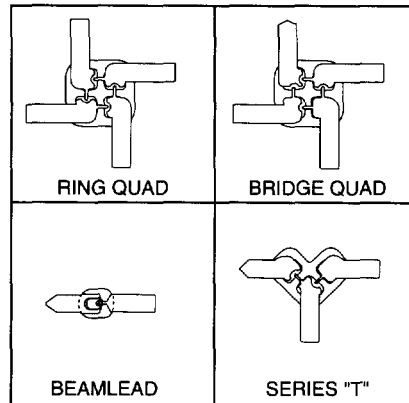


MONOLITHIC SCHOTTKY DIODES FOR MIXERS TO 26.5 GHz

- **Low Capacitance. For Applications to 26.5 GHz**
- **Silicon Dioxide / Silicon Nitride Passivation**
- **Monolithic Glass Support Design**
- **Ultra-Low through High – Barrier Heights**
- **Monolithic Design Insures Matched Junctions**
- **Wafer Level "SPC"**



DESCRIPTION

New Schottky Barrier devices are currently available in single beamlead, dual "T", ring quad and bridge quad configurations. Devices are available in monolithic form for hybrid applications as well as in hermetic or non-hermetic packages. Monolithic devices are recommended for highest frequency, broadband designs. The beamlead design eliminates the problems associated with wire bonding very small junction devices thus improving reliability and performance in MIC applications. Our in house epitaxy process capability insures repeatability for lowest conversion loss through Ku Band. A broad range of unique metalization schemes produce Narda's complete line of barrier heights. Diodes are currently available with barrier heights as low as 240 mV and up to 625 mV per junction. By optimizing epitaxy and metalization, these devices achieve the lowest Rs-Cj products resulting in exceptional conversion loss performance. "High Rel" screening is available on packaged devices per your requirements.

APPLICATIONS

Schottky Barrier diodes are suitable for a variety of circuit applications ranging from single ended RF mixers to low level high speed switching. The monolithic beamlead design minimizes parasitic inductance and capacitance insuring repeatable performance through Ku band. Single junction devices such as the style 'S12' are well suited for RF Mixers, level detectors, phase detectors, modulators, etc. With junction capacitances as low as .06 pF, Monolithic Quads are ideally suited for broad band double balanced mixer designs through 26.5 GHz. The Ultra-Low Barrier devices (GC9900 Series) are designed for mixers with low or starved Local Oscillator levels where optimal conversion loss is a must. High barrier diodes, (GC9940 Series) are designed for applications where high drive levels are available, such as, Doppler mixers or motion detection. Schottky diodes are available in Ultra-Low, Medium and High Drive levels to fit virtually any circuit requirement.

Schottky Devices

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TABLE 1: ELECTRICAL SPECIFICATIONS AT $T_A=25^\circ\text{C}$

P/N	BARRIER	FREQ. RANGE	V_b^1 min (V)	C_j^2 max (pF)	V_f^3 max (mV)	R_d^4 max (Ω)	$N_{f_{ssp}}^5$ TYP (dB)	Z_{if}^6 typ (Ω)
GC9901	ULTRA-LOW	Ku-Ka	2.0	0.09	310	18.0	6.50	140
GC9902		X		0.15	280	14.0	6.00	
GC9903		C		0.30	270	12.0	5.50	
GC9904		S		0.50	250	10.0	5.50	
GC9911	LOW	Ku-Ka	2.0	0.09	360	18.0	6.50	170
GC9912		X		0.15	350	14.0	6.00	
GC9913		C		0.30	340	12.0	5.50	
GC9914		S		0.50	330	10.0	5.50	
GC9921	LOW-MED	Ku-Ka	2.0	0.09	440	18.0	6.50	200
GC9922		X		0.15	430	14.0	6.00	
GC9923		C		0.30	410	12.0	5.50	
GC9924		S		0.50	390	10.0	5.50	
GC9931	MEDIUM	Ku-Ka	3.0	0.09	540	18.0	6.75	250
GC9932		X		0.15	530	14.0	6.25	
GC9933		C		0.30	520	12.0	5.75	
GC9934		S		0.50	500	10.0	5.50	
GC9941	HIGH	Ku-Ka	4.0	0.09	650	20.0	7.00	300
GC9942		X		0.15	630	16.0	6.25	
GC9943		C		0.30	620	12.0	5.75	
GC9944		S		0.50	600	10.0	5.75	

