS	SYMBOL	CONDITION	UNIT	MIN.	TYP.	MAX.
Trans- conductance	gm	V _{DS} = 3V I _{DS} = 6.0A	mS	-	3600	-
Pinch-off Voltage	V _{GSoff}	V _{DS} = 3V I _{DS} = 80mA	V	-2.0	-3.5	-5.0
Saturated Drain Current	I _{DSS}	V _{DS} = 3V V _{GS} = 0V	A	-	11.6	15.0
Gate-Source Breakdown Voltage	V _{GS0}	I _{GS} = -240 μA	V	-5	-	-
Thermal Resistance	R _{th(c-c)}	Channel to Case	°C/W	-	1.4	1.8

Note 1: 2 tone Test Pout = 31.5 dBm Single Carrier Level.

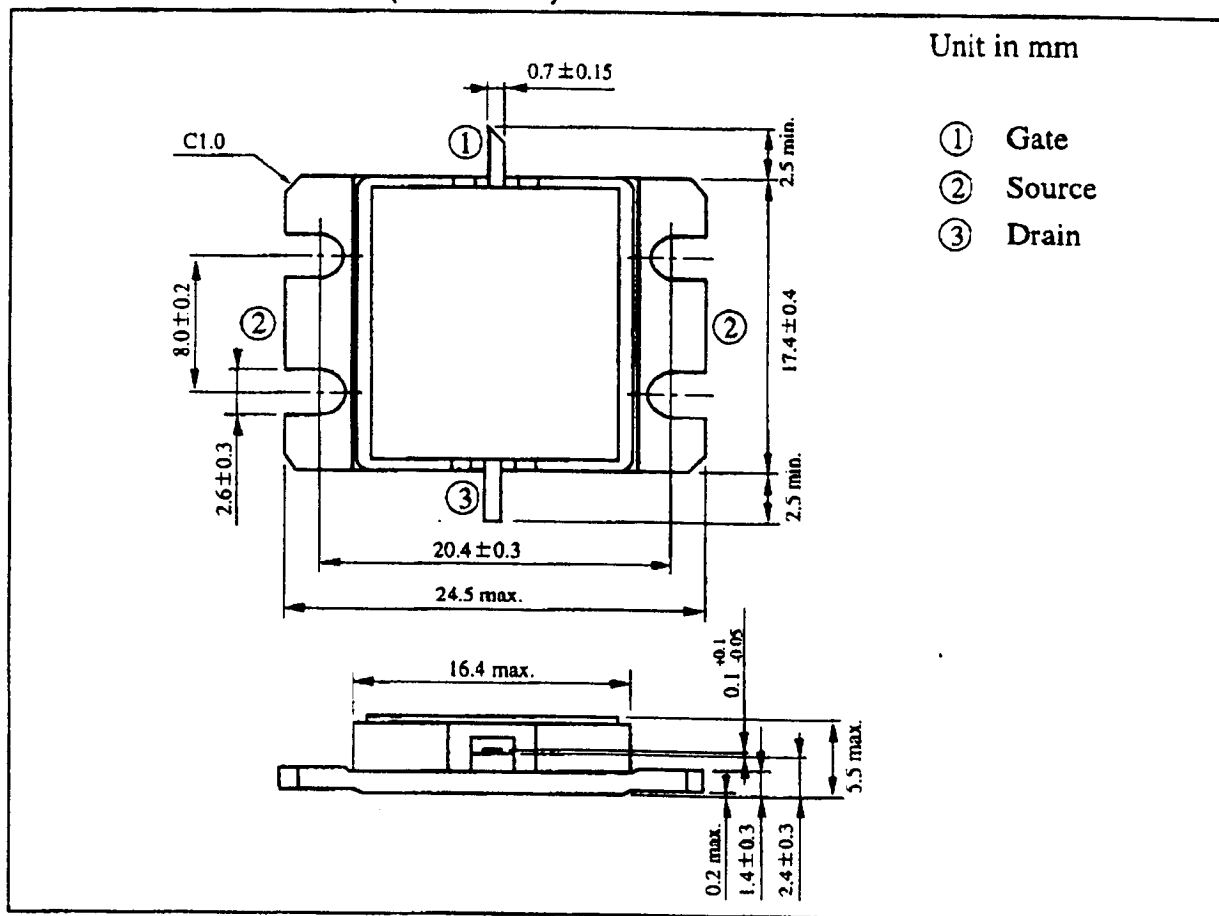
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ABSOLUTE MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

CHARACTERISTICS	SYMBOL	UNIT	RATING
Drain-Source Voltage	V_{ds}	V	15
Gate-Source Voltage	V_{gs}	V	-5
Drain Current	I_{ds}	A	16
Total Power Dissipation ($T_c=25^\circ\text{C}$)	P_T	W	70
Channel Temperature	T_{ch}	$^\circ\text{C}$	175
Storage Temperature	T_{stg}	$^\circ\text{C}$	-65~175

