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

Features

- Low intermodulation distortion
  - IM_3 = -45 dBc at Po = 34.5 dBm, Single Carrier Level
- High power
  - P_{1dB} = 45 dBm at 5.9 GHz to 6.4 GHz
- High efficiency
  - η_{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°C)

Characteristic	Symbol	Condition	Unit	Min.	Typ.	Max.
Output Power at 1dB Compression Point	P_{1dB}	V_{DS} = 10V f = 5.9 ~ 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} x I_{DS} x $R_{th\ (c-c)}$	°C	–	–	100

Electrical Characteristics (T_a = 25°C)

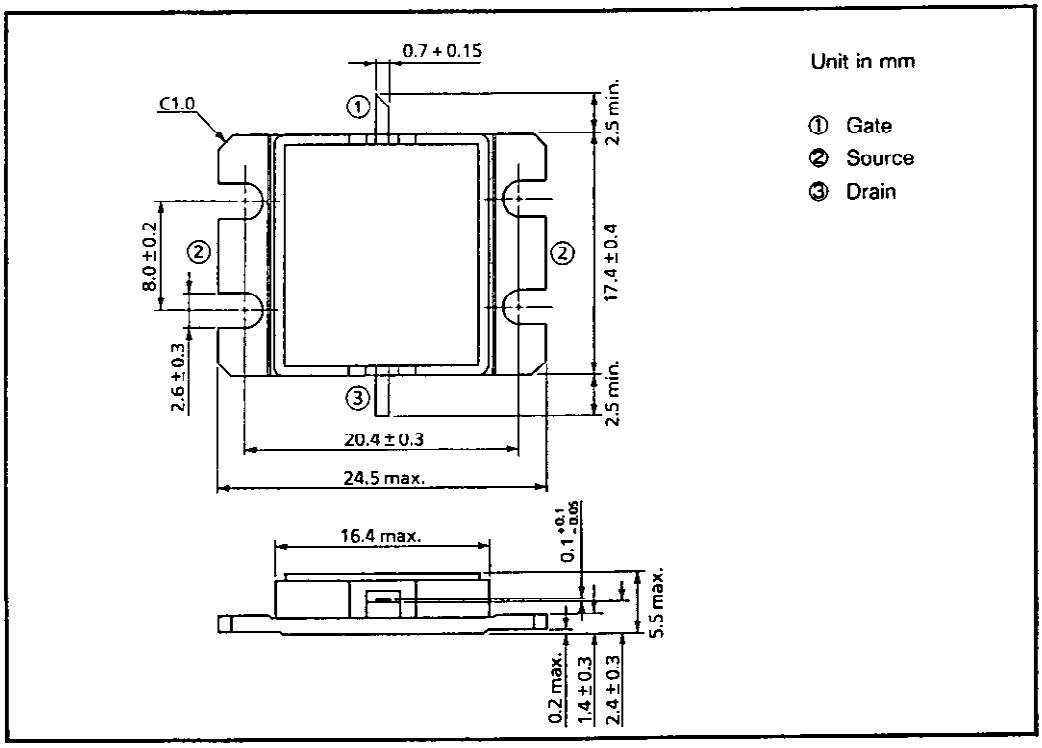
Characteristic	Symbol	Condition	Unit	Min.	Typ.	Max.
Transconductance	gm	V_{DS} = 3V I_{DS} = 10A	mS	–	6300	–
Pinch-off Voltage	V_{GSoff}	V_{DS} = 3V I_{DS} = 100 mA	V	-1.0	-2.5	-4.0
Saturated Drain Current	I_{DSS}	V_{DS} = 3V V_{GS} = 0V	A	–	18	22
Gate-Source Breakdown Voltage	V_{GSO}	I_{GS} = -350 μA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

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

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_D	A	22
Total Power Dissipation (T_c = 25°C)	P_T	W	115
Channel Temperature	T_{ch}	°C	175
Storage Temperature	T_{stg}	°C	-65 ~ 175

