STEP RECOVERY DIODES

DESCRIPTION

The GC2500 series step recovery diodes are epitaxial silicon varactors which provide high output power and efficiencies in harmonic generator applications.

Strict material and process controls result in high reproducibility. A unique silicon dioxide passivation process assures greater reliability and low leakage currents at high temperatures.

APPLICATIONS

The GC2500 series of step recovery varactors are used as harmonic generators for all orders of multiplication X2 through X20 for both narrow and wide bandwidths. Applications include local oscillators, voltage controlled oscillators, frequency synthesizers, and up converters. They are also used in comb generators to generate a broad frequency spectrum and in high speed pulse shaping circuits.

ELECTRICAL SPECIFICATIONS: T_A = 25°C

MODEL NUMBER	JUNCT. CAPACITANCE[1] (AT-6V, 1 MHz) C_j-6 (pF)	MINIMUM BREAKDOWN VOLTAGE (AT 10μA MAX) V_b (V)	MINIMUM[2] CARRIER LIFETIME (Ir = 6 mA, If = 10 mA) T_l (nS)	TYPICAL[3] TRANSITION TIME T_t (ps)	MAXIMUM[4] SERIES RESISTANCE (I_f = 25 mA) R_s (Ohms)	MAXIMUM[5] THERMAL RESISTANCE (°C/W)
GC2510	0.2-0.4	15	8	60	1.20	125
GC2511	0.4-0.6	15	8	60	1.00	100
GC2512	0.6-0.8	15	8	60	0.70	100
GC2513	0.8-1.0	15	8	60	0.50	75
GC2514	1.0-1.4	15	8	60	0.40	75
GC2515	1.4-2.0	15	8	60	0.30	60
GC2516	2.0-3.0	15	8	60	0.25	60
GC2520	0.2-0.4	20	11	70	1.00	100
GC2521	0.4-0.6	20	11	70	0.70	75
GC2522	0.6-0.8	20	11	70	0.60	75
GC2523	0.8-1.0	20	11	70	0.50	75
GC2524	1.0-1.4	20	11	70	0.40	75
GC2525	1.4-2.0	20	11	70	0.30	60
GC2526	2.0-3.0	20	11	70	0.25	60
GC2530	0.2-0.4	30	17	100	0.80	75
GC2531	0.4-0.6	30	17	100	0.60	60
GC2532	0.6-0.8	30	17	100	0.50	60
GC2533	0.8-1.0	30	17	100	0.40	60
GC2534	1.0-1.4	30	17	100	0.30	60
GC2535	1.4-2.0	30	17	100	0.25	50
GC2536	2.0-3.0	30	17	100	0.20	50
GC2540	0.2-0.4	40	21	150	0.80	60
GC2541	0.4-0.6	40	21	150	0.60	50
GC2542	0.6-0.8	40	21	150	0.50	50
GC2543	0.8-1.0	40	21	150	0.40	50
GC2544	1.0-1.4	40	21	150	0.30	50
GC2545	1.4-2.0	40	21	150	0.25	40
GC2546	2.0-3.0	40	21	150	0.20	40

Notes:
1. Junction capacitance is measure at 1 MHz on a Boonton Meter model 72dB.
2. Carrier lifetime is measure using the test circuit shown in figure 1.
3. Transition time (snap time) is measured using the test circuit shown in figure 2.
4. Series resistance is measure using a transmission loss technique.
5. Thermal resistance is measure using pulsed conditions while measuring forward voltage drop across the diode mounted in an infinite heat sink.

Diodes are available in various capacitance ranges for each of the 4 voltage ratings. These diodes represent the lowest transition time (snap time) available for each voltage rating.

Unless otherwise specified, capacitance will be within the range shown below for each type. A capacitance tolerance of ±10% is available at an additional charge. Diodes can be optimized for custom electrical or mechanical specifications. Custom parameters for capacitance, voltage, transition time, series resistance, etc. are available upon request.

All specifications shown above are based on the style 30 package. Other ceramic or glass packages available include 15, 20, 25, 36, 42 and 56. Chip mounted on carriers with gold wire/ribbon leads are also available.

RATINGS

Operating Temperature: -55°C to +150°C

Storage Temperature: -65°C to +200°C

Minimum Breakdown Voltage: 15, 20, 30 and 40 Volts at 10μA