TPM1617-16

FEATURES:

- HIGH POWER
  P_{1dB} = 42.5 dBm at 1.6 GHz to 1.7 GHz
- HIGH GAIN
  G_{1dB} = 13 dB at 1.6 GHz to 1.7 GHz
- PARTIALLY MATCHED TYPE
- HERMETICALLY SEALED PACKAGE

RF PERFORMANCE SPECIFICATIONS (T_a = 25°C)

CHARACTERISTICS	SYMBOL	CONDITION	UNIT	MIN.	TYP.	MAX.
Output Power at 1 dB Compression Point	P_{1dB}	V_{DS} = 10 V f = 1.6 ~ 1.7GHz	dBm	41.5	42.5	-
Power Gain at 1 dB Compression Point	G_{1dB}		dB	12.0	13.0	-
Drain Current	I_{DS}		A	-	4.8	5.5
Power Added Efficiency	η_{add}		%	-	35	-
Channel-Temperature Rise	ΔT_{ch}	$V_{DS} \times I_{DS} \times R_{th(c-c)}$	°C	-	-	80

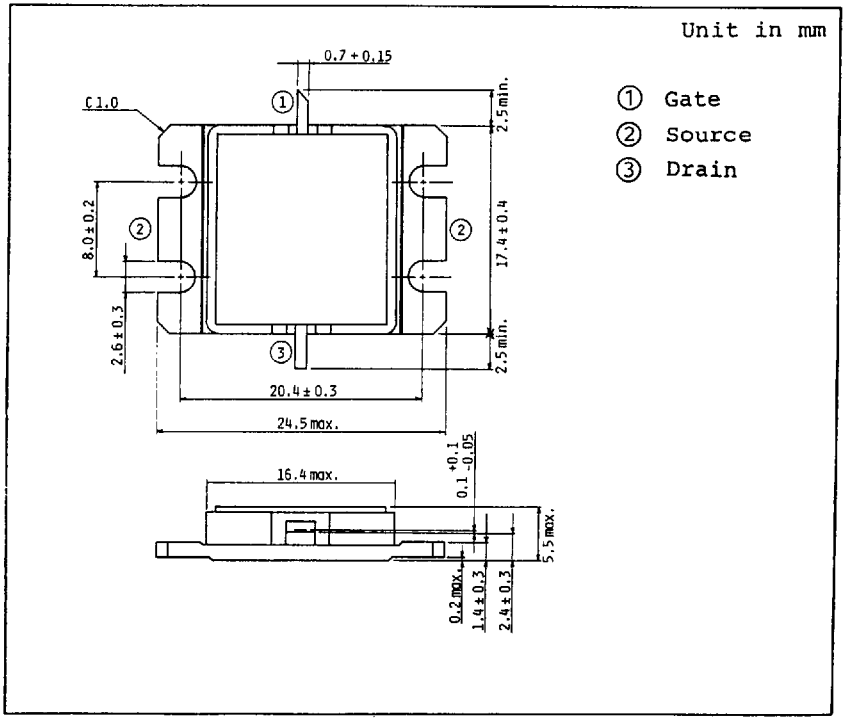
ELECTRICAL CHARACTERISTICS (T_a = 25°C)

CHARACTERISTICS	SYMBOL	CONDITION	UNIT	MIN.	TYP.	MAX.
Trans-conductance	gm	V_{DS} = 3 V I_{DS} = 6.0 A	mS	-	3600	-
Pinch-off Voltage	V_{GSoff}	V_{DS} = 3 V I_{DS} = 80 mA	V	-2	-3.5	-5
Saturated Drain Current	I_{DSS}	V_{DS} = 3 V V_{GS} = 0 V	A	-	11.6	15.0
Gate-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

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_{DS}	A	16
Total Power Dissipation (T_C=25°C)	P_T	W	70
Channel Temperature	T_{ch}	°C	175
Storage Temperature	T_{stg}	°C	-65~175

PACKAGE OUTLINE (2-16G1B)

