Internally Matched Power GaAs FETs (C-Band)

Features

- High power
  - P_{1dB} = 36.0 dBm at 5.9 GHz to 6.4 GHz
- High gain
  - G_{1dB} = 8.5 dB at 5.9 GHz to 6.4 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 = 5.9 ~ 6.4 GHz	dBm	35.0	36.0	–
Power Gain at 1dB Compression Point	G_{1dB}		dB	7.5	8.5	–
Drain Current	I_{DS}		A	–	1.1	1.5
Power Added Efficiency	η_{add}		%	–	31	–
Channel-Temperature Rise	ΔT_{ch}	V_{DS}xI_{DS}xR_{th}(c-c)	°C	–	–	80

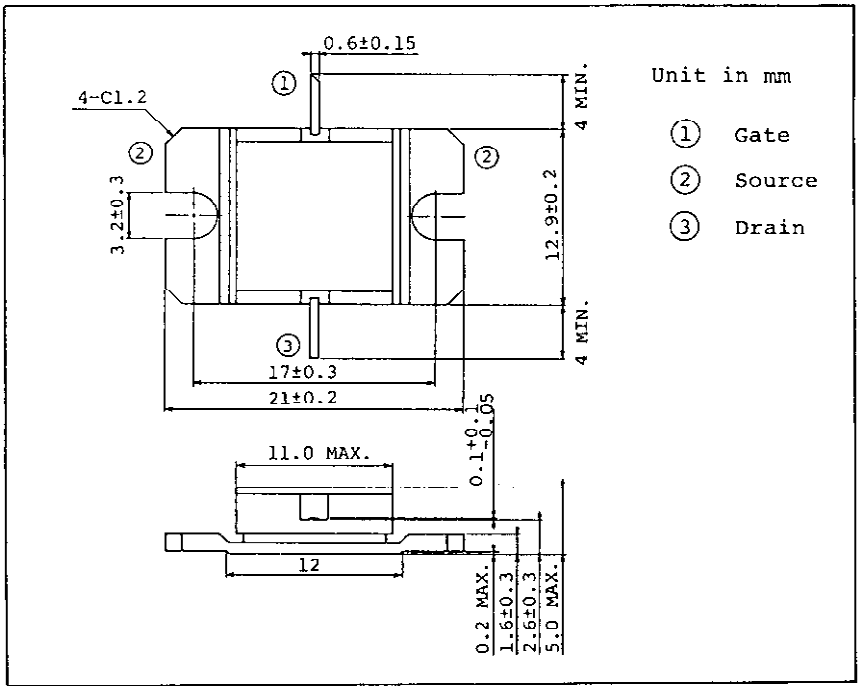
Electrical Characteristics (T_a = 25° C)

Characteristic	Symbol	Condition	Unit	Min.	Typ.	Max
Trans-conductance	gm	V_{DS} = 3V I_{DS} = 1.5A	mS	–	900	–
Pinch-off Voltage	V_{GSoff}	V_{DS} = 3V I_{DS} = 20mA	V	-2	-3.5	-5
Saturated Drain Current	I_{DSS}	V_{DS} = 3V V_{GS} = 0V	A	–	2.9	3.8
Gate to Source Breakdown Voltage	V_{GSO}	I_{GS} = -60 μA	V	-5	–	–
Thermal Resistance	$R_{th\ (c-c)}$	Channel to case	°C/W	–	4.0	6.0

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	4
Total Power Dissipation (Tc = 25°C)	P_T	W	20
Channel Temperature	T_{ch}	˚C	175
Storage Temperature	T_{stg}	˚C	-65~175

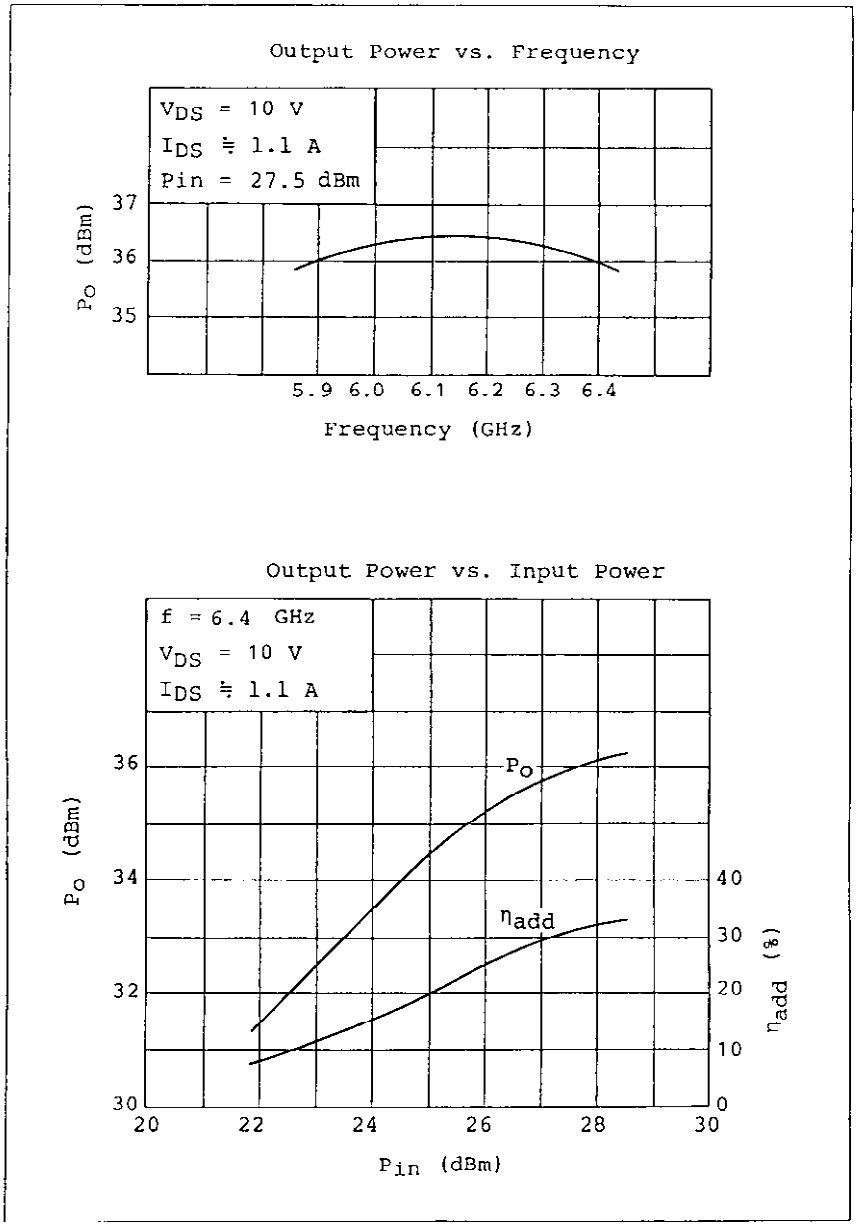
Package Outline (2-11D1B)



