

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

- High power
 - $P_{1dB} = 33.5$ dBm at 14.0 GHz to 14.5 GHz
- High gain
 - $G_{1dB} = 6.5$ dB at 14.0 GHz to 14.5 GHz
- 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	32.5	33.5	-
Power Gain at 1dB Compression Point	G_{1dB}		dB	5.5	6.5	-
Drain Current	I_{DS}		A	-	0.85	1.1
Power Added Efficiency	η_{add}		%	-	23	-
Channel-Temperature Rise	ΔT_{ch}	$V_{DS} \times I_{DS} \times R_{th(c-c)}$	$^\circ\text{C}$	-	-	60

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

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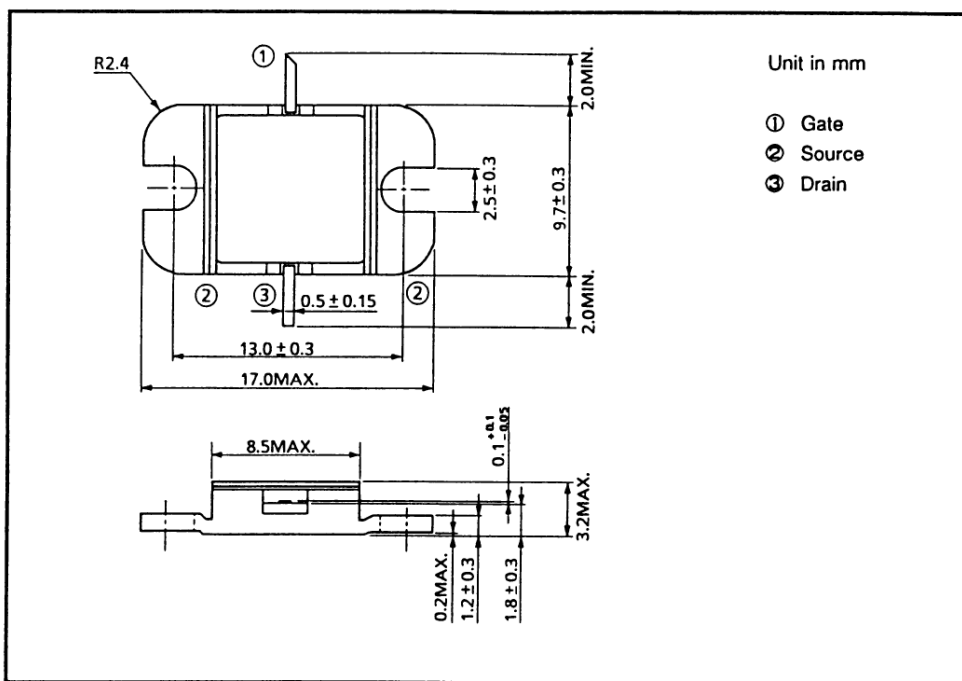
Characteristic	Symbol	Condition	Unit	Min.	Typ.	Max.
Transconductance	gm	$V_{DS} = 3V$ $I_{DS} = 1.0A$	mS	-	600	-
Pinch-off Voltage	V_{GSoff}	$V_{DS} = 3V$ $I_{DS} = 30$ mA	V	-2	-3.5	-5
Saturated Drain Current	I_{DSS}	$V_{DS} = 3V$ $V_{GS} = 0V$	A	-	2.0	2.6
Gate-Source Breakdown Voltage	V_{GSO}	$I_{GS} = -30$ μA	V	-5	-	-
Thermal Resistance	$R_{th(c-c)}$	Channel to Case	$^\circ\text{C/W}$	-	5	6

