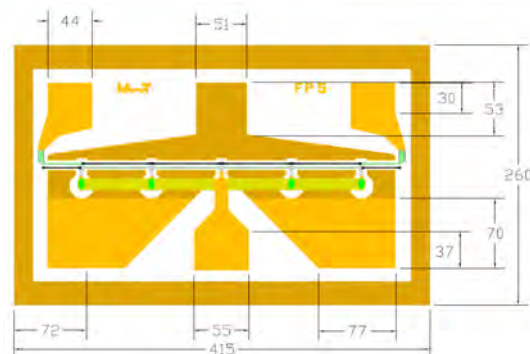


MwT-5F 26 GHz High Gain, Dual Gate GaAs FET

Features:

- 21 dBm P1dB at 12 GHz
- 19 dB Small Signal Gain at 12 GHz
- 0.25 μm Refractory Metal / Gold Gate
- Excellent for High Gain and High Linear Amplifier Applications
- Ideal for Commercial, Military, Hi-Rel Space Applications
- 300 μm Dual Gate Width
- Choice of Chip and One Package Type



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

Description:

The MwT-5F is a dual gate GaAs MESFET device whose nominal 0.25 μm gate length and 300 μm dual gate width make it ideally suited to applications requiring high gain and high linearity in the 500 MHz to 26 GHz frequency range. MwT-5F is equally effective for either wideband (e.g. 2 to 26 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	TYP
Output Power at 1dB Compression $V_{ds}=7.0\text{V}$ $I_{ds}=6.0\text{VxIDSS}$ $V_{gs2}=1.5\text{V}$	P1dB	12 GHz	dBm	21.0
Output Third Order Intercept Point $V_{ds}=7.0\text{V}$ $I_{ds}=6.0\text{VxIDSS}$ $V_{gs2}=1.5\text{V}$	OIP3	12GHz	dBm	31
Small Signal Gain $V_{ds}=6.0\text{V}$ $I_{ds}=0.6\text{xIDSS}$	SSG	12 GHz	dB	19.0
Optimum Noise Figure $V_{ds}=6.0\text{V}$ $I_{ds}=30\text{mA}$	NF Opt	12 GHz	dB	3.5
Gain @ Opt NF $V_{ds}=6.0\text{V}$ $I_{ds}=30\text{mA}$	GA	12 GHz	dB	11

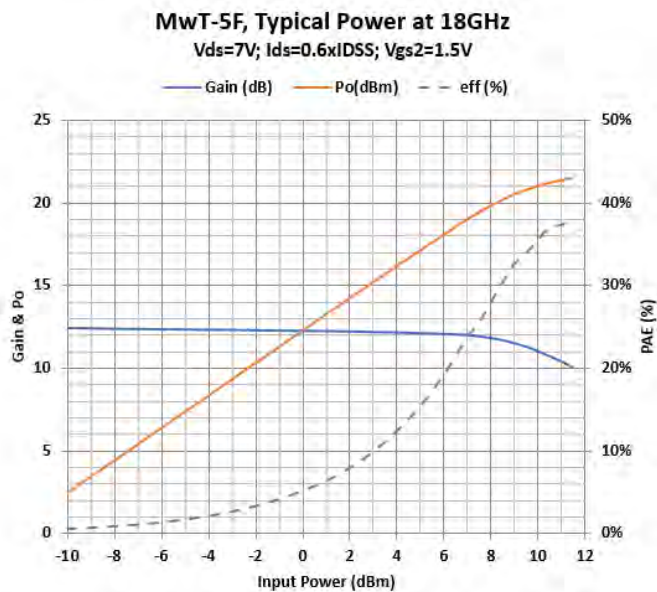
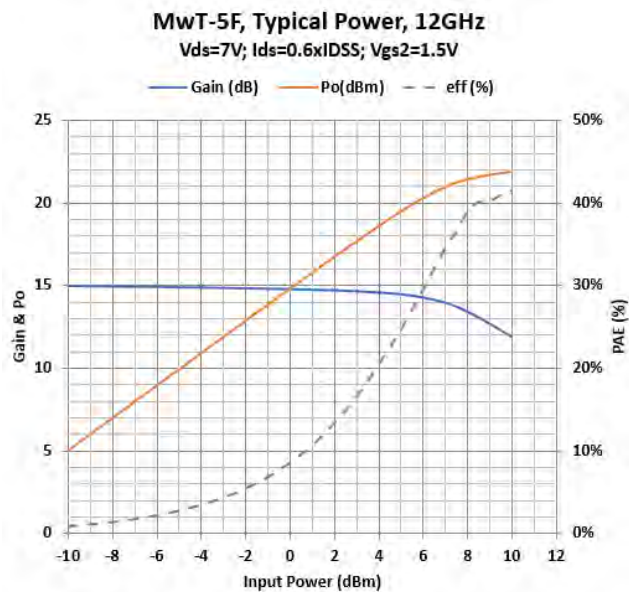
DC Specifications: at $T_a = 25^\circ\text{C}$