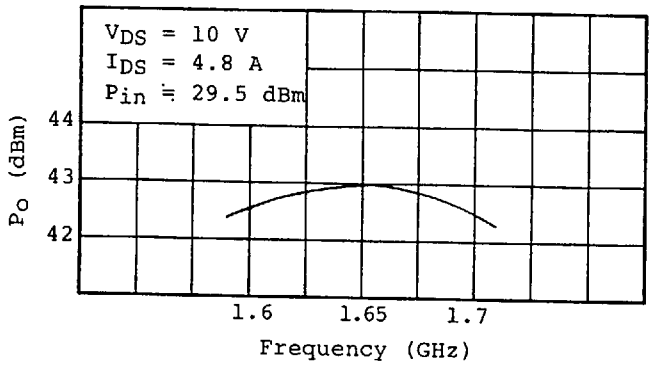


HANDLING PRECAUTIONS FOR PACKAGED TYPE

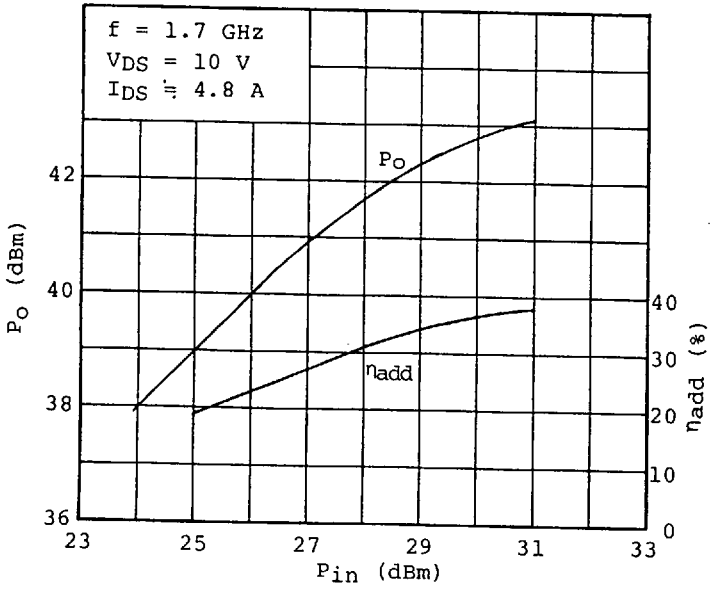
Soldering iron should be grounded and the operating time should not exceed 10 seconds at 260°C.