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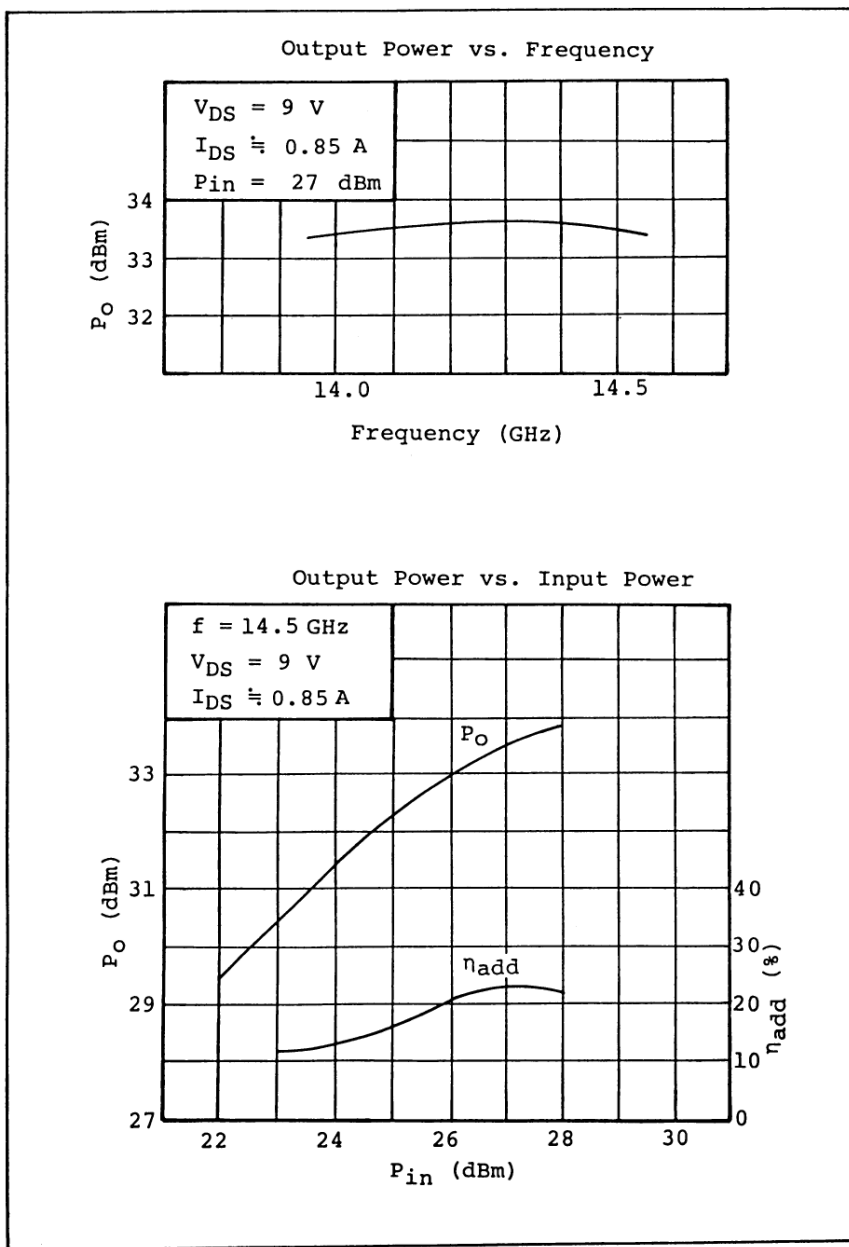
TIM1414-2**Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$)**

Characteristic	Symbol	Unit	Rating
Drain-Source Voltage	V_{DS}	V	15
Gate-Source Voltage	V_{GS}	V	-5
Drain Current	I_D	A	2.6
Total Power Dissipation ($T_c = 25^\circ\text{C}$)	P_T	W	15
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

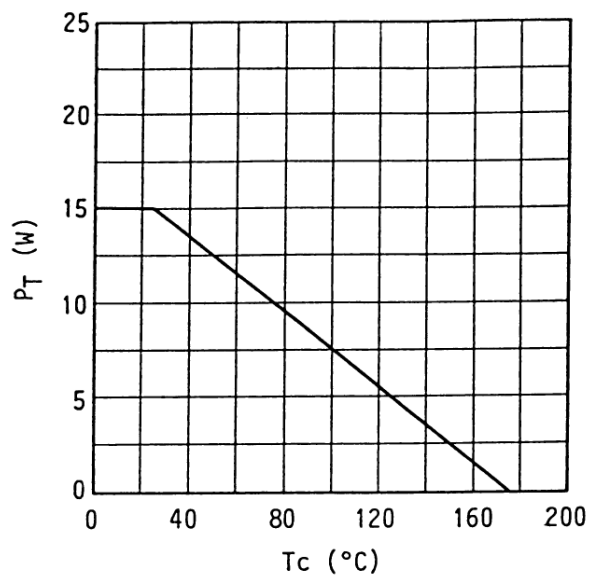


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Power Dissipation vs. Case Temperature



