

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

Features

- High power
 - $P_{1dB} = 36.5$ dBm at 14.0 GHz to 14.5 GHz
- High gain
 - $G_{1dB} = 6.0$ dB at 14.0 GHz to 14.5 GHz
- Broadband internally matched
- Hermetically sealed package

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

Characteristic	Symbol	Condition	Unit	Min.	Typ.	Max
Output Power at 1dB Compression Point	P_{1dB}	$V_{DS} = 9V$ $f = 14.0 - 14.5$ GHz	dBm	35.5	36.5	-
Power Gain at 1dB Compression Point	G_{1dB}		dB	5.0	6.0	-
Drain Current	I_{DS}		A	-	1.7	2.2
Power Added Efficiency	η_{add}		%	-	22	-
Channel-Temperature Rise	ΔT_{ch}	$V_{DS} \times I_{DS} \times R_{th(c-c)}$	$^\circ\text{C}$	-	-	70

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

Characteristic	Symbol	Condition	Unit	Min.	Typ.	Max.
Transconductance	gm	$V_{DS} = 3V$ $I_{DS} = 2.0A$	mS	-	600	-
Pinch-off Voltage	V_{GSoff}	$V_{DS} = 3V$ $I_{DS} = 60$ mA	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}	$I_{GS} = -60$ μA	V	-5	-	-
Thermal Resistance	$R_{th(c-c)}$	Channel to Case	$^\circ\text{C/W}$	-	2.9	3.5

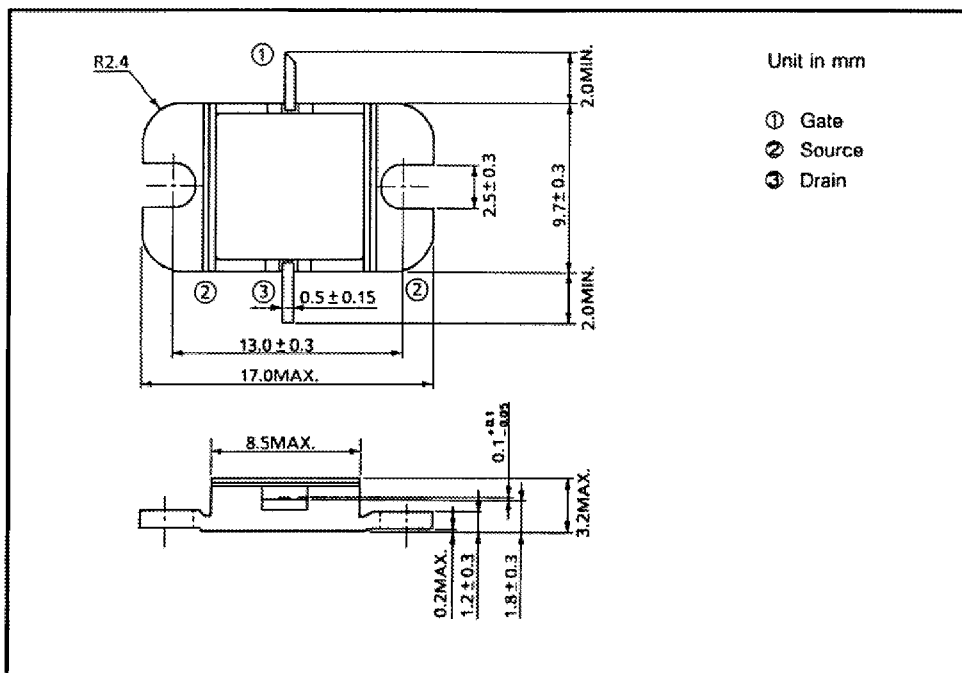
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Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$)

Characteristic	Symbol	Unit	Rating
Drain-Source Voltage	V_{DS}	V	15
Gate-Source Voltage	V_{GS}	V	-5
Drain Current	I_D	A	5.2
Total Power Dissipation ($T_c = 25^\circ\text{C}$)	P_T	W	30
Channel Temperature	T_{ch}	$^\circ\text{C}$	175
Storage Temperature	T_{stg}	$^\circ\text{C}$	-65 ~ 175

