

## 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
  - $G_{1dB} = 6.5$  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	$P_{1dB}$	$V_{DS} = 9V$ $f = 14.0 \sim 14.5$ GHz	dBm	36.0	36.5	—
Power Gain at 1dB Compression Point	$G_{1dB}$		dB	6.0	6.5	—
Drain Current	$I_{DS}$		A	—	1.7	2.2
Power Added Efficiency	$\eta_{add}$		%	—	23	—
Channel-Temperature Rise	$\Delta T_{ch}$	$V_{DS} \times I_{DS} \times R_{th(c-c)}$	$^\circ\text{C}$	—	—	70

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

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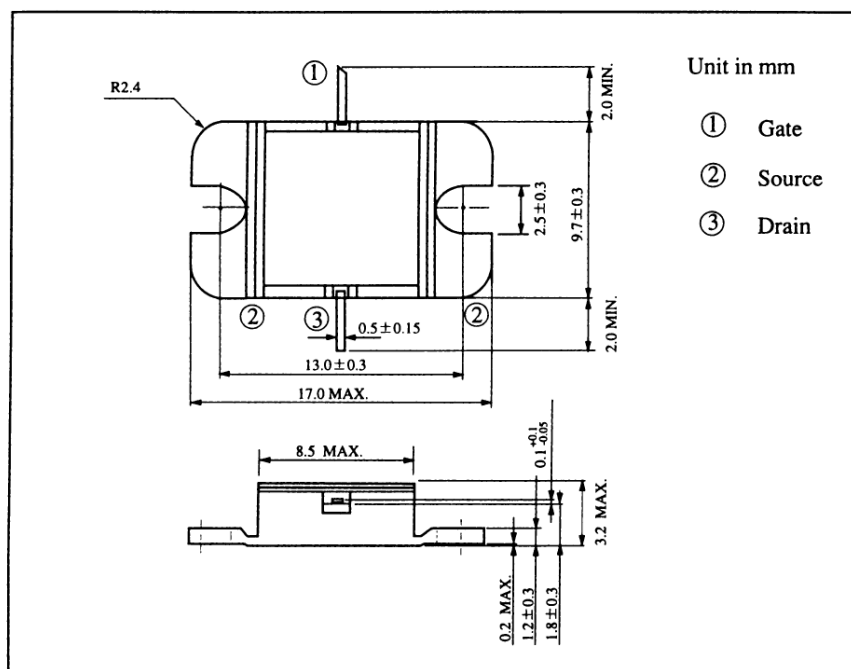
Characteristic	Symbol	Condition	Unit	Min.	Typ.	Max
Trans-conductance	gm	$V_{DS}=3V$ $I_{DS}=2.0$ A	mS	—	1200	—
Pinch-off Voltage	$V_{GSoff}$	$V_{DS}=3V$ $I_{DS}=60$ mA	V	-2.0	-3.5	-5.0
Saturated Drain Current	$I_{DSS}$	$V_{DS}=3V$ $V_{GS}=0V$	A	—	4.0	5.2
Gate to Source Breakdown Voltage	$V_{GSO}$	$I_{GS}=-60$ $\mu$ A	V	-5	—	—
Thermal Resistance	$R_{th(c-c)}$	Channel to case	$^\circ\text{C/W}$	—	2.9	3.5

