

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

#### Features

- Low intermodulation distortion
  - $IM_3 = -45$  dBc at  $P_o = 25$  dBm,
  - Single carrier level
- High power
  - $P_{1dB} = 36.5$  dBm at 12.7 GHz to 13.2 GHz
- High gain
  - $G_{1dB} = 7.5$  dB at 12.7 GHz to 13.2 GHz
- Broad band internally matched
- Hermetically sealed package

#### RF Performance Specifications (Ta = 25° C)

Characteristics	Symbol	Condition	Unit	Min.	Typ.	Max
Output Power at 1dB Compression Point	$P_{1dB}$	$V_{DS} = 9V$ $f = 12.7 \sim 13.2$ GHz	dBm	35.5	36.5	–
Power Gain at 1dB Compression Point	$G_{1dB}$		dB	6.5	7.5	–
Drain Current	$I_{DS1}$		A	–	1.7	2.2
Gain Flatness	$\Delta G$		dB	–	–	$\pm 0.8$
Power Added Efficiency	$\eta_{add}$		%	–	24	–
3rd Order Intermodulation Distortion	$IM_3$	Note 1	dBc	-42	-45	–
Drain Current	$I_{DS2}$		A	–	1.7	2.2
Channel-Temperature Rise	$\Delta T_{ch}$	$V_{DS} \times I_{DS} \times R_{th(c-c)}$	°C	–	–	70

Note 1: 2 Tone Test (Pout = 25 dBm Single Carrier Level).

#### Electrical Characteristics (Ta = 25° C)

Characteristic	Symbol	Condition	Unit	Min.	Typ.	Max
Trans-conductance	gm	$V_{DS} = 3V$ $I_{DS} = 2.0A$	mS	–	1200	–
Pinch-off Voltage	$V_{GSoff}$	$V_{DS} = 3V$ $I_{DS} = 60mA$	V	-2	-3.5	-5
Saturated Drain Current	$I_{DSS}$	$V_{DS} = 3V$ $V_{GS} = 0V$	A	–	4.0	5.2
Gate-Source Breakdown Voltage	$V_{GSO}$	$I_{GS} = -60\mu A$	V	-5	–	–
Thermal Resistance	$R_{th(c-c)}$	Channel to case	°C/W	–	2.9	3.5

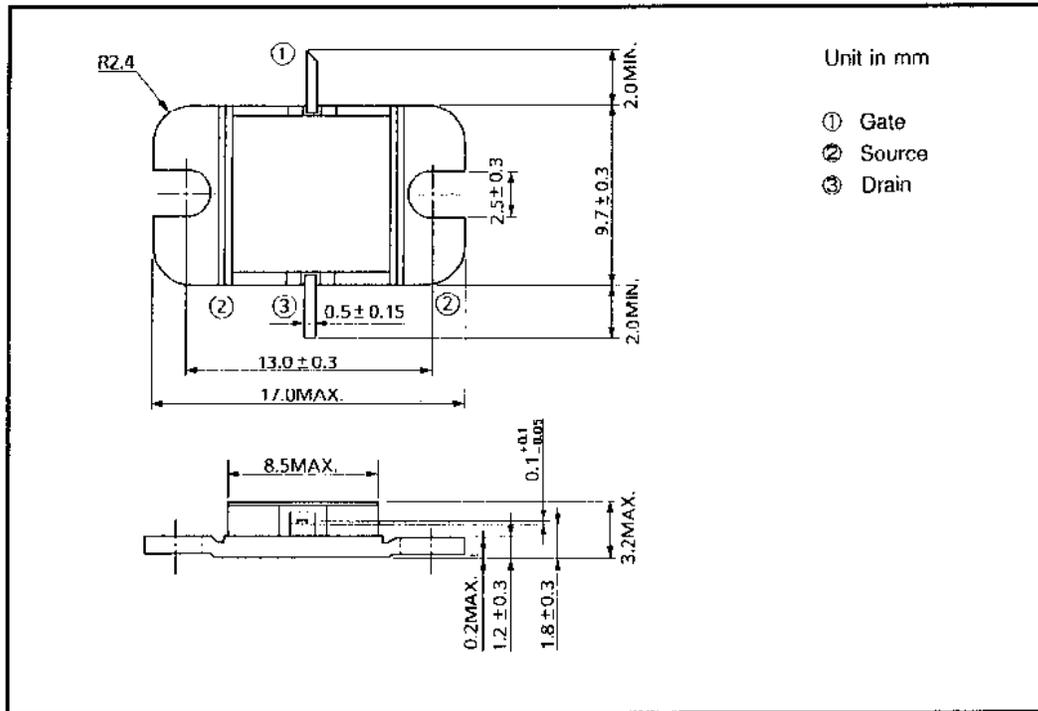
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**Absolute Maximum Ratings (Ta = 25° C)**

Characteristic	Symbol	Unit	Rating
Drain-Source Voltage	V <sub>DS</sub>	V	15
Gate-Source Voltage	V <sub>GS</sub>	V	-5
Drain Current	I <sub>DS</sub>	A	5.2
Total Power Dissipation (T <sub>c</sub> = 25°C)	P <sub>T</sub>	W	30
Channel Temperature	T <sub>ch</sub>	°C	175
Storage Temperature	T <sub>stg</sub>	°C	-65~175

