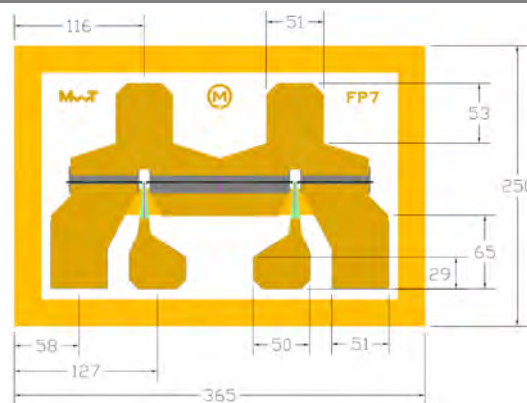


MwT-7F 26 GHz Medium Power GaAs FET

Features:

- 21 dBm Output Power at 12 GHz
- 15 dB Small Signal Gain at 12 GHz
- Excellent for High Linear Gain or Oscillator Applications
- Ideal for Commercial, Military, Hi-Rel Space Applications
- 0.25 μm Refractory Metal / Gold Gate
- 250 μm Gate Width
- Choice of Chip and Three Package Types



Chip Dimensions: 365 x 250 μm
Chip Thickness: 100 μm

Description:

The MwT-7F is a GaAs MESFET device whose nominal 0.25 μm gate length and 250 μm gate width make it ideally suited to applications requiring high-gain and medium linear power in the 500 MHz to 26 GHz frequency range. MwT-7F is equally effective for either wideband (e.g., 6 to 18 GHz) or narrow-band applications. Processing which guarantees low phase noise makes the MwT-7F particularly attractive for oscillator 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		21.0
Output Third Order Intercept Point $V_{ds}=7.0\text{V}$ $I_{ds}=0.6 \times I_{DSS}$	OIP3	12 GHz	dBm		32
Power Added Efficiency $V_{ds}=7.0\text{V}$ $I_{ds}=0.6 \times I_{DSS}$	PAE	12 GHz	%		35
Small Signal Gain $V_{ds}=7.0\text{V}$ $I_{ds}=0.6 \times I_{DSS}$	SSG	12 GHz	dB	14.0	15.0
Optimum Noise Figure $V_{ds}=4.0\text{V}$ $I_{ds}=20\text{mA}$	NF Opt	12 GHz	dB		2.0
Gain @ Opt NF $V_{ds}=4.0\text{V}$ $I_{ds}=20\text{mA}$	GA	12 GHz	dB		8.0

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

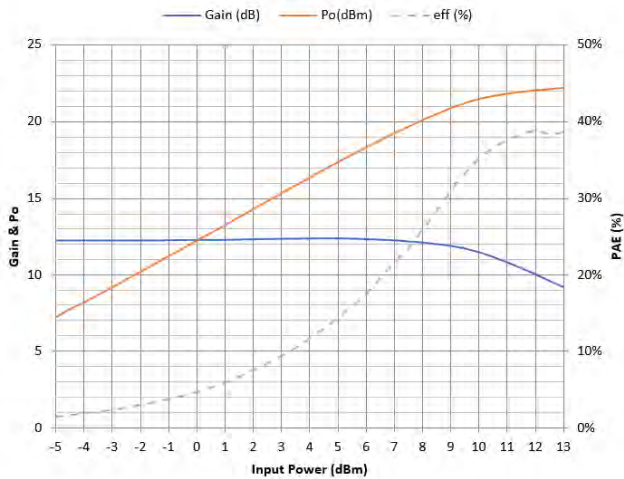
PARAMETERS & CONDITIONS	SYMBOL	UNITS	MIN	TYP	MAX
Saturated Drain Current $V_{ds}=4.0\text{V}$ $V_{GS}=0.0\text{V}$	I_{DSS}	mA	70		85
Transconductance $V_{ds}=2.0\text{V}$ $V_{GS}=0.0\text{V}$	Gm	mS		42	
Pinch-off Voltage $V_{ds}=3.0\text{V}$ $I_{DS}=0\text{mA}$	V_p	V		-2.0	
Gate-to-Source Breakdown Voltage $I_{gs}=-1.0\text{mA}$	BVGSO	V	-16	-17	
Gate-to-Drain Breakdown Voltage $I_{gd}=-1.0\text{mA}$	BVGDO	V	-16	-17	
Thermal Resistance <i>MwT-7F Chip, 71 Pkg 70 Pkg & 73 Pkg</i>	Rth	$^\circ\text{C/W}$			150 350*

