TPM1919-40

FEATURES :

- HIGH POWER
  P_{1dB} = 46.0 dBm at 1.9 GHz
- HIGH GAIN
  G_{1dB} = 13 dB at 1.9 GHz
- PARTIALLY MATCHED TYPE
- HERMETICALLY SEALED PACKAGE

RF PERFORMANCE SPECIFICATIONS (Ta = 25°C)

CHARACTERISTICS	SYMBOL	CONDITION	UNIT	MIN.	TYP.	MAX.
Output Power at 1dB Compression Point	P_{1dB}	V_{DS} = 10 V f = 1.9 GHz	dBm	45.0	46.0	–
Power Gain at 1dB Compression Point	G_{1dB}		dB	12.0	13.0	–
Drain Current	I_{DS}		A	–	8.0	9.0
Power Added Efficiency	η_{add}		%	–	47	–
Channel-Temperature Rise	ΔTch	$V_{DS} \times I_{DS} \times R_{th(c-c)}$	°C	–	–	90

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

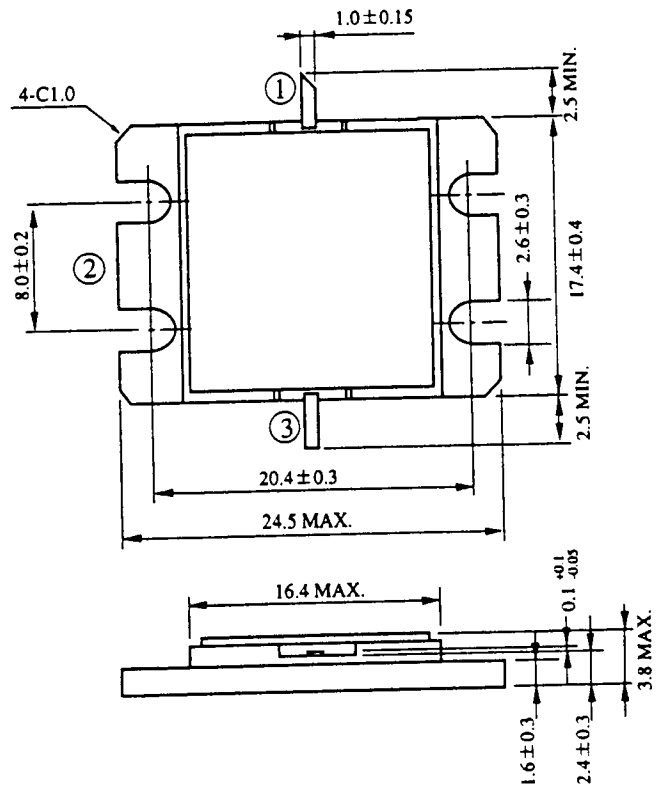
CHARACTERISTICS	SYMBOL	CONDITION	UNIT	MIN.	TYP.	MAX.
Transconductance	gm	V_{DS} = 3 V I_{DS} = 8.0 A	mS	–	8000	–
Pinch-off Voltage	V_{GSoff}	V_{DS} = 3 V I_{DS} = 170 mA	V	−1.0	-2.5	−4.0
Saturated Drain Current	I_{DSS}	V_{DS} = 3 V V_{GS} = 0 V	A	–	20	26
Gate-Source Breakdown Voltage	V_{GSO}	I_{GS} = −500 μA	V	−5	–	–
Thermal Resistance	$R_{th(c-c)}$	Channel to Case	°C/W	–	0.8	1.2

*RECOMMENDED GATE RESISTANCE (Rg) : Rg=30 Ω (MAX.)

ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTICS	SYMBOL	UNIT	RATING
Drain-Source Voltage	V_{DS}	V	15
Gate-Source Voltage	V_{GS}	V	−5
Drain Current	I_{DS}	A	26
Total Power Dissipation (T_C = 25°C)	P_T	W	100
Channel Temperature	T_{ch}	°C	175
Storage Temperature	T_{stg}	°C	−65~175

PACKAGE OUTLINE (2-16G6A)



