

## Low Distortion Internally Matched Power GaAs FETs (C-Band)

## Features

- Low intermodulation distortion
  - $IM_3 = -45$  dBc at  $P_o = 31.5$  dBm,
  - Single carrier level
- High power
  - $P_{1dB} = 42.5$  dBm at 5.9 GHz to 6.4 GHz
- High gain
  - $G_{1dB} = 7.0$  dB at 5.9 GHz to 6.4 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	$P_{1dB}$	$V_{DS} = 10V$ $f = 5.9 \sim 6.4 \text{ GHz}$	dBm	41.5	42.5	—
Power Gain at 1dB Compression Point	$G_{1dB}$		dB	6.0	7.0	—
Drain Current	$I_{DS1}$		A	—	4.8	5.5
Gain Flatness	$\Delta G$		dB	—	—	$\pm 0.8$
Power Added Efficiency	$\eta_{add}$		%	—	30	—
3rd Order Intermodulation Distortion	$IM_3$	Note 1	dBc	-42	-45	—
Drain Current	$I_{DS2}$		A	—	4.8	5.5
Channel-Temperature Rise	$\Delta T_{ch}$	$V_{DS} \times I_{DS} \times R_{th}(c-c)$	$^\circ\text{C}$	—	—	80

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

Characteristic	Symbol	Condition	Unit	Min.	Typ.	Max
Trans-conductance	gm	$V_{DS} = 3V$ $I_{DS} = 6.0A$	mS	—	3600	—
Pinch-off Voltage	$V_{GSoff}$	$V_{DS} = 3V$ $I_{DS} = 80mA$	V	-2.0	-3.5	-5.0
Saturated Drain Current	$I_{DSS}$	$V_{DS} = 3V$ $V_{GS} = 0V$	A	—	11.6	15.0
Gate-Source Breakdown Voltage	$V_{GSO}$	$I_{GS} = -240\mu A$	V	-5	—	—
Thermal Resistance	$R_{th}(c-c)$	Channel to Case	$^\circ\text{C/W}$	—	1.4	1.8

Note 1: 2 tone Test Pout = 31.5dBm Single Carrier Level.

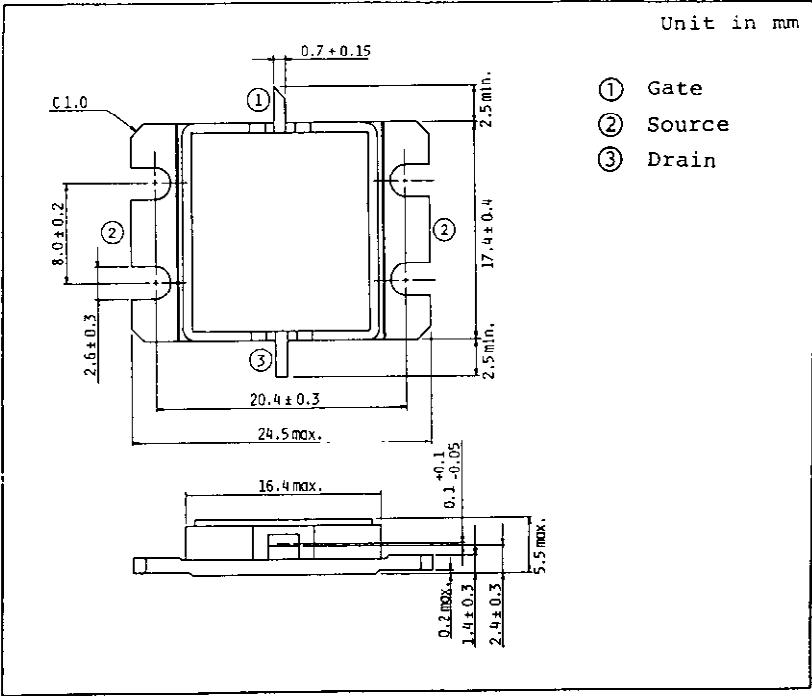
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Absolute Maximum Ratings (Ta = 25° C)

Characteristic	Symbol	Unit	Rating
Drain-Source Voltage	$V_{DS}$	V	15
Gate-Source Voltage	$V_{GS}$	V	-5
Drain Current	$I_{DS}$	A	16
Total Power Dissipation (Tc = 25°C)	$P_T$	W	70
Channel Temperature	Tch	°C	175
Storage Temperature	Tstg	°C	-65~175