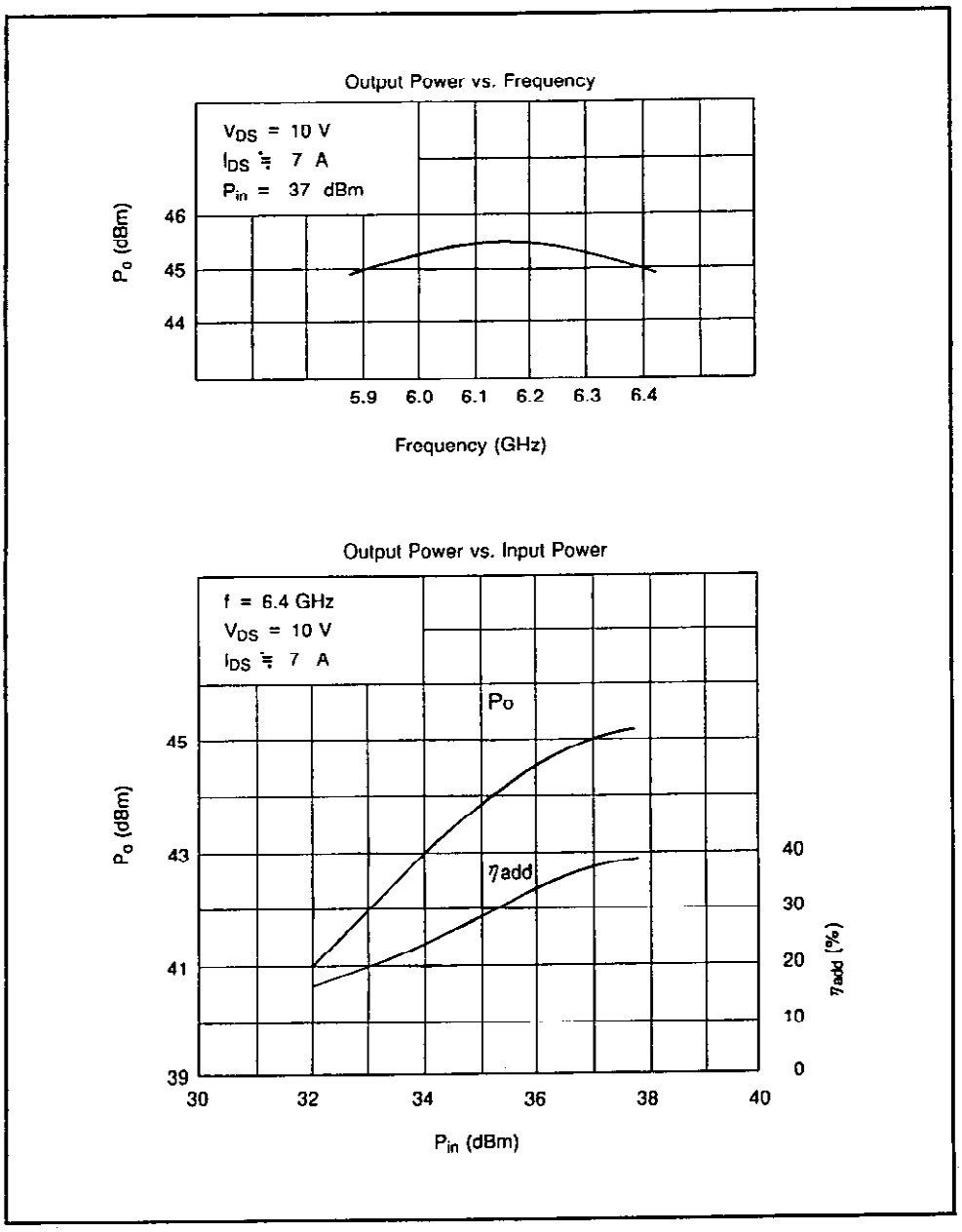
Package Outline (2-16G1B)



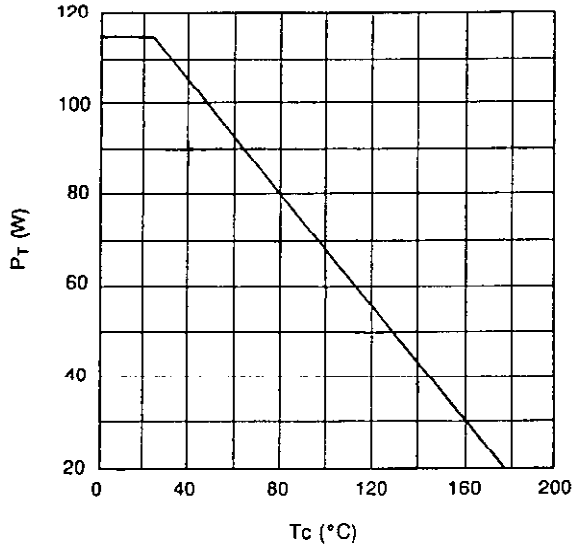
Handling Precautions for Packaged Type

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 Chacteristics