

TOSHIBA

MICROWAVE SEMICONDUCTOR

TECHNICAL DATA

MICROWAVE POWER GaAs FET

TIM0910-20

FEATURES:

- HIGH POWER
P_{1dB} = 43.5 dBm at 9.5GHz to 10.5GHz
- BROAD BAND INTERNALLY MATCHED
- HIGH GAIN
G_{1dB} = 6.0 dB at 9.5GHz to 10.5GHz
- HERMETICALLY SEALED PACKAGE

RF PERFORMANCE SPECIFICATIONS (Ta = 25°C)

CHARACTERISTIC	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	42.5	43.5	–
Power Gain at 1dB Compression Point	G _{1dB}		dB	5.0	6.0	–
Drain Current	I _{DS}		A	–	8.0	9.0
Power Added Efficiency	η _{add}		%	–	23	–
Channel-Temperature Rise	ΔT _{ch}	V _{DS} × I _{DS} × R _{th(c-c)}	°C	–	–	80

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	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
Saturated Drain Current	I _{DSS}	V _{DS} = 3V V _G S = 0V	A	–	20	26
Gate-Source Breakdown Voltage	V _{GSO}	I _{GS} = –420 μA	V	–5	–	–
Thermal Resistance	R _{th(c-c)}	Channel to Case	°C/W	–	0.8	1.0

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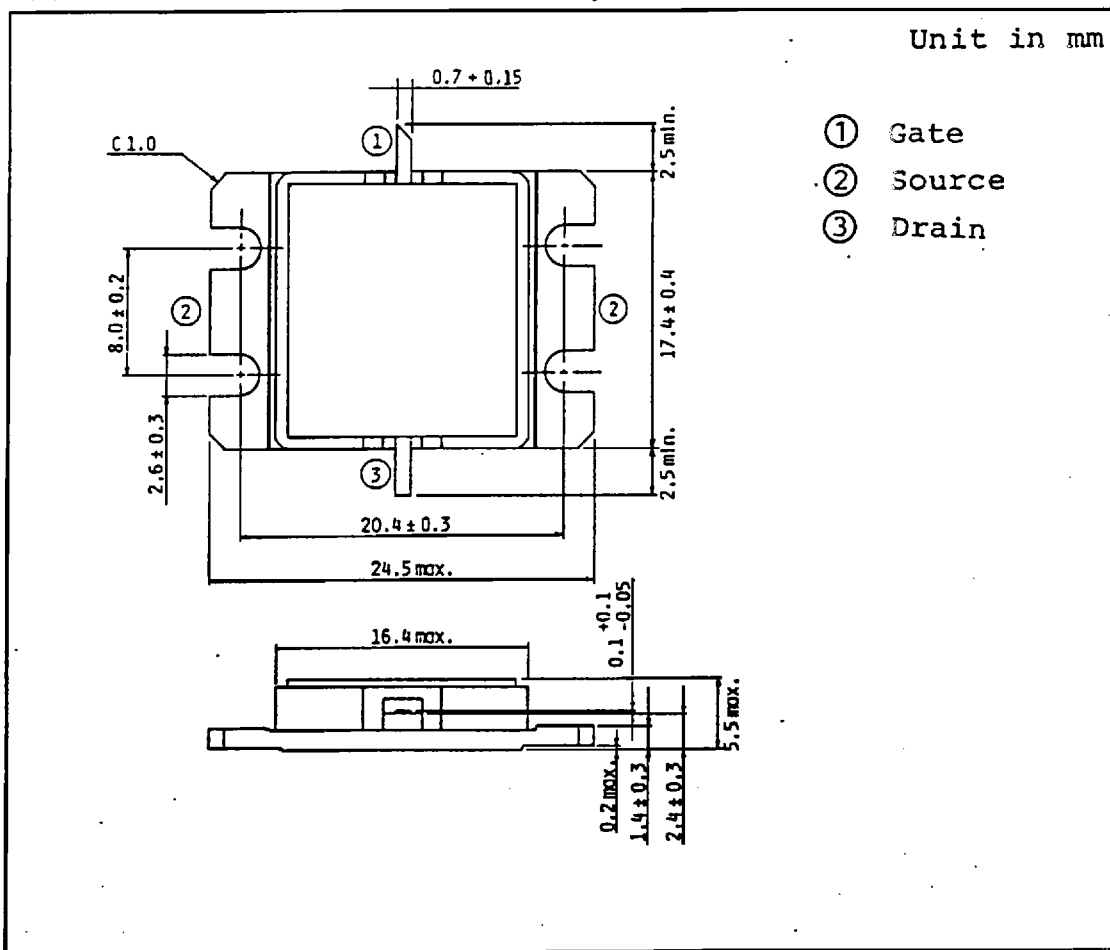
TOSHIBA CORPORATION