PARAMETERS & CONDITIONS	SYMBOL	UNITS	MIN	TYP	MAX
Saturated Drain Current $V_{ds}= 4.0\text{ V}$ $V_{G1S}=V_{G2S}=0.0\text{V}$	IDSS	mA	60		80
Transconductance $V_{ds}= 2.0\text{ V}$ $V_{G2S}=0.0\text{V}$	Gm	mS	33	48	
Pinch-off Voltage $V_{ds}= 3.0\text{ V}$ $V_{G2S}=0.0\text{V}$ $I_{DS}=0\text{mA}$	Vp	V		-1.0	
Gate-to-Source Breakdown Voltage $I_{gs}= -0.4\text{ mA}$	BVGSO	V	-16	-18	
Gate-to-Drain Breakdown Voltage $I_{gd}= -0.4\text{ mA}$	BVGDO	V	-15	-17	
Thermal Resistance <i>MwT-5F Chip</i>	Rth	$^\circ\text{C/W}$		120	

*Overall Rth depends on case mounting

MwT-5F

26 GHz High Gain, Dual Gate GaAs FET



ESD Caution

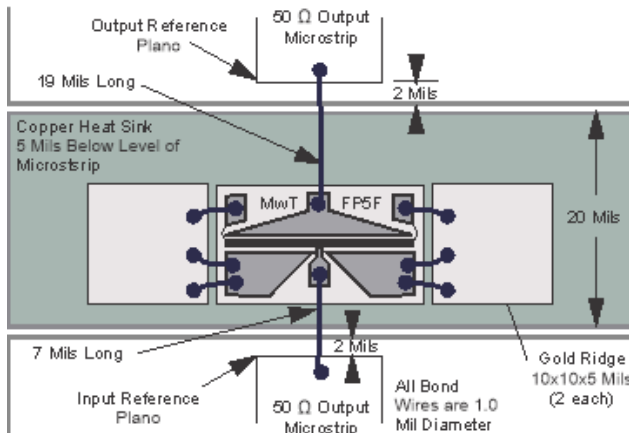


High-performance RF integrated circuits are highly sensitive to electrostatic discharge (ESD) and may contain unprotected inputs and outputs. Handling and assembly should be conducted in an ESD-controlled environment. It is recommended that ESD precautions and protocols are adopted to minimise the risk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

