

1N4388 (SILICON)
(MV1806)



Silicon varactor diode for high-frequency harmonic generation applications.

CASE 44
(DO-4) cathode connected to stud

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Reverse Voltage	V_R	100	Vdc
Forward Current	I_F	1.0	Amp
RF Power Input	P_{in}	25	Watts
Total Device Dissipation @ $T_C = 75^\circ\text{C}$ Derate above 75°C	P_D	10 0.10	Watts $\text{W}/^\circ\text{C}$
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-65 to +175	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
Reverse Breakdown Voltage ($I_R = 10\ \mu\text{Adc}$)	BV_R	100	150	-	Vdc
Reverse Current ($V_R = 75\ \text{Vdc}$) ($V_R = 75\ \text{Vdc}, T_A = 150^\circ\text{C}$)	I_R	- -	0.5 -	2.0 100	μAdc
Diode Capacitance ($V_R = 6.0\ \text{Vdc}, f = 1.0\ \text{MHz}$) ($V_R = 90\ \text{Vdc}, f = 1.0\ \text{MHz}$)	C_T^*	- -	10 5.0	20 10	pF
Series Resistance ($V_R = 6.0\ \text{Vdc}, f = 50\ \text{MHz}$)	R_S	-	1.2	2.0	Ohms
Figure of Merit ($V_R = 10\ \text{Vdc}, f = 50\ \text{MHz}$) ($V_R = 90\ \text{Vdc}, f = 50\ \text{MHz}$)	Q	200 1000	300 -	- -	-

FUNCTIONAL TESTS

Power Output	Doubler Circuit (Figure 1) $P_{in} = 20\ \text{W}, f_{in} = 500\ \text{MHz},$ $f_{out} = 1000\ \text{MHz}$	P_{out}	11.0	12.0	-	Watts
Efficiency		η	55	60	-	%

* $C_T = C_J + C_C$

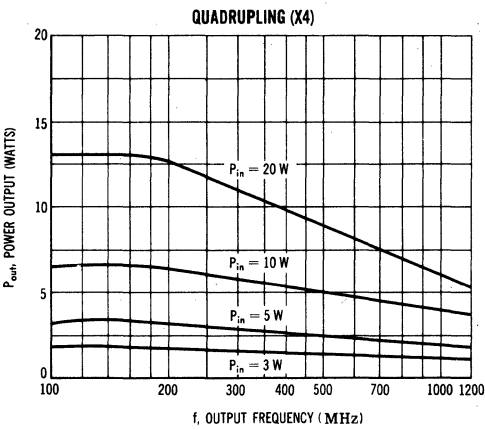
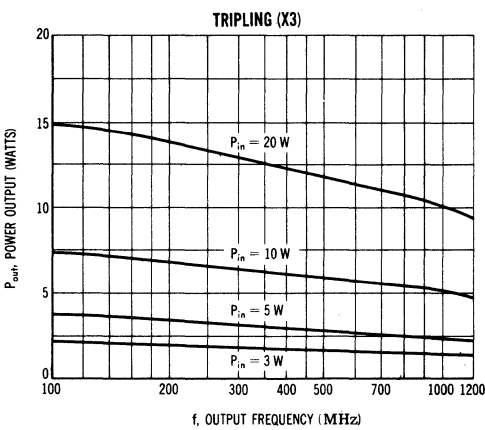
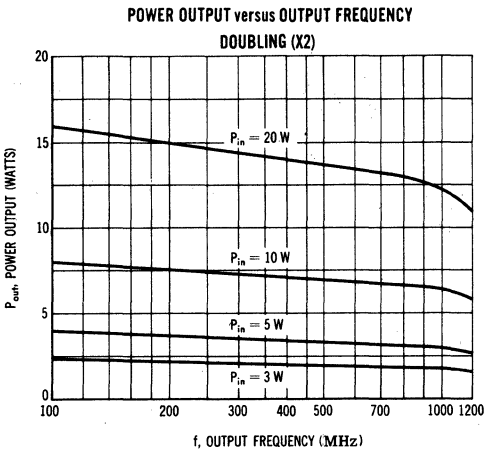
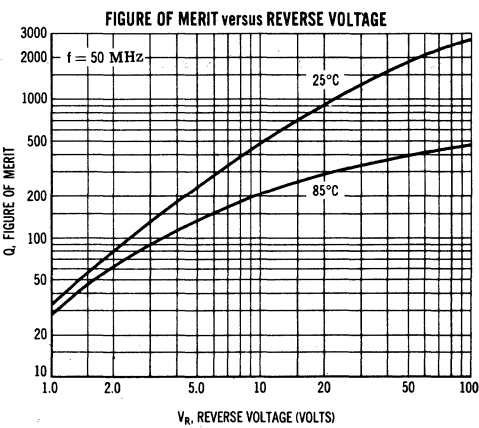


FIGURE 1 — HARMONIC DOUBLER EFFICIENCY TEST CIRCUIT

