

# TOSHIBA

## MICROWAVE SEMICONDUCTOR

### TECHNICAL DATA

MICROWAVE POWER GaAs FET

TIM0910-8

#### FEATURES:

- HIGH POWER  
P<sub>1dB</sub> = 39.5 dBm at 9.5 GHz to 10.5 GHz
- BROAD BAND INTERNALLY MATCHED
- HIGH GAIN  
G<sub>1dB</sub> = 6.0 dB at 9.5 GHz to 10.5 GHz
- HERMETICALLY SEALED PACKAGE

#### RF PERFORMANCE SPECIFICATIONS (T<sub>a</sub> = 25°C)

CHARACTERISTICS	SYMBOL	CONDITION	UNIT	MIN.	TYP.	MAX.
Output Power at 1 dB Compression Point	P <sub>1dB</sub>	V <sub>DS</sub> = 9 V f = 9.5 - 10.5 GHz	dBm	38.5	39.5	-
Power Gain at 1 dB Compression Point	G <sub>1dB</sub>		dB	5.0	6.0	-
Drain Current	I <sub>DS</sub>		A	-	3.4	4.4
Power Added Efficiency	η <sub>add</sub>		%	-	22	-
Channel-Temperature Rise	ΔT <sub>ch</sub>	V <sub>DS</sub> × I <sub>DS</sub> × R <sub>th(c-c)</sub>	°C	-	-	80

#### ELECTRICAL CHARACTERISTICS (T<sub>a</sub> = 25°C)

CHARACTERISTICS	SYMBOL	CONDITION	UNIT	MIN.	TYP.	MAX.
Trans-conductance	gm	V <sub>DS</sub> = 3 V I <sub>DS</sub> = 4.0 A	mS	-	2400	-
Pinch-off Voltage	V <sub>GSo</sub> off	V <sub>DS</sub> = 3 V I <sub>DS</sub> = 120 mA	V	-2	-3.5	-5
Saturated Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = 3 V V <sub>GS</sub> = 0 V	A	-	8.0	10.4
Gate-Source Breakdown Voltage	V <sub>GSO</sub>	I <sub>GS</sub> = -120 μA	V	-5	-	-
Thermal Resistance	R <sub>th(c-c)</sub>	Channel to Case	°C/W	-	1.6	2.5

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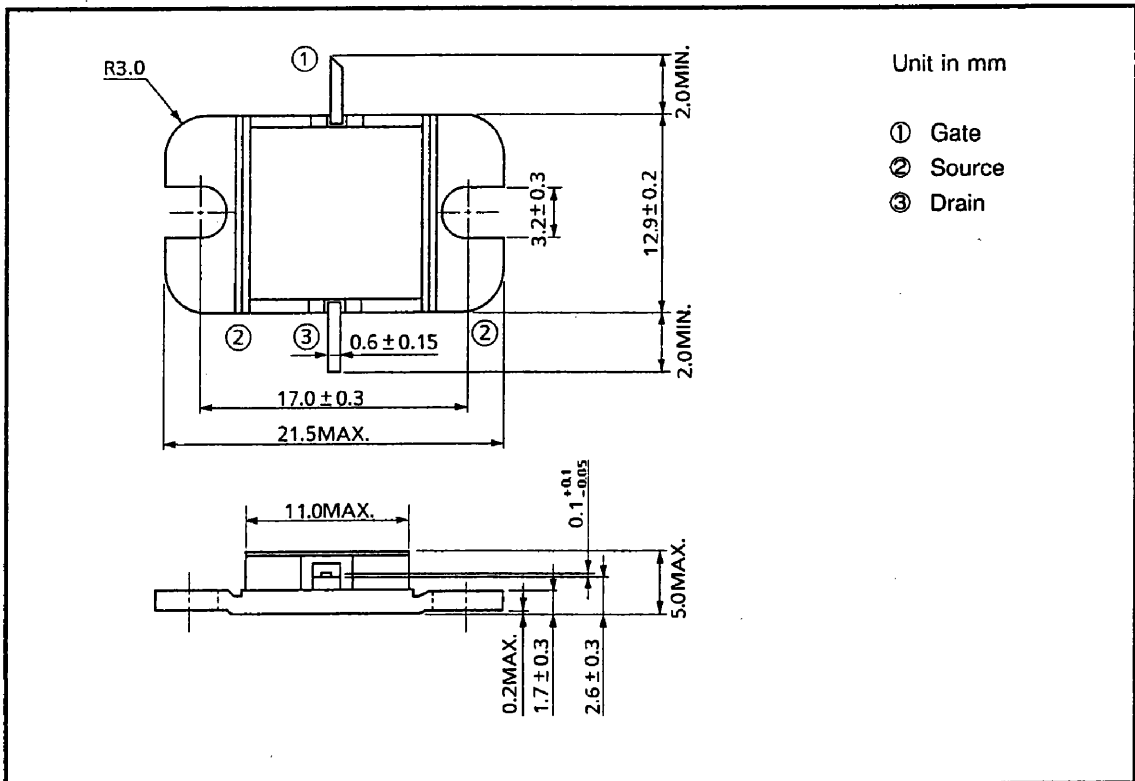


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## ABSOLUTE MAXIMUM RATINGS ( $T_a = 25^\circ\text{C}$ )

CHARACTERISTIC	SYMBOL	UNIT	RATING
Drain-Source Voltage	$V_{DS}$	V	15
Gate-Source Voltage	$V_{GS}$	V	-5
Drain Current	$I_{DS}$	A	10.4
Total Power Dissipation ( $T_c=25^\circ\text{C}$ )	$P_T$	W	60
Channel Temperature	$T_{ch}$	$^\circ\text{C}$	175
Storage Temperature	$T_{stg}$	$^\circ\text{C}$	-65~175