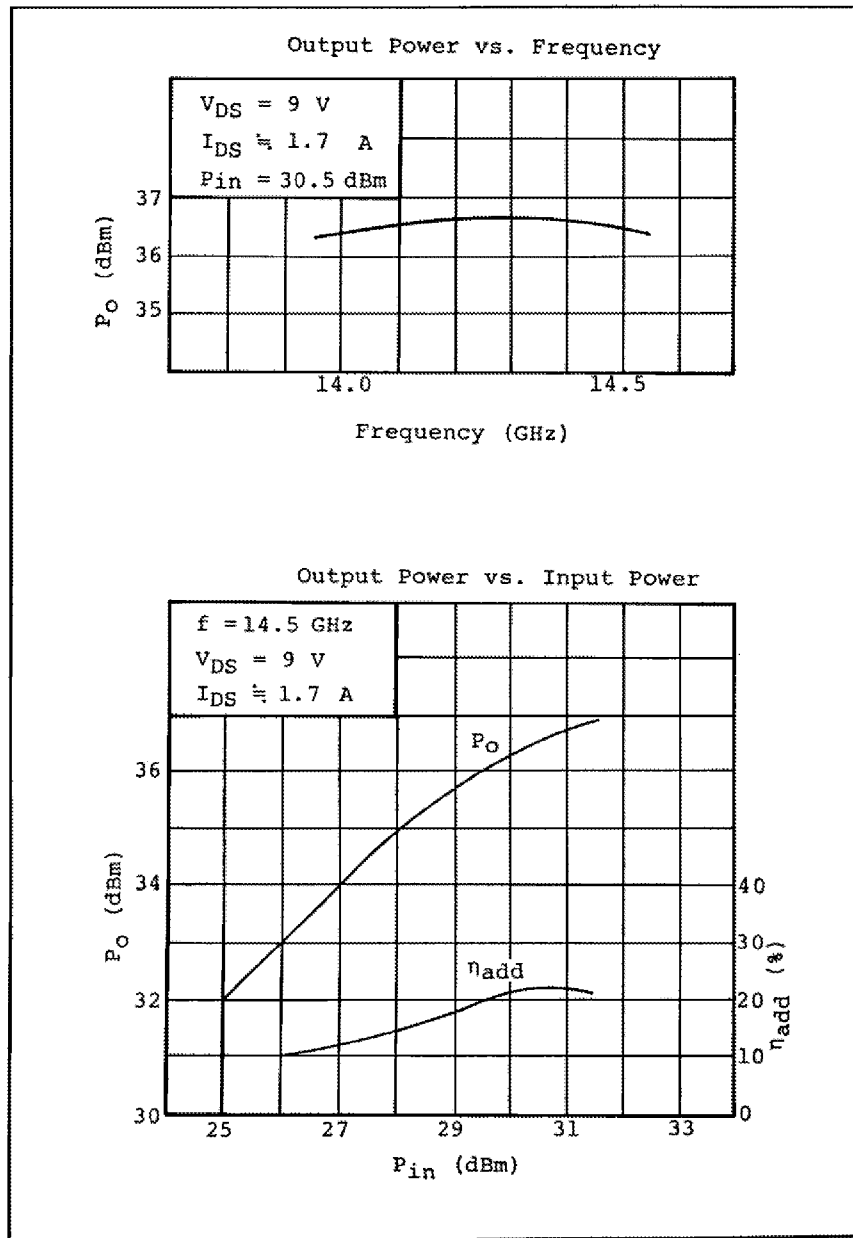
Package Outline (2-9D1B)



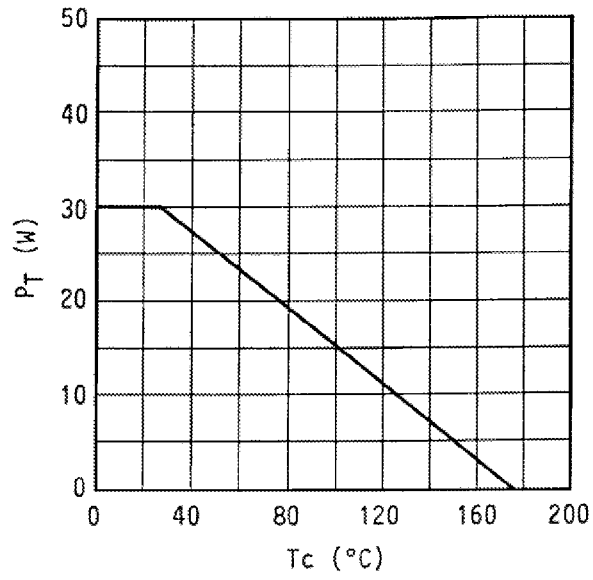
Handling Precautions for Packaged Type

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

RF Performances



Power Dissipation vs. Case Temperature



TIM1414-4 S-Parameters (Magn. and Angles)

$V_{DS} = 9 \text{ V}$, $I_{DS} = 2.0 \text{ A}$

$f = 13.0 - 16.2 \text{ GHz}$