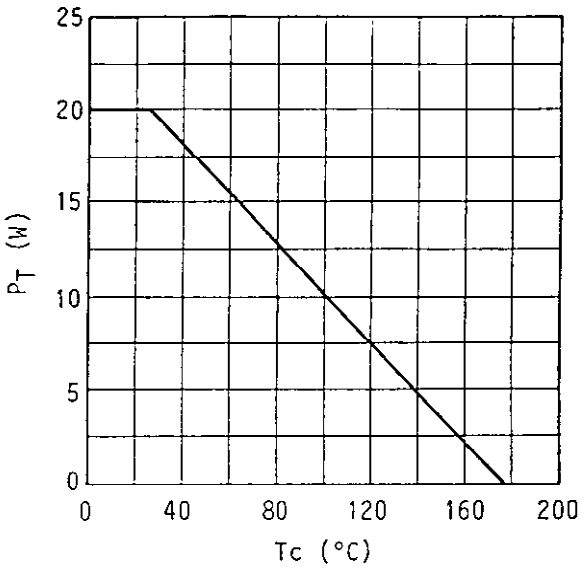
Handling Precautions for Packaged Type

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

RF Performances

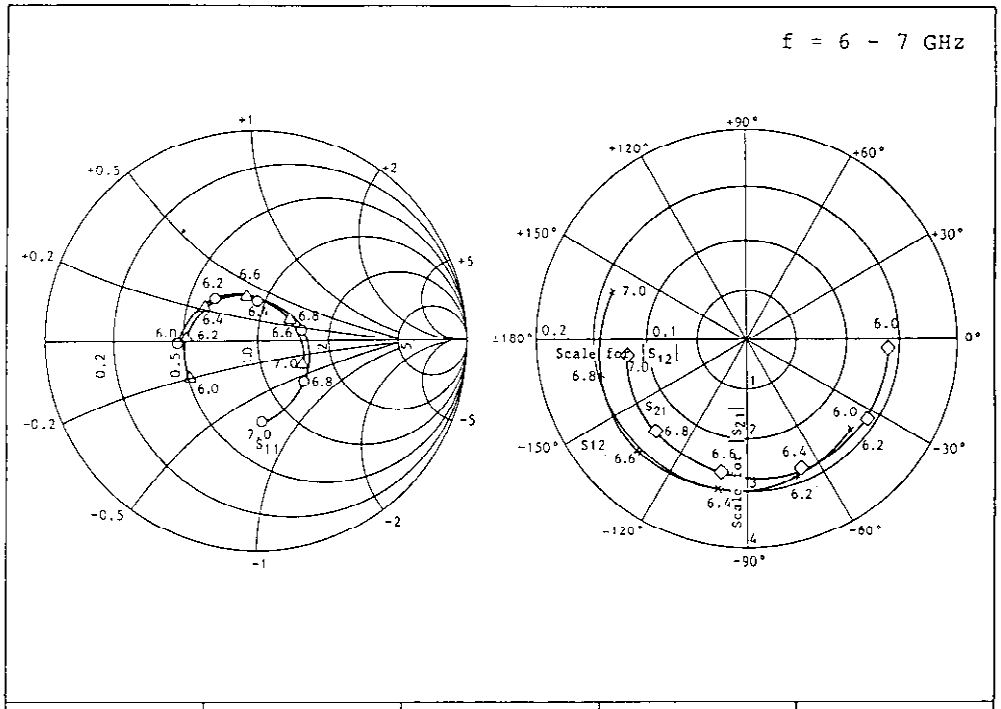


Power Dissipation vs. Case Temperature



TIM5964-4 S-Parameters
(MAGN. and ANGLES)

V_{DS} = 10 V, I_{DS} = 1.0 A



FREQUENCY (GHz)	S_{11}		S_{12}		S_{21}		S_{22}	
6.0	0.38	-180	0.138	-43	2.81	-5	0.36	-153
6.2	0.29	145	0.146	-71	2.84	-35	0.35	176
6.4	0.20	91	0.154	-103	2.83	-69	0.30	143
6.6	0.21	18	0.156	-135	2.76	-102	0.22	97
6.8	0.29	-41	0.153	-167	2.63	-136	0.19	34
7.0	0.38	-89	0.145	159	2.41	-172	0.24	-27