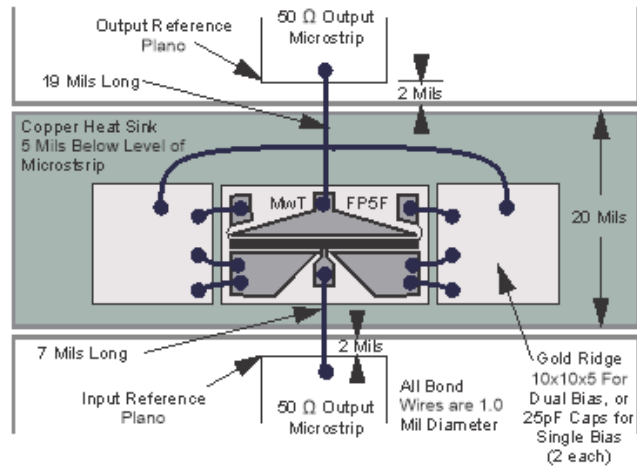
MwT-5F

26 GHz High Gain, Dual Gate
GaAs FET

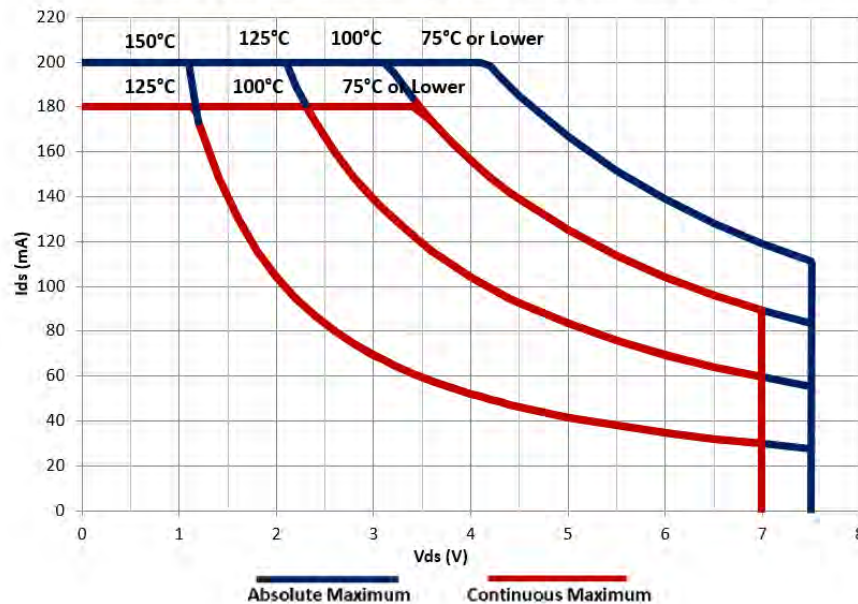
**MwT-5F
DUAL BIAS**



**MwT-5F
OPTIONAL BONDING**



Thermal Operating Limits vs Chip Backside Temperature of MwT-5F



MwT-5F

26 GHz High Gain, Dual Gate 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	-0.586	-10.932	11.963	168.981	-46.999	83.781	-1.057	-4.047	0.812	29.481
2	-0.665	-21.359	11.850	158.721	-41.218	78.419	-1.086	-8.292	0.525	26.534
3	-0.788	-31.452	11.664	148.752	-37.963	71.284	-1.129	-12.133	0.506	24.813
4	-0.952	-41.584	11.438	138.778	-35.887	65.896	-1.159	-16.103	0.519	23.663
5	-1.126	-50.186	11.077	129.326	-34.461	61.163	-1.315	-20.285	0.593	22.769
6	-1.294	-59.278	10.676	120.403	-33.552	57.512	-1.501	-22.832	0.686	22.114
7	-1.629	-67.336	10.360	111.513	-32.670	51.730	-1.397	-27.056	0.751	21.515
8	-1.785	-76.046	10.049	103.060	-32.040	48.126	-1.469	-30.428	0.795	21.045
9	-1.992	-84.861	9.762	94.576	-31.559	44.478	-1.495	-33.909	0.841	20.660
10	-2.127	-92.223	9.485	86.527	-31.336	41.549	-1.425	-37.483	0.851	20.410
11	-2.366	-100.035	9.092	78.385	-31.133	37.384	-1.455	-41.176	0.941	20.113
12	-2.477	-107.334	8.827	70.834	-31.142	34.411	-1.459	-44.608	0.989	19.985
13	-2.605	-114.579	8.532	62.809	-31.411	31.758	-1.375	-48.348	1.026	18.992
14	-2.705	-121.340	8.169	55.257	-31.720	29.030	-1.384	-52.261	1.116	17.870
15	-2.793	-127.874	7.870	47.661	-32.359	28.636	-1.264	-55.753	1.144	17.812
16	-2.828	-134.048	7.610	40.430	-32.911	28.759	-1.135	-60.133	1.114	18.207
17	-2.839	-139.752	7.272	33.063	-33.671	30.749	-1.027	-64.255	1.104	18.511
18	-2.818	-145.291	6.993	25.669	-34.484	33.431	-0.879	-68.499	1.025	19.776
19	-2.782	-150.694	6.712	18.589	-35.437	41.824	-0.725	-72.747	0.851	21.074
20	-2.723	-155.783	6.432	11.146	-36.013	52.552	-0.575	-77.547	0.576	21.223
21	-2.653	-160.797	6.178	3.738	-36.062	58.436	-0.409	-82.496	0.249	21.120
22	-2.576	-165.138	5.888	-3.559	-35.376	72.522	-0.182	-87.488	-0.280	20.632
23	-2.507	-169.324	5.599	-11.177	-34.224	89.412	0.031	-92.560	-0.731	19.911
24	-2.325	-174.035	5.343	-18.775	-32.430	94.462	0.261	-97.751	-1.038	18.886
25	-2.182	-178.106	5.071	-26.257	-30.832	98.001	0.470	-103.140	-1.227	17.952
26	-2.076	177.969	4.736	-33.979	-29.018	100.184	0.678	-108.574	-1.345	16.877

MAXIMUM RATINGS AT $T_a = 25\text{ °C}$

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	95	145

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.

Available Packaging:

71 Package - MwT-5F71

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.

Important notice: The information provided in this document is believed to be accurate and reliable however, CML assumes no responsibility for any errors or omissions in this document. CML reserves the right to make changes to this document at any time without notice.

The product(s) referenced within this document are not designed, authorized, or warranted for use in life support, life-critical, surgical or nuclear applications, nor in any application where the failure of the product could create a situation where personal injury or death may occur. Customers using or selling the product for such applications do so entirely at their own risk and without any recourse to CML, financial or otherwise.

CML assumes no liability for applications assistance or the design of customers' products. Customers are solely responsible for the design, validation, and testing of customer products as well as compliance with all legal, regulatory, and safety-related requirements concerning their applications.

ALL SPECIFICATIONS AND DATA ARE PROVIDED "AS IS" AND WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NON-INFRINGEMENT OF INTELLECTUAL PROPERTY RIGHTS. PRODUCTS ARE PROVIDED UNDER THE TERMS OF CML'S CONDITIONS OF SALE.

Nothing in this document or any purchase of CML products shall be construed as granting any license, whether express or implied, under any patent, copyright, trade secret, or other intellectual property right owned or controlled by CML.