

Internally Matched Power GaAs FETs (X, Ku-Band)

Features

- High power
 - $P_{1dB} = 37.5$ dBm at 14.0 GHz to 14.5 GHz
- High gain
 - $G_{1dB} = 6.0$ dB at 14.0 GHz to 14.5 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}	$V_{DS} = 9V$ $f = 14.0 \sim 14.5\text{GHz}$	dBm	37.0	37.5	—
Power Gain at 1dB Compression Point	G_{1dB}		dB	5.0	6.0	—
Drain Current	I_{DS}		A	—	2.0	2.5
Power Added Efficiency	η_{add}		%	—	20	—
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	$V_{DS}=3V$ $I_{DS}=2.4 \text{ A}$	mS	—	1400	—
Pinch-off Voltage	V_{GSoff}	$V_{DS}=3V$ $I_{DS}=72\text{mA}$	V	-2.0	-3.5	-5.0
Saturated Drain Current	I_{DSS}	$V_{DS}=3V$ $V_{GS}=0V$	A	—	5.0	5.7
Gate to Source Breakdown Voltage	V_{GSO}	$I_{GS}=-72 \mu\text{A}$	V	-5	—	—
Thermal Resistance	$R_{th(c-c)}$	Channel to case	$^\circ\text{C/W}$	—	3.0	3.7

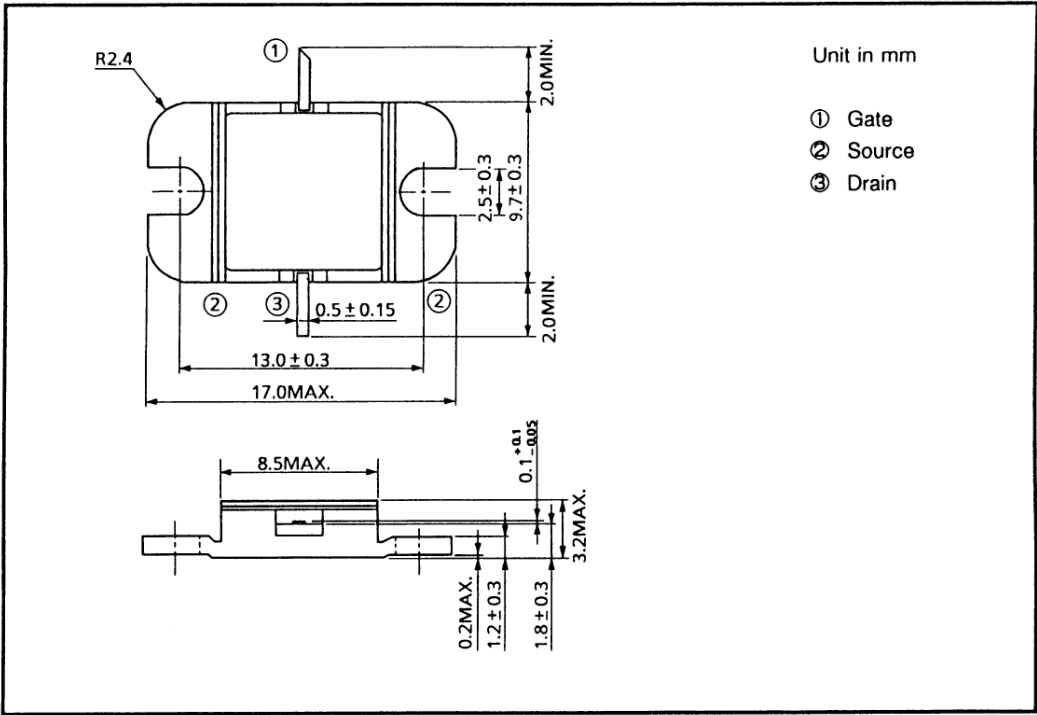
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Absolute Maximum Ratings (T_a = 25° C)

Characteristic	Symbol	Unit	Rating
Drain Source Voltage	V _{DS}	V	15
Gate Source Voltage	V _{GS}	V	-5
Drain Current	I _{DS}	A	5.7
Total Power Dissipation (T _c = 25°C)	P _T	W	30
Channel Temperature	T _{ch}	°C	175
Storage Temperature	T _{stg}	°C	-65~175

