Internally Matched Power GaAs FETs (C-Band)

Features

- High power
  - P_{1dB} = 42.5 dBm at 4.9 GHz to 5.1 GHz
- High gain
  - G_{1dB} = 9.0 dB at 4.9 GHz to 5.1 GHz
- Broad band internally matched
- 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 = 4.9 ~ 5.1 GHz	dBm	41.5	42.5	–
Power Gain at 1dB Compression Point	G_{1dB}		dB	8.0	9.0	–
Drain Current	I_{DS}		A	–	4.8	5.5
Power Added Efficiency	η_{add}		%	–	32	–
Channel-Temperature Rise	ΔT_{ch}	V_{DS}xI_{DS}xR_{th}(c-c)	°C	–	–	80

Electrical Characteristics (T_a = 25° C)

Characteristic	Symbol	Condition	Unit	Min.	Typ.	Max
Trans-conductance	gm	V_{DS} = 3V I_{DS} = 6.0 A	mS	–	3600	–
Pinch-off Voltage	V_{GSoff}	V_{DS} = 3V I_{DS} = 80mA	V	-2	-3.5	-5
Saturated Drain Current	I_{DSS}	V_{DS} = 3V V_{GS} = 0V	A	–	11.6	15.0
Gate to Source Breakdown Voltage	V_{GSO}	I_{GS} = -240 μA	V	-5	–	–
Thermal Resistance	$R_{th\ (c-c)}$	Channel to case	°C/W	–	1.4	1.8

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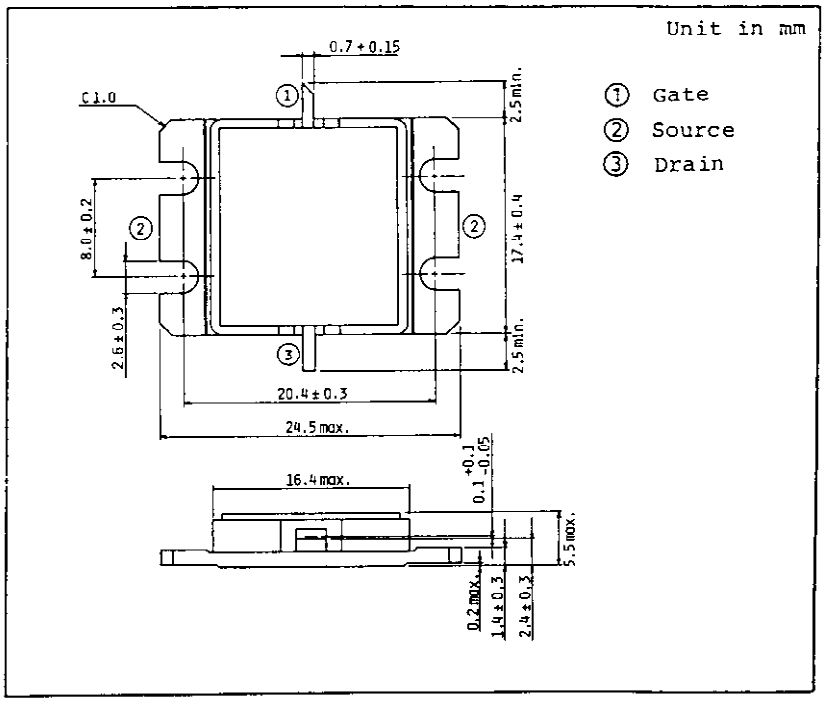
Absolute Maximum Ratings (T_a = 25° C)

Characteristic	Symbol	Unit	Rating
Drain Source Voltage	V_{DS}	V	15
Gate Source Voltage	V_{GS}	V	-5
Drain Current	I_D	A	16
Total Power Dissipation (Tc = 25°C)	P_T	W	70
Channel Temperature	T_{ch}	˚C	175
Storage Temperature	T_{stg}	˚C	-65~175

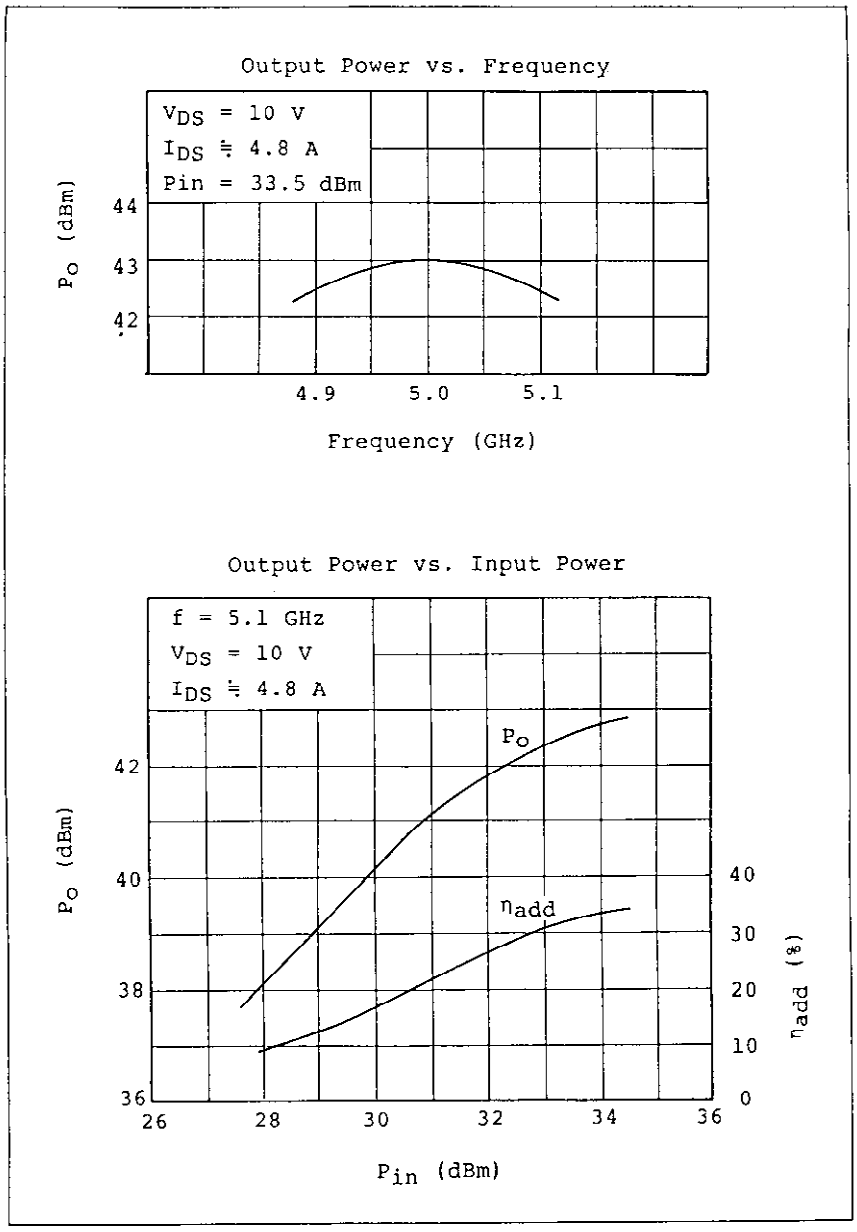
Package Outline (2-16G1B)



