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
- HIGH GAIN
  G_{1dB} = 6.0 dB at 8.5 GHz to 9.6 GHz
- BROAD BAND INTERNALLY MATCHED
- 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} = 9 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}	$V_{DS} \times I_{DS} \times R_{th(c-c)}$	°C	-	-	80

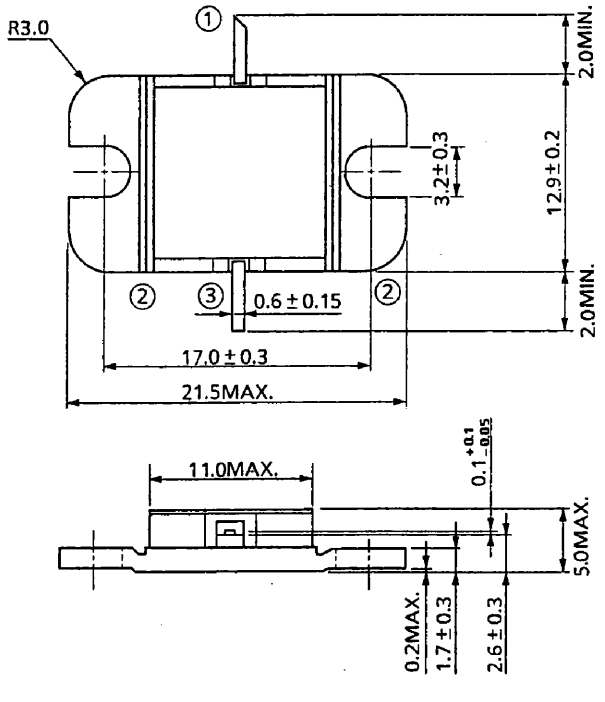
ELECTRICAL CHARACTERISTICS (T_a = 25°C)

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

ABSOLUTE MAXIMUM RATINGS (T_a = 25°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°C)	P_T	W	60
Channel Temperature	T_{ch}	°C	175
Storage Temperature	T_{stg}	°C	-65~175

PACKAGE OUTLINE (2-11C1B)



Unit in mm

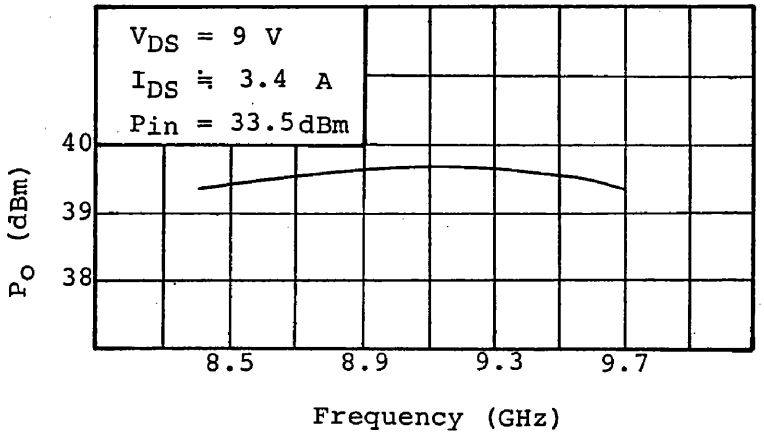
① Gate
② Source
③ Drain

HANDLING PRECAUTIONS FOR PACKAGED TYPE

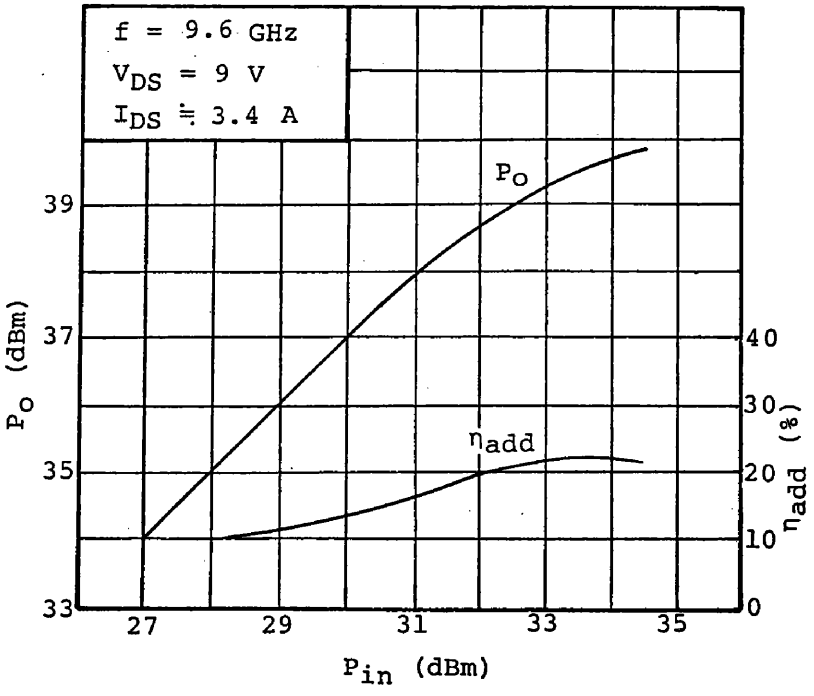
Soldering iron should be grounded and the operating time should not exceed 10 seconds at 260°C.

RF PERFORMANCES

Output Power vs. Frequency



Output Power vs. Input Power



POWER DISSIPATION VS. CASE TEMPERATURE