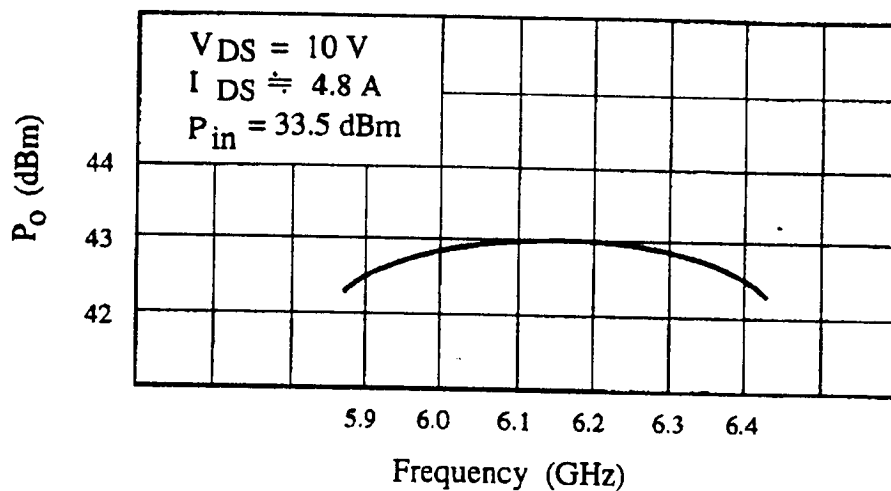
PACKAGE OUTLINE (2-16G1B)

HANDLING PRECAUTIONS FOR PACKAGED TYPE

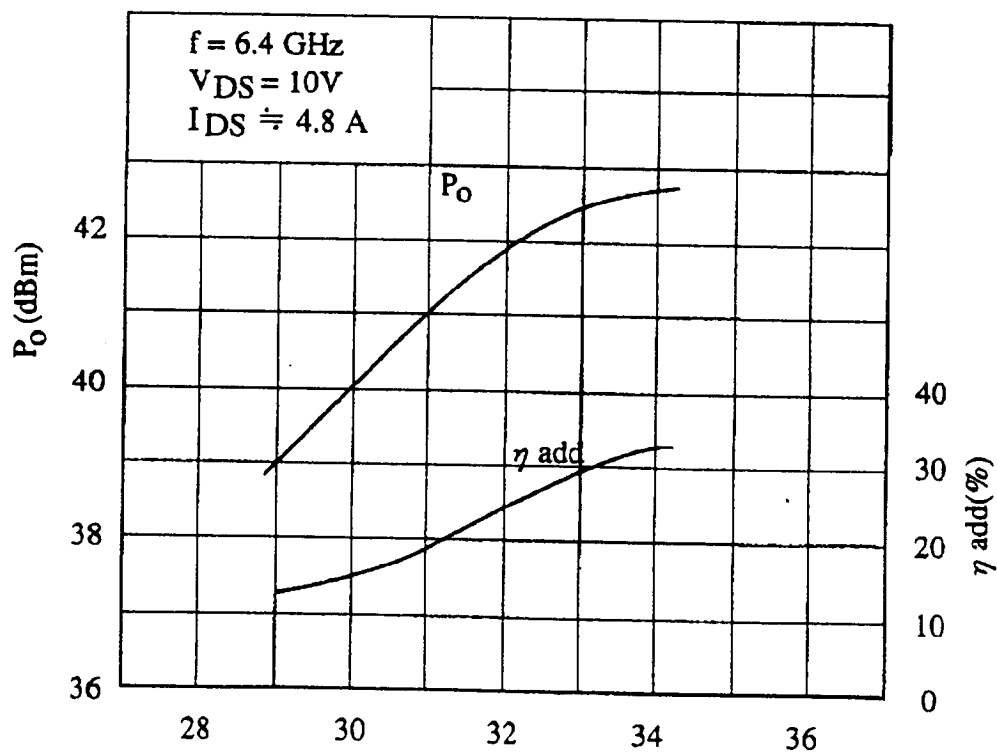
Soldering iron should be grounded and the operating time should not exceed 10 seconds at 260°C .

RF PERFORMANCES

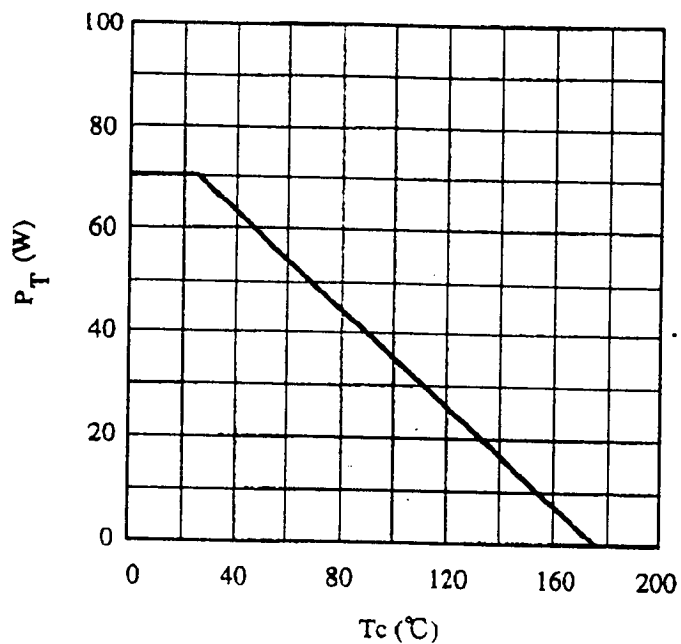
Output Power vs. Frequency



Output Power vs. Input Power



POWER DISSIPATION VS. CASE TEMPERATURE



IM₃ VS. OUTPUT POWER CHARACTERISTICS

