



EVAR™ EXPONENTIAL VARACTOR **for** **FREQUENCY-VOLTAGE LINEAR TUNING**

SERIES

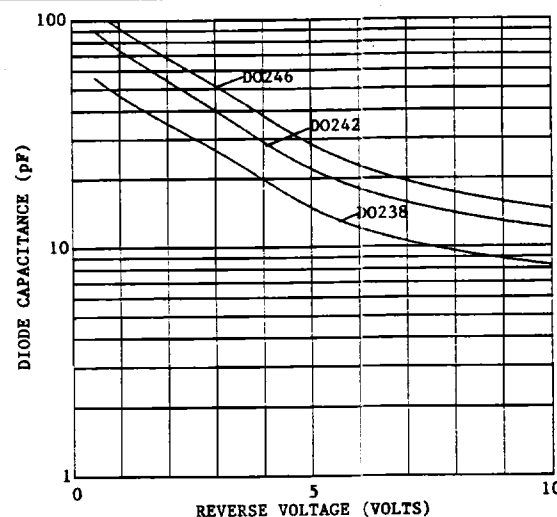
1M220 - 1M250
1T220 - 1T250
DO220 - DO250

The MSI Series 220 EVAR™ exponential varactor tuning diodes feature a 7:1 minimum capacitance tuning ratio from 0.5 to 10 volts for wide band tuning applications. For a varactor with a nominal capacitance, C_{nom} , of 6.8 pf at 2.5 volts bias, the Q at 50 MHz is 200 and for a larger capacitance varactor diode where $C_{nom} = 100$ pf, the Q at 2.5 volts is 75 minimum. The relatively linear variation of $\log C$ vs V between 0.5 and 4.5 volts, as shown in the typical plots for three types, can be used to advantage in design of frequency-voltage linear tuning circuits.

In axial leaded glass DO-7, in the surface mount MSI Case 1M alumina substrate with epoxy encapsulation or in the surface mount MSI-123 epoxy encapsulated package with solder coated leads to fit SOD-123 solder pads, the MSI Series 220 EVAR™ tuning diodes are for reliable uses in VCOs, FM modulators, phase shifters, tunable filters, phase locked loops, preselectors, and in other applications from HF to UHF.

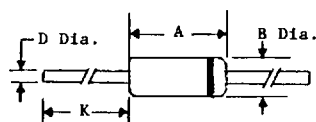
ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ$)

Type Nos. ¹ Package Styles			$C_{nom} = C_{2.5}$ Capacitance, pf @ 2.5V/1 MHz			$Q_{2.5}$ Figure of Merit @ 2.5V/50 MHz min
Surface Mount 1M	MSI-123	Axial DO-7	min	nom	max	
1M220	1T220	DO220	5.4	6.8	8.0	200
1M224	1T224	DO224	8.1	10.0	12.0	200
1M228	1T228	DO228	12.1	15.0	18.0	175
1M234	1T234	DO234	18.1	22.0	26.4	125
1M238	1T238	DO238	26.5	33.0	37.5	125
1M242	1T242	DO242	37.6	47.0	52.0	100
1M246	1T246	DO246	52.1	68.0	80.0	75
1M250	1T250	DO250	80.1	100.0	120.0	75

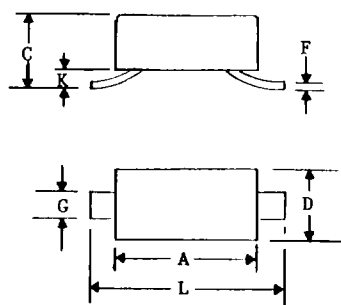


Capacitance Ratio, $C_{0.5}/C_{10}$	7.0 min/9.0 max
Reverse Voltage, V_R (min)	12Vdc @ $I_R=10\mu A$ dc
Reverse Current, I_R (max)	0.01 μA @ $V_R=10V$ dc

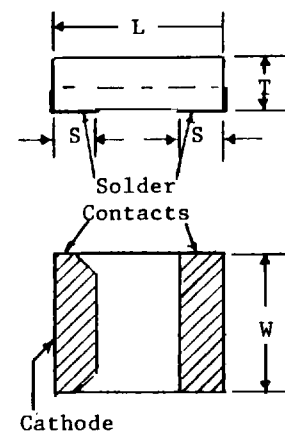
- 1) To order diodes with $C_{nom} \pm 1\%$, add suffix A to the type no.; for diodes with $C_{nom} \pm 5\%$, add suffix B; for sets of 2 diodes matched to $\pm 3\%$ at 0.5, 2.5 and 4.5 volts, add suffix -2M, for 3 diodes, add suffix -3M, for 4, add suffix -4M.



Dim	DO-7			
	Millimeters		Inches	
	min	max	min	max
A	5.84	7.62	0.230	0.300
B	2.16	2.72	0.085	0.107
D	0.46	0.56	0.018	0.022
K	25.40		1.000	



Dim	MSI-123			
	Millimeters		Inches	
	min	max	min	max
A	2.54	2.84	0.100	0.112
C	0.94	1.35	0.037	0.053
D	1.40	1.70	0.055	0.067
F	-	0.15	-	0.006
G	0.46	0.64	0.018	0.025
K	0.20	0.41	0.008	0.016
L	3.56	3.86	0.140	0.152



Dim	Case 1M			
	Millimeters		Inches	
	min	max	min	max
L	3.15	3.43	0.124	0.135
W	2.41	2.62	0.095	0.103
S	0.69	0.84	0.027	0.033
T	0.91	1.17	0.036	0.046