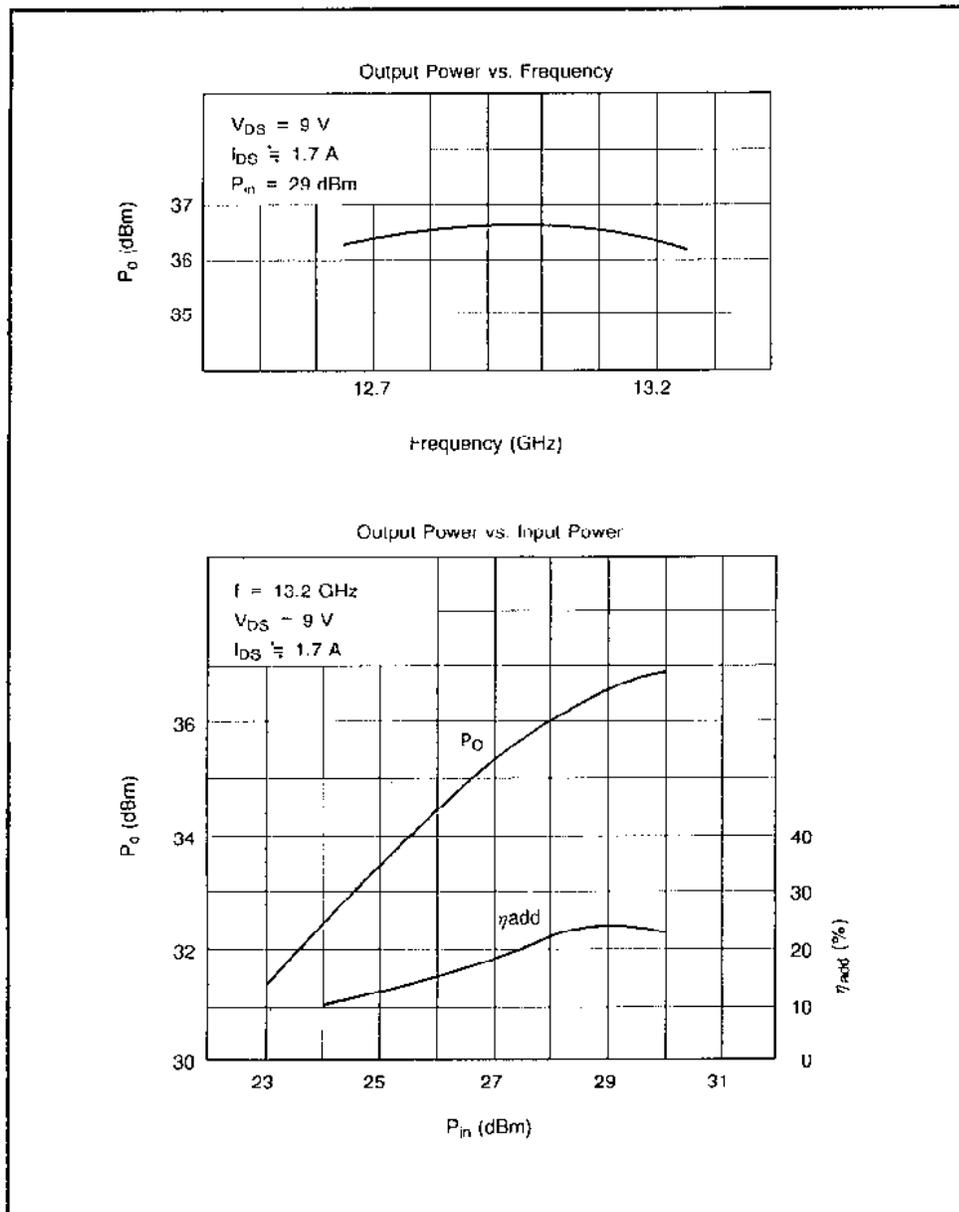
**Package Outline (2-9D1A)**



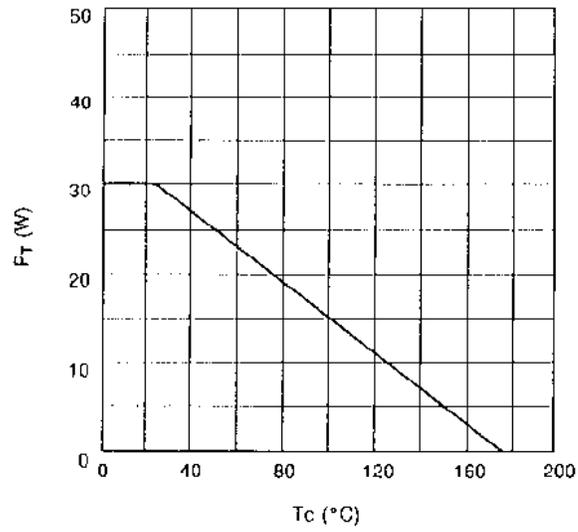
**Handling Precautions for Packaged Type**

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

