

High Efficiency and Low Distortion Internally Matched Power GaAs FETs (C-Band)

Features

- Low intermodulation distortion
 - $IM_3 = -45$ dBc at $P_o = 34.5$ dBm, Single Carrier Level
- High power
 - $P_{1dB} = 45$ dBm at 5.9 GHz to 6.4 GHz
- High efficiency
 - $\eta_{add} = 38\%$ at 5.9 GHz to 6.4 GHz
- High gain
 - $G_{1dB} = 8.0$ dB at 5.9 GHz to 6.4 GHz
- Broadband internally matched
- Hermetically sealed package

RF Performance Specifications ($T_a = 25^\circ\text{C}$)

Characteristic	Symbol	Condition	Unit	Min.	Typ.	Max.
Output Power at 1dB Compression Point	P_{1dB}	$V_{DS} = 10V$ $f = 5.9 \sim 6.4$ GHz	dBm	44.0	45.0	–
Power Gain at 1dB Compression Point	G_{1dB}		dB	7.0	8.0	–
Drain Current	I_{DS}		A	–	7.0	8.0
Power Added Efficiency	η_{add}		%	–	38	–
3rd Order Intermodulation Distortion	IM_3	Note 1	dBc	-42	-45	–
Channel-Temperature Rise	ΔT_{ch}	$V_{DS} \times I_{DS} \times R_{th(c-c)}$	$^\circ\text{C}$	–	–	100

Electrical Characteristics ($T_a = 25^\circ\text{C}$)

Characteristic	Symbol	Condition	Unit	Min.	Typ.	Max.
Transconductance	gm	$V_{DS} = 3V$ $I_{DS} = 10A$	mS	–	6300	–
Pinch-off Voltage	V_{GSoff}	$V_{DS} = 3V$ $I_{DS} = 100$ mA	V	-1.0	-2.5	-4.0
Saturated Drain Current	I_{DSS}	$V_{DS} = 3V$ $V_{GS} = 0V$	A	–	18	22
Gate-Source Breakdown Voltage	V_{GSO}	$I_{GS} = -350$ μA	V	-5	–	–
Thermal Resistance	$R_{th(c-c)}$	Channel to Case	$^\circ\text{C/W}$	–	1.0	1.3

Note 1: 2-tone Test Pout = 34.5 dBm Single Carrier Level.

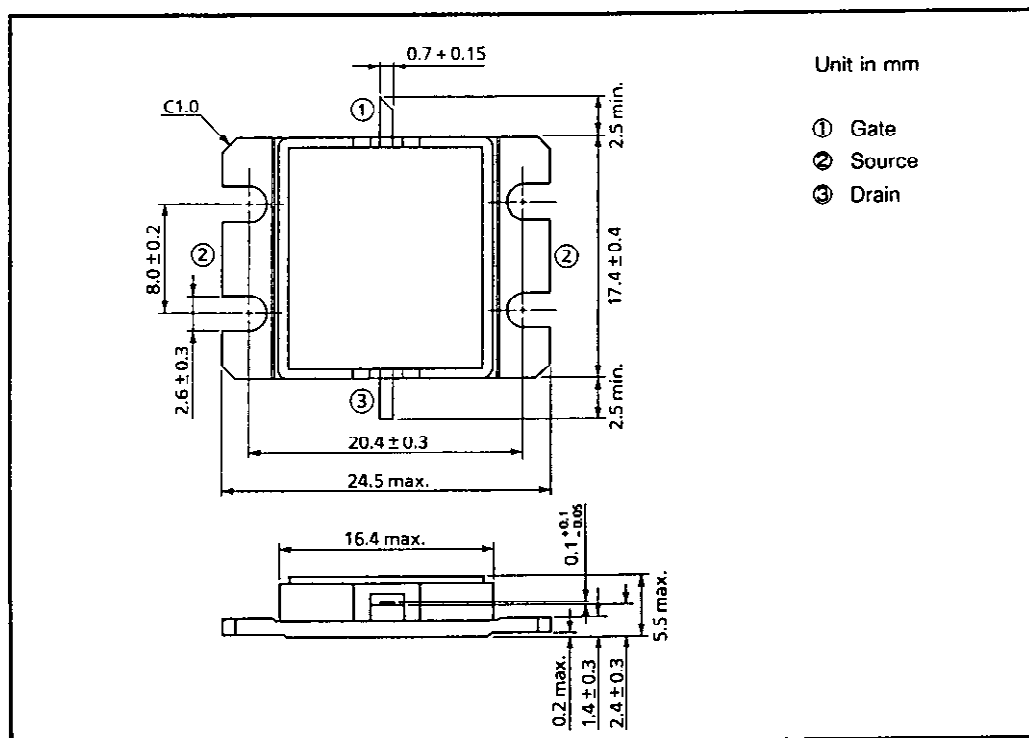
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Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$)

Characteristic	Symbol	Unit	Rating
Drain-Source Voltage	V_{DS}	V	15
Gate-Source Voltage	V_{GS}	V	-5
Drain Current	I_D	A	22
Total Power Dissipation ($T_c = 25^\circ\text{C}$)	P_T	W	115
Channel Temperature	T_{ch}	$^\circ\text{C}$	175
Storage Temperature	T_{stg}	$^\circ\text{C}$	-65 ~ 175