Aug. 1996

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

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 ($T_C=25^\circ\text{C}$)	P_T	W	120
Channel Temperature	T_{ch}	$^\circ\text{C}$	175
Storage Temperature	T_{stg}	$^\circ\text{C}$	-65~175

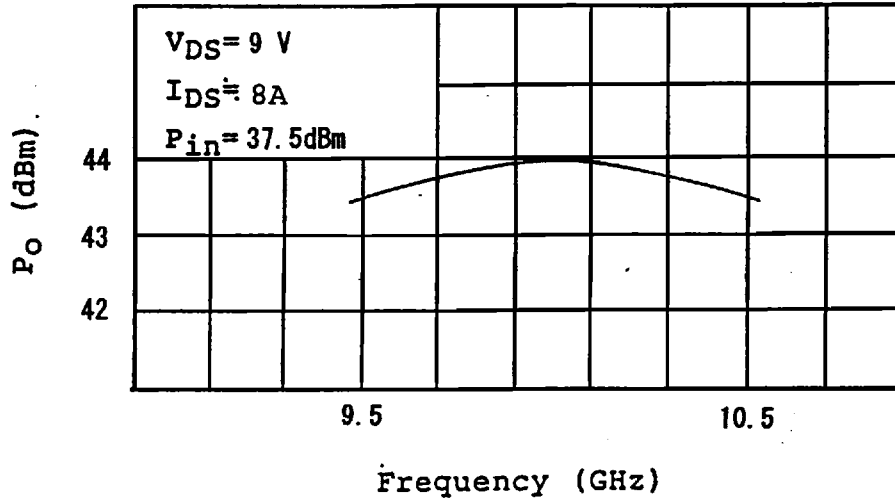
PACKAGE OUTLINE (2-16G1B)

HANDLING PRECAUTIONS FOR PACKAGED TYPE

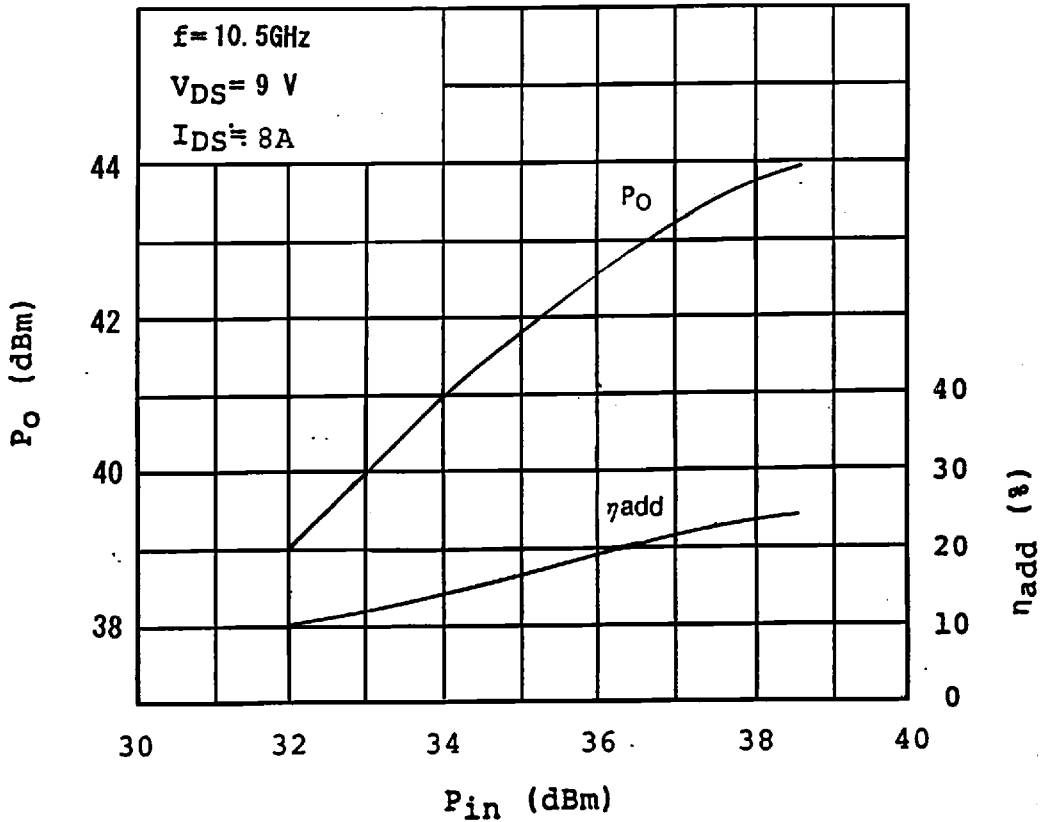
Soldering iron should be grounded and the operating time should not exceed 10 seconds at 260°C .

RF PERFORMANCES

Output Power vs. Frequency



Output Power vs. Input Power



POWER DISSIPATION VS. CASE TEMPERATURE

