

TOSHIBA

MICROWAVE SEMICONDUCTOR

TECHNICAL DATA

MICROWAVE POWER GaAs FET

TIM5964-8LC

FEATURES:

- LOW INTERMODULATION DISTORTION
IM₃ = -45 dBc at P_o = 28 dBm,
Single Carrier Level
- HIGH GAIN
G_{1dB} = 9.0 dB at 5.9 GHz to 6.4 GHz
- BROAD BAND INTERNALLY MATCHED
- HIGH POWER
P_{1dB} = 39 dBm at 5.9 GHz to 6.4 GHz
- 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	38.0	39.0	-
Power Gain at 1 dB Compression Point	G _{1dB}		dB	8.0	9.0	-
Drain Current	I _{DS1}		A	-	2.2	2.8
Gain Flatness	ΔG		dB	-	-	±0.6
Power Added Efficiency	η _{add}		%	-	32	-
3rd Order Intermodulation Distortion	IM ₃	Note 1	dBc	-42	-45	-
Drain Current	I _{DS2}		A	-	2.2	2.8
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	g _m	V _{DS} = 3V I _{DS} = 3.0A	mS	-	1800	-
Pinch-off Voltage	V _{Gsoff}	V _{DS} = 3V I _{DS} = 40mA	V	-2	-3.5	-5.0
Saturated Drain Current	I _{DSS}	V _{DS} = 3V V _{GS} = 0V	A	-	5.8	7.5
Gate-Source Breakdown Voltage	V _{GSO}	I _{GS} = -120 μA	V	-5	-	-
Thermal Resistance	R _{th(c-c)}	Channel to Case	°C/W	-	2.3	3.5

Note 1: 2 tone Test Pout = 28 dBm Single Carrier Level.

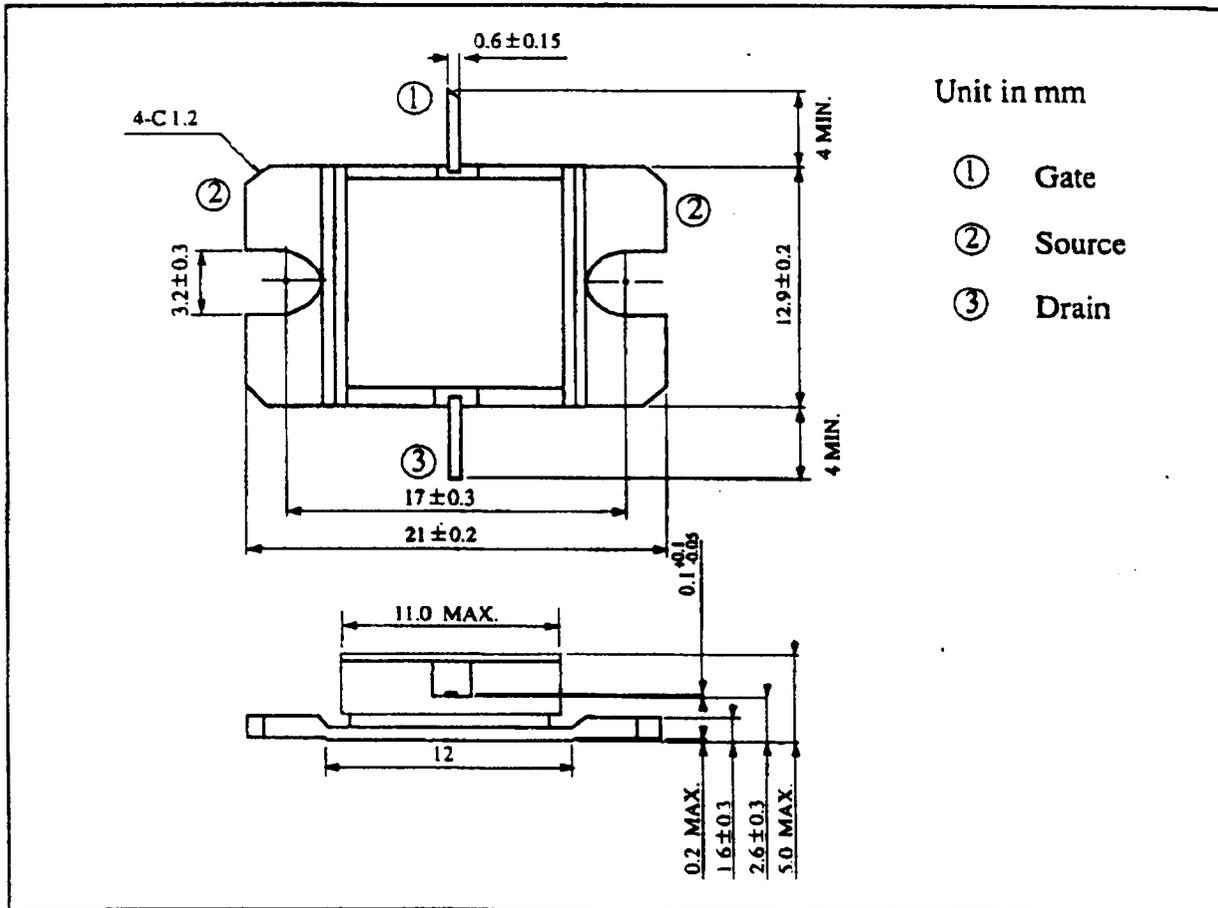
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ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTICS	SYMBOL	UNIT	RATING
Drain-Source Voltage	V _{DS}	V	15
Gate-Source Voltage	V _{GS}	V	-5
Drain Current	I _{DS}	A	8
Total Power Dissipation (T _c =25°C)	P _r	W	37.5
Channel Temperature	T _{ch}	°C	175
Storage Temperature	T _{stg}	°C	-65~175

