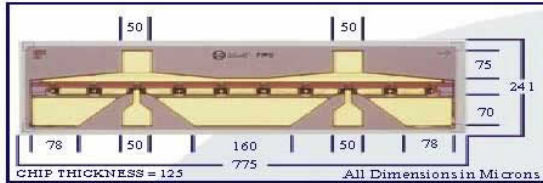


# MwT-2

## 26 GHz High Power GaAs FET



DOWNLOAD ADDITIONAL DATA WWW.MWTINC.COM



### FEATURES

- 9 dB SMALL SIGNAL GAIN AT 12 GHz
- +24.5 dBm OUTPUT POWER AT 12 GHz
- 0.3 MICRON REFRACTORY METAL/GOLD GATE
- 630 MICRON GATE WIDTH
- CHOICE OF CHIP AND THREE PACKAGE TYPES

### DESCRIPTION

The MwT-2 is a GaAs MESFET device whose nominal quarter-micron gate length and 630 micron gate width make it ideally suited to applications requiring high-gain in the 500 MHz to 26 GHz frequency range with power outputs ranging from 100 to 200 milli-watts. The straight geometry of the MwT-2 makes it equally effective for either wideband (e.g. 6 to 18 GHz) or narrow-band applications. The chip is produced using MwT's reliable metal system and devices from each wafer are screened to insure reliability. All chips are passivated using MwT's patented "Diamond-Like Carbon" process for increased durability. Designers can use MwT's unique BIN selection feature to choose devices from narrow Idss ranges, insuring consistent circuit operation.

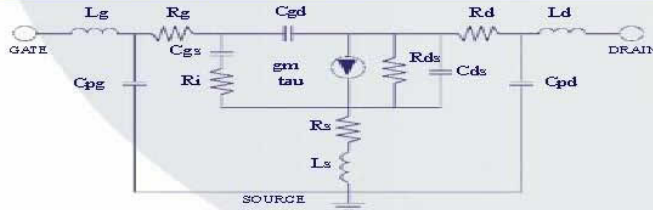
### DC SPECIFICATIONS AT Ta = 25°C

SYMBOL	PARAM. & CONDITIONS	UNITS	MIN	TYP	MAX
IDSS	Saturated Drain Current Vds= 4.0 V VGS= 0.0 V	mA	60		240
Gm	Transconductance Vds= 4.0 V VGS= 0.0 V	mS	75	100	
Vp	Pinch-off Voltage Vds= 3.0 V IDS= 4.0 mA	V		-2.0	-5.0
BVGS0	Gate-to-Source Breakdown Volt. Igs= -0.4 mA	V	-6.0	-12.0	
BVGDO	Gate-to-Drain Breakdown Volt. Igd= -0.4 mA	V	-8.0	-12.0	
Rth	Thermal Resistance MwT-270, 273 MwT-271	°C/W		80	180*
	*Overall Rth depends on case mounting			80*	

### RF SPECIFICATIONS AT Ta = 25°C

SYMBOL	PARAMETERS AND CONDITIONS	FREQ	UNITS	MIN	TYP
P1dB	Output Power at 1 dB Compression VDS= 6.0 V IDS= 0.6 x IDSS	12 GHz 18 GHz	dBm	23.0	24.5 24.0
SSG	Small Signal Gain VDS= 6.0 V IDS= 0.6 x IDSS	12 GHz 18 GHz	dB	8.0	9.0 6.0
PAE	Power Added Efficiency VDS= 6.0 V IDS= 0.6 x IDSS	12 GHz	%	30	35
IDSS	Recommended IDSS Range for Optimum P1dB		mA		160- 220

### DEVICE EQUIVALENT CIRCUIT MODEL



### PARAMETER

### VALUE

Source Resistance	R <sub>s</sub>	0.73	Ω
Source Inductance	L <sub>s</sub>	0.03	nH
Drain-Source Resistance	R <sub>ds</sub>	200	Ω
Drain-Source Capacitance	C <sub>ds</sub>	0.007	pF
Drain Resistance	R <sub>d</sub>	0.84	Ω
Drain Pad Capacitance	C <sub>pd</sub>	0.142	pF
Drain Inductance	L <sub>d</sub>	0.113	nH
Gate Bond Wire Inductance	L <sub>g</sub>	0.18	nH
Gate Pad Capacitance	C <sub>pg</sub>	0.1	pF
Gate Resistance	R <sub>g</sub>	0.5	Ω
Gate-Source Capacitance	C <sub>gs</sub>	0.67	pF
Channel Resistance	R <sub>i</sub>	1.0	Ω
Gate-Drain Capacitance	C <sub>gd</sub>	0.05	pF
Transconductance	gm	83.0	mS
Transit Time	tau	3.5	psec

### ORDERING INFORMATION

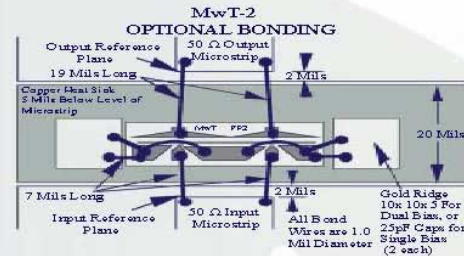
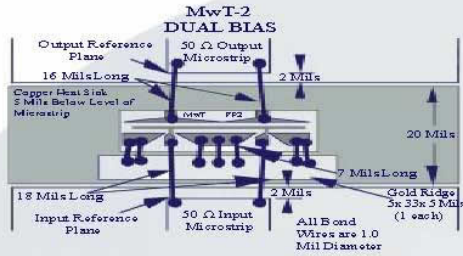
Chip	MwT-2
Package 70	MwT-270
Package 71	MwT-271
Package 73	MwT-273

### NOTE:

For Package information, please see supplementary application note from our website at [www.mwtinc.com](http://www.mwtinc.com). When placing order or inquiring, please specify BIN range, wafer no., if known, and screening level required.

4268 Solar Way, Fremont, CA 94538 | Email [sales@mwtinc.com](mailto:sales@mwtinc.com) | Phone (510) 651-6700 | Fax (510) 952-4000

All rights reserved. MicroWave Technology, Inc. All specifications subject to change without notice.



Absolute Maximum Continuous Maximum

**MAXIMUM RATINGS AT  $T_a = 25^\circ\text{C}$**

SYMBOL	PARAMETER	UNITS	CONT MAX*	ABSOLUTE MAX*
VDS	Drain to Source Voltage	V	See Safe Operating Limits	+175
Tch	Channel Temperature	$^\circ\text{C}$	+150	+175
Tst	Storage Temperature	$^\circ\text{C}$	-65 to +150	+175
Pin	R.F Input Power	mW	250	380

NOTES: 1. Exceeding any one of these limits in continuous operation may reduce the mean time-to-failure below the design goals.  
 2. Exceeding any one of these limits may cause permanent damage.

**Bin Selection Guide**

Bin No.	A	B	C
Idss Range	60-110mA	110-200mA	200-240mA

**BIN ACCURACY STATEMENT**

*When placing order or inquiring, please specify BIN range, wafer no., if known, and screening level required.*