

TOSHIBA

MICROWAVE SEMICONDUCTOR
TECHNICAL DATA

MICROWAVE POWER GaAs FET

TIM0910-15L

FEATURES :

- LOW INTERMODULATION DISTORTION
IM₃ = -45 dBc at Po = 30.0 dBm,
Single Carrier Level
- HIGH GAIN
G_{1dB} = 7.0 dB at 9.5 GHz to 10.5 GHz
- HIGH POWER
P_{1dB} = 42.0 dBm at 9.5 GHz to 10.5 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} = 9 V f = 9.5~10.5 GHz	dBm	41.0	42.0	-
Power Gain at 1dB Compression Point	G _{1dB}		dB	6.0	7.0	-
Drain Current	I _{DS1}		A	-	4.5	5.5
Gain Flatness	ΔG		dB	-	-	±0.8
Power Added Efficiency	η _{add}		%	-	31	-
3rd Order Intermodulation Distortion	IM ₃	Note 1	dBc	-42	-45	-
Drain Current	I _{DS2}		A	-	4.5	5.5
Channel-Temperature Rise	ΔT _{ch}	V _{DS} × I _{DS} × R _{th} (c-c)	°C	-	-	100

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	CONDITION	UNIT	MIN.	TYP.	MAX.
Transconductance	gm	V _{DS} = 3 V I _{DS} = 4.8 A	mS	-	3000	-
Pinch-off Voltage	V _{GSoff}	V _{DS} = 3 V I _{DS} = 145 mA	V	-1.5	-3.0	-4.5
Saturated Drain Current	I _{DSS}	V _{DS} = 3 V V _{GS} = 0 V	A	-	10.0	11.5
Gate-Source Breakdown Voltage	V _{GS0}	I _{GS} = -145 μA	V	-5	-	-
Thermal Resistance	R _{th} (c-c)	Channel to Case	°C/W	-	2.0	2.5

Note 1 : 2 tone Test Pout = 30.0 dBm Single Carrier Level.

Recommended Gate Resistance(R_g) : R_g = R_{g1}(50 Ω) + R_{g2}(50 Ω) = 100 Ω (MAX.)

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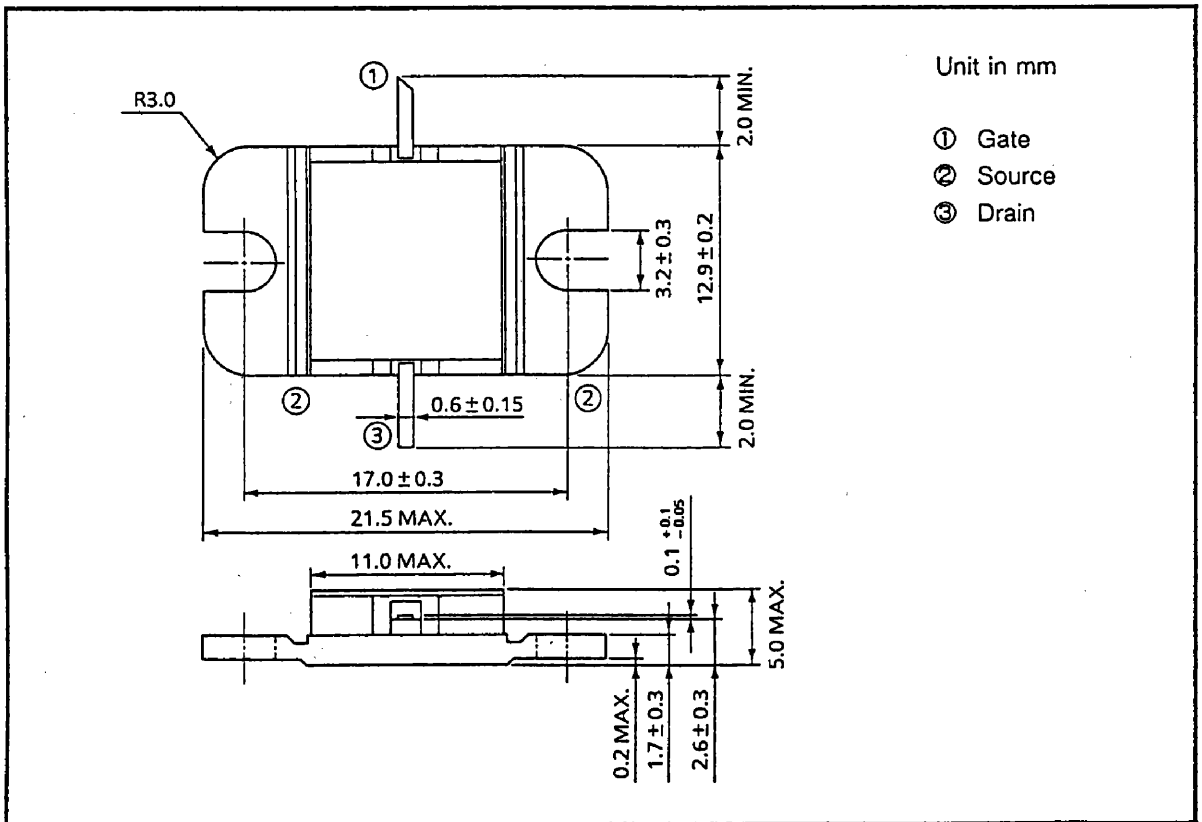


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ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTICS	SYMBOL	UNIT	RATING
Drain-Source Voltage	V _{DS}	V	15
Gate-Source Voltage	V _{GS}	V	-5
Drain Current	I _{DS}	A	11.5
Total Power Dissipation (T _C = 25°C)	P _T	W	60
Channel Temperature	T _{ch}	°C	175
Storage Temperature	T _{stg}	°C	-65~175

