

CONTROLLED GAMMA TUNING DIODES

Series
GA3120-GA3930
GA4120-GA4630
GA5120-GA5530
GA6120-GA6530

The capacitance voltage exponent, γ , is specified for a prescribed voltage range in the GA series tuning diode to facilitate uses in many frequency-voltage tuning applications. Over a one volt range at an operating bias of 3.5, 4.5, 5.5 or 6.5 volts, a diode with $\gamma = 2.0$ min/2.9 max or 3.0 min/3.9 max can be selected to meet specific requirements. For ready confirmation, γ is determined by measurements of the ratio of capacitances at $\frac{1}{2}$ volt either side of the operating bias. In the example in Fig. 1 for Type No. GA3530, $C_{3.5} = 40.33$ pf and the capacitance ratio $C_3/C_4 = 2.51$ indicating the $\gamma = 3.0/3.9$ category. With familiar capacitance measurements, diodes with the required values of γ can be readily selected for incorporation into circuits to achieve the performance desired.

The GA series, supplied in axial leaded DO-7 glass, may be ordered in surface mount packages by replacing GA with 1M in the Type No.

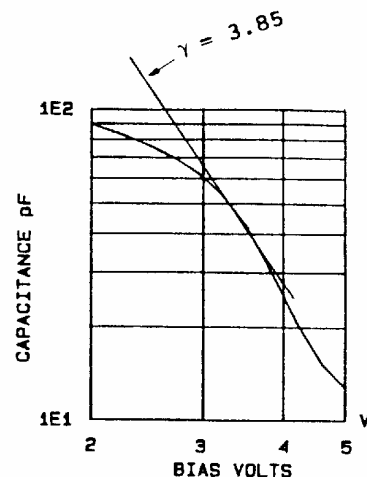


Fig. 1 - Type No. GA3530 with $\gamma = 3.85$

RATINGS

Ratings	Symbol	Value
Reverse Voltage	VR	12 Vdc min @ IR=10 uA
Reverse Voltage Leakage Current	IR	0.01 uAdc max @ VR=10V
Figure of Merit	Q2	200 min @ 2V/1MHz
Case Capacitance	Cc	0.2 pf Nominal
Series Inductance	LS	5.0 nh Typical

ELECTRICAL CHARACTERISTICS

3.5 Volt Bias Operation			
CT (pf) @ 3.5V/1MHz min/max	Capacitance Ratio C3/C4		
	1.61/2.04	2.05/2.57	
16.6/19.8	GA3120	GA3130	
19.9/24.2	GA3220	GA3230	
24.3/29.7	GA3320	GA3330	
29.8/36.3	GA3420	GA3430	
36.4/42.9	GA3520	GA3530	
43.0/51.7	GA3620	GA3630	
51.8/61.6	GA3720	GA3730	
61.7/74.8	GA3820	GA3830	
74.9/89.9	GA3920	GA3930	
90.0/110.	GA3020	GA3030	
$\gamma =$	2.0/2.9	3.0/3.9	

5.5 Volt Bias Operation			
CT (pf) @ 5.5V/1MHz min/max	Capacitance Ratio C5/C6		
	1.38/1.62	1.63/1.93	
16.6/19.8	GA5120	GA5130	
19.9/24.2	GA5220	GA5230	
24.3/29.7	GA5320	GA5330	
29.8/36.3	GA5420	GA5430	
36.4/42.9	GA5520	GA5530	
$\gamma =$	2.0/2.9	3.0/3.9	

6.5 Volt Bias Operation			
CT (pf) @ 6.5V/1MHz min/max	Capacitance Ratio C6/C7		
	1.32/1.52	1.53/1.76	
16.6/19.8	GA6120	GA6130	
19.9/24.2	GA6220	GA6230	
24.3/29.7	GA6320	GA6330	
29.8/36.3	GA6420	GA6430	
32.4/42.9	GA6520	GA6530	
$\gamma =$	2.0/2.9	3.0/3.9	

- Notes:
1. Diode capacitance to closer tolerance than those tabulated above may be ordered by specifying the Type No. with the desired min/max values of CT.
 2. To order passivated diode chips, add "chip" after the Type No.

4.5 Volt Bias Operation			
CT (pf) @ 4.5V/1MHz min/max	Capacitance Ratio C4/C5		
	1.47/1.78	1.79/2.20	
16.6/19.8	GA4120	GA4130	
19.9/24.2	GA4220	GA4230	
24.3/29.7	GA4320	GA4330	
29.8/36.3	GA4420	GA4430	
36.4/42.9	GA4520	GA4530	
43.0/51.7	GA4620	GA4630	
$\gamma =$	2.0/2.9	3.0/3.9	