PACKAGE OUTLINE (2-11D1B)

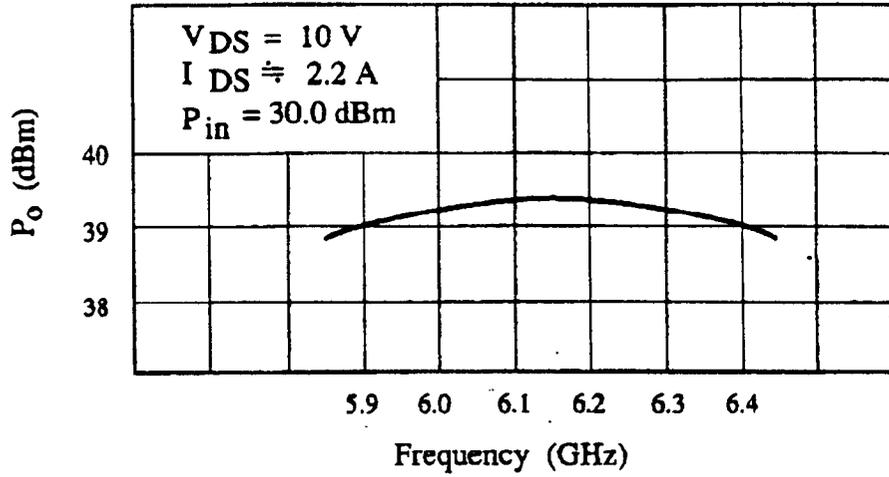


HANDLING PRECAUTIONS FOR PACKAGED TYPE

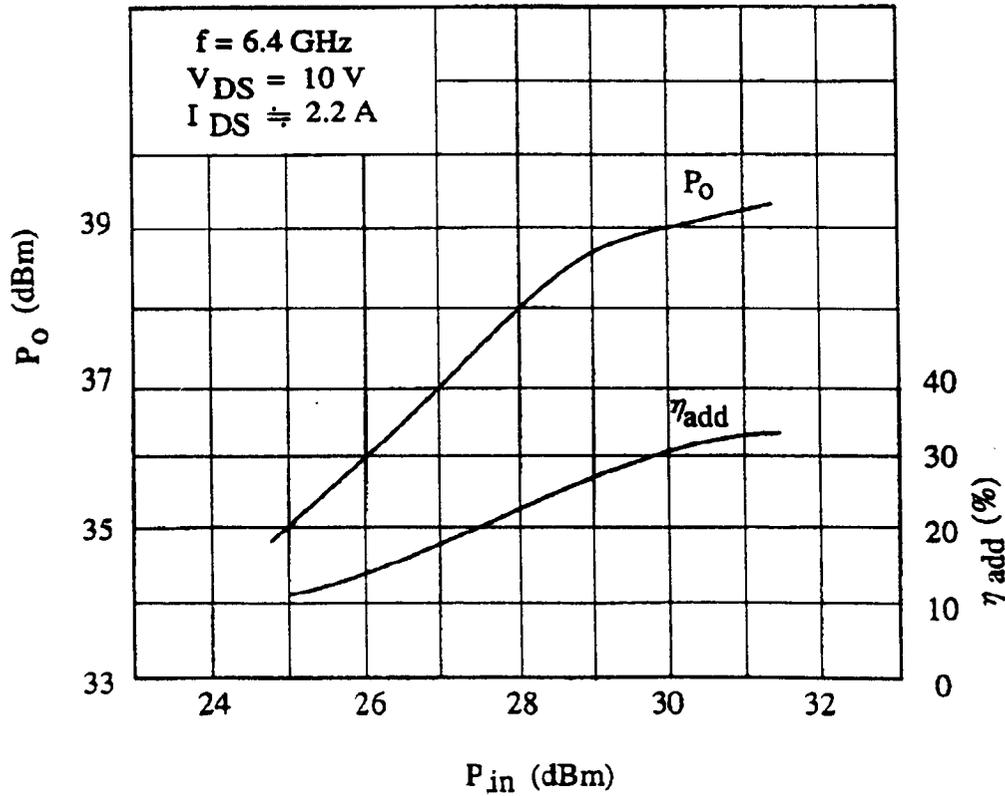
Soldering iron should be grounded and the operating time should not exceed 10 seconds at 260°C.

