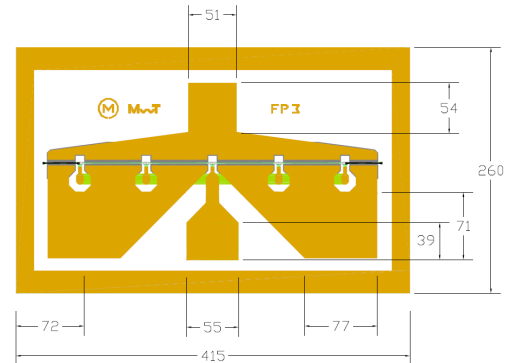


MwT-3F 26 GHz High Power GaAs FET

Features:

- 12 dB Small Gain at 18 GHz
- 22 dBm Output Power at 18 GHz
- Excellent for High Linearity Amplifier Applications
- Ideal for Commercial, Military, Hi-Rel Space Applications
- 0.25 Micron Refractory Metal/Gold Gate
- 300 Micron Gate Width
- Choice of Chip and Three Package Types



Chip Dimensions: 415 x 260 microns
Chip Thickness: 100 microns

Description:

The MwT-3F is a GaAs MESFET device whose nominal 0.25 micron gate length and 300 micron gate width make it ideally suited to applications requiring high-gain and linearity in the 500 MHz to 26 GHz frequency range with power outputs ranging from +20 to +22 dBm. MwT-3F is equally effective for either wideband (e.g. 6 to 18 GHz) or narrow-band applications. All chips are passivated with SiN (Silicon Nitride).

RF Specifications: • at $T_a = 25^\circ\text{C}$

PARAMETERS & CONDITIONS	SYMBOL	FREQ	UNITS	MIN	TYP
Output Power at 1dB Compression $V_{ds}=7.0\text{V}$ $I_{ds}=0.6 \times I_{DSS}$	P1dB	12 GHz	dBm		22.0
Output Third Order Intercept Point $V_{ds}=7.0\text{V}$ $I_{ds}=0.6 \times I_{DSS}$	OIP3	12 GHz	dBm		32
Small Signal Gain $V_{ds}=6.0\text{V}$ $I_{ds}=0.6 \times I_{DSS}$	SSG	12 GHz	dB	11.0	12.0
Power Added Efficiency $V_{ds}=7.0\text{V}$ $I_{ds}=0.6 \times I_{DSS}$	PAE	12 GHz	%		35

DC Specifications: • at $T_a = 25^\circ\text{C}$

PARAMETERS & CONDITIONS	SYMBOL	UNITS	TYP
Saturated Drain Current $V_{ds}=4.0\text{V}$ $V_{gs}=0.0\text{V}$	I_{DSS}	mA	100
Transconductance $V_{ds}=4.0\text{V}$ $V_{gs}=0.0\text{V}$	G_m	mS	48
Pinch-off Voltage $V_{ds}=3.0\text{V}$ $I_{ds}=2.0\text{mA}$	V_p	V	-2.0
Gate-to-Source Breakdown Voltage $I_{gs}=-0.2\text{mA}$	BVGSO	V	-17
Gate-to-Drain Breakdown Voltage $I_{gd}=-0.2\text{mA}$	BVGDO	V	-16
Thermal Resistance <i>MwT-3F chip & 71 pkg 70 pkg & 73 pkg</i>	R_{th}	C/W	

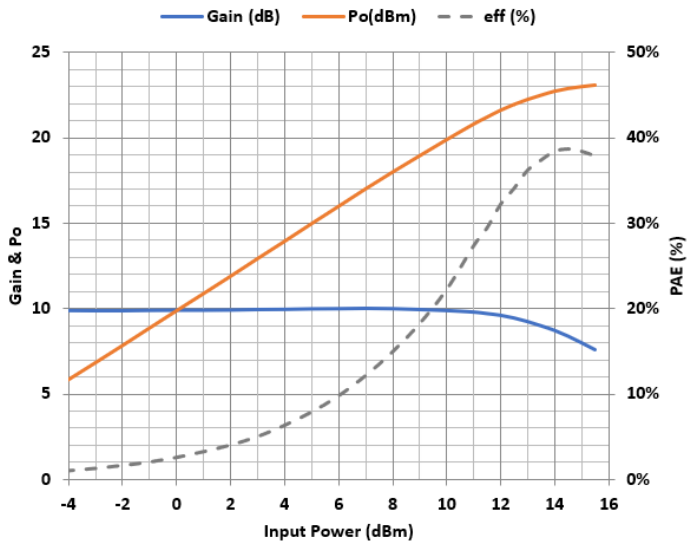
*Overall R_{th} depends on case mounting

