

TOSHIBA

MICROWAVE SEMICONDUCTOR

TECHNICAL DATA

MICROWAVE POWER GaAs FET

TIM7785-16UL

FEATURES

■ HIGH POWER

P1dB=42.5dBm at 7.7GHz to 8.5GHz

■ HIGH GAIN

G1dB= 8.5dB at 7.7GHz to 8.5GHz

■ BROAD BAND INTERNALLY MATCHED

■ HERMETICALLY SEALED PACKAGE

RF PERFORMANCE SPECIFICATIONS (Ta= 25°C)

CHARACTERISTICS	SYMBOL	CONDITION	UNIT	MIN.	TYP.	MAX.
Output Power at 1dB Compression Point	P1dB	VDS= 10V f = 7.7 - 8.5GHz	dBm	41.5	42.5	—
Power Gain at 1dB Compression Point	G1dB		dB	7.5	8.5	—
Drain Current	IDS1		A	—	4.4	5.0
Gain Flatness	ΔG		dB	—	—	±0.6
Power Added Efficiency	η _{add}		%	—	35	—
3rd Order Intermodulation Distortion	IM3	Two Tone Test Po= 31.5dBm	dBc	-44	-47	—
Drain Current	IDS2	(Single Carrier Level)	A	—	4.4	5.0
Channel Temperature Rise	ΔT _{ch}	VDS X IDS X R _{th(c-c)}	°C	—	—	80

ELECTRICAL CHARACTERISTICS (Ta= 25°C)

CHARACTERISTICS	SYMBOL	CONDITION	UNIT	MIN.	TYP.	MAX.
Transconductance	gm	VDS= 3V IDS= 6.0A	mS	—	3600	—
Pinch-off Voltage	VGS _{off}	VDS= 3V IDS= 60mA	V	-1.0	-2.5	-4.0
Saturated Drain Current	IDSS	VDS= 3V VGS= 0V	A	—	10.5	14.0
Gate-Source Breakdown Voltage	VGS _O	IGS= -200μA	V	-5	—	—
Thermal Resistance	R _{th(c-c)}	Channel to Case	°C/W	—	1.5	1.8

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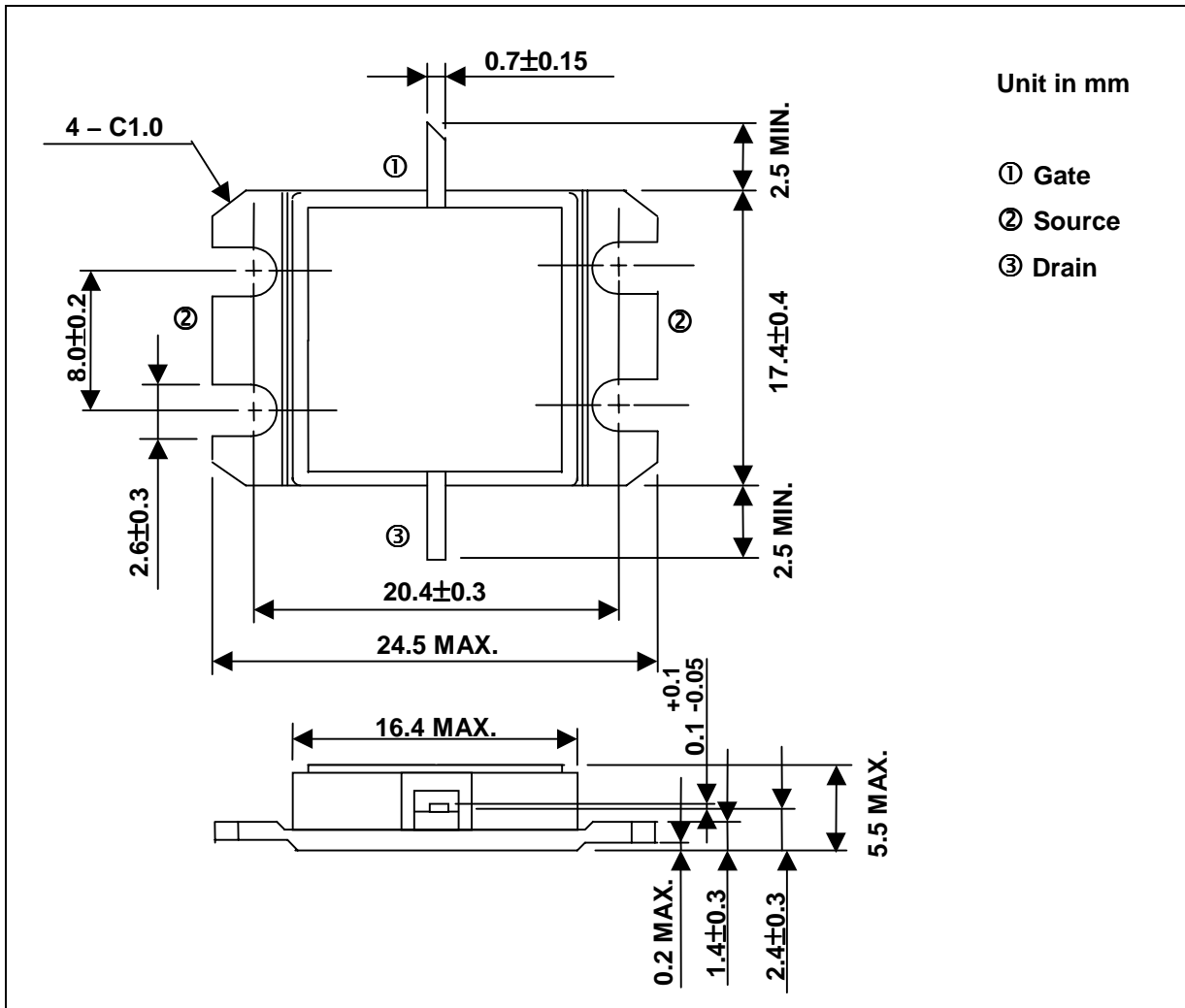
The information contained herein is subject to change without prior notice. It is therefor advisable to contact TOSHIBA before proceeding with design of equipment incorporating this product.



