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

Features

- High power
  - P_{1dB} = 33.5 dBm at 9.5 GHz to 10.5 GHz
- High gain
  - G_{1dB} = 7.5 dB at 9.5 GHz to 10.5 GHz
- Broadband internally matched
- Hermetically sealed package

RF Performance Specifications (T_a = 25°C)

Characteristic	Symbol	Condition	Unit	Min.	Typ.	Max.
Output Power at 1dB Compression Point	P_{1dB}	V_{DS} = 9V f = 9.5 - 10.5 GHz	dBm	32.5	33.5	–
Power Gain at 1dB Compression Point	G_{1dB}		dB	6.5	7.5	–
Drain Current	I_{DS}		A	–	0.85	1.1
Power Added Efficiency	η_{add}		%	–	24	–
Channel-Temperature Rise	ΔT_{ch}	V_{DS} x I_{DS} x $R_{th\ (c-c)}$	°C	–	–	60

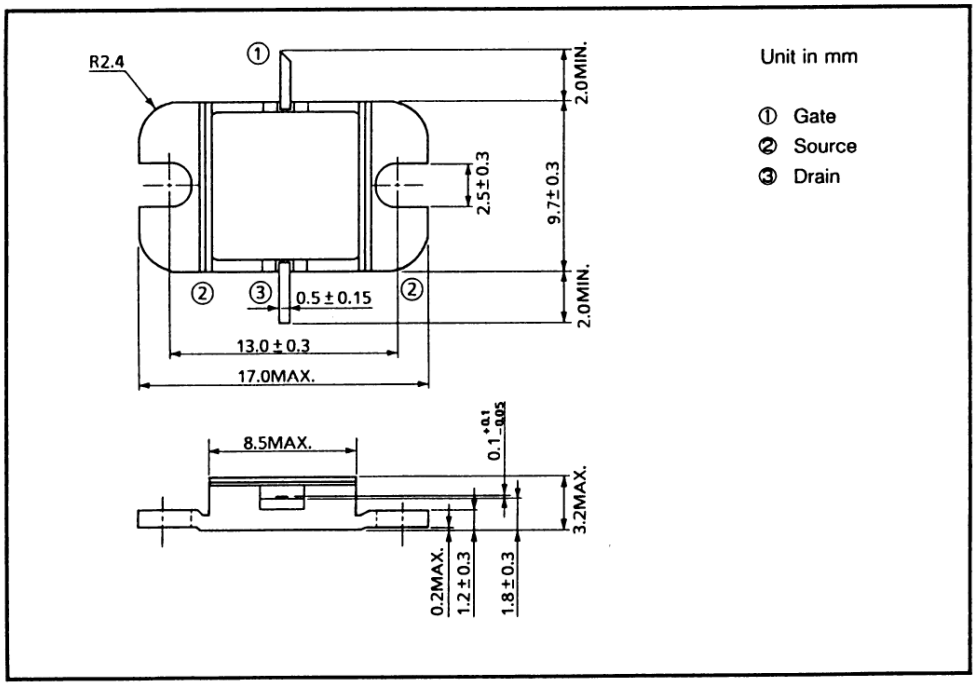
Electrical Characteristics (T_a = 25°C)

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	°C/W	–	5	6

Absolute Maximum Ratings (T_a = 25°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°C)	P_T	W	15
Channel Temperature	T_{ch}	°C	175
Storage Temperature	T_{stg}	°C	-65 ~ 175

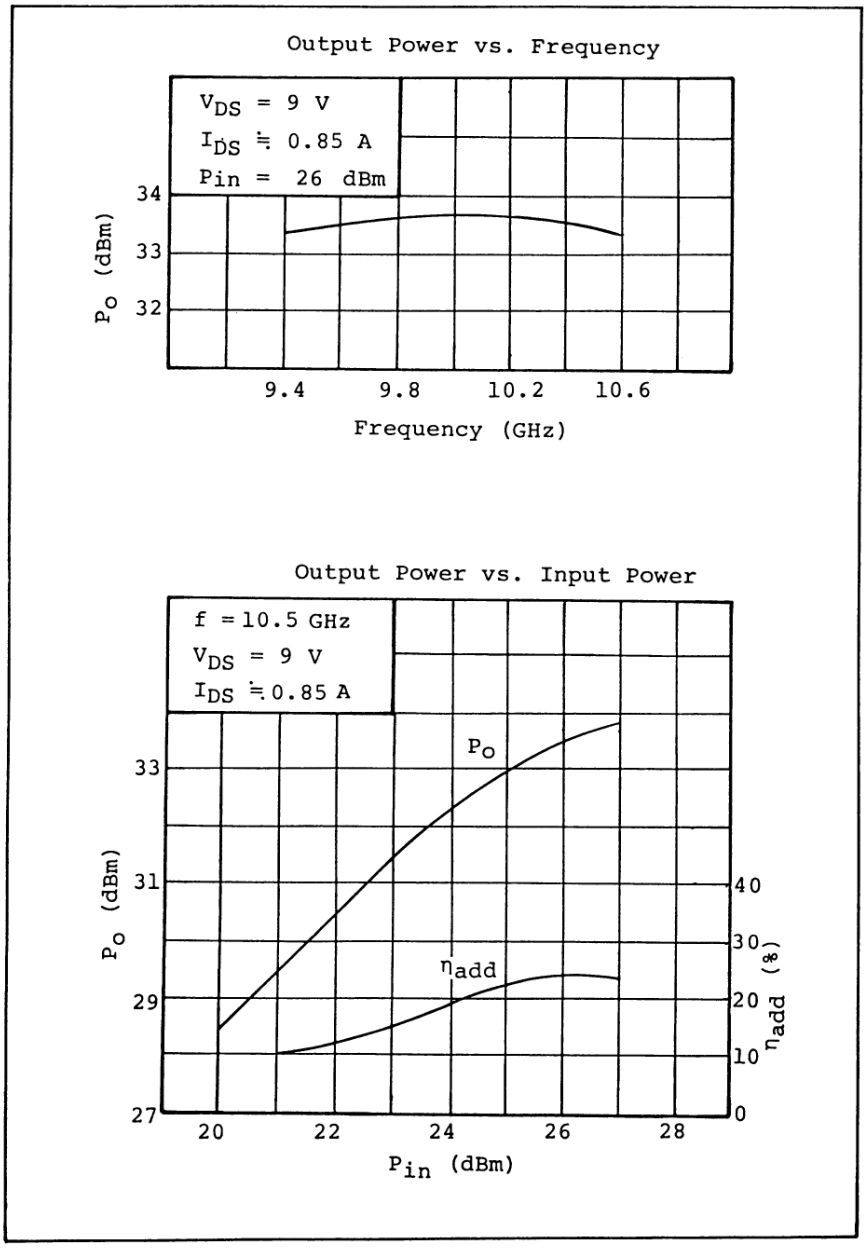
Package Outline (2-9D1B)



