

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 4.4 GHz to 5.0 GHz
- High gain
 - $G_{1dB} = 9.5$ dB at 4.4 GHz to 5.0 GHz
- Broad band internally matched
- Hermetically sealed package

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

Characteristics	Symbol	Condition	Unit	Min.	Typ.	Max
Output Power at 1dB Compression Point	P_{1dB}	$V_{DS} = 10V$ $f = 4.4 \sim 5.0 \text{ GHz}$	dBm	44.0	45.0	—
Power Gain at 1dB Compression Point	G_{1dB}		dB	8.5	9.5	—
Drain Current	I_{DS1}		A	—	8.0	9.0
Gain Flatness	ΔG		dB	—	—	± 0.8
Power Added Efficiency	η_{add}		%	—	35	—
3rd Order Intermodulation Distortion	IM_3	Note 1	dBc	-42	-45	—
Drain Current	I_{DS2}		A	—	8.0	9.0
Channel-Temperature Rise	ΔT_{ch}	$V_{DS} \times I_{DS} \times R_{th}(c-c)$	$^\circ\text{C}$	—	—	80

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

Characteristic	Symbol	Condition	Unit	Min.	Typ.	Max
Trans-conductance	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	-5.0
Saturated Drain Current	I_{DSS}	$V_{DS} = 3V$ $V_{GS} = 0V$	A	—	20	26
Gate-Source Breakdown Voltage	V_{GSO}	$I_{GS} = -420\mu A$	V	-5	—	—
Thermal Resistance	$R_{th}(c-c)$	Channel to case	$^\circ\text{C/W}$	—	0.8	1.0

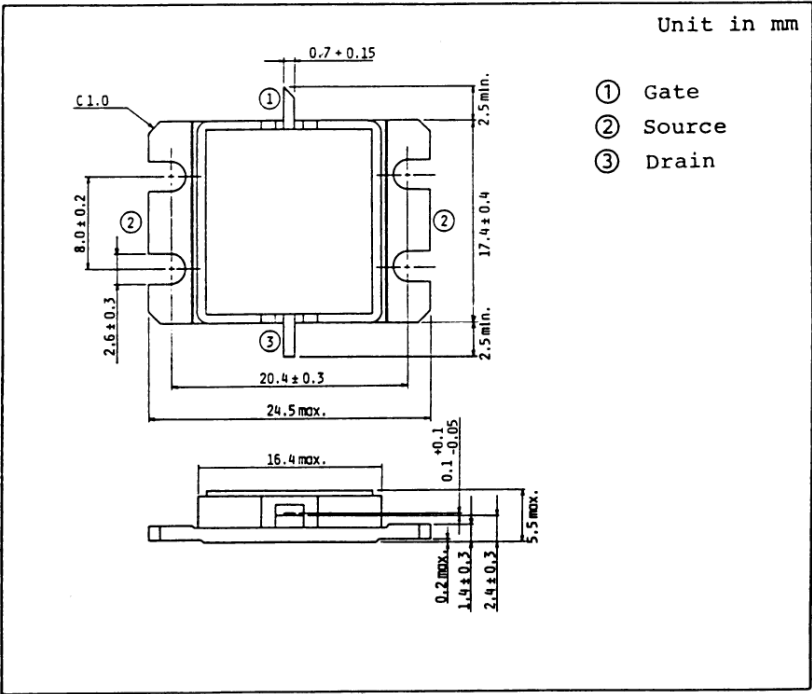
Note 1: 2 tone Test Pout = 34.5dBm Single Carrier Level.

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Absolute Maximum Ratings (Ta = 25° C)

Characteristic	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 (Tc = 25°C)	P_T	W	120
Channel Temperature	T_{ch}	°C	175
Storage Temperature	T_{stg}	°C	-65~175