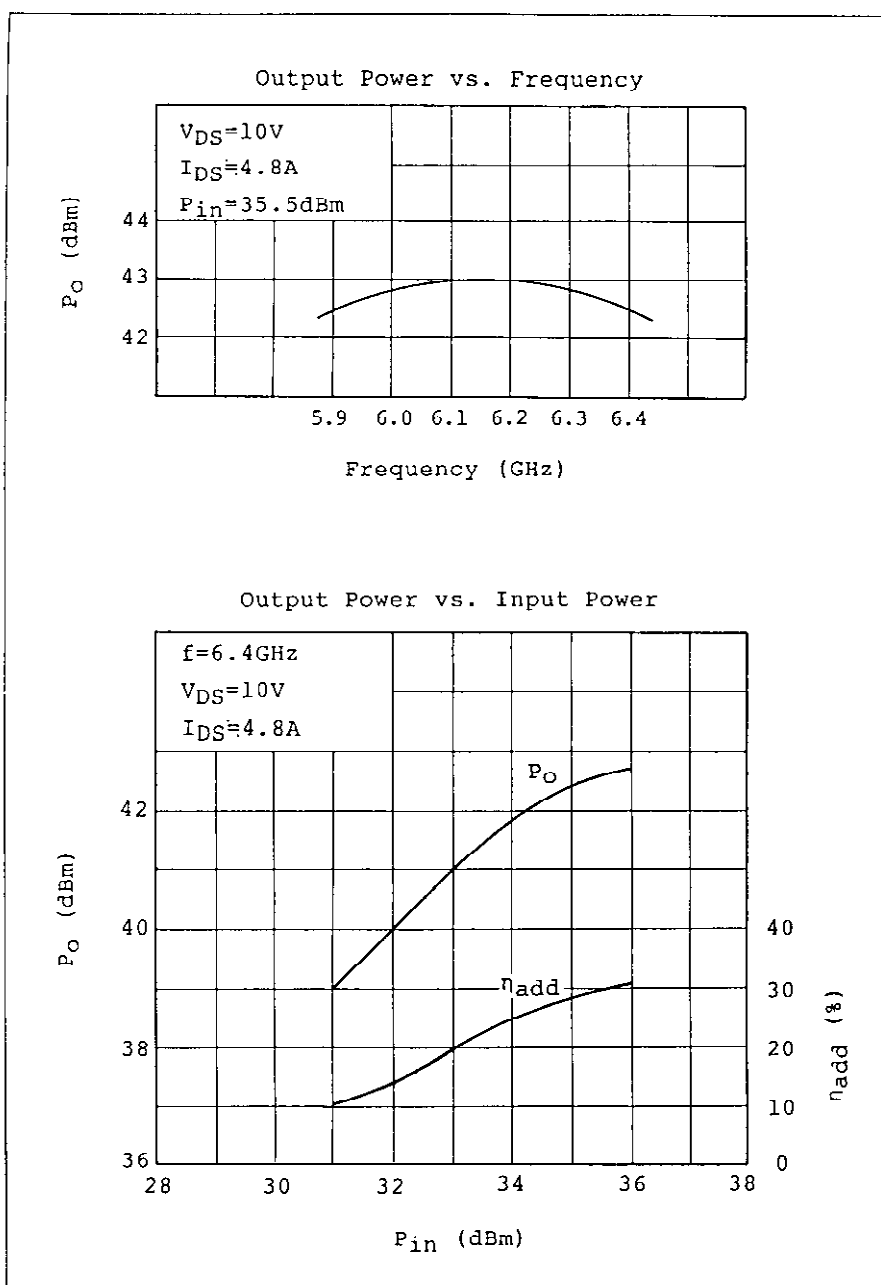
Package Outline (2-16G1B)



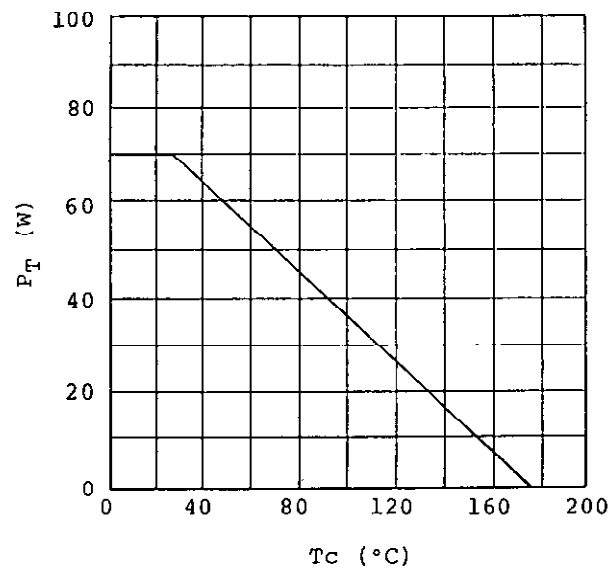
Handling Precautions for Packaged Type

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

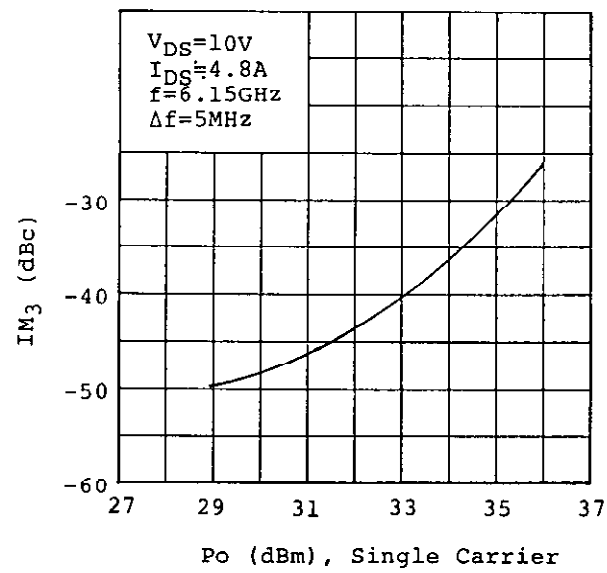
## RF Performances



Power Dissipation vs. Case Temperature



IM<sub>3</sub> vs. Output Power Characteristics



**TIM5964-16L S-Parameters  
(MAGN. and ANGLES)**

$V_{DS}=10V$ ,  $I_{DS}=4.0A$

