TOSHIBA

MICROWAVE SEMICONDUCTOR

TECHNICAL DATA

MICROWAVE POWER GaAs FET

TPM1919-40-311

FEATURES :

- HIGH POWER
  P_{1dB} = 47.0 dBm at 1.9 GHz
- HIGH GAIN
  G_{1dB} = 13 dB at 1.9 GHz
- PARTIALLY MATCHED TYPE
- 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} = 10 V f = 1.9 GHz	dBm	46.0	47.0	–
Power Gain at 1dB Compression Point	G_{1dB}		dB	12.0	13.0	–
Drain Current	I_{DS}		A	–	9.6	11.0
Power Added Efficiency	η_{add}		%	–	49	–
Channel-Temperature Rise	ΔTch	$V_{DS} \times I_{DS} \times R_{th(c-c)}$	°C	–	–	100

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

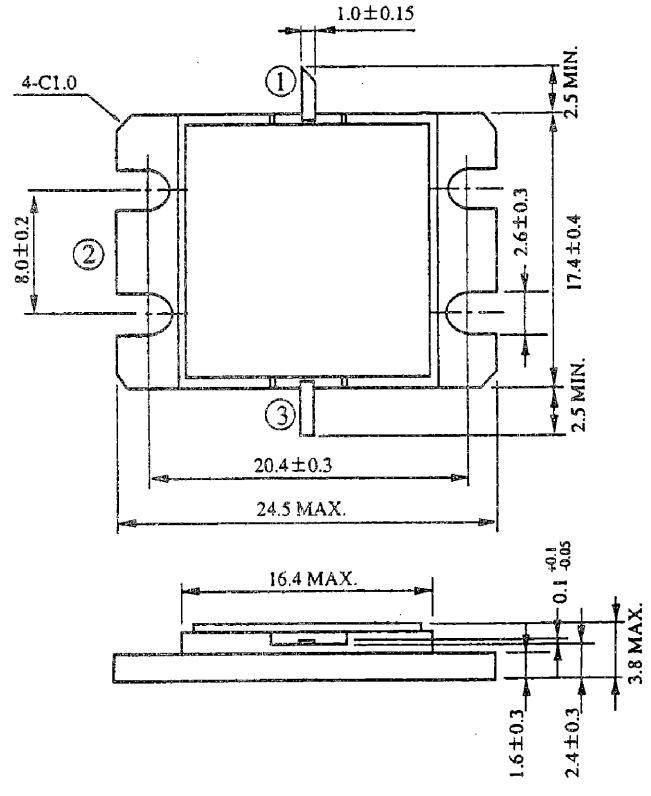
CHARACTERISTICS	SYMBOL	CONDITION	UNIT	MIN.	TYP.	MAX.
Transconductance	gm	V_{DS} = 3 V I_{DS} = 11.0A	mS	–	8800	–
Pinch-off Voltage	V_{GSoff}	V_{DS} = 3 V I_{DS} = 170 mA	V	−1.0	-2.5	−4.0
Saturated Drain Current	I_{DSS}	V_{DS} = 3 V V_{GS} = 0 V	A	–	24	31
Gate-Source Breakdown Voltage	V_{GSO}	I_{GS} = −500 μA	V	−5	–	–
Thermal Resistance	$R_{th(c-c)}$	Channel to Case	°C/W	–	0.8	1.2

*RECOMMENDED GATE RESISTANCE(Rg) : Rg=30 Ω (MAX.)

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	31
Total Power Dissipation (T_C = 25°C)	P_T	W	125
Channel Temperature	T_{ch}	°C	175
Storage Temperature	T_{stg}	°C	−65~175

PACKAGE OUTLINE (2-16G6A)



Unit in mm

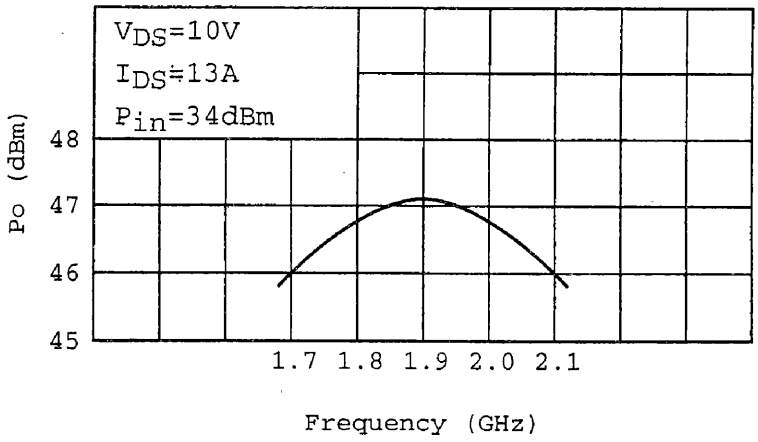
① Gate
② Source
③ Drain

HANDLING PRECAUTIONS FOR PACKAGED TYPE

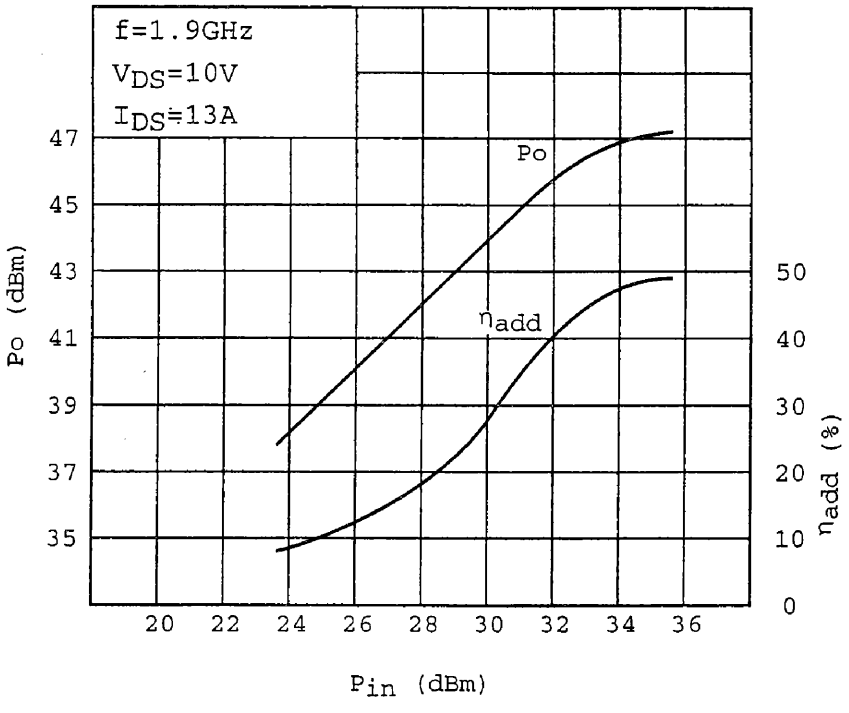
Soldering iron should be grounded and the operating time should not exceed 10 seconds at 260°C.

RF PERFORMANCES.

Output Power vs. Frequency



Output Power vs. Input Power



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POWER DISSIPATION VS. CASE TEMPERATURE