

TOSHIBA

MICROWAVE SEMICONDUCTOR

TECHNICAL DATA

MICROWAVE POWER GaAs FET

TIM8596-8

FEATURES:

- HIGH POWER
 $P_{1dB} = 39.5$ dBm at 8.5 GHz to 9.6 GHz
- BROAD BAND INTERNALLY MATCHED
- HIGH GAIN
 $G_{1dB} = 6.0$ dB at 8.5 GHz to 9.6 GHz
- HERMETICALLY SEALED PACKAGE

RF PERFORMANCE SPECIFICATIONS ($T_a = 25^\circ\text{C}$)

CHARACTERISTICS	SYMBOL	CONDITION	UNIT	MIN.	TYP.	MAX.
Output Power at 1 dB Compression Point	P_{1dB}	$V_{DS} = 9\text{ V}$ $f = 8.5$ -9.6 GHz	dBm	38.5	39.5	-
Power Gain at 1 dB Compression Point	G_{1dB}		dB	5.0	6.0	-
Drain Current	I_{DS}		A	-	3.4	4.4
Power Added Efficiency	η_{add}		%	-	22	-
Channel-Temperature Rise	ΔT_{ch}	$V_{DS} \times I_{DS} \times R_{th(c-c)}$	$^\circ\text{C}$	-	-	80

ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

CHARACTERISTICS	SYMBOL	CONDITION	UNIT	MIN.	TYP.	MAX.
Trans-conductance	gm	$V_{DS} = 3\text{ V}$ $I_{DS} = 4.0\text{ A}$	mS	-	2400	-
Pinch-off Voltage	V_{GSoff}	$V_{DS} = 3\text{ V}$ $I_{DS} = 120\text{ mA}$	V	-2	-3.5	-5
Saturated Drain Current	I_{DSS}	$V_{DS} = 3\text{ V}$ $V_{GS} = 0\text{ V}$	A	-	8.0	10.4
Gate-Source Breakdown Voltage	V_{GSO}	$I_{GS} = -120\text{ }\mu\text{A}$	V	-5	-	-
Thermal Resistance	$R_{th(c-c)}$	Channel to Case	$^\circ\text{C/W}$	-	1.6	2.5