CONDITIONS

- V_b measured at $10\mu\text{A}$ (N/A on ring quads).
- 0 Volts, $F=1\text{ MHz}$ (diagonal leads on quads).
- $I_f = 1.0\text{ mA}$
- $I_f = 5.0\text{ mA}$
- L.O. = 0 dBm , $N_{if} = 1.5\text{ dB}$, $F = 10\text{ GHz}$
- L.O. = 0 dBm

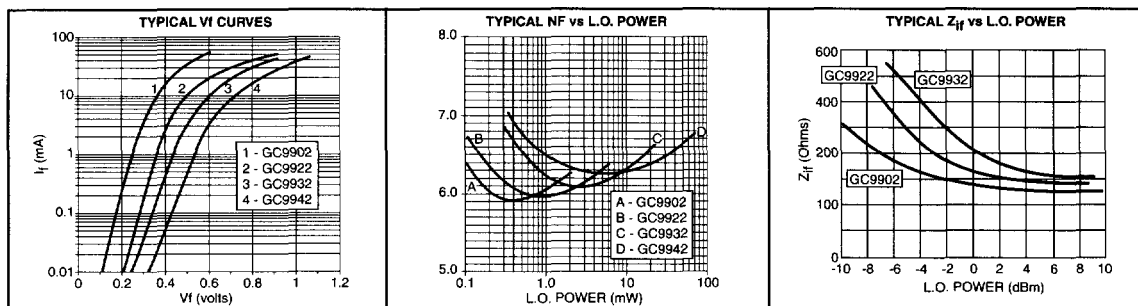
MAXIMUM RATING

T_{oper} : -65 to 150°C
 T_{stg} : -65 to 170°C
 Power Handling: 100 mW
 (Derate Linearly to zero at 150°C)

NOTE

When ordering, specify appropriate package style.
 Specifications subject to change without notice.