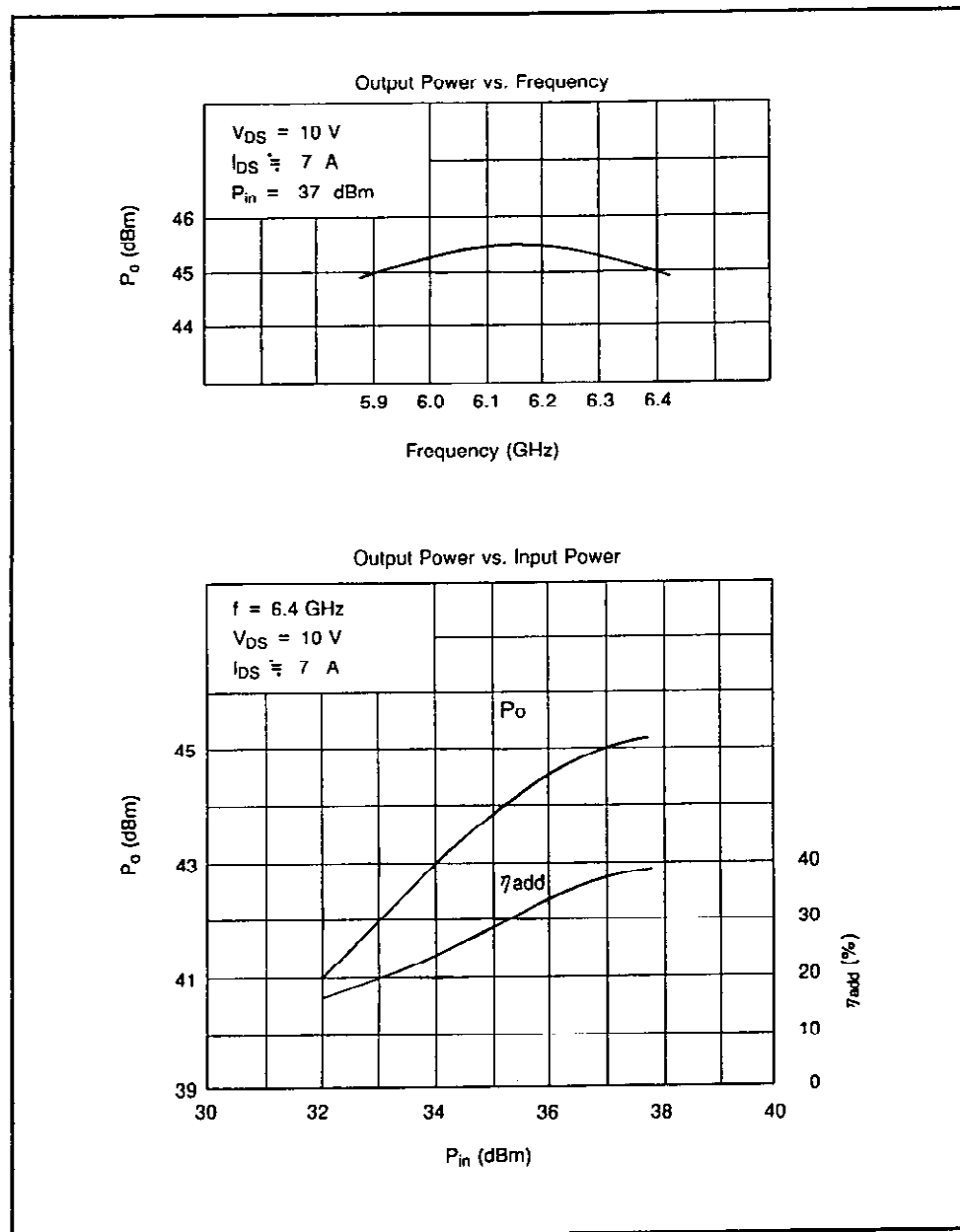
Package Outline (2-16G1B)



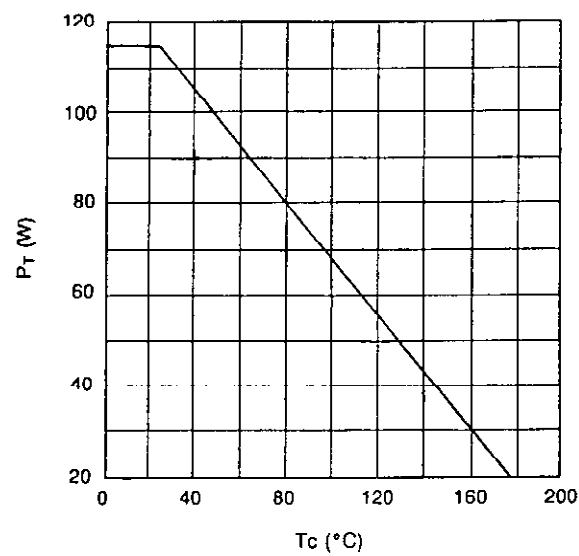
Handling Precautions for Packaged Type

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

RF Performances



Power Dissipation vs. Case Temperature



IM_3 vs. Output Power Characteristics