Unit in mm

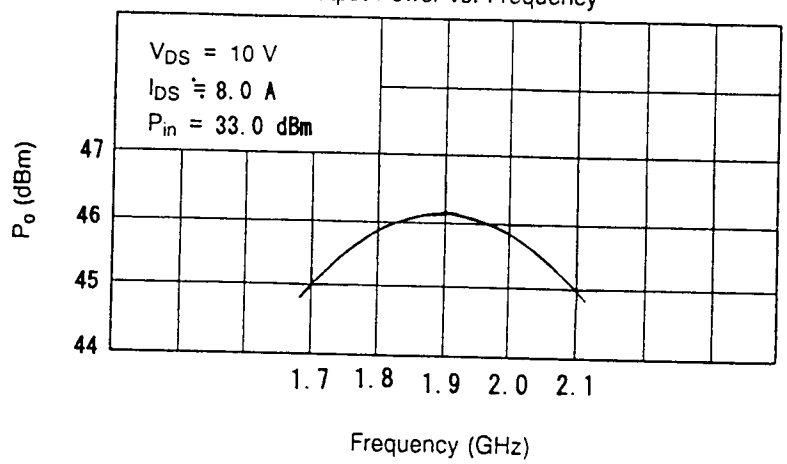
① Gate
② Source
③ Drain

HANDLING PRECAUTIONS FOR PACKAGED TYPE

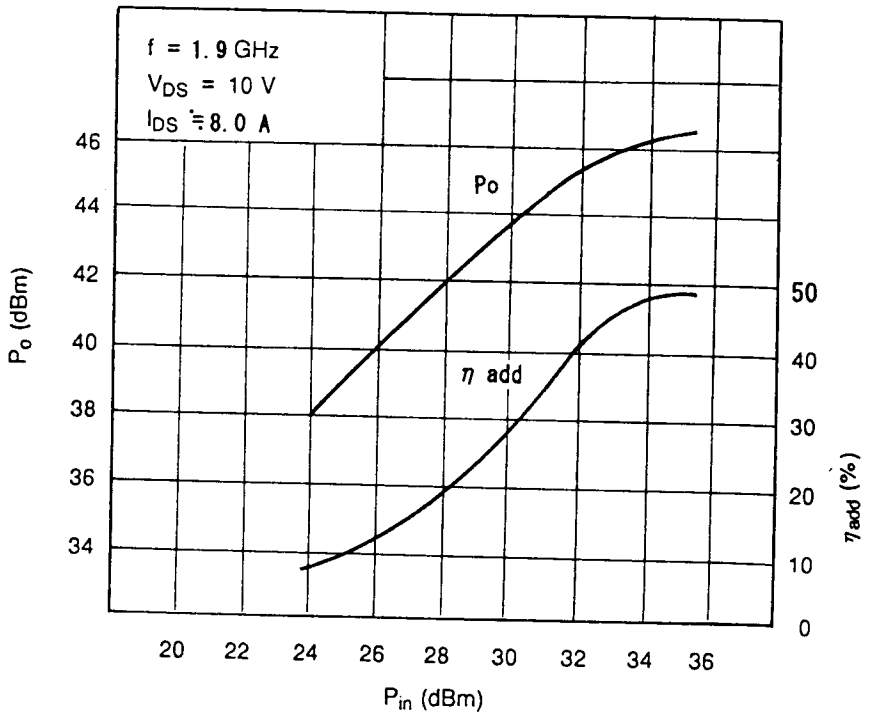
Soldering iron should be grounded and the operating time should not exceed 10 seconds at 260°C.