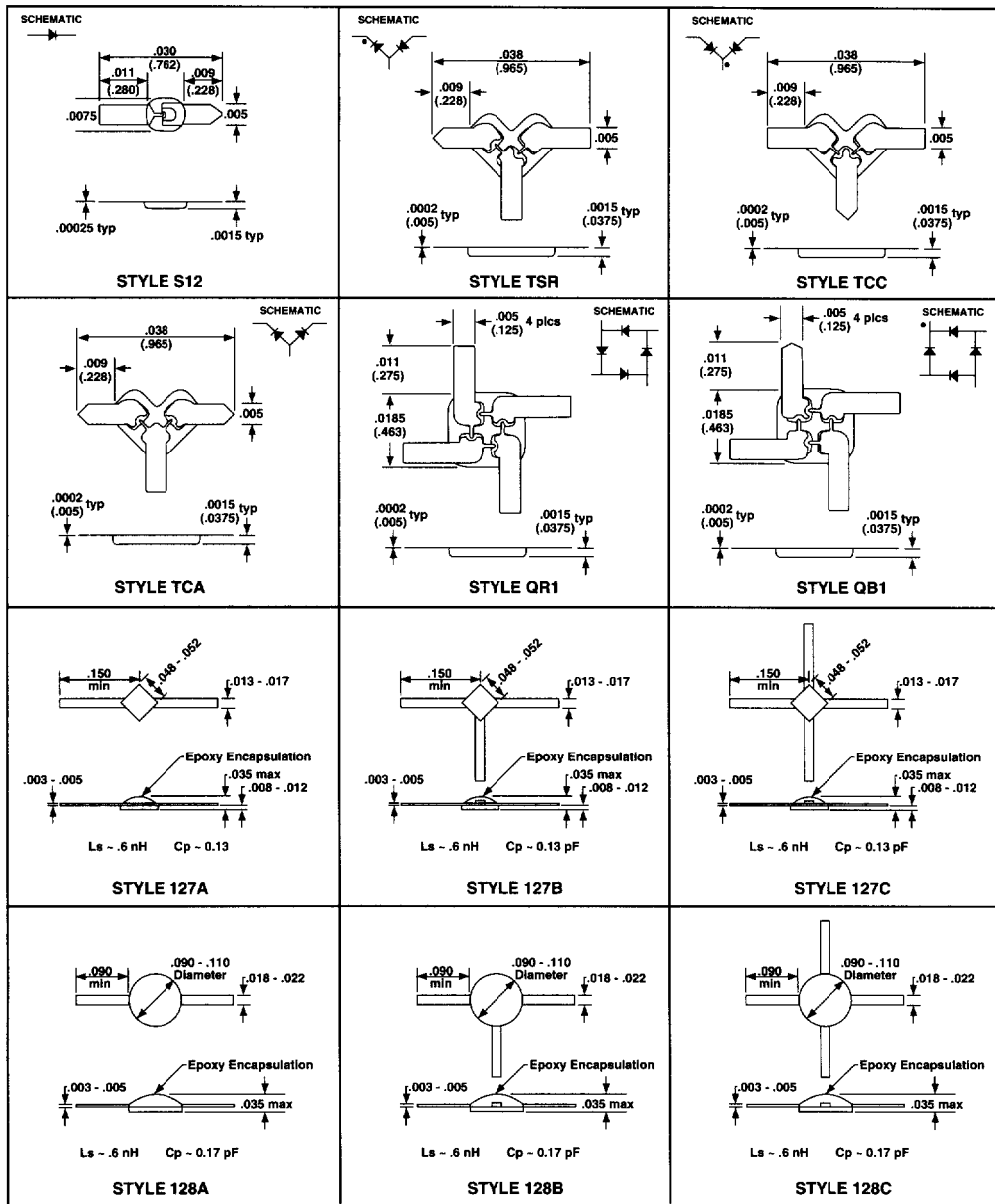
TYPICAL PERFORMANCE CURVES



SEMICONDUCTOR OPERATION

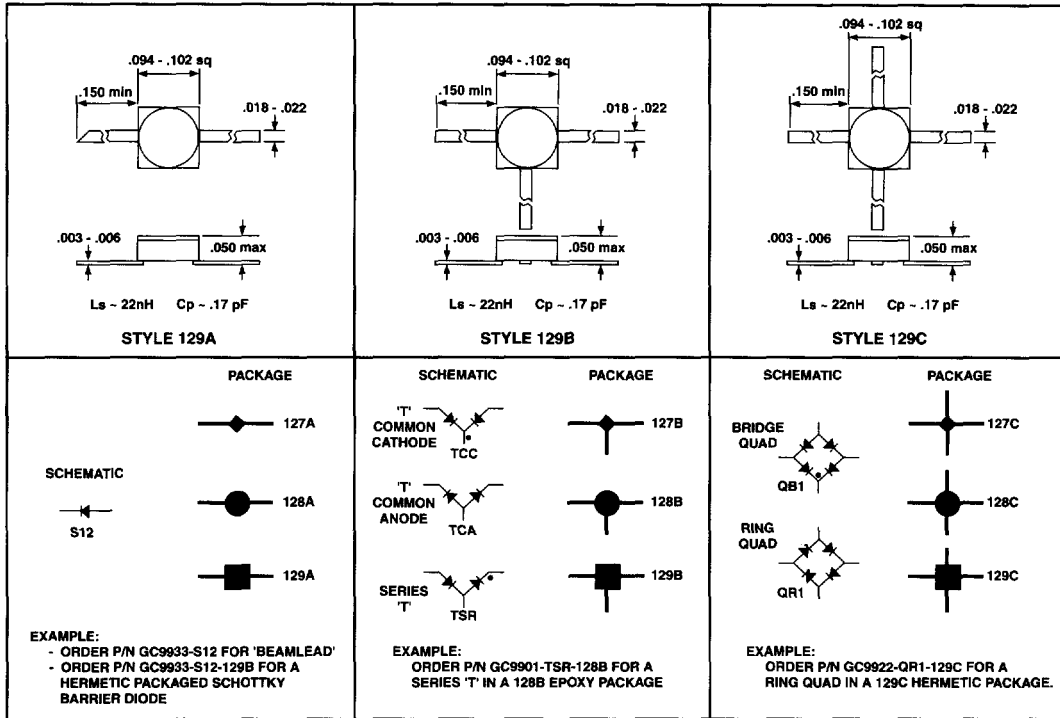
75 Technology Drive • Lowell, MA 01851 • Tel: 508-442-5600 • Fax: 508-937-3748

MONOLITHIC SCHOTTKY DIODES FOR MIXERS TO 26.5 GHz



Dimension in inches (mm).
 Tolerance: $\pm .001$ inches unless otherwise noted.
 Specifications subject to change without notice.

MONOLITHIC SCHOTTKY DIODES FOR MIXERS TO 26.5 GHz



Dimensions in inches.

Specifications subject to change without notice.

Other package styles and configurations available. Consult Factory.