MwT-3F

26 GHz High Power GaAs FET

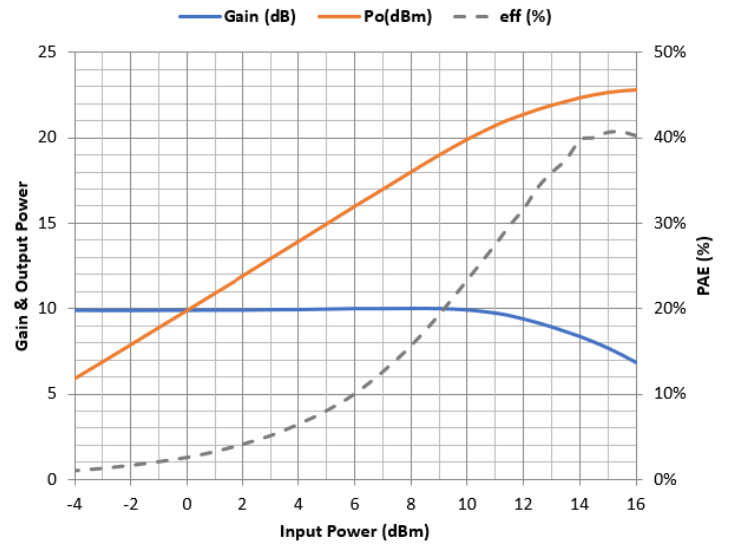
MwT-3F. Power, 12GHz

Vds=7V; Idq= 0.6xIDSS



MwT-3F, Typical Power at 18GHz

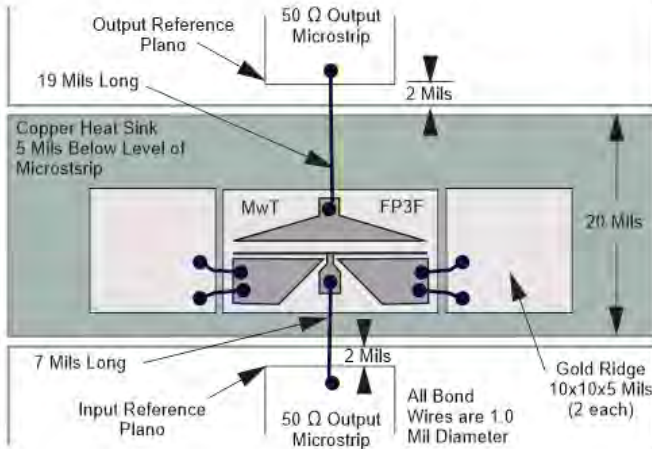
Vds=7.0V Ids= 0.6xIDSS



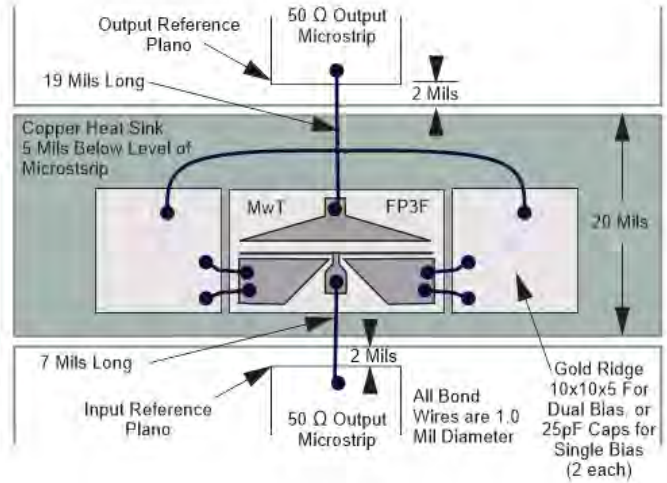
MwT-3F

26 GHz High Power GaAs FET

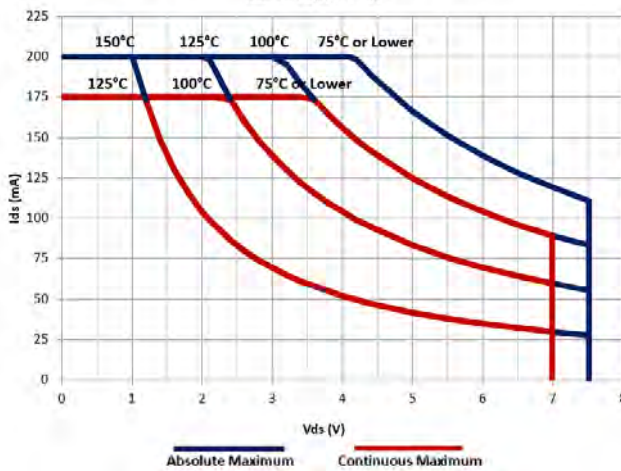
**MwT-3F
DUAL BIAS**



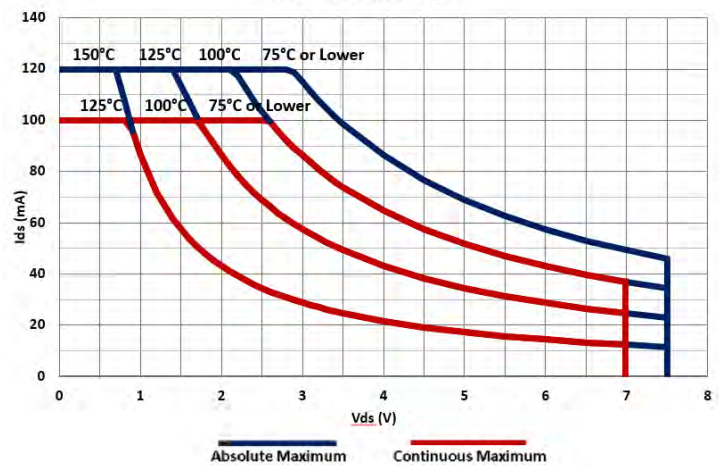
**MwT-3F
OPTIONAL BONDING**



Thermal Safe Operating Limits vs Backside Temperature
MwT-3F chip & 71 Pkg



Thermal Safe Operating Limits vs Backside Temperature
MwT-3F 70 & 73 Pkg



MAXIMUM RATINGS AT Ta = 25 °C

Symbol	Parameter	Units	Cont Max1	Absolute Max2
VDS	Drain to Source Volt.	V	See Safe Operating Limits	
Tch	Channel Temperature	°C	+150	+175
Tst	Storage Temperature	°C	-65 to +150	+175
Pin	RF Input Power	mW	120	180

Notes:

1. Exceeding any one of these limits in continuous operation may reduce the mean-time-to-failure below the design goal.
2. Exceeding any one of these limits may cause permanent damage.

MwT-3F

26 GHz High Power GaAs FET

S-PARAMETER Vds=6V, Ids= 0.7 x Idss

Freq. GHz	S11		S21		S12		S22		K	GMAX dB
	dB	Ang (°)	dB	Ang (°)	dB	Ang (°)	dB	Ang (°)		
1	-0.602	-13.928	11.366	169.128	-39.249	82.727	-2.574	-5.014	0.727	25.307
2	-0.688	-27.258	11.182	158.656	-33.447	75.536	-2.683	-10.036	0.459	22.314
3	-0.833	-40.013	10.956	148.891	-30.324	68.493	-2.790	-14.648	0.415	20.640
4	-0.986	-51.736	10.607	139.722	-28.069	62.245	-2.905	-18.587	0.411	19.338
5	-1.251	-63.399	10.116	130.212	-26.663	56.288	-3.090	-23.701	0.464	18.390
6	-1.519	-73.152	9.575	122.381	-25.734	52.157	-3.310	-26.293	0.544	17.654