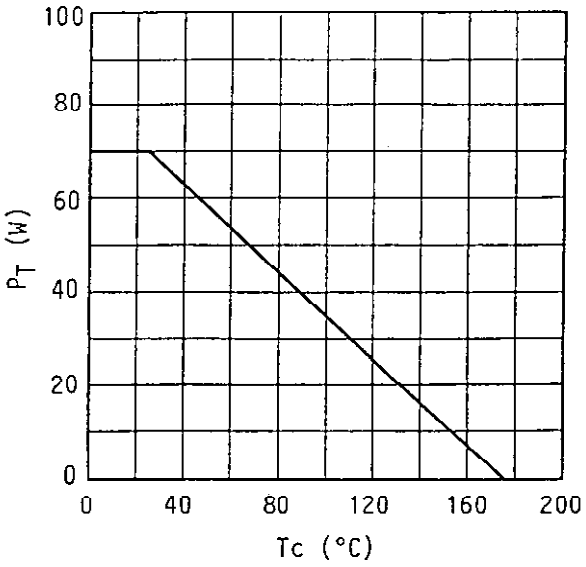
Handling Precautions for Packaged Type

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

RF Performances

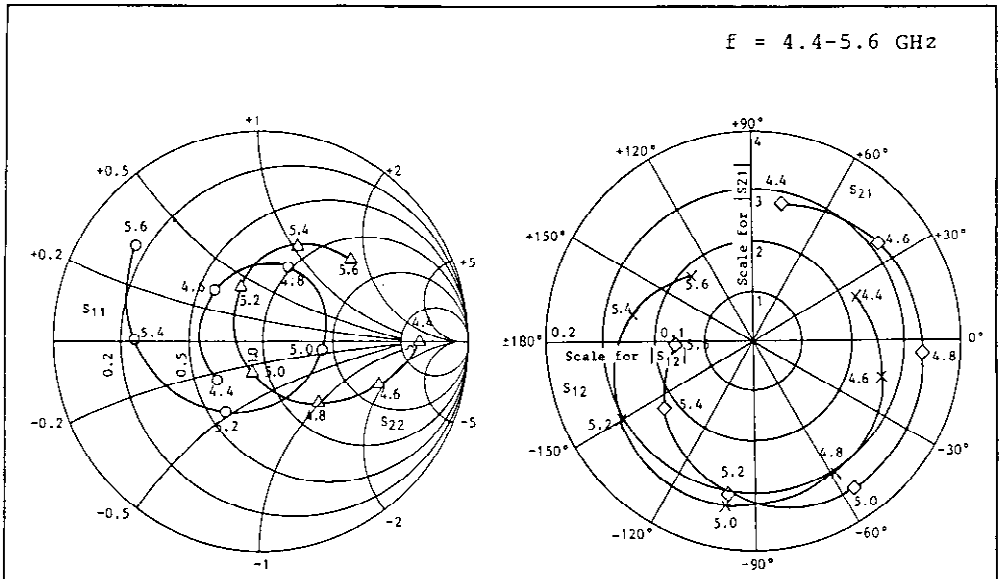


Power Dissipation vs. Case Temperature



TIM4951-16 S-Parameters
(MAGN. and ANGLES)

V_{DS} = 10 V, I_{DS} = 4.0 A



FREQUENCY (GHz)	S_{11}		S_{12}		S_{21}		S_{22}	
4.4	0.28	-140	0.106	24	2.77	77	0.76	0
4.6	0.33	131	0.128	-16	3.09	36	0.60	-20
4.8	0.38	69	0.147	-58	3.33	-5	0.40	-46
5.0	0.31	-7	0.161	-102	3.46	-51	0.14	-108
5.2	0.38	-116	0.151	-150	3.06	-100	0.28	109
5.4	0.61	179	0.118	167	2.24	-144	0.50	69
5.6	0.75	143	0.087	134	1.57	-178	0.59	43