

MwT-12

18 GHz High Power GaAs FET



DOWNLOAD ADDITIONAL DATA WWW.MWTINC.COM



FEATURES

- 0.5 WATT POWER OUTPUT AT 12 GHz
- +39 dBm THIRD ORDER INTERCEPT
- 0.3 MICRON REFRACTORY METAL/GOLD GATE
- HIGH ASSOCIATED GAIN
- 900 MICRON GATE WIDTH
- DIAMOND-LIKE CARBON (DLC) PASSIVATION

DESCRIPTION

The MwT-12 is a GaAs MESFET device whose nominal quarter-micron gate length and 900 micron gate width make it ideally suited to applications requiring high-power in the 2 GHz to 18 GHz frequency range. The straight gate geometry of the MwT-12 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 all devices 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.

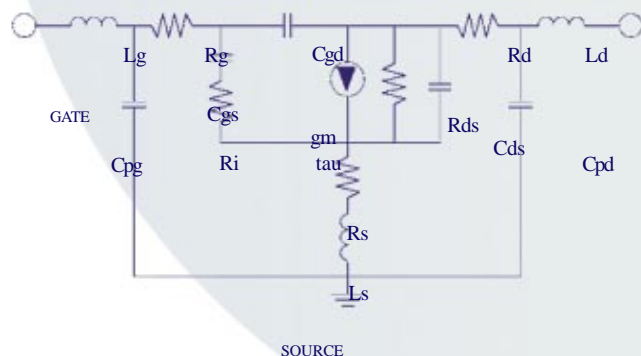
DC SPECIFICATIONS AT Ta = 25°C

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	120	
Vp	Pinch-off Voltage Vds= 3.0 V IDS= 6.0 mA	V		-2.0	-5.0
BVGSO	Gate-to-Source Breakdown Volt. Igs= -0.6mA	V	-6.0	-12.0	
BVGDO	Gate-to-Drain Breakdown Volt. Igd= -0.6 mA	V	-8.0	-12.0	
Rth	Thermal Resistance MwT-12 Chip	°C/W			55

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= 6.0 V 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	0.3	Ω
Source Inductance	Ls	0.05	nH
Drain-Source Resistance	Rds	90.0	Ω
Drain-Source Capacitance	Cds	0.04	pF
Drain Resistance	Rd	1.04	Ω
Drain Pad Capacitance	Cpd	.218	pF
Drain Inductance	Ld	.132	nH
Gate Bond Wire Inductance	Lg	0.15	nH
Gate Pad Capacitance	Cpg	0.3	pF
Gate Resistance	Rg	0.1	Ω
Gate-Source Capacitance	Cgs	0.85	pF
Channel Resistance	Ri	2.73	Ω
Gate-Drain Capacitance	Cgd	0.03	pF
Transconductance	gm	140	mS
Transit Time	tau	0.7	psec

ORDERING INFORMATION

Chip MwT-12

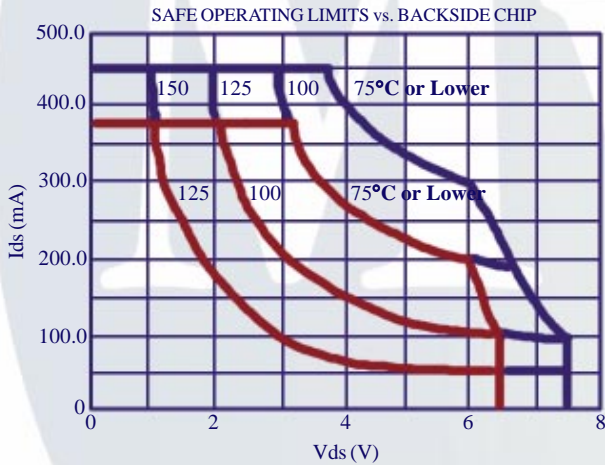
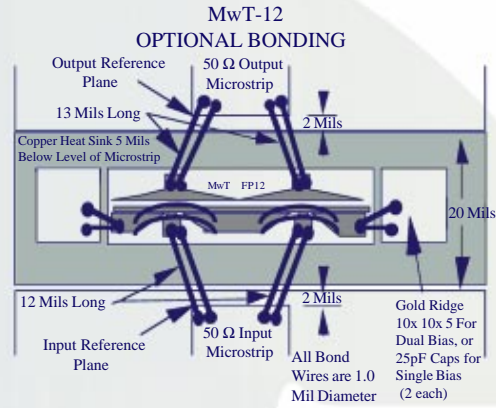
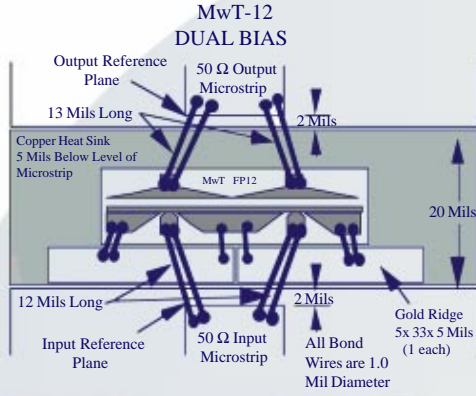
When placing order or inquiring, please specify BIN range, wafer no., if known, and screening level required.

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

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18 GHz High Power GaAs FET



█ Absolute Maximum
 █ Continuous Maximum

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

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.

BIN SELECTION

BIN#	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
IDSS (mA)	90-105	105-120	120-135	135-150	150-165	165-180	180-195	195-210	210-225	225-240	240-255	255-270	270-285	285-300	300-315	315-330	330-345	345-360

BIN ACCURACY STATEMENT

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

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