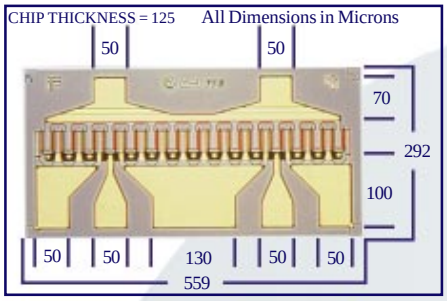
MwT-6

18 GHz High Power GaAs FET

DOWNLOAD ADDITIONAL DATA WWW.MWTINC.COM



FEATURES

- 0.5 WATT POWER OUPUT AT 12 GHz
- +39 dBm THIRD ORDER INTERCEPT
- 0.3 MICRON REFRACTORY METAL/GOLD GATE
- 900 MICRON GATE WIDTH
- CHOICE OF CHIP AND ONE PACKAGE TYPE

DESCRIPTION

The MwT-6 is a GaAs MESFET is ideally suited to narrow-band applications such as cellular telephone, PCN, point-to-point communications links, and other wireless applications as the driver transistor for the output power amplifier. The third-order intercept performance of the MwT-6 is excellent, typically 12 dB above the 1 dB compression point. 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

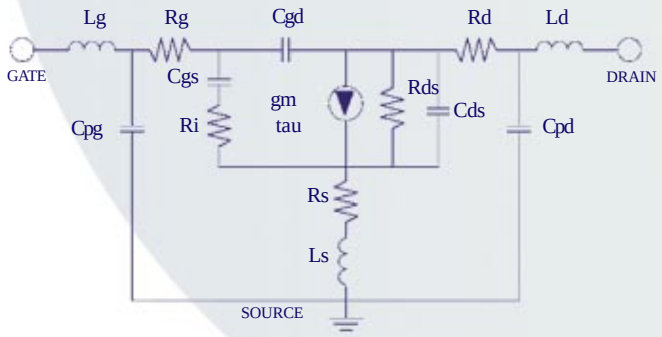
SYMBOL	PARAM. & CONDITIONS	UNITS	MIN	TYP	MAX
IDSS	Saturated Drain Current Vds= 4.0 V VGS= 0.0 V	mA	90		360
Gm	Transconductance Vds= 2.0 V VGS= 0.0 V	mS	108	145	
Vp	Pinch-off Voltage Vds= 3.0 V IDS= 6.0 mA	V		-2.0	-5.0
BVGSO	Gate-to-Source Breakdown Volt. Igs= -0.6 mA	V	-6.0	-12.0	
BVGDO	Gate-to-Drain Breakdown Volt. Igd= -0.6 mA	V	-8.0	-12.0	
Rth	Thermal Resistance MwT-6 Chip, MwT-671	°C/W			60 60*

*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=150mA	12 GHz	dBm	26.0	27.0
SSG	Small Signal Gain VDS= 6.0 V IDS=150mA	12 GHz	dB	7.5	8.0
PAE	Power Added Efficiency VDS= 6.0V IDS= 150mA	12 GHz	%	25	35
IDSS	Recommended IDSS Range for Optimum P1dB		mA		240-330

DEVICE EQUIVALENT CIRCUIT MODEL



PARAMETER		VALUE	
Source Resistance	Rs	0.72	Ω
Source Inductance	Ls	0.04	nH
Drain-Source Resistance	Rds	125	Ω
Drain-Source Capacitance	Cds	0.14	pF
Drain Resistance	Rd	1.44	Ω
Drain Pad Capacitance	Cpd	0.017	pF
Drain Inductance	Ld	2.0	nH
Gate Bond Wire Inductance	Lg	0.14	nH
Gate Pad Capacitance	Cpg	0.05	pF
Gate Resistance	Rg	0.15	Ω
Gate-Source Capacitance	Cgs	1.0	pF
Channel Resistance	Ri	2.0	Ω
Gate-Drain Capacitance	Cgd	0.07	pF
Transconductance	gm	112.0	mS
Transit Time	tau	2.0	psec

ORDERING INFORMATION

Chip	MwT-6
Package 71	MwT-671

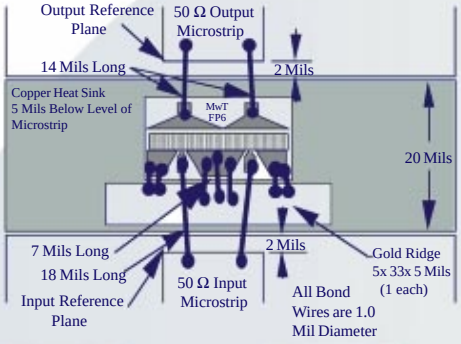
NOTE:
For Package information, please see supplimentary application note from our website at www.mwtinc.com. When placing order or inquiring, please specify BIN range, wafer no., if known, and screening level required.

4268 Solar Way Fremont California 94538 Phone: (510) 651-6700 Fax: (510) 651-2208

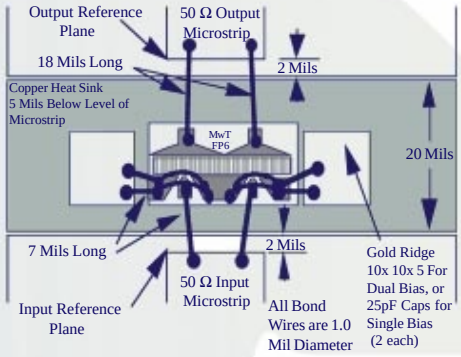
All rights reserved. MicroWave Technology, Inc. All specifications subject to change without notice.

MwT-6
18 GHz High Power GaAs FET

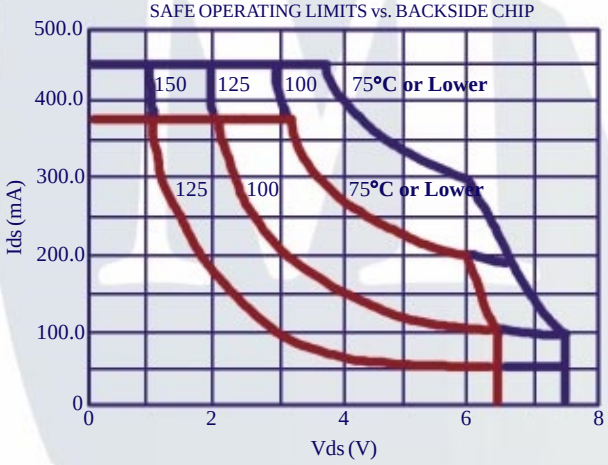
MwT-6
DUAL BIAS



MwT-6
OPTIONAL BONDING



SAFE OPERATING LIMITS vs. BACKSIDE CHIP



Absolute Maximum Continuous Maximum

MAXIMUM RATINGS AT Ta = 25°C

SYMBOL	PARAMETER	UNITS	CONT MAX[1]	ABSOLUTE MAX[2]
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	360	540

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.

MwT-6	Bin	A	B	C	D
	Idss Range	90-135	135-180	180-270	270-315

BIN ACCURACY STATEMENT

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

4268 Solar Way Fremont California 94538 Phone: (510) 651-6700 Fax: (510) 651-2208

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