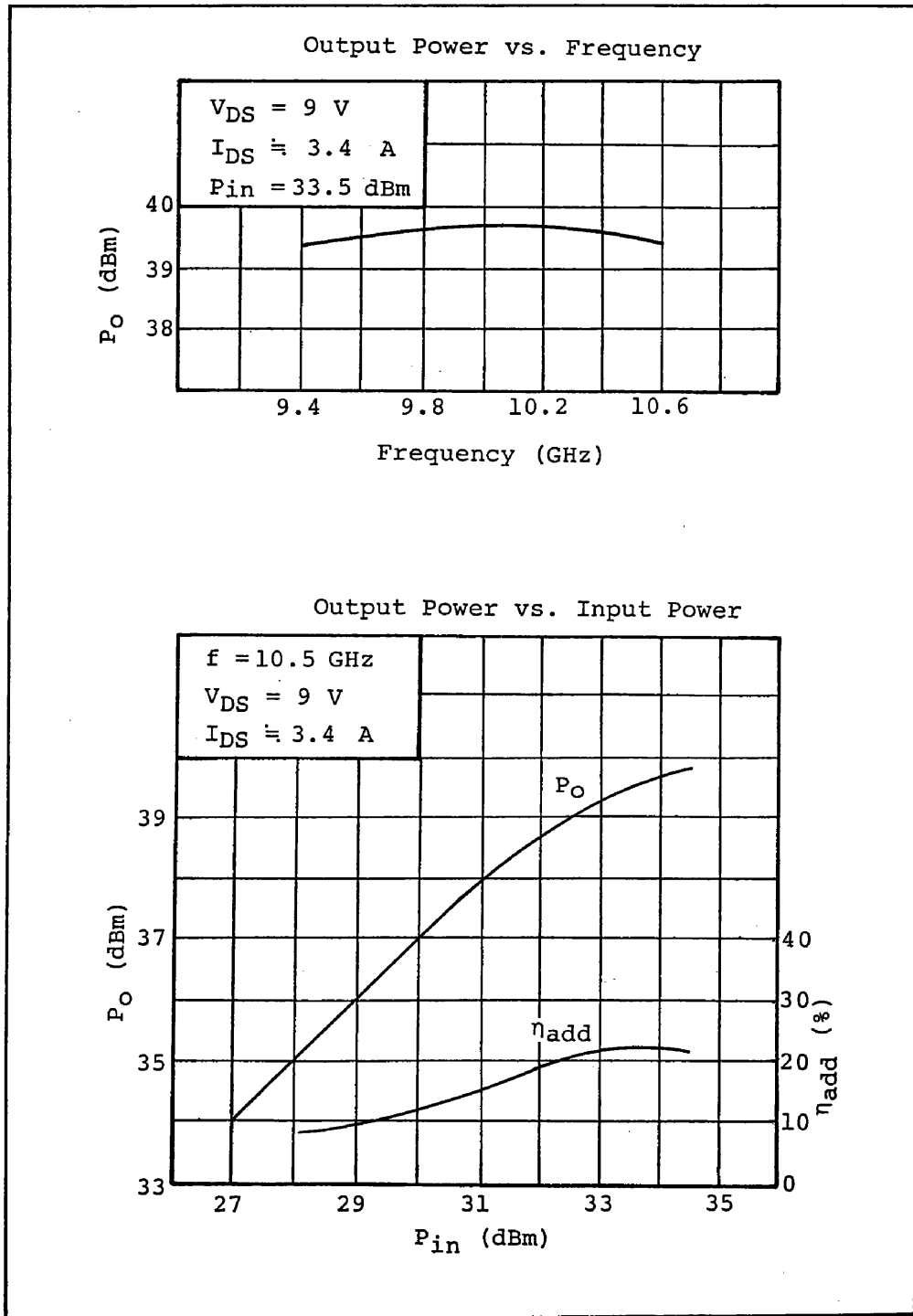
## PACKAGE OUTLINE (2-11C1B)



### HANDLING PRECAUTIONS FOR PACKAGED TYPE

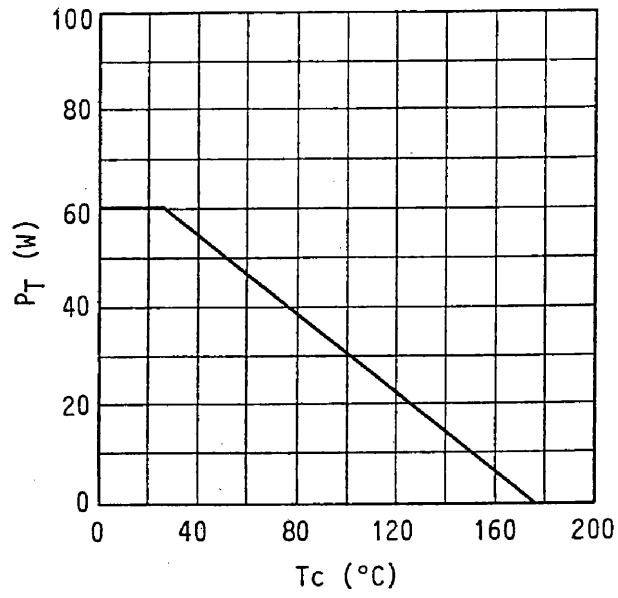
Soldering iron should be grounded and the operating time should not exceed 10 seconds at  $260^\circ\text{C}$ .

RF PERFORMANCES



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## POWER DISSIPATION VS. CASE TEMPERATURE



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## TIM0910-8 S-PARAMETERS (MAGN. and ANGLES)

$V_{DS} = 9 \text{ V}$  ,  $I_{DS} = 3.4 \text{ A}$