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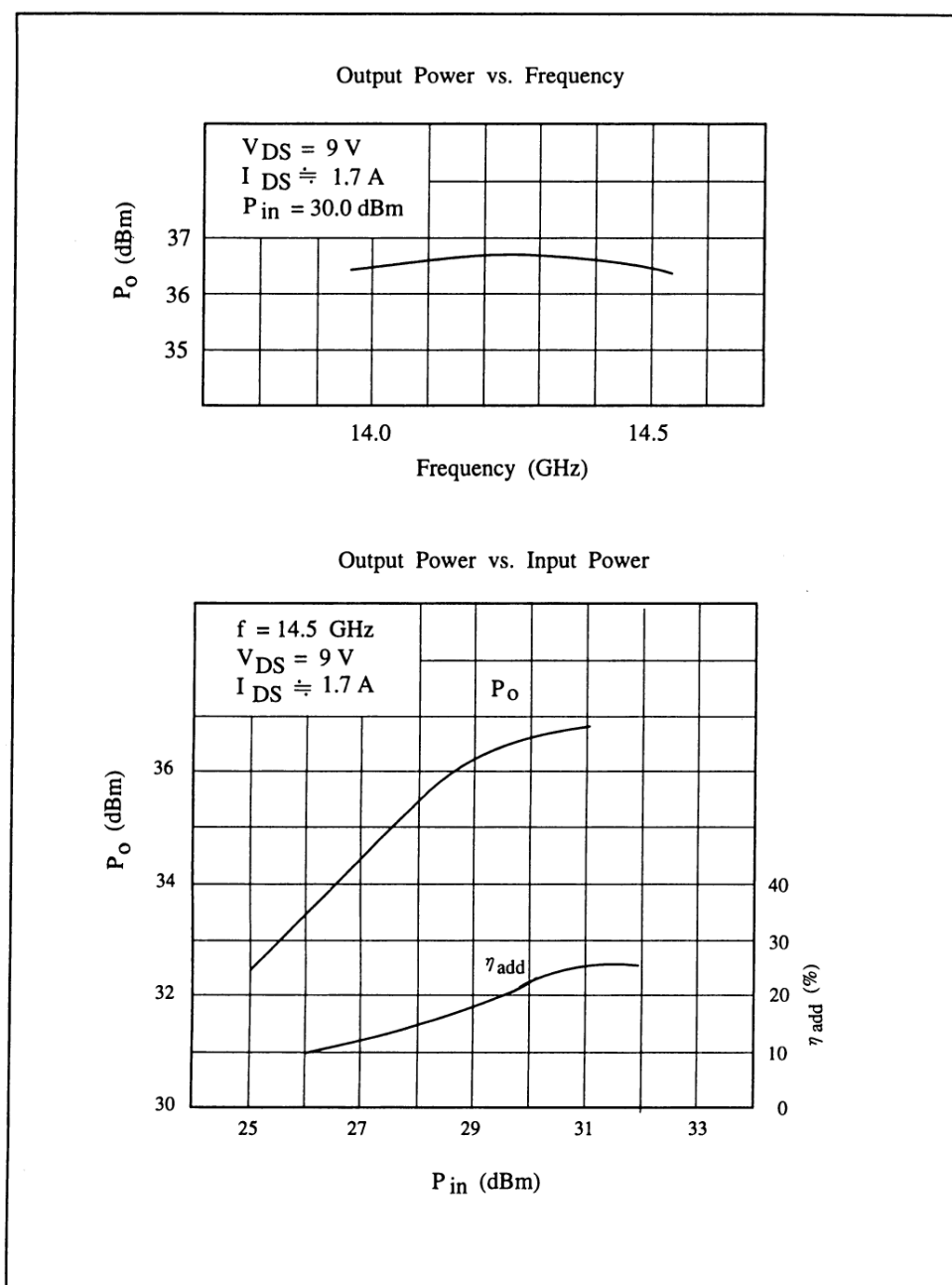
**TIM1414-4A****Absolute Maximum Ratings ( $T_a = 25^\circ\text{C}$ )**

Characteristic	Symbol	Unit	Rating
Drain Source Voltage	$V_{DS}$	V	15
Gate Source Voltage	$V_{GS}$	V	-5
Drain Current	$I_{DS}$	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**

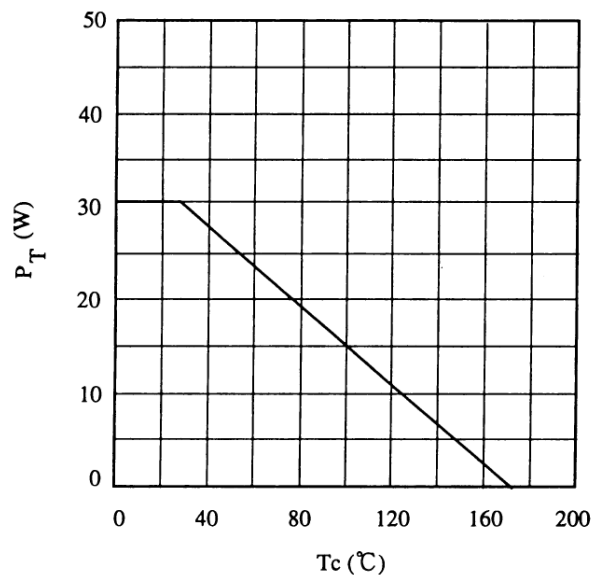
Soldering iron should be grounded and the operating time should not exceed 10 seconds at 260°C.

## RF Performances



## TIM1414-4A

### Power Dissipation vs. Case Temperature



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