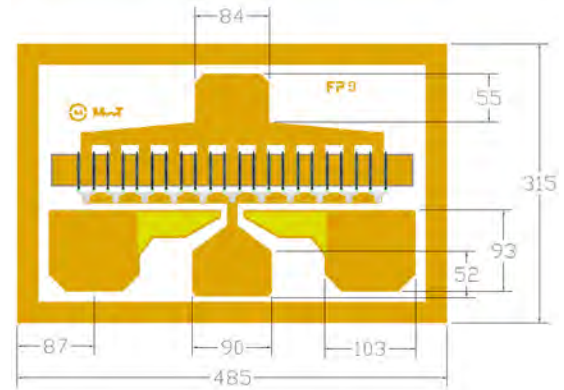


MwT-9F 18 GHz Medium Power GaAs FET

Features:

- 26.5 dBm Output Power at 12 GHz
- 11 dB Small Signal Gain at 12 GHz
- Excellent for Medium Linear Power Applications
- Ideal for Commercial, Military, Hi-Rel Space Applications
- 0.25 μm Refractory Metal / Gold Gate
- 750 μm Gate Width
- Choice of Chip and Three Package Types



Chip Dimensions: 485 x 315 μm
Chip Thickness: 100 μm

Description:

The MwT-9F is a GaAs MESFET device whose nominal 0.25 μm gate length and 750 μm gate width make it ideally suited to applications requiring medium linear power. It can be easily matched as the driver stage in high power communications amplifiers or in broad-band military amplifiers. All chips are passivated with SiN (Silicon Nitride).

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

PARAMETERS & CONDITIONS	SYMBOL	FREQ	UNITS	TYP
Output Power at 1dB Compression $V_{ds}=7V$ $I_{ds}=0.6 \times I_{DSS}$	P1dB	12 GHz	dBm	26.5
Output Third Order Intercept Point $V_{ds}=7V$ $I_{ds}=0.6 \times I_{DSS}$	OIP3	12 GHz	dBm	36
Small Signal Gain $V_{ds}=7V$ $I_{ds}=0.6 \times I_{DSS}$	SSG	12 GHz	dB	11
Power Added Efficiency $V_{ds}=7V$ $I_{ds}=0.6 \times I_{DSS}$	PAE	12 GHz	%	35

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

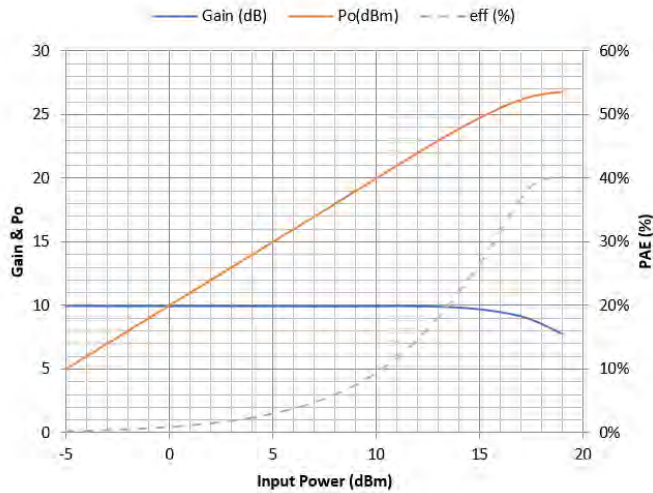
PARAMETERS & CONDITIONS	SYMBOL	UNITS	MIN	TYP	MAX
Saturated Drain Current $V_{ds}=4.0V$ $V_{gs}=0.0V$	I_{DSS}	mA	200		250
Transconductance $V_{ds}=2.0V$ $V_{gs}=0.0V$	Gm	mS	130	140	
Pinch-off Voltage $V_{ds}=3.0V$ $I_{ds}=5.0mA$	V_p	V		-2.0	
Gate-to-Source Breakdown Voltage $I_{gs}=-1.0mA$	BVGSO	V	-14	-16	
Gate-to-Drain Breakdown Voltage $I_{gd}=-1.0mA$	BVGDO	V	-14	-16	
Thermal Resistance <i>MwT-9F chip & 71 pkg 70 pkg & 73 pkg</i>	Rth	C/W		60 165*	