ABSOLUTE MAXIMUM RATINGS (Ta= 25°C)

CHARACTERISTICS	SYMBOL	UNIT	RATING
Drain-Source Voltage	VDS	V	15
Gate-Source Voltage	VGS	V	-5
Drain Current	IDS	A	14
Total Power Dissipation (Tc= 25 °C)	PT	W	75
Channel Temperature	Tch	°C	175
Storage	Tstg	°C	-65 ~ +175

PACKAGE OUTLINE (2-16G1B)

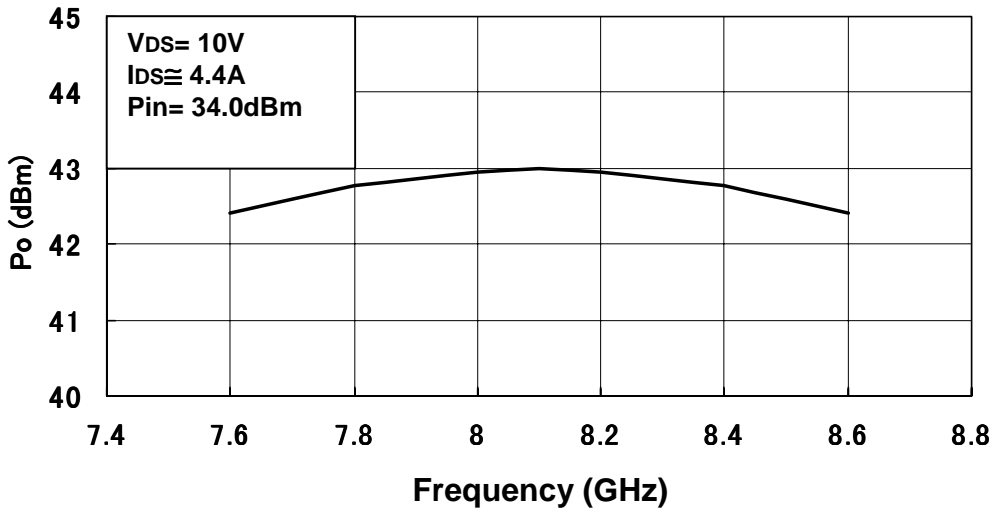


HANDLING PRECAUTIONS FOR PACKAGED TYPE

