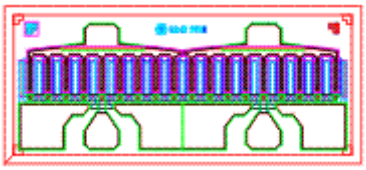
MwT-PH11

High Power AlGaAs/InGaAs PHEMT
Preliminary Data Sheet
June 2006

Features:

- **+32 dBm typical Output Power at 12 GHz**
- **9 dB typical Small Signal Gain at 12 GHz**
- **50% typical PAE at 12 GHz**
- **0.3 x 2400 Micron Refractory Metal/Gold Gate**
- **Sorted into 40 mA Idss Bin Ranges**
- **Excellent for High Power, and High Power Added Efficiency**
- **Ideal for Commercial, Military, Hi-Rel Space Applications**



Chip Dimensions: 775 x 343 microns
Chip Thickness: 100 microns

Description:

The MwT-PH11 is GaAs PHEMT device device whose nominal 0.3 micron gate length and 2400 microns gate width make it ideally suited for applications requiring high power up to 1.5watt. The chip is produced using MwT's reliable metal systems and all devices from each wafer are screened to insure reliability. All chips are passivated using MwT's patented "Diamond-Like Carbon" process for increased durability.

Electrical Specifications:

- ***at Ta= 25 ℃***

SYMBOL	PARAMETERS & CONDITIONS	FREQ	UNITS	MIN	TYP
OIP3	Output IP3 with two tones Vds=7.0 V Ids=0.6xIDSS=420 mA		dBm		42
P1dB	Output Power at 1dB Compression Vds=7.0 V Ids=0.6xIDSS=420 mA	12 GHz	dBm	30.0	32.0
SSG	Small Signal Gain VDS=7.0 V Ids=0.6xIDSS=420 mA	12 GHz	dB	7.0	9.0
PAE	Power Added Efficiency at P1dB VDS=7.0 V Ids=0.6xIDSS=420 mA	12 GHz	%		50
IDSS	Recommended IDSS Range		mA		440-800

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DC Specifications:

- *at Ta= 25 °C*

SYMBOL	PARAMETERS & CONDITIONS	UNITS	MIN	TYP	MAX
IDSS	Saturated Drain Current Vds=3.0 V Vgs=0.0 V	mA	400		880
Gm	Transconductance Vds=2.0 V Vgs=0.0 V	mS	450	800	
Vp	Pinch-off Voltage Vds=3.0 V Ids=16 mA	V		-1.2	-2.5
BVGSO	Gate-to-Source Breakdown Voltage Igs= -2.4 mA	V	-6.0	-12.0	
BVGDO	Gate-to-Drain Breakdown Voltage Igd= -2.4 mA	V	-10.0	-13.0	
Rth	Chip Thermal Resistance	°C /W		24	

MAXIMUM RATINGS AT Ta = 25 °C

Symbol	Parameter	Units	Cont Max1	Absolute Max2
VDS	Drain to Source Volt.	V	7.5	8.0
Tch	Channel Temperature	°C	+150	+175
Tst	Storage Temperature	°C	-65 to+160	+180
Pin	RF Input Power	mW	480	720
Pt	Total Power Dissipation	mW	5400	6600

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.

ORDERING INFORMATION:

When placing order or inquiring, please specify BIN range, wafer number, if known, and visual screening level required. For details of BIN Selection and Safe Handling Procedure please see supplementary information in available PDF on our website www.mwtinc.com.

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