

#### FEATURES :

- HIGH POWER  
 $P_{1dB} = 38.5 \text{ dBm}$  at 14.0 GHz to 14.5 GHz
- BROAD BAND INTERNALLY MATCHED
- HIGH GAIN  
 $G_{1dB} = 6.5 \text{ dB}$  at 14.0 GHz to 14.5 GHz
- 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	$P_{1dB}$	$V_{DS} = 9 \text{ V}$ $f = 14.0 \sim 14.5 \text{ GHz}$	dBm	37.5	38.5	—
Power Gain at 1dB Compression Point	$G_{1dB}$		dB	5.5	6.5	—
Drain Current	$I_{DS}$		A	—	2.25	2.75
Power Added Efficiency	$\eta_{add}$		%	—	27	—
Channel-Temperature Rise	$\Delta T_{ch}$	$V_{DS} \times I_{DS} \times R_{th(c-c)}$	$^\circ\text{C}$	—	—	80

#### ELECTRICAL CHARACTERISTICS ( $T_a = 25^\circ\text{C}$ )

CHARACTERISTICS	SYMBOL	CONDITION	UNIT	MIN.	TYP.	MAX.
Transconductance	gm	$V_{DS} = 3 \text{ V}$ $I_{DS} = 2.4 \text{ A}$	mS	—	1500	—
Pinch-off Voltage	$V_{GSoff}$	$V_{DS} = 3 \text{ V}$ $I_{DS} = 72 \text{ mA}$	V	-1.5	-3.0	-4.5
Saturated Drain Current	$I_{DSS}$	$V_{DS} = 3 \text{ V}$ $V_{GS} = 0 \text{ V}$	A	—	5.0	5.7
Gate-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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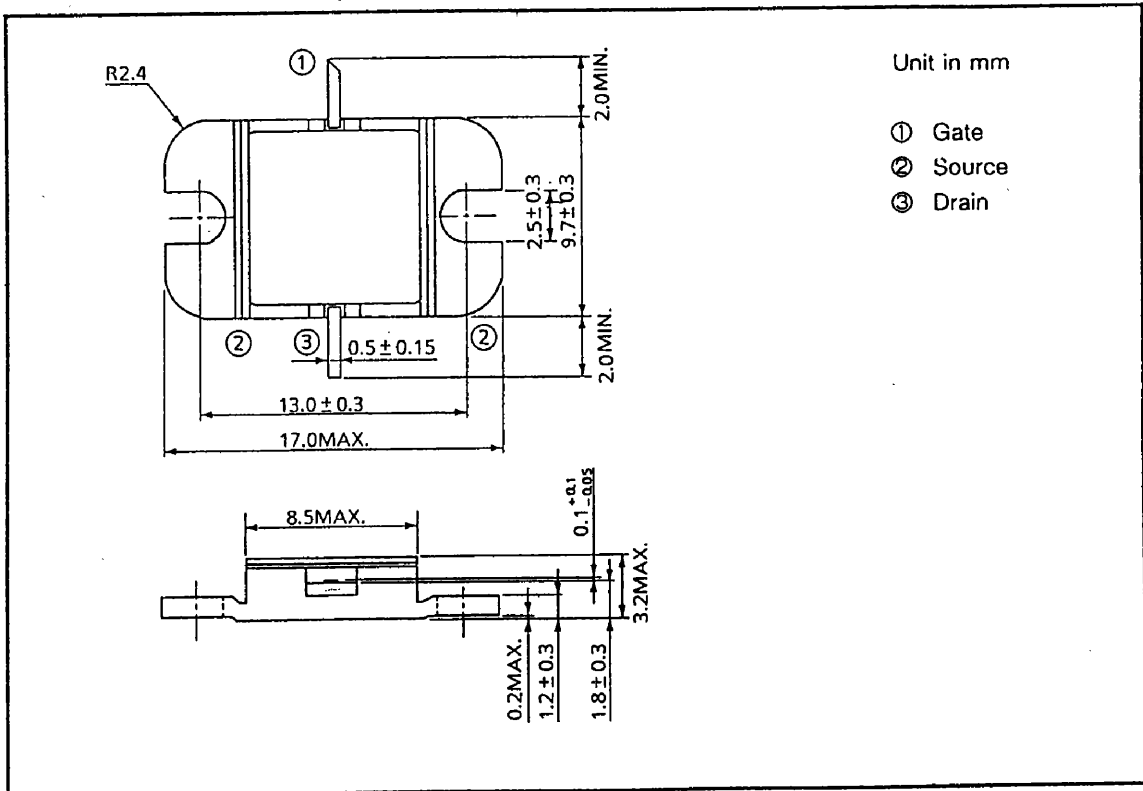