7	-1.631	-84.485	9.115	114.483	-24.971	47.312	-3.542	-29.006	0.572	17.043
8	-1.977	-93.223	8.669	106.889	-24.516	42.248	-3.611	-33.418	0.668	16.592
9	-1.863	-102.153	8.350	98.824	-23.776	39.691	-3.670	-39.033	0.583	16.063
10	-2.293	-110.812	7.743	92.565	-23.635	36.251	-3.834	-41.152	0.737	15.689
11	-2.209	-118.362	7.332	86.637	-23.429	31.995	-4.164	-44.531	0.767	15.380
12	-2.427	-126.390	6.909	80.269	-23.288	29.751	-4.021	-47.000	0.817	15.099
13	-2.441	-133.543	6.514	74.276	-23.277	28.431	-4.176	-50.544	0.852	14.895
14	-2.460	-140.387	6.090	67.962	-23.178	26.575	-4.150	-54.204	0.868	14.634
15	-2.474	-146.864	5.785	62.796	-23.164	24.828	-4.260	-58.545	0.891	14.475
16	-2.648	-152.935	5.214	57.648	-23.347	23.570	-4.267	-61.278	1.020	13.412
17	-2.696	-158.192	4.717	52.401	-23.370	23.301	-4.360	-64.671	1.101	12.110
18	-2.619	-164.197	4.422	46.141	-23.516	23.330	-4.206	-67.802	1.083	12.213
19	-2.649	-168.933	4.081	41.509	-23.646	23.921	-4.286	-72.195	1.147	11.539
20	-2.600	-173.399	3.617	37.093	-23.785	24.763	-4.303	-77.061	1.189	11.074
21	-2.549	-177.772	3.400	32.332	-23.611	24.902	-4.358	-80.820	1.166	11.037
22	-2.452	177.403	3.034	27.296	-23.835	25.893	-4.329	-84.891	1.184	10.841
23	-2.364	173.404	2.681	21.701	-23.801	28.157	-4.130	-90.219	1.113	11.193
24	-2.249	170.253	2.377	17.442	-23.825	31.198	-3.921	-93.693	1.028	12.079
25	-2.187	165.935	2.010	13.249	-23.425	33.691	-3.986	-99.489	0.978	12.718
26	-2.050	162.897	1.611	8.645	-23.098	35.733	-3.748	-103.514	0.837	12.354

Available Packaging:

70 Package - MwT-3F70
71 Package - MwT-3F71
73 Package - MwT-3F73

MwT-3F

26 GHz High Power GaAs FET

Contact Information

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