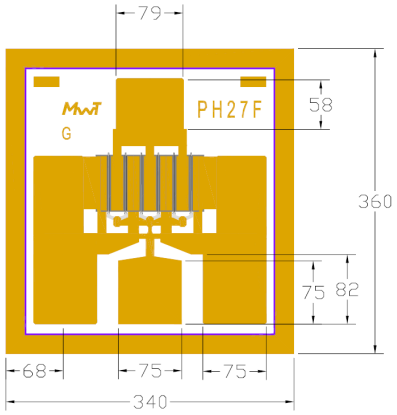
MwT-PH27F

26 GHz Medium Power AlGaAs/InGaAs pHEMT

Features:

- **25 dBm of Power at 18 GHz**
- **14 dB Small Signal Gain at 18 GHz**
- **45% PAE at 18 GHz**
- **0.25 x 400 Micron Refractory Metal/Gold Gate**
- **Excellent for Medium Power, Gain, and High Power Added Efficiency**
- **Ideal for Commercial, Military, Hi-Rel Space Applications**



Chip Dimensions: 340 x 360 microns
Chip Thickness: 100 microns

Description:

The MwT-PH27F is a AlGaAs/InGaAs pHEMT (Pseudomorphic-High-Electron-Mobility-Transistor) device whose nominal 0.25 micron gate length and 400 micron gate width make it ideally suited for applications requiring high-gain and medium power up to 26 GHz frequency range. The device is equally effective for either wideband (e.g. 6 to 18 GHz) or narrow-band applications. The chip is produced using reliable metal systems and passivated to insure excellent reliability.

Electrical Specifications: *at Ta= 25 °C*

PARAMETERS & CONDITIONS	SYMBOL	FREQ	UNITS	MIN	TYP
Output Power at 1dB Compression Vds=9.0V Ids=0.7xIDSS	P1dB	18 GHz	dBm		22.5
Saturated Power Vds=9.0V Ids=0.7xIDSS	Psat	18 GHz	dBm		25.0
Output Third Order Intercept Point Vds=9.0V Ids=0.7xIDSS	OIP3	18 GHz	dBm		31.0
Small Signal Gain Vds=9.0V Ids=0.7xIDSS	SSG	18 GHz	dB		16.0
Power Added Efficiency at P1dB Vds=9.0V Ids=0.7xIDSS	PAE	18 GHz	%		45

Note: Ids should be between 40% and 80% of Idss. Currently, our data shows Ids at 70% of IDSS. Low Ids will improve efficiency, but high Ids will make Psat and IP3 better.

DC Specifications: *at Ta= 25 °C*

PARAMETERS & CONDITIONS		SYMBOL	UNITS	MIN	TYP	MAX
Saturated Drain Current Vds= 3.0 V Vgs= 0.0 V		IDSS	mA	90		120
Transconductance Vds= 2.5 V Vgs= 0.0 V		Gm	mS		140	
Pinch-off Voltage Vds= 3.0 V Ids= 1.0 mA		Vp	V		-0.8	-1.0
Gate-to-Source Breakdown Voltage Igs= -0.3 mA		BVGSO	V		-18.0	
Gate-to-Drain Breakdown Voltage Igd= -0.3 mA		BVGDO	V		-18.0	
Chip Thermal Resistance	Chip & 71 pkg 70 & 73 pkg	Rth	C/W		95 225*	

* Overall Rth depends on case mounting

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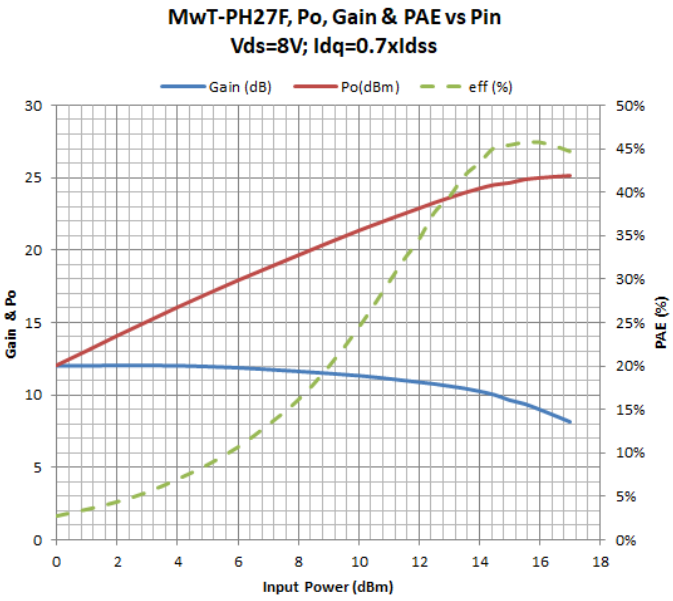

