TOSHIBA

MICROWAVE SEMICONDUCTOR

TECHNICAL DATA

MICROWAVE POWER GaAs FET

TIM7179-30L

FEATURES :

- LOW INTERMODULATION DISTORTION
  IM_3 = −43 dBc at Po = 34.5 dBm, Single Carrier Level
- HIGH POWER
  P_{1dB} = 44.5dBm at 7.1 GHz to 7.9 GHz
- HIGH GAIN
  G_{1dB} = 6.5dB at 7.1 GHz to 7.9 GHz
- BROAD BAND INTERNALLY MATCHED
- HERMETICALLY SEALED PACKAGE

RF PERFORMANCE SPECIFICATIONS (Ta = 25°C)

CHARACTERISTICS	SYMBOL	CONDITION	UNIT	MIN.	TYP.	MAX.
Output Power at 1dB Compression Point	P_{1dB}	V_{DS}= 10 V f = 7.1~7.9 GHz	dBm	43.5	44.5	-
Power Gain at 1dB Compression Point	G_{1dB}		dB	5.5	6.5	-
Drain Current	I_{DS1}		A	-	8.0	9.0
Gain Flatness	$\triangle G$		dB	-	-	±0.8
Power Added Efficiency	η_{add}		%	-	27	-
3rd Order Intermodulation Distortion	IM_3	Note 1	dBc	-40	-43	-
Drain Current	I_{DS2}		A	-	8.0	9.0
Channel-Temperature Rise	ΔTch	$V_{DS} \times I_{DS} \times R_{th(c-c)}$	°C	-	-	80

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

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

Note 1: 2 tone Test Pout=34.5dBm Single Carrier Level.

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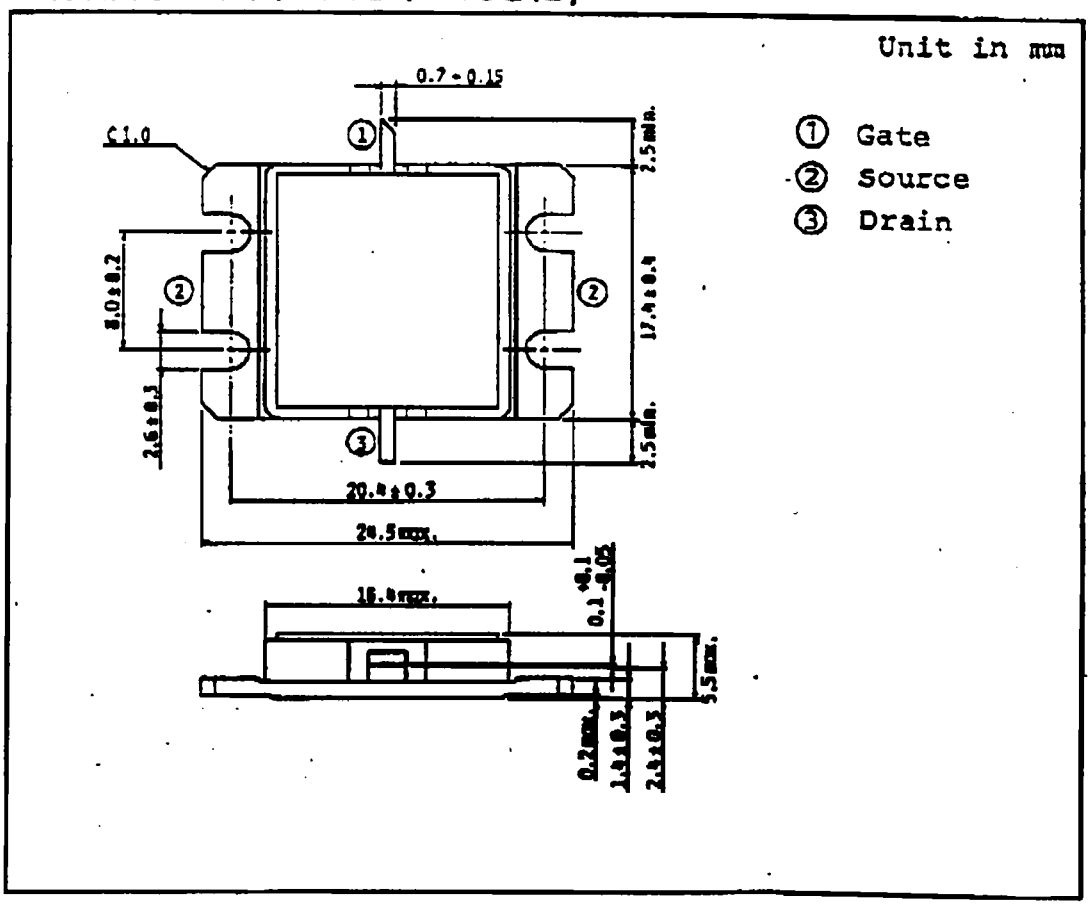
ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

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°C)	P_T	W	120
Channel Temperature	T_{ch}	°C	175
Storage Temperature	T_{stg}	°C	-65~175

PACKAGE OUTLINE (2-16G1B)