RF PERFORMANCES

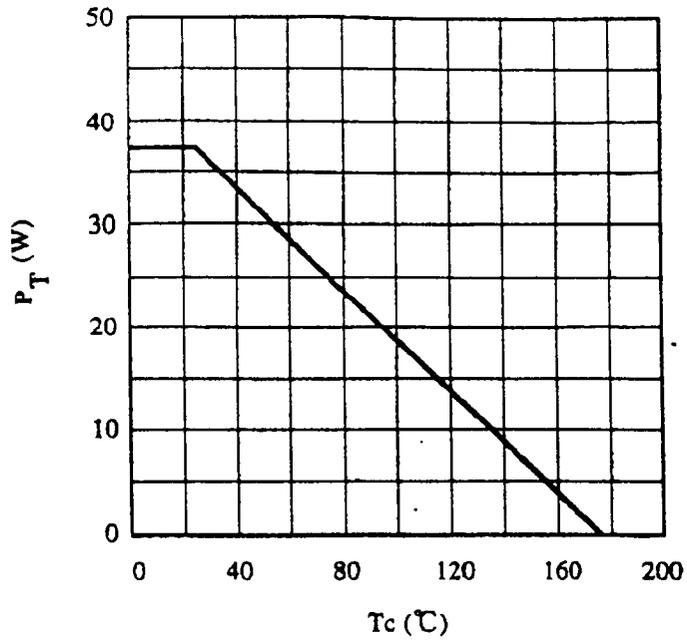
Output Power vs. Frequency



Output Power vs. Input Power



POWER DISSIPATION VS. CASE TEMPERATURE



IM₃ VS. OUTPUT POWER CHARACTERISTICS