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TOSHIBA CORPORATION

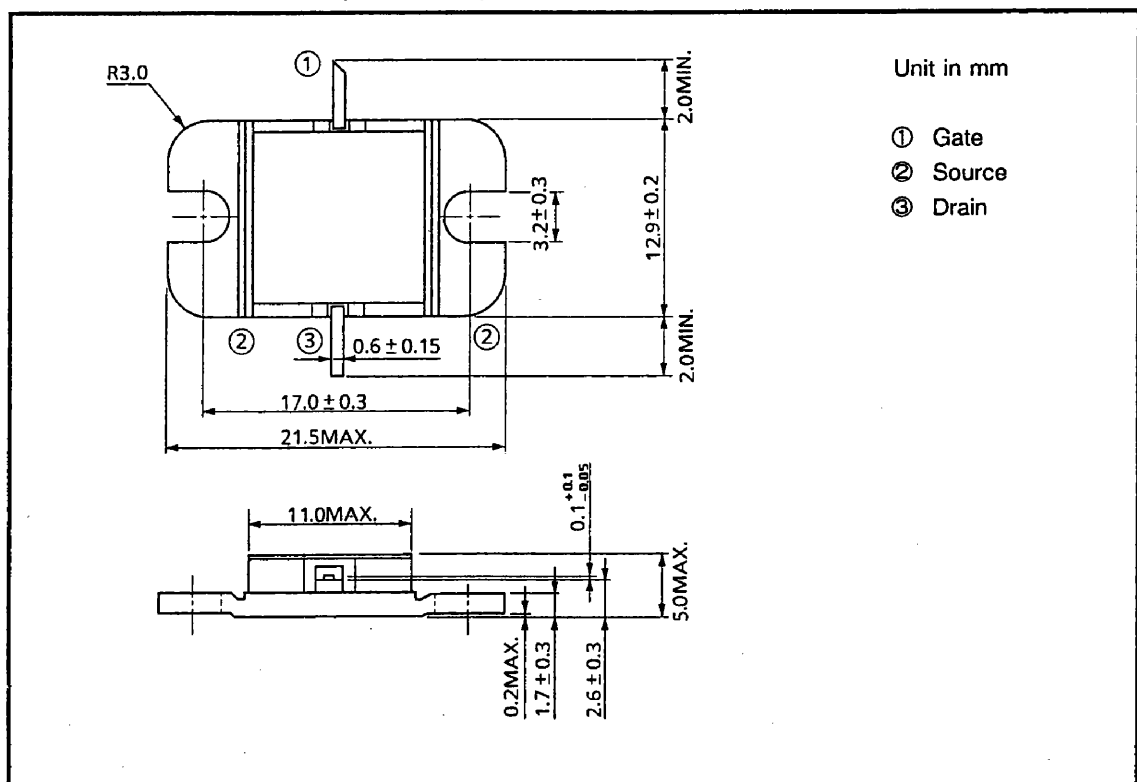
Revised Apr., 1990

TIM8596-8

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)

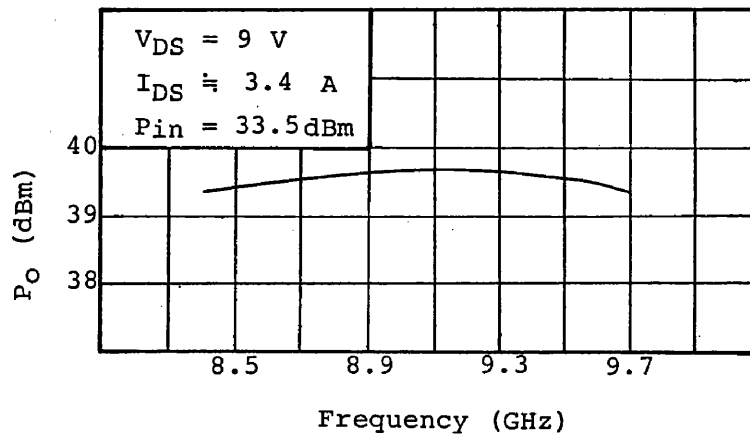


HANDLING PRECAUTIONS FOR PACKAGED TYPE

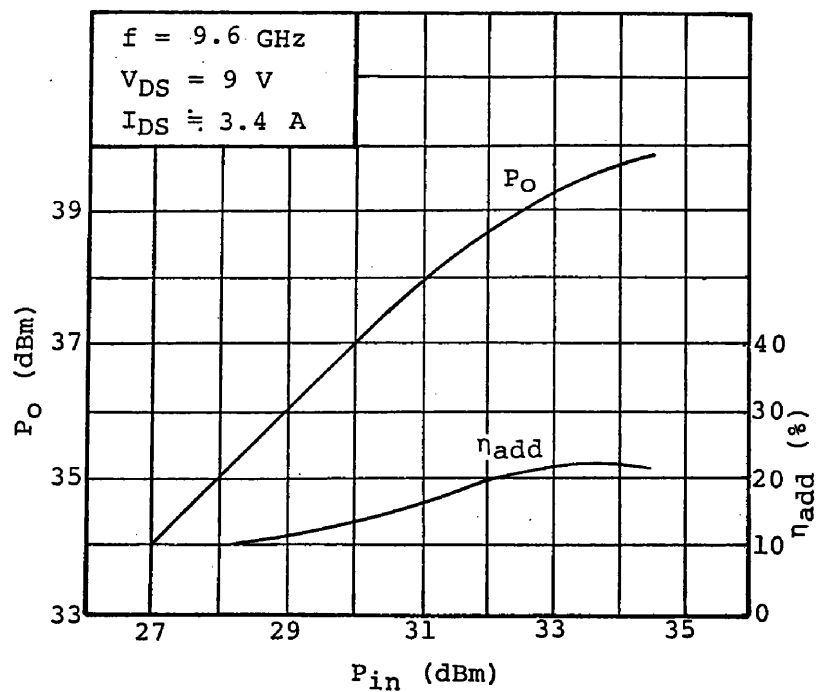
Soldering iron should be grounded and the operating time should not exceed 10 seconds at 260°C .

RF PERFORMANCES

Output Power vs. Frequency



Output Power vs. Input Power



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POWER DISSIPATION VS. CASE TEMPERATURE