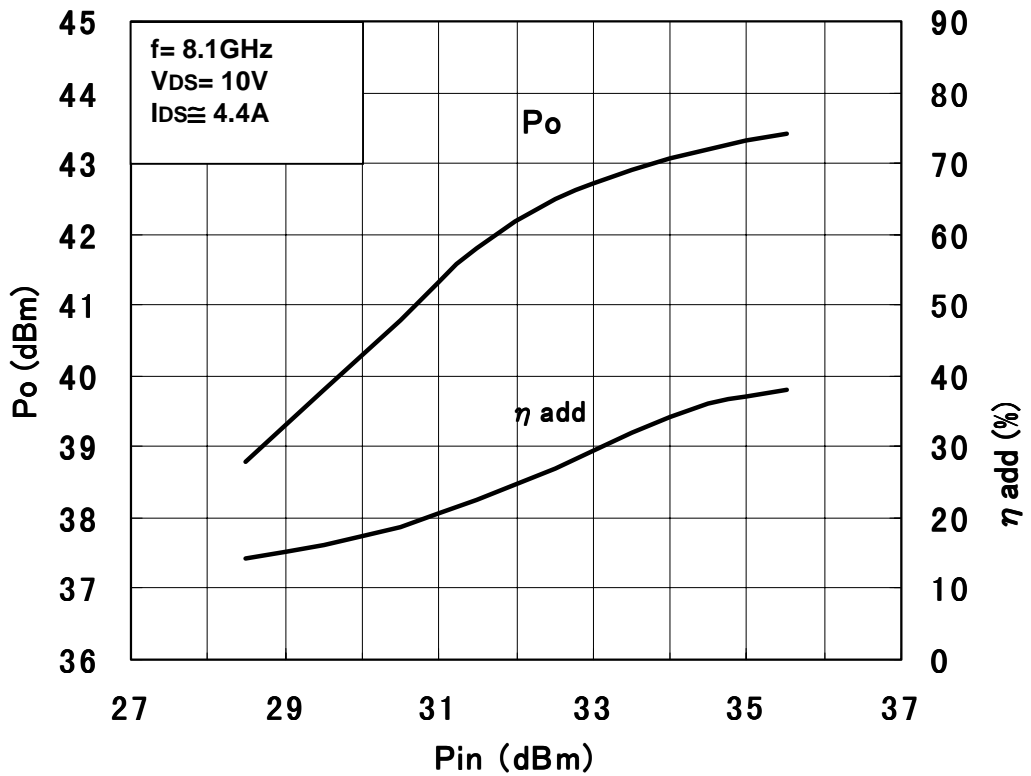
Soldering iron should be grounded and the operating time should not exceed 10 seconds at 260°C.

RF PERFORMANCES

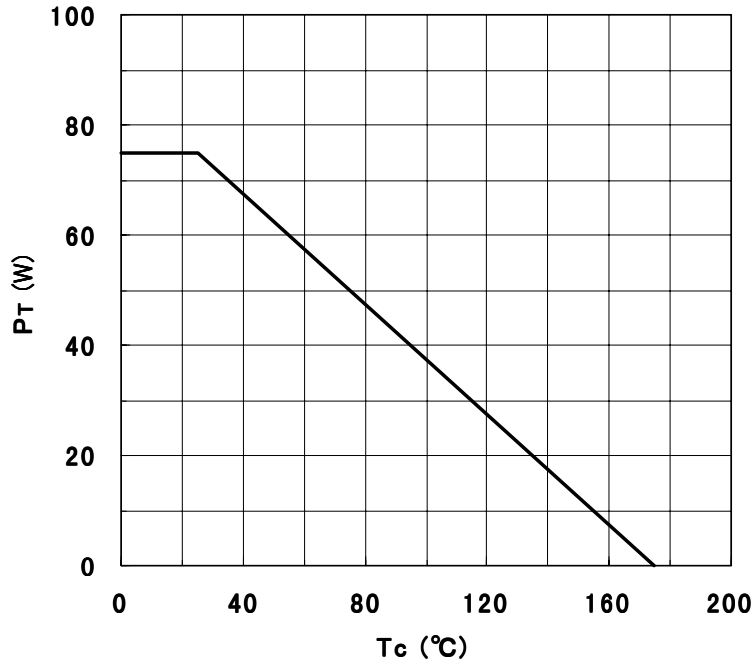
Output Power vs. Frequency



Output Power vs. Input Power



POWER DISSIPATION vs. CASE TEMPERATURE



IM3 vs. OUTPUT POWER CHARACTERISTICS