RF PERFORMANCES

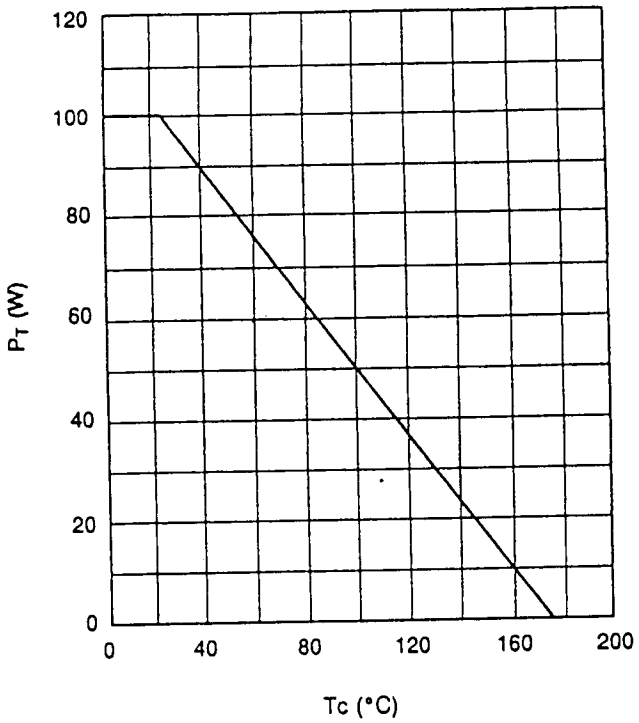
Output Power vs. Frequency



Output Power vs. Input Power

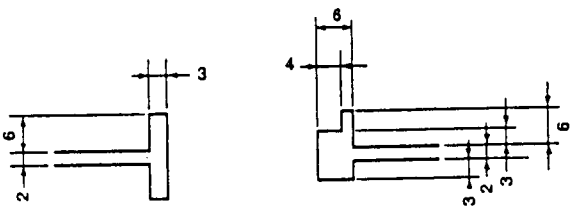


POWER DISSIPATION VS. CASE TEMPERATURE



DRAWING OF MATCHING NETWORK

INPUT **OUTPUT**



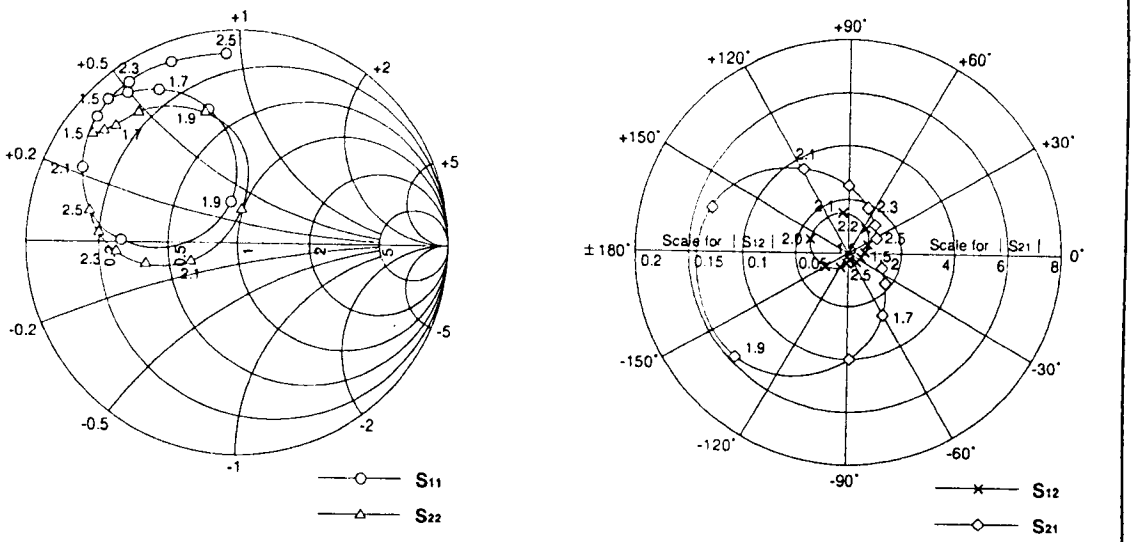
Unit in mm

Substrate Material : Teflon ($\varepsilon r = 2.8$)
Thickness : 0.76mm

TPM1919-40 S-PARAMETERS
(MAGN.and ANGLES)

V_{DS} = 10V, I_{DS} = 8A

f =1.5~2.5GHz



FREQUENCY (MHz)	S_{11} MAG	S_{11} ANG	S_{21} MAG	S_{21} ANG	S_{12} MAG	S_{12} ANG	S_{22} MAG	S_{22} ANG
1500	0.913	133	1.392	-23	0.007	-75	0.856	144
1600	0.881	127	1.848	-39	0.010	-95	0.827	141
1700	0.810	118	2.614	-60	0.015	-118	0.800	137
1800	0.641	103	3.966	-89	0.024	-150	0.771	128
1900	0.201	100	5.791	-137	0.038	160	0.631	105
2000	0.551	179	5.406	162	0.039	98	0.172	83
2100	0.820	155	3.628	119	0.028	54	0.235	-160
2200	0.891	139	2.483	90	0.020	24	0.445	-167
2300	0.906	125	1.817	67	0.016	2	0.574	-176
2400	0.906	111	1.421	47	0.013	-18	0.657	176
2500	0.895	94	1.179	28	0.012	-36	0.721	168