High Power GaAs FETs (L, S-Band)

Features

- High power
  - P_{1dB} = 39.5 dBm at 2.6 GHz
- High gain
  - G_{1dB} = 8.5 dB at 2.6 GHz
- Hermetically sealed package

RF Performance Specifications (T_a = 25° C)

Characteristics	Symbol	Condition	Unit	Min.	Typ.	Max
Output Power at 1dB Compression Point	P_{1dB}	V_{DS} = 10V f = 2.6 GHz	dBm	38.5	39.5	–
Power Gain at 1dB Compression Point	G_{1dB}		dB	7.5	8.5	–
Drain Current	I_{DS}		A	–	2.0	2.5
Power Added Efficiency	N_{add}		%	–	38	–
Channel-Temperature Rise	ΔT_{ch}	NOTE 1	°C	–	–	80

Electrical Characteristics (T_a = 25° C)

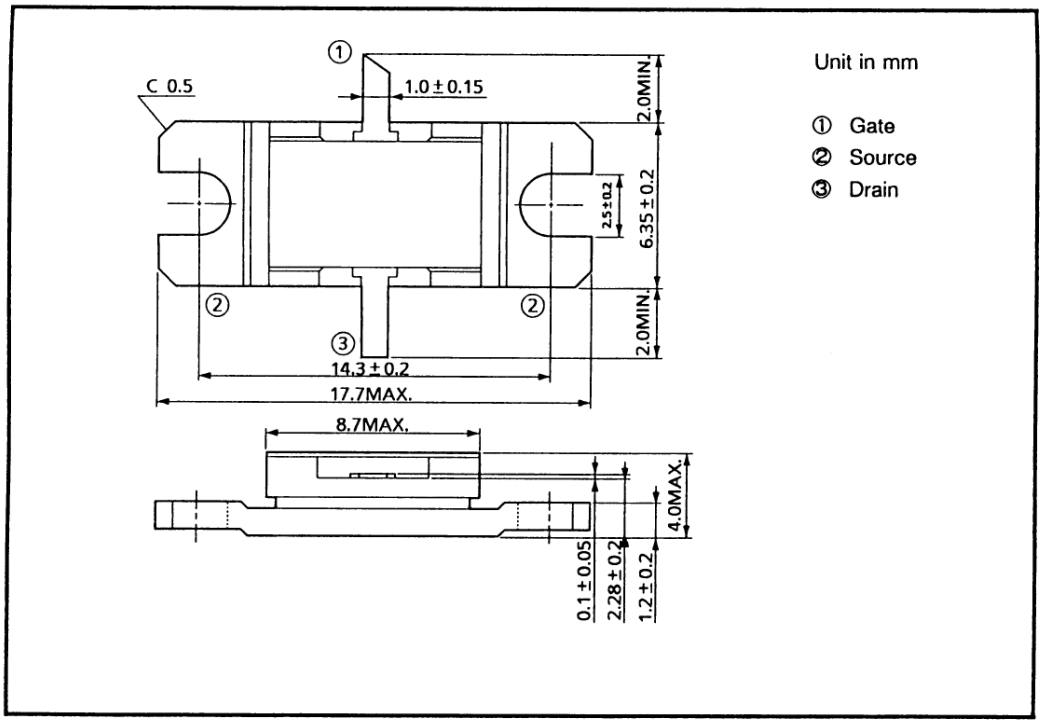
Characteristic	Symbol	Condition	Unit	Min.	Typ.	Max
Trans-conductance	gm	V_{DS}=3V I_{DS}=1.8 A	mS	–	1600	–
Pinch-off Voltage	V_{GSoff}	V_{DS}=3V I_{DS}=350mA	V	-1.0	-3.0	-4.0
Saturated Drain Current	I_{DSS}	V_{DS}=3V V_{GS}=0V	A	–	5.0	6.5
Gate to Source Breakdown Voltage	V_{GSO}	I_{GS}=-105 µA	V	-5	–	–
Thermal Resistance	$R_{th\ (c-c)}$	Channel to case	°C/W	–	3.8	4.8

NOTE 1: $\Delta Tch = (V_{DS} \times I_{DS} + Pin - P_{1dB}) \times R_{th(c-c)}$

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	6.5
Total Power Dissipation (Tc = 25°C)	P_T	W	30
Channel Temperature	T_{ch}	˚C	175
Storage Temperature	T_{stg}	˚C	-65~175

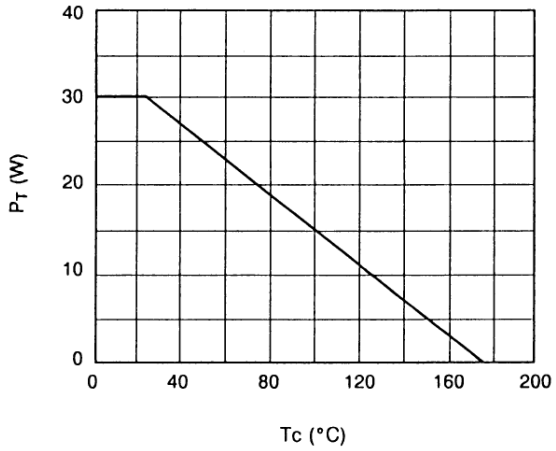
Package Outline (2-9D2A)