# TIM1414-7

## ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTICS	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	5.7
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>slg</sub>	°C	-65~175

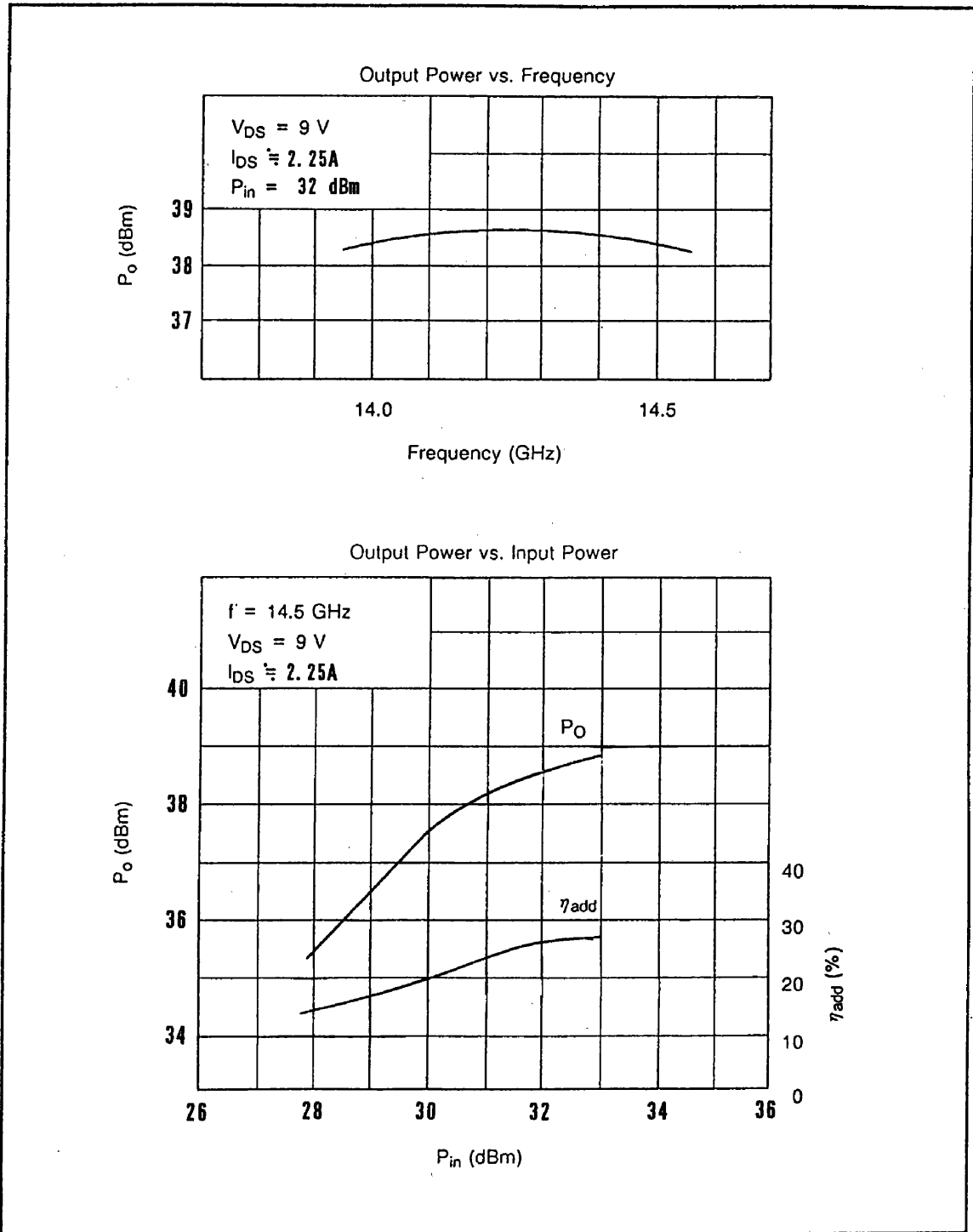
## PACKAGE OUTLINE (2-9D1B)