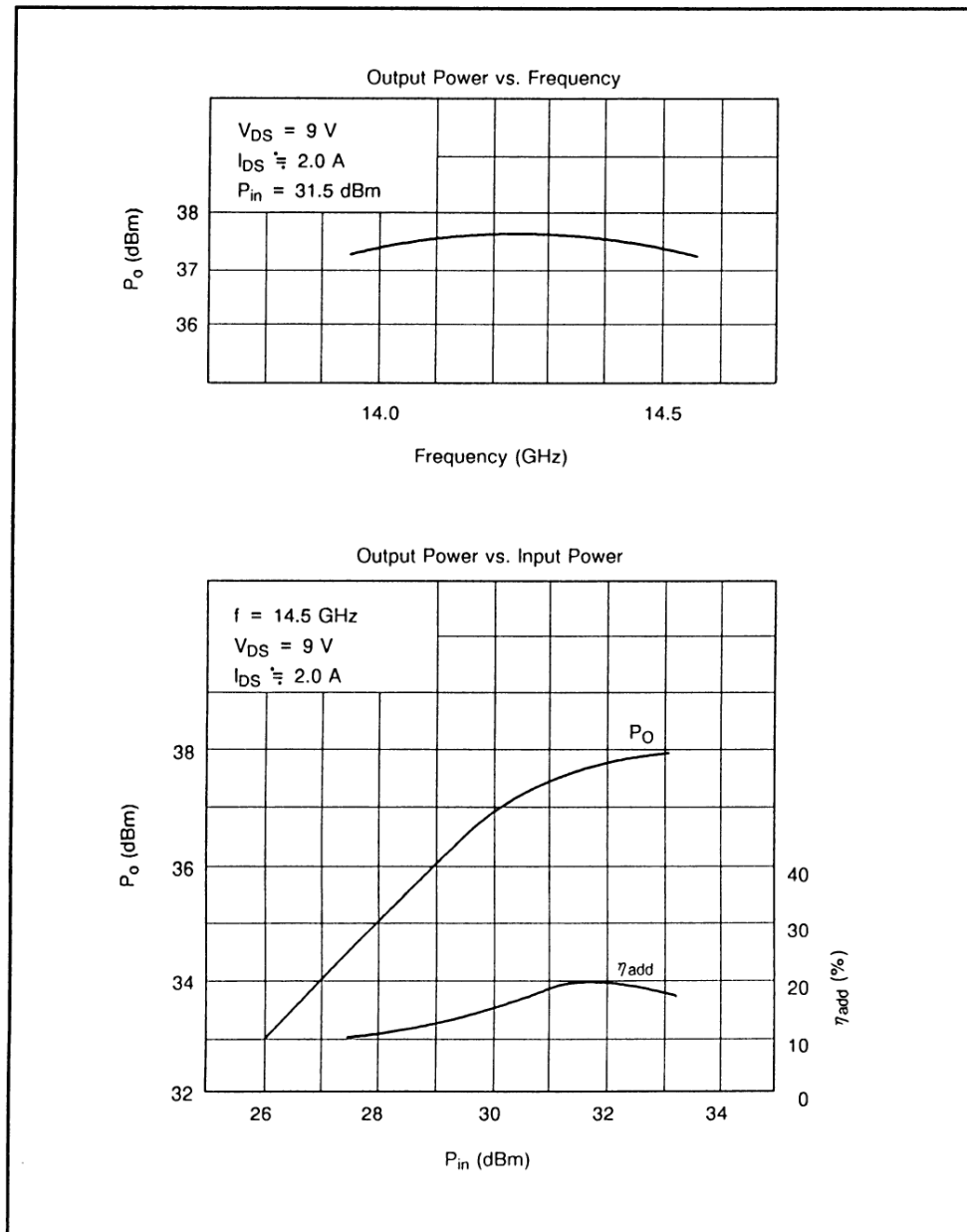
Package Outline (2-9D1B)



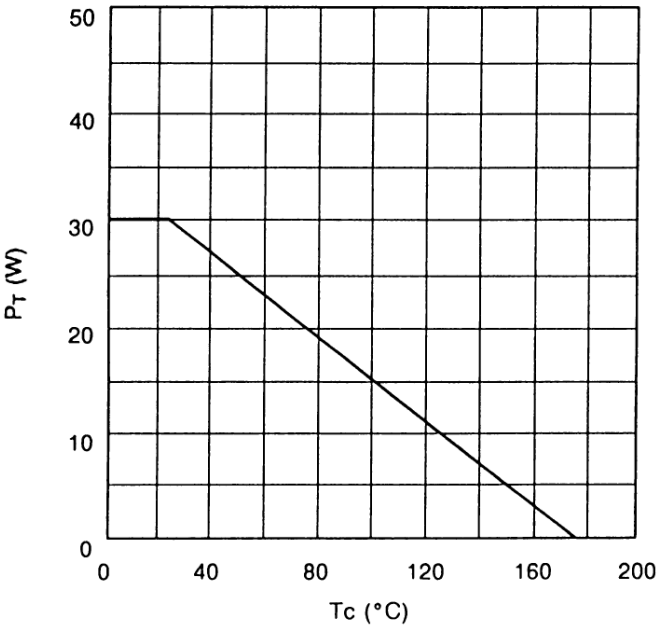
Handling Precautions for Packaged Type

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

RF Performances



Power Dissipation vs. Case Temperature



Tim1414-5 S-Parameters (MAGN. and ANGLES)

 $V_{DS} = 9\text{ V}, I_{DS} = 2\text{ A}$