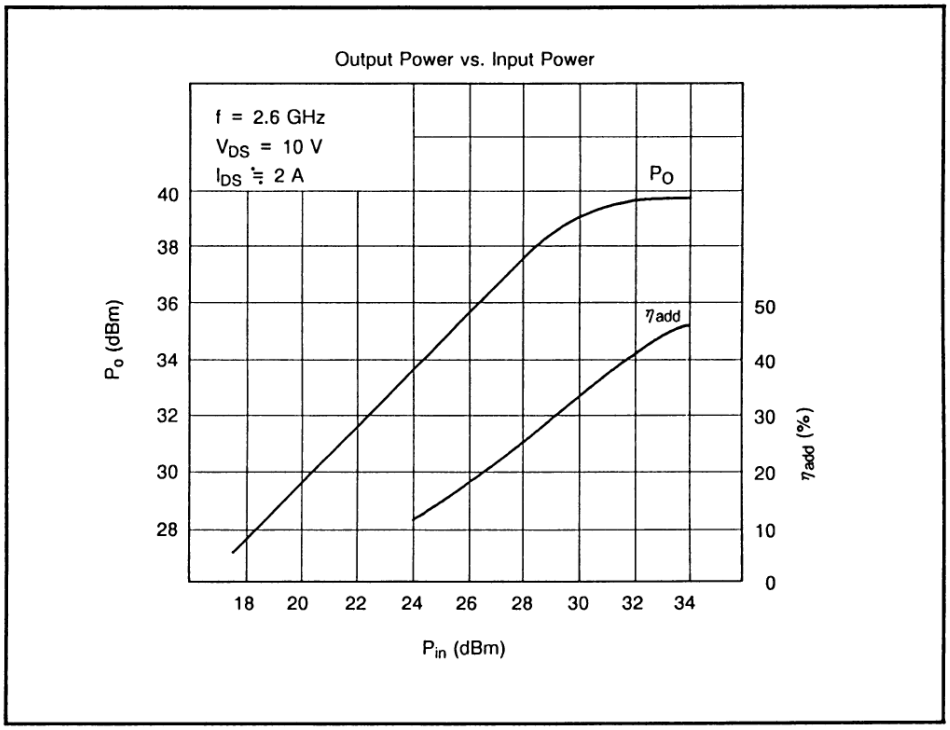
Handling Precautions for Packaged Type

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

Power Dissipation vs. Case Temperature

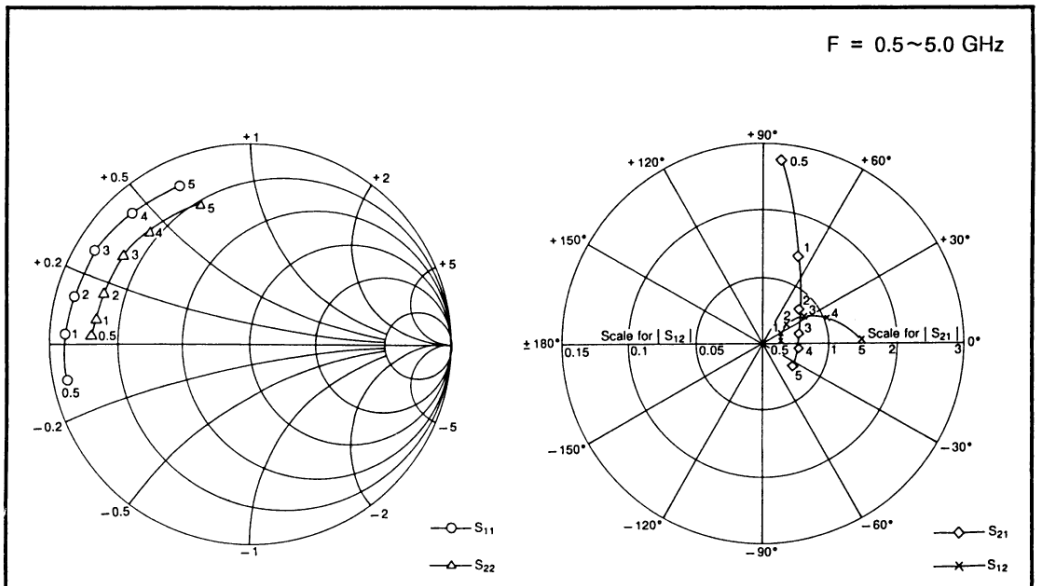


RF Performances



TNM2600-7 S-Parameters (MAGN. and ANGLES)

V_{DS} = 10 V, I_{DS} = 1.8 A



FREQUENCY (MHz)	S_{11}		S_{21}		S_{12}		S_{22}	
500	0.96	−169	2.73	86	0.012	27	0.81	176
1000	0.96	177	1.40	69	0.015	34	0.81	169
1500	0.95	171	0.94	56	0.018	38	0.81	164
2000	0.94	166	0.75	46	0.022	40	0.80	160
2500	0.93	158	0.66	32	0.028	36	0.79	151
3000	0.93	149	0.55	18	0.032	32	0.79	141
3500	0.93	145	0.51	10	0.039	31	0.78	138
4000	0.90	138	0.54	−4	0.053	23	0.75	132
4500	0.89	120	0.52	−24	0.063	7	0.75	119
5000	0.89	114	0.50	−35	0.073	1	0.75	108

Drawing of Matching Network for TNM2600-7