*Overall Rth depends on case mounting

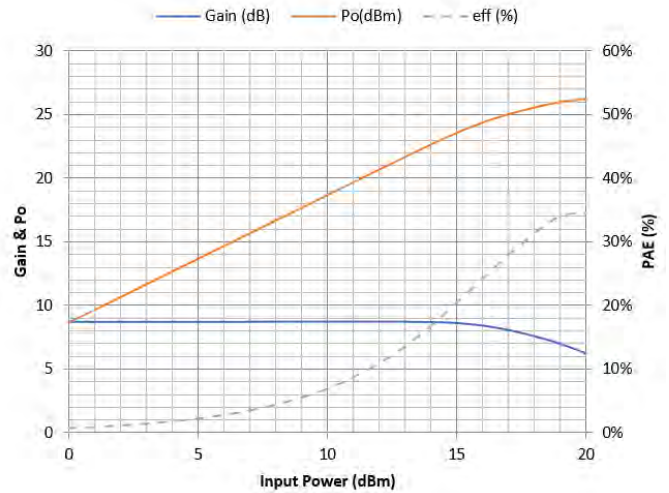
MwT-9F

18 GHz Medium Power GaAs FET

MwT-9F, Typical Power at 12GHz
Vds=7V; Ids=0.6xIDSS



MwT-9F, Typical Power at 18GHz
Vds=7V; Ids=0.6xIDSS



ESD Caution

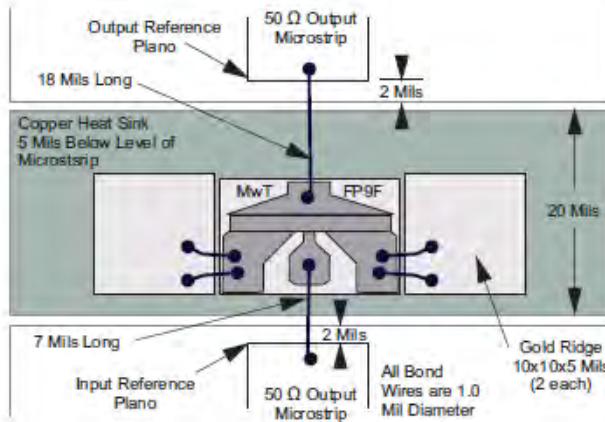


High-performance RF integrated circuits are highly sensitive to electrostatic discharge (ESD) and may contain unprotected inputs and outputs. Handling and assembly should be conducted in an ESD-controlled environment. It is recommended that ESD precautions and protocols are adopted to minimise the risk of electrostatic discharge and protect product integrity.

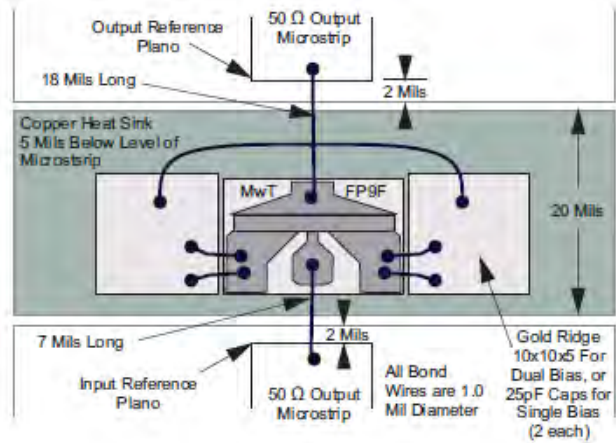
MwT-9F

18 GHz Medium Power GaAs FET

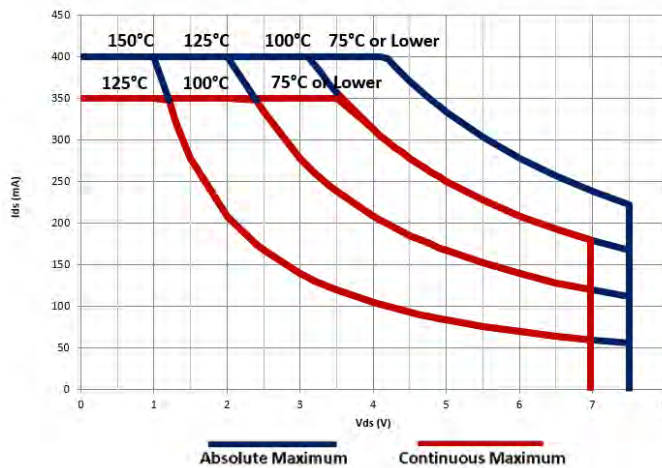
**MwT-9F
DUAL BIAS**



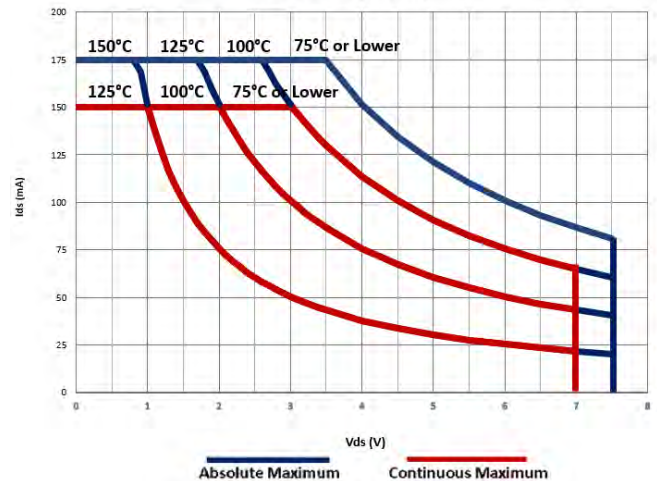
**MwT-9F
OPTIONAL BONDING**



SAFE OPERATING LIMITS vs BACKSIDE TEMPERATURE
MwT-9F Chip and 71 Pkg



SAFE OPERATING LIMITS vs BACKSIDE TEMPERATURE
MwT-9F with 70 Pkg and 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	300	450