PACKAGE OUTLINE (2-11C1B)

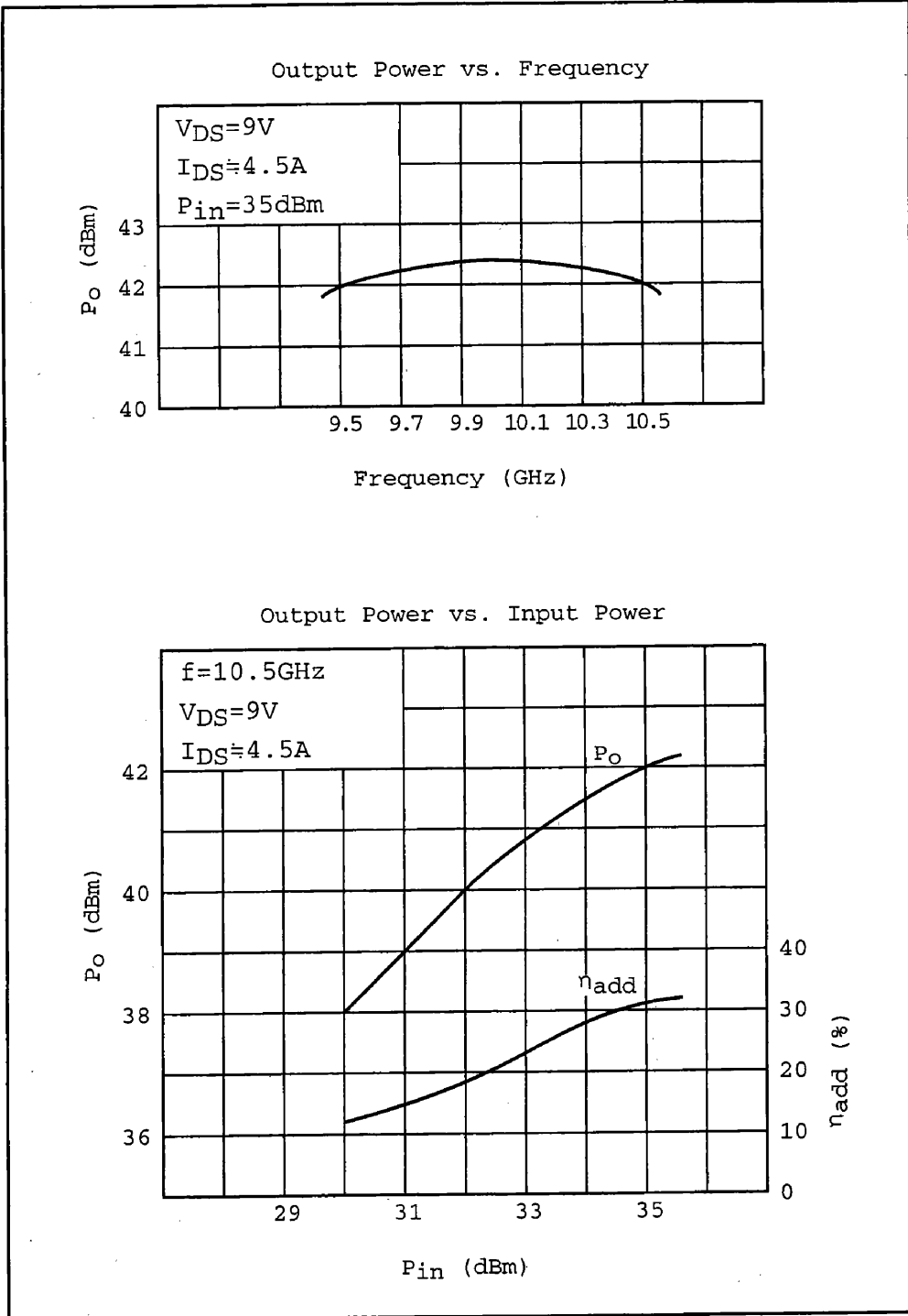


HANDLING PRECAUTIONS FOR PACKAGED TYPE

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

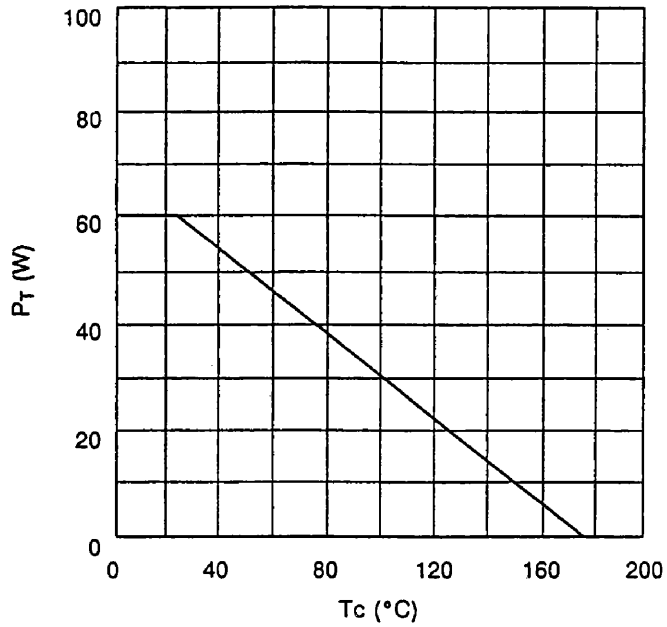
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RF PERFORMANCES



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POWER DISSIPATION VS. CASE TEMPERATURE



IM₃ VS. OUTPUT POWER CHARACTERISTICS

