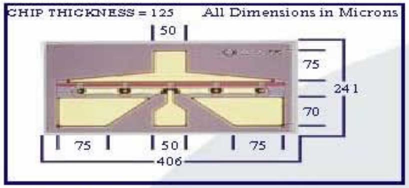
MwT-3
26 GHz High Power
GaAs FET



FEATURES

- 11 dB SMALL SIGNAL GAIN AT 12 GHz
- +21.0 dBm OUTPUT POWER AT 12 GHz
- 0.3 MICRON REFRACTORY METAL/GOLD GATE
- 300 MICRON GATE WIDTH
- CHOICE OF CHIP AND THREE PACKAGE TYPES

DESCRIPTION

The MwT-3 is a GaAs MESFET device whose nominal quarter-micron gate length and 300 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 +18 to +21 dBm. The straight geometry of the MwT-3 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

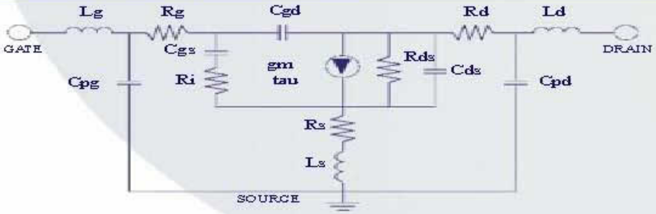
SYMBOL	PARAM. & CONDITIONS	UNITS	MIN	TYP	MAX
IDSS	Saturated Drain Current Vds= 4.0 V VGS= 0.0 V	mA	30		120
Gm	Transconductance Vds= 4.0 V VGS= 0.0 V	mS	35	55	
Vp	Pinch-off Voltage Vds= 3.0 V IDS= 2.0 mA	V		-2.0	-5.0
BVGSO	Gate-to-Source Breakdown Volt. Igs= -0.2 mA	V	-6.0	-12.0	
BVGDO	Gate-to-Drain Breakdown Volt. Igd= -0.2 mA	V	-8.0	-12.0	
Rth	Thermal Resistance MwT-3 Chip, 371 MwT-370, 373	°C/W			150 320*

*Overall Rth depends on case mounting.

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	dBm	20.0	21.0
SSG	Small Signal Gain VDS= 6.0 V IDS= 0.6 x IDSS	12 GHz	dB	10.0	11.0
PAE	Power Added Efficiency VDS= 6.0V IDS= 0.6 x IDSS	12 GHz	%	30	35
IDSS	Recommended IDSS Range for Optimum P1dB		mA		80-110

DEVICE EQUIVALENT CIRCUIT MODEL

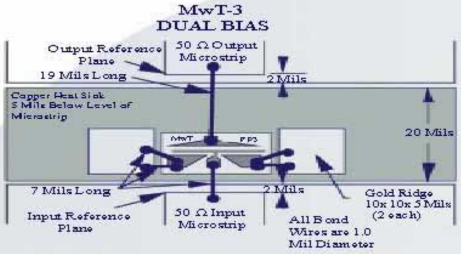


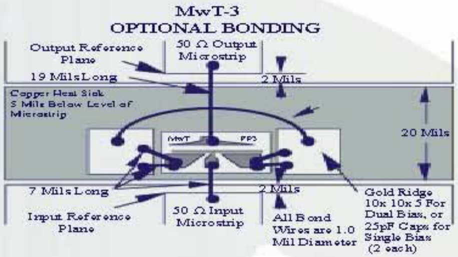
PARAMETER		VALUE	
Source Resistance	Rs	1.48	Ω
Source Inductance	Ls	0.034	nH
Drain-Source Resistance	Rds	253	Ω
Drain-Source Capacitance	Cds	0.074	pF
Drain Resistance	Rd	3.11	Ω
Drain Pad Capacitance	Cpd	0.012	pF
Drain Inductance	Ld	0.227	nH
Gate Bond Wire Inductance	Lg	0.136	nH
Gate Pad Capacitance	Cpg	0.034	pF
Gate Resistance	Rg	0.314	Ω
Gate-Source Capacitance	Cgs	0.348	pF
Channel Resistance	Ri	5.78	Ω
Gate-Drain Capacitance	Cgd	0.022	pF
Transconductance	gm	51.0	mS
Transit Time	tau	3.7	psec

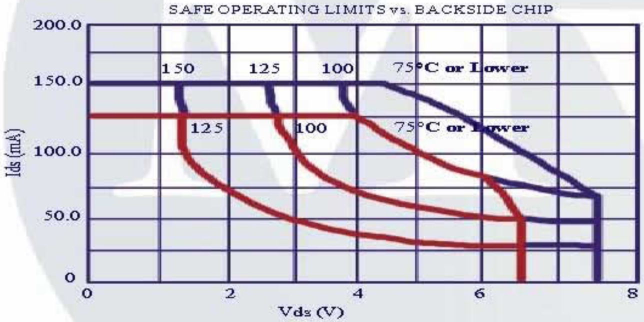
ORDERING INFORMATION

Chip	MwT-3
Package 70	MwT-370
Package 71	MwT-371
Package 73	MwT-373

NOTE:
For Package information, please see supplimentary application note from our website at www.mwtinc.com. When placing order or inquiring, please specify BIN range, wafer no., if known, and screening level required.







MAXIMUM RATINGS AT Ta = 25°C

SYMBOL	PARAMETER	UNITS	CONT MAX¹	ABSOLUTE MAX²
VDS	Drain to Source Voltage	V	See Safe Operating Limits	
Tch	Channel Temperature	°C	+150	+175
Tst	Storage Temperature	°C	-65 to +150	+175
Pin	RF Input Power	mW	120	180

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	30-55mA	55-95mA	95-120mA

BIN ACCURACY STATEMENT

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