*Overall Rth depends on case mounting

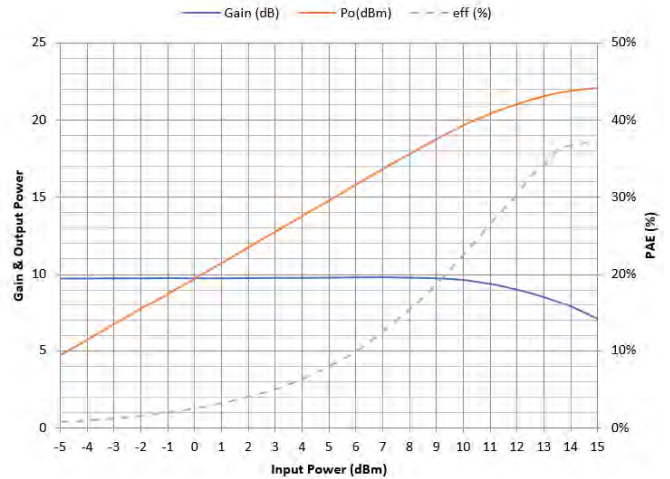
MwT-7F

26 GHz Medium Power GaAs FET

MwT-7F, Typical Power at 12GHz
V_{ds}=7V; I_{ds}=0.6xI_{DSS}



MwT-7F, Typical Power at 18GHz
V_{ds}=7V; I_{ds}= 0.6xI_{DSS}



ESD Caution

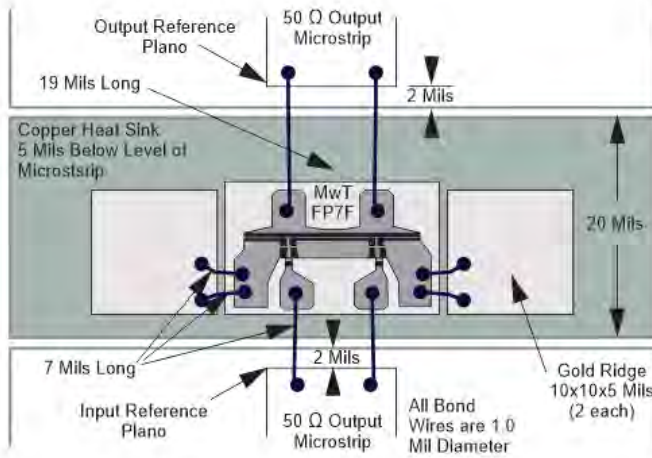


High-performance RF integrated circuits are highly sensitive to electrostatic discharge (ESD) and may contain unprotected inputs and outputs. Handling and assembly should be conducted in an ESD-controlled environment. It is recommended that ESD precautions and protocols are adopted to minimise the risk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