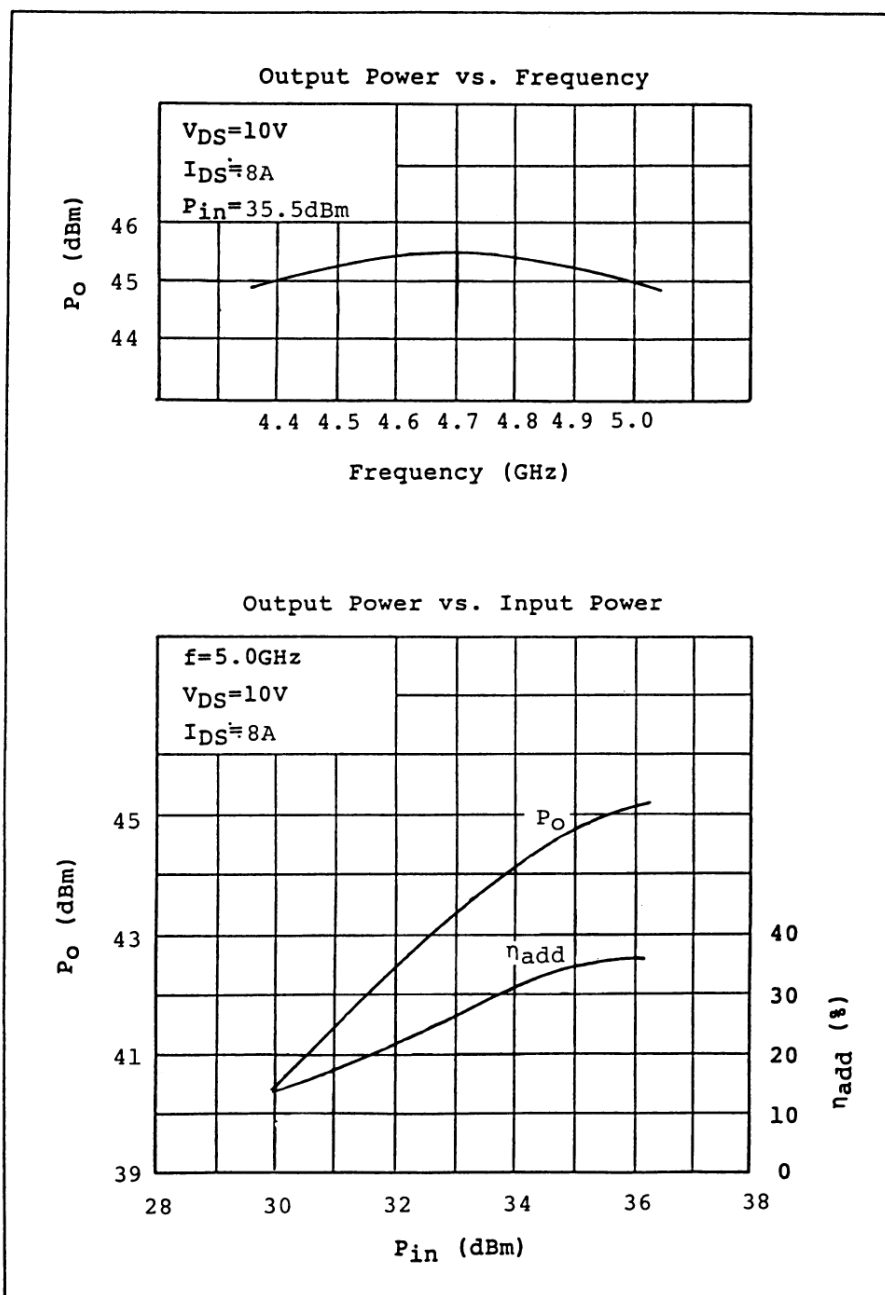
Package Outline (2-16G1B)



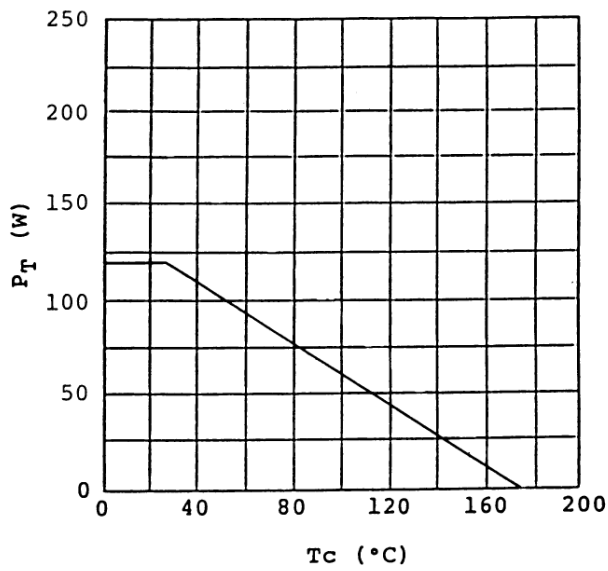
Handling Precautions for Packaged Type

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

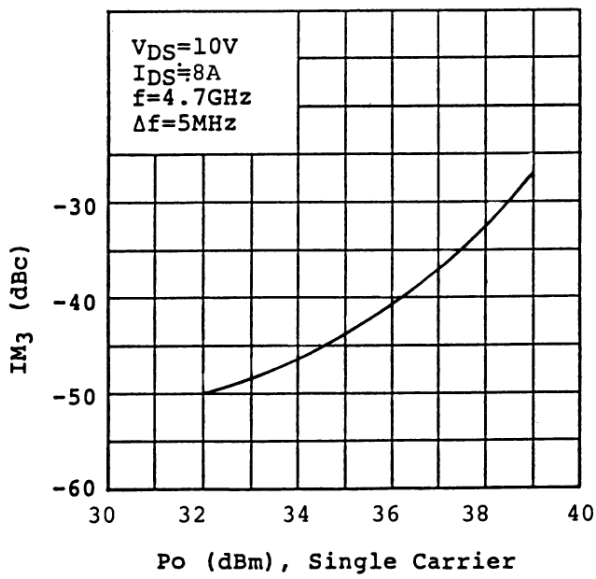
RF Performances



Power Dissipation vs. Case Temperature



IM₃ vs. Output Power Characteristics



TIM4450-30L S-Parameters (MAGN. and ANGLES)

$V_{DS} = 10V$, $I_{DS} = 8.0A$

$f = 4.0 \sim 5.4GHz$