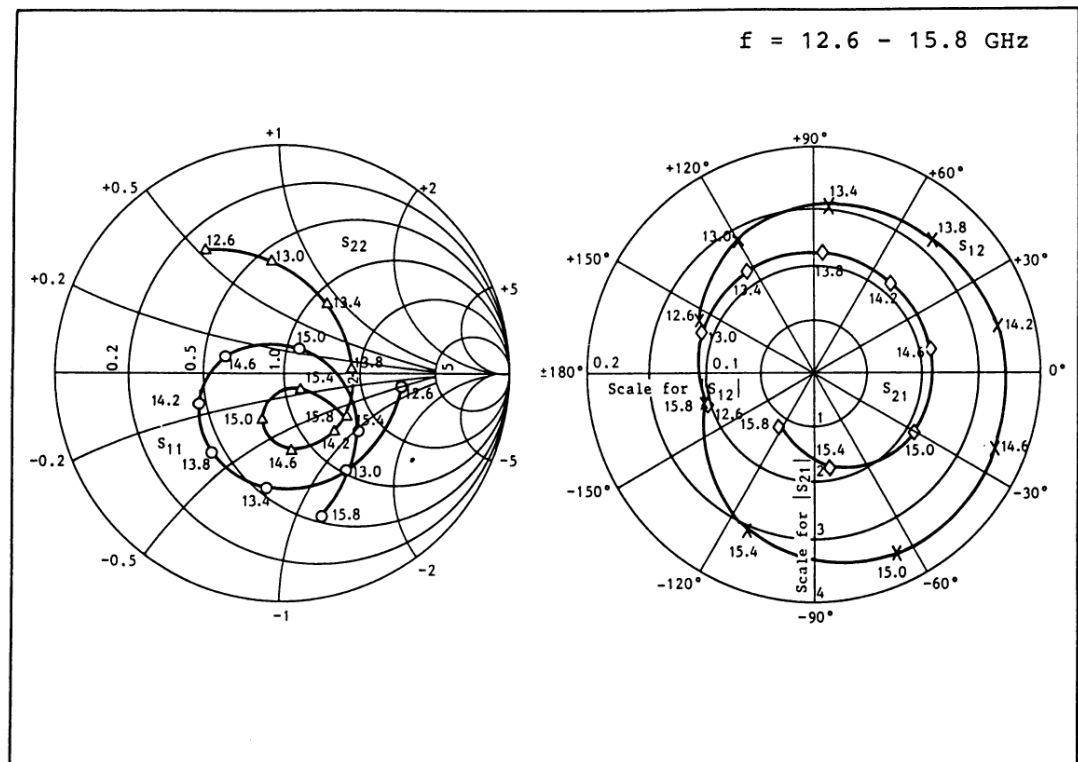
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TIM1414-2 S-Parameters (Magn. and Angles)

$V_{DS} = 9\text{ V}$, $I_{DS} = 1.0\text{ A}$



FREQUENCY (GHz)	S ₁₁		S ₁₂		S ₂₁		S ₂₂	
12.6	0.53	-7	0.117	156	2.06	-163	0.65	123
13.0	0.53	-57	0.140	120	2.17	160	0.50	96
13.4	0.52	-97	0.153	86	2.21	124	0.37	58
13.8	0.48	-131	0.163	50	2.21	87	0.31	2
14.2	0.40	-159	0.171	15	2.18	50	0.35	-47
14.6	0.26	167	0.176	-23	2.16	12	0.35	-83
15.0	0.13	54	0.178	-65	2.11	-33	0.23	-112
15.4	0.43	-37	0.155	-114	1.76	-82	0.11	-37
15.8	0.67	-74	0.104	-161	1.17	-125	0.35	-34

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