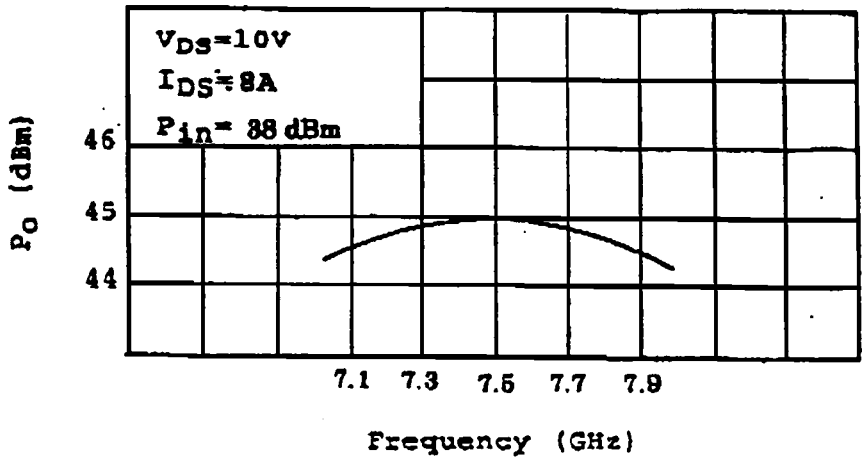


HANDLING PRECAUTIONS FOR PACKAGED TYPE

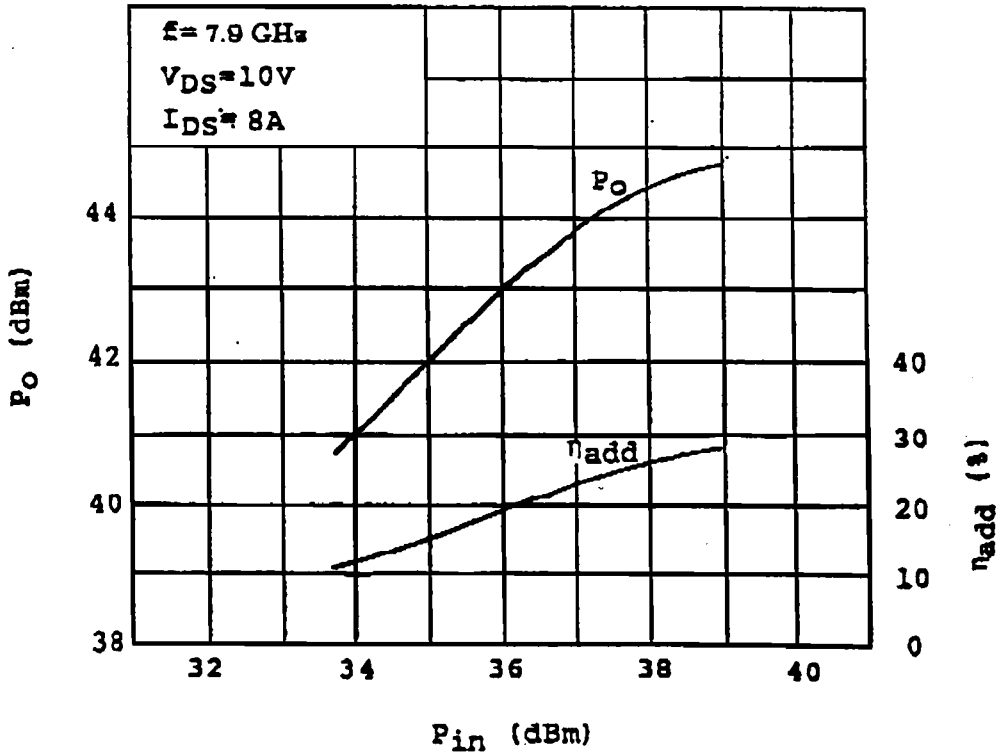
Soldering iron should be grounded and the operating time should not exceed 10 seconds at 260°C.

RF PERFORMANCES

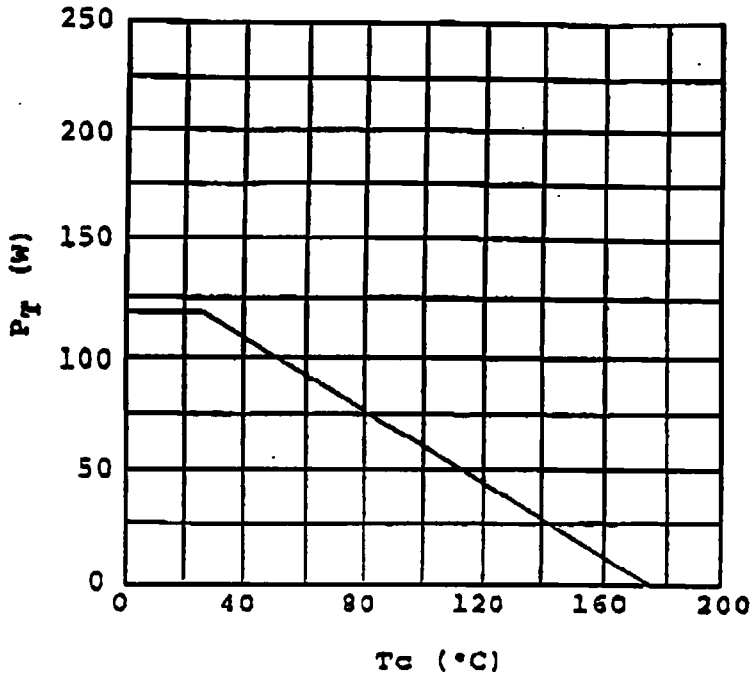
Output Power vs. Frequency



Output Power vs. Input Power



POWER DISSIPATION VS. CASE TEMPERATURE



IM_3 VS. OUTPUT POWER CHARACTERISTICS