### HANDLING PRECAUTIONS FOR PACKAGED TYPE

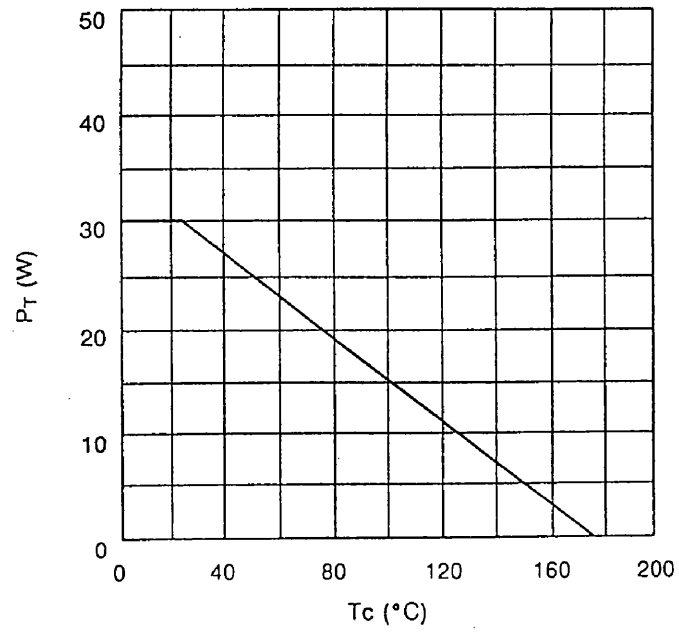
Soldering iron should be grounded and the operating time should not exceed 10 seconds at 260°C.

RF PERFORMANCES



# TIM1414-7

## POWER DISSIPATION VS. CASE TEMPERATURE

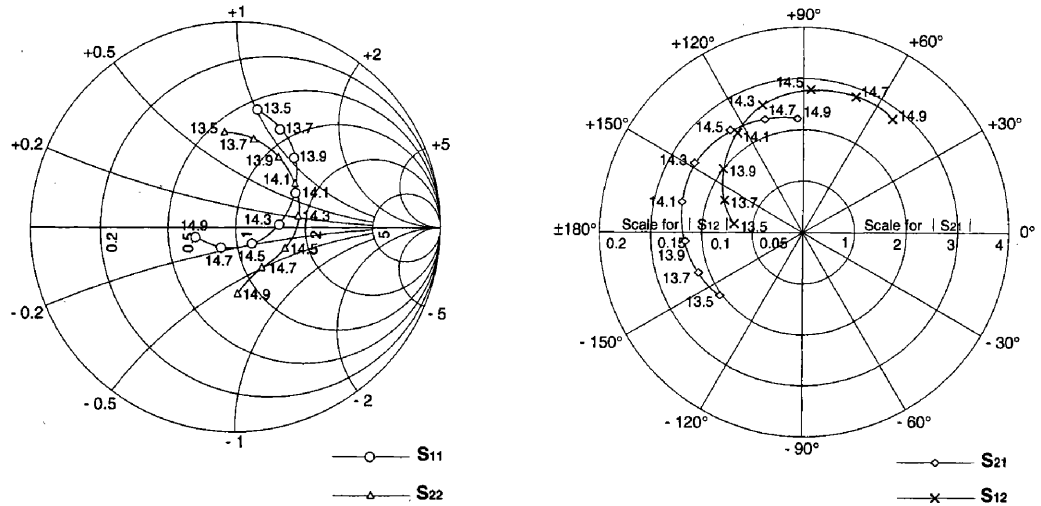


# TIM1414-7

## TIM1414-7 S-PARAMETERS (MAGN.and ANGLES)

$V_{DS} = 9V, I_{DS} = 2.25A$

$f = 13.5 \sim 14.9GHz$



FREQUENCY (GHz)	S <sub>11</sub>		S <sub>21</sub>		S <sub>12</sub>		S <sub>22</sub>	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
13.5	0.58	80	2.04	-143	0.068	173	0.47	97
13.7	0.52	66	2.20	-159	0.083	158	0.44	79
13.9	0.44	50	2.32	-176	0.100	142	0.40	59
14.1	0.33	30	2.45	166	0.116	124	0.36	37
14.3	0.21	4	2.53	148	0.130	108	0.31	11
14.5	0.11	-45	2.45	126	0.139	87	0.26	-22
14.7	0.12	-127	2.32	109	0.141	69	0.23	-56
14.9	0.20	-167	2.22	93	0.140	52	0.32	-88