RF PERFORMANCES

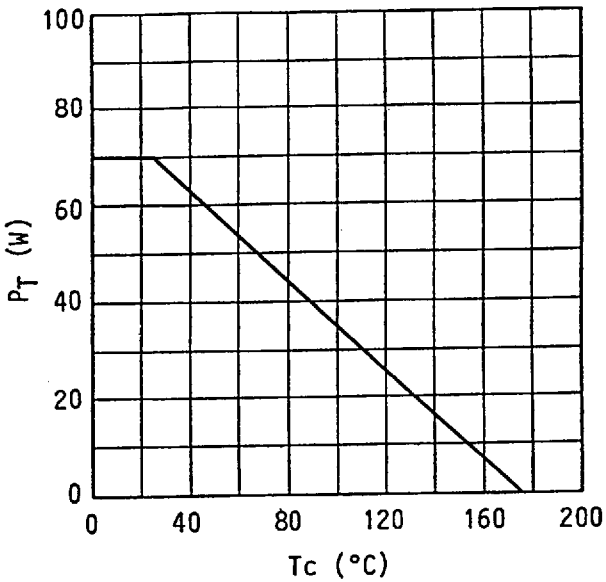
Output Power vs. Frequency



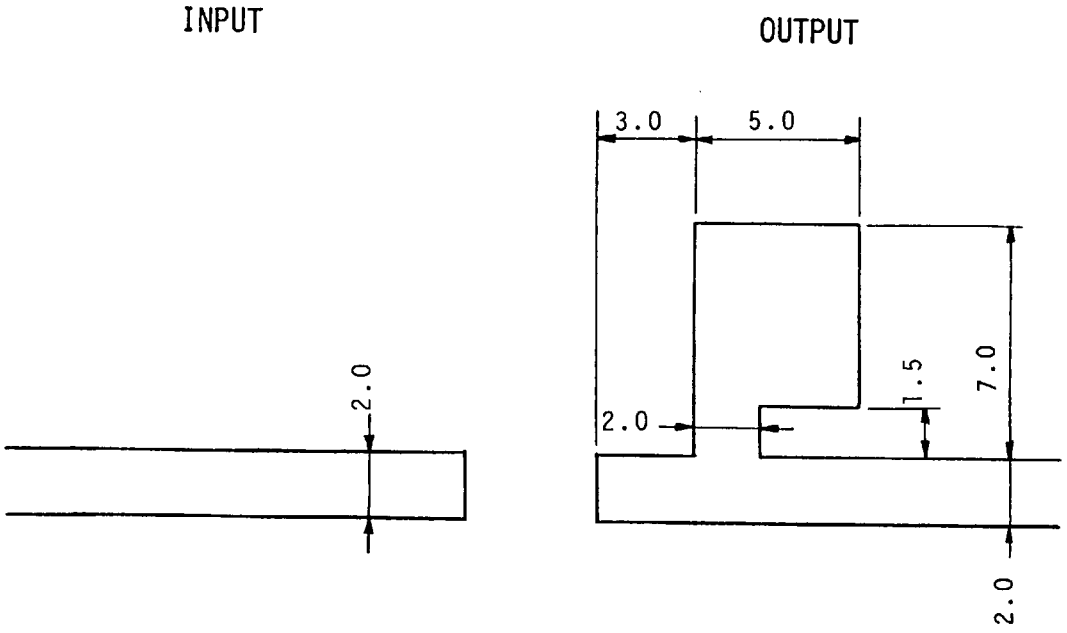
Outout Power vs. Input Power



POWER DISSIPATION VS. CASE TEMPERATURE



DRAWING OF MATCHING NETWORK FOR TPM1617-16



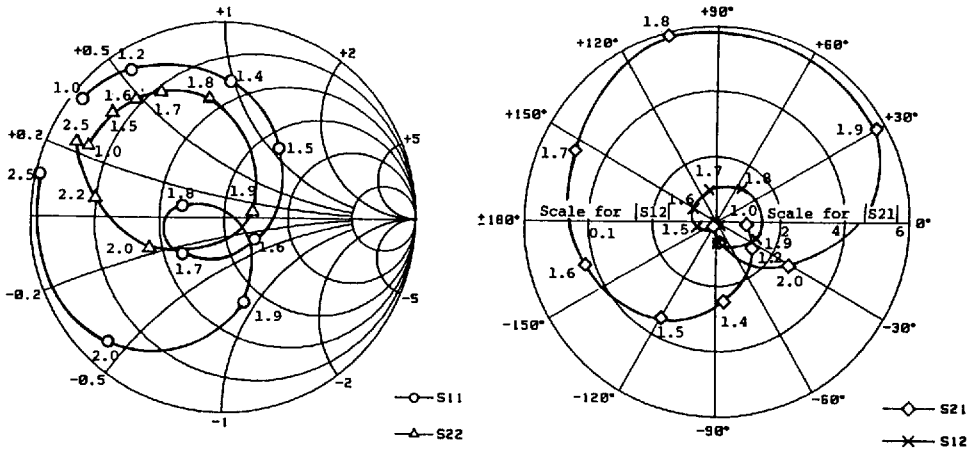
Unit in mm

Substrate Material: Teflon(ε_r=2.8)
Thickness: 0.76 mm

TPM1617-16 S-PARAMETERS
(MAGN. and ANGLES)

V_{DS} = 10 V, I_{DS} = 4.8 A

f = 1.0 - 2.5 GHz



FREQUENCY (MHz)	S11		S21		S12		S22	
1000	0.95	141	0.93	-5	0.007	-45	0.83	156
1100	0.93	133	1.10	-20	0.008	-59	0.83	154
1200	0.89	123	1.34	-37	0.011	-76	0.83	152
1300	0.83	109	1.82	-58	0.015	-99	0.82	150
1400	0.70	87	2.50	-85	0.021	-128	0.80	145
1500	0.46	51	3.42	-120	0.031	-166	0.80	138
1600	0.20	-34	4.29	-162	0.041	150	0.75	128
1700	0.28	-138	4.91	154	0.050	103	0.71	117
1800	0.22	165	5.88	105	0.064	52	0.61	97
1900	0.45	-75	5.71	30	0.067	-24	0.16	13
2000	0.87	-132	2.61	-31	0.032	-85	0.41	-156
2100	0.94	-157	1.22	-62	0.016	-115	0.58	-178
2200	0.96	-170	0.67	-82	0.009	-134	0.67	172
2300	0.97	-180	0.40	-98	0.006	-148	0.72	164
2400	0.97	173	0.27	-111	0.004	-160	0.76	158
2500	0.97	167	0.19	-123	0.003	-174	0.79	153