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-9F

18 GHz Medium Power GaAs FET

S-PARAMETER $V_{ds} = 6\text{ V}$, $I_{ds} = 0.7 \times I_{dss}$

Freq.	S11		S21		S12		S22		K	GMAX
GHz	dB	Ang (°)	dB	Ang (°)	dB	Ang (°)	dB	Ang (°)		dB
1	-0.800	-38.696	17.699	154.354	-32.959	69.451	-6.472	-19.135	0.376	25.329
2	-1.237	-70.911	16.387	133.405	-28.220	53.391	-7.285	-34.571	0.379	22.303
3	-1.574	-95.485	14.857	117.065	-26.278	42.079	-8.081	-46.488	0.442	20.567
4	-1.869	-114.374	13.317	103.897	-25.382	33.977	-8.704	-55.958	0.548	19.349
5	-2.057	-128.300	11.963	93.185	-24.950	28.267	-9.034	-64.017	0.655	18.457
6	-2.185	-140.053	10.659	84.163	-24.748	25.059	-9.451	-70.248	0.787	17.704
7	-2.259	-149.654	9.582	75.831	-24.630	21.937	-9.279	-77.223	0.883	17.106
8	-2.238	-157.917	8.571	68.009	-24.615	20.255	-9.279	-84.061	0.974	16.593
9	-2.218	-165.253	7.676	61.068	-24.725	19.218	-9.121	-90.652	1.072	14.565
10	-2.198	-171.776	6.851	53.781	-24.697	18.795	-8.815	-96.786	1.144	13.472
11	-2.128	-177.539	6.011	47.390	-24.844	18.512	-8.578	-103.223	1.232	12.525
12	-2.107	177.155	5.266	41.173	-24.898	19.517	-8.204	-109.299	1.313	11.729
13	-2.067	172.343	4.556	35.033	-24.975	21.336	-7.875	-115.432	1.392	11.035
14	-1.989	168.059	3.863	29.401	-25.060	23.700	-7.559	-121.411	1.451	10.477
15	-1.945	164.080	3.212	23.687	-24.934	26.462	-7.168	-126.906	1.478	9.979
16	-1.846	160.223	2.623	18.173	-24.673	28.994	-6.736	-132.457	1.416	9.815
17	-1.815	156.655	1.980	12.884	-24.333	32.125	-6.353	-137.976	1.409	9.352
18	-1.738	153.331	1.374	7.535	-23.913	34.462	-5.930	-143.288	1.331	9.199
19	-1.601	150.039	0.811	2.382	-23.377	36.657	-5.556	-148.535	1.184	9.497
20	-1.568	146.990	0.196	-2.293	-22.789	38.149	-5.162	-153.520	1.117	9.413
21	-1.446	143.886	-0.323	-7.291	-22.260	39.163	-4.822	-158.456	0.980	10.969
22	-1.443	141.440	-0.946	-11.739	-21.724	38.558	-4.468	-163.501	0.939	10.389
23	-1.358	138.202	-1.513	-16.685	-21.050	39.592	-4.119	-168.092	0.820	9.769
24	-1.193	135.970	-2.034	-20.844	-20.475	39.396	-3.745	-172.628	0.641	9.220
25	-1.163	133.450	-2.643	-24.733	-19.836	38.019	-3.489	-177.097	0.581	8.597
26	-1.112	130.851	-3.234	-28.783	-19.333	37.473	-3.228	-178.922	0.520	8.050

Available Packaging:

70 Package - MwT-9F70

71 Package - MwT-9F71

73 Package - MwT-9F73

RoHS Compliance



CML Micro certifies, to the best of our knowledge, that its products comply with RoHS directive (2011/65/EU), as amended by Directive (EU) 2015/863.

REACH Compliance



CML Micro certifies, to the best of our knowledge, that its products do not contain any of the banned substances specified in the SVHC list at <https://echa.europa.eu/candidate-list-table>. CML Micro are committed to ensuring the safety of products and the compliance with regulations. Publications will be updated in the event that REACH control is compromised.

Contact Information

For further information please contact your local CML sales representative.
Contact details can be found at www.cmlmicro.com.

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