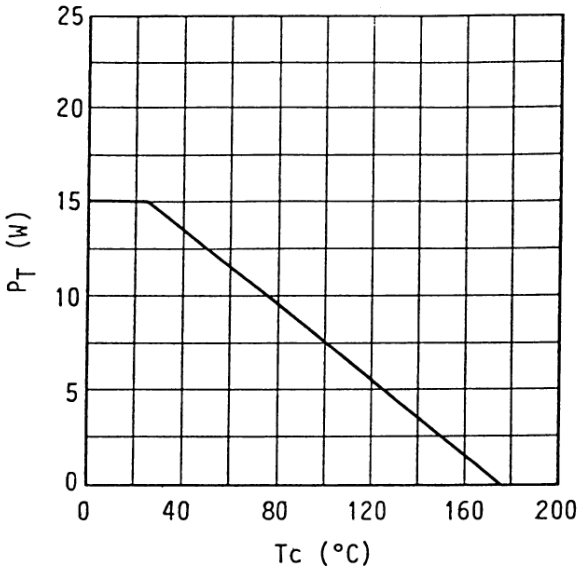
Handling Precautions for Packaged Type

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

RF Performances

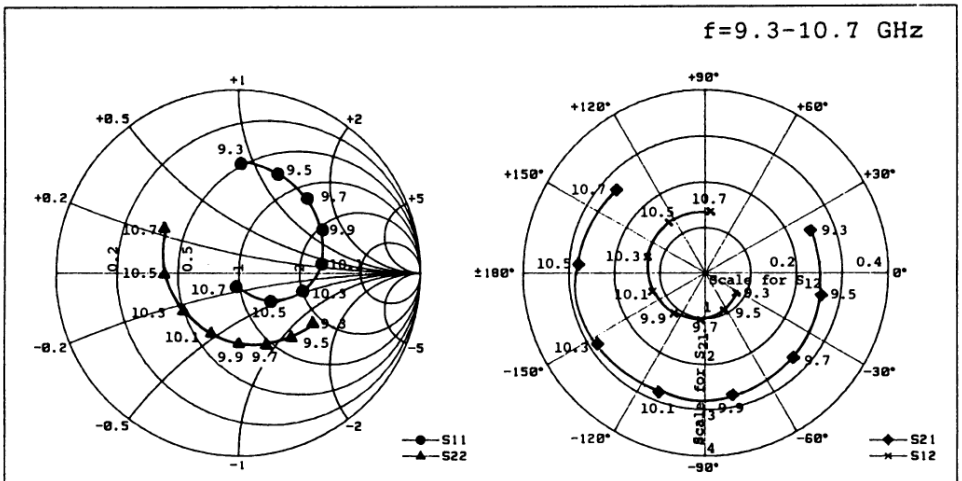


Power Dissipation vs. Case Temperature



TIM0910-2 S-Parameters (Magn. and Angles)

V_{DS}=9V, I_{DS}=0.85A



FREQUENCY (GHz)	S_{11}		S_{21}		S_{12}		S_{22}	
9.3	0.61	88	2.51	23	0.080	-29	0.49	-33
9.5	0.59	68	2.59	-10	0.089	-61	0.45	-49
9.7	0.57	48	2.65	-43	0.099	-95	0.41	-68
9.9	0.53	28	2.70	-77	0.108	-129	0.38	-89
10.1	0.46	7	2.75	-111	0.119	-163	0.35	-115
10.3	0.37	-14	2.79	-147	0.131	162	0.36	-146
10.5	0.23	-39	2.78	175	0.140	124	0.40	179
10.7	0.06	-97	2.69	136	0.141	84	0.48	148