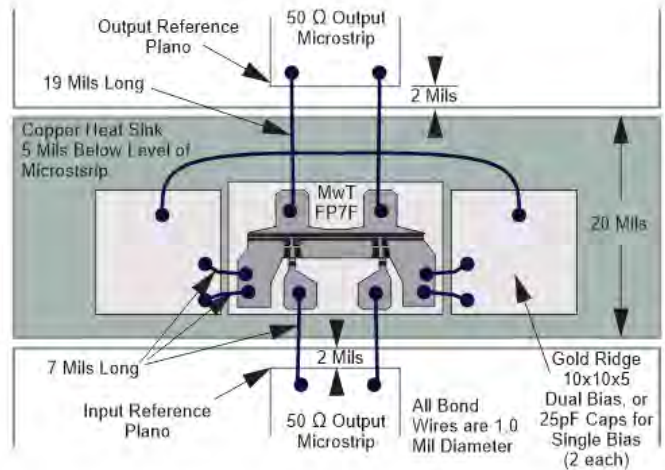
MwT-7F

26 GHz Medium Power GaAs FET

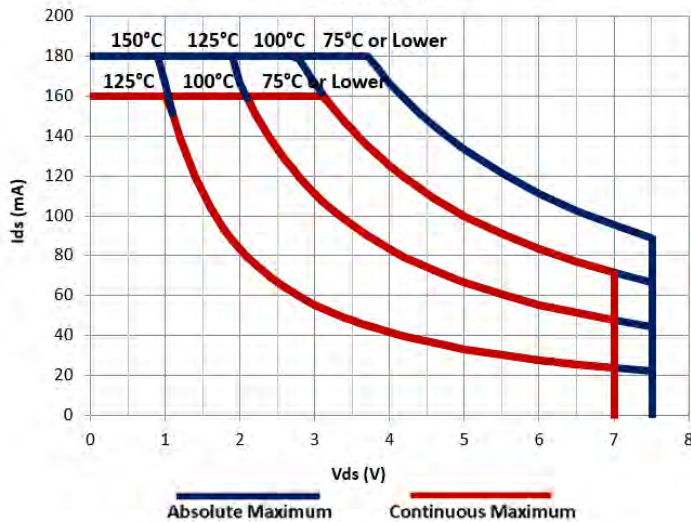
**MwT-7F
DUAL BIAS**



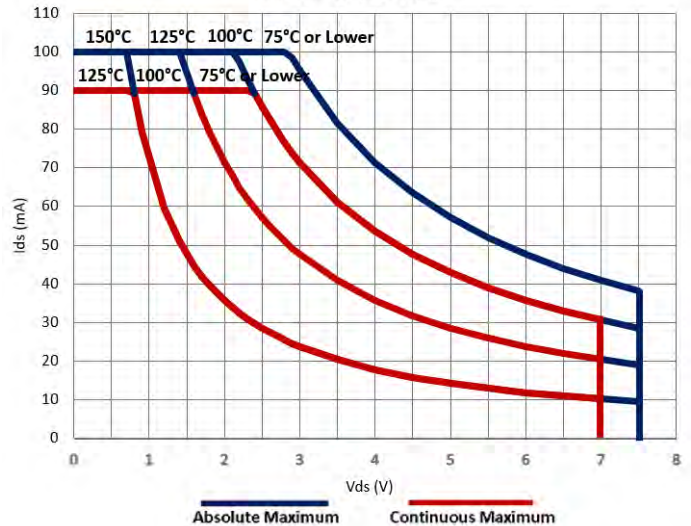
**MwT-7F
OPTIONAL BONDING**



SAFE OPERATING LIMITS vs BACKSIDE TEMPERATURE
MwT-7F Chip & 71 pkg



SAFE OPERATING LIMITS vs BACKSIDE TEMPERATURE
MwT-7F with 70 pkg & 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	80	120

Notes:

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

MwT-7F

26 GHz Medium Power GaAs FET

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

Freq. GHz	S11		S21		S12		S22		K	GMAX
	dB	Ang (°)	dB	Ang (°)	dB	Ang (°)	dB	Ang (°)		dB
1	-0.498	-10.990	10.175	170.686	-41.693	81.458	-2.335	-4.381	0.893	25.934
2	-0.582	-21.883	10.025	161.933	-35.631	76.775	-2.392	-9.029	0.537	22.828
3	-0.595	-32.489	9.882	153.342	-32.571	71.286	-2.479	-12.917	0.416	21.226
4	-0.854	-41.958	9.630	145.248	-30.386	65.747	-2.545	-16.709	0.482	20.008
5	-1.012	-52.008	9.248	137.024	-28.750	61.358	-2.669	-20.685	0.491	18.999
6	-1.317	-60.380	8.819	129.651	-27.611	56.034	-2.719	-24.087	0.585	18.215
7	-1.308	-70.683	8.482	122.074	-26.643	51.065	-2.921	-26.615	0.572	17.563
8	-1.647	-76.766	8.087	115.568	-26.098	47.441	-3.019	-31.051	0.683	17.093
9	-1.679	-83.673	7.872	108.759	-25.185	44.458	-3.073	-37.449	0.621	16.528
10	-1.921	-93.421	7.409	101.968	-24.956	39.335	-3.200	-39.572	0.727	16.182
11	-1.759	-99.388	7.018	96.243	-24.529	36.131	-3.496	-42.818	0.714	15.773
12	-1.902	-106.018	6.738	90.372	-24.161	32.319	-3.402	-46.227	0.736	15.450
13	-2.146	-112.957	6.439	84.479	-24.083	29.700	-3.217	-50.391	0.773	15.261
14	-2.181	-120.728	5.965	77.818	-23.951	26.960	-3.360	-53.920	0.820	14.958
15	-1.903	-124.452	5.685	73.257	-23.920	24.396	-3.348	-57.984	0.744	14.802
16	-2.323	-130.428	5.198	67.592	-23.824	22.045	-3.472	-60.964	0.934	14.511
17	-2.494	-137.360	4.811	61.971	-23.939	19.772	-3.595	-64.451	1.052	12.986
18	-2.210	-143.696	4.517	56.014	-24.051	17.966	-3.513	-68.062	0.960	14.284
19	-2.108	-146.372	4.175	52.126	-23.983	16.273	-3.504	-72.649	0.936	14.079
20	-2.212	-150.234	3.768	46.823	-24.214	14.476	-3.446	-77.164	1.031	12.911
21	-2.512	-155.237	3.491	43.152	-24.378	14.523	-3.455	-80.552	1.179	11.372
22	-2.194	-159.572	3.120	38.548	-24.300	14.126	-3.392	-84.296	1.040	12.481
23	-2.023	-162.750	2.795	32.613	-24.657	12.653	-3.225	-88.295	1.007	13.204
24	-2.232	-164.405	2.399	29.542	-25.011	13.683	-3.086	-91.882	1.150	11.354
25	-2.215	-169.779	2.116	25.191	-24.712	13.904	-3.060	-95.917	1.088	11.606
26	-1.983	-172.505	1.650	21.285	-24.875	15.290	-2.987	-100.029	1.000	13.262

Available Packaging:

70 Package - MwT-7F70
71 Package - MwT-7F71
73 Package - MwT-7F73

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.