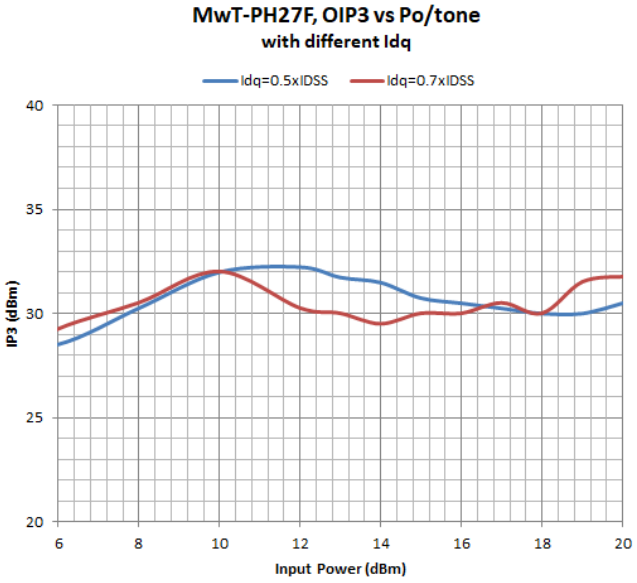

MwT-PH27F, Load Pull Data, Vdq=8V; Idq=0.7xIdss

Freq (GHz)	Zs		ZL		Psat
	Mag	phase	mag	phase	dBm
2	0.84	50.00	0.16	22.56	25.8
4	0.77	90.00	0.17	33.56	25.9
6	0.76	112.00	0.19	46.65	25.8
8	0.79	129.00	0.28	65.03	25.6
10	0.80	137.00	0.28	70.74	25.7
12	0.82	149.00	0.35	78.36	25.5
14	0.86	151.00	0.38	83.73	25.3
16	0.83	160.00	0.38	84.90	25.3
18	0.85	164.00	0.43	97.06	25.3

The load pull data is based on nonlinear model provided by the foundry that processes the device.

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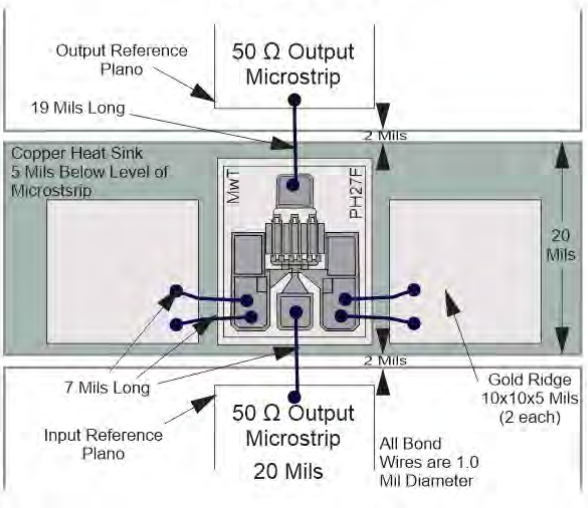
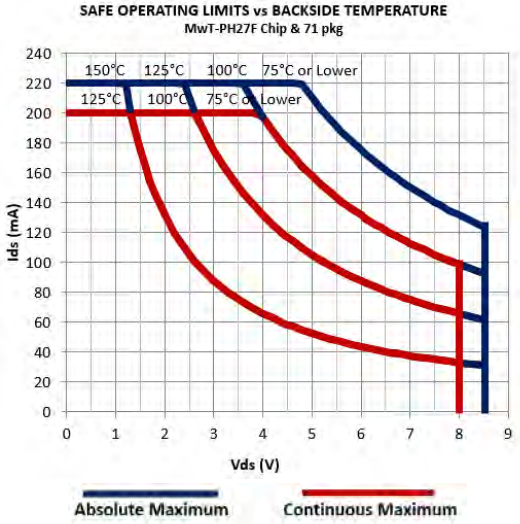
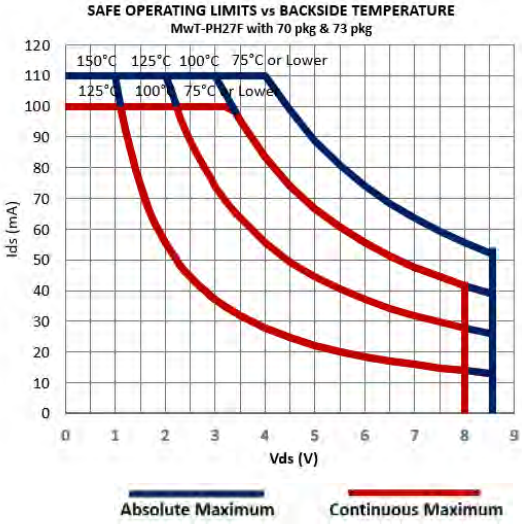
MwT-PH27F DUAL BIAS







Absolute Maximum Rating

Symbol	Parameter	Units	Cont Max1	Absolute Max2
VDS	Drain to Source Volt.	V	8.0	8.5
Tch	Channel Temperature	°C	+150	+175
Tst	Storage Temperature	°C	-65 to +150	+175
Pin	RF Input Power	mW	130	200

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.

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