

Control Devices

HIGH SPEED PIN DIODES

DESCRIPTION

The GC4200 series are high speed (cathode base) PIN diodes made with high resistivity epitaxial silicon material. These diodes are passivated with silicon dioxide for high stability and reliability and have been proven by thousands of device hours in high reliability systems.

These devices can withstand storage temperatures from -65° to +200°C and will operate over the range from -55° to +150°C. All devices meet or exceed military environmental specifications of MIL-S-19500. The GC4200 series will operate with as little as +10 mA forward bias.

APPLICATIONS

The GC4200 series can be used in RF circuits as an on/off element, as a switch, or as a current controlled resistor in attenuators extending over the frequency range from UHF through Ku band.

Switch applications include high speed switches (ECM systems), TR switches, channel or antenna selection switches (telecommunications), duplexers (radar) and digital phase shifters (phased arrays).

The GC4200 series are also used as passive and active limiters for low to moderate RF power levels.

Attenuator type applications include amplitude modulators, AGC attenuators and power levelers.

ELECTRICAL SPECIFICATIONS: T A = 25°C

MODEL NUMBER	BREAKDOWN VOLTAGE (I _R =10uA MAX) V _B (MIN)(Volts)	JUNCTION CAPACITANCE ¹ C _{J-10} (MAX) (pF)	SERIES RESISTANCE ² (20 mA, 1 GHz) R _{S20} (MAX) (Ohms)	CARRIER LIFETIME (I _R =6 mA, I _F =10 mA) T _L (TYP) (nS)	THERMAL RESISTANCE (MAX) (°C/W)
GC4270	70	0.06	1.5	100	80
GC4271	70	0.10	1.0	100	70
GC4272	70	0.20	0.8	100	70
GC4273	70	0.30	0.7	100	60
GC4274	70	0.40	0.6	100	50
GC4275	70	0.50	0.5	100	40
GC4210	100	0.06	1.5	200	80
GC4211	100	0.10	1.0	200	70
GC4212	100	0.20	0.75	200	70
GC4213	100	0.30	0.6	200	60
GC4214	100	0.40	0.5	200	50
GC4215	100	0.50	0.35	200	40
GC4220	250	0.06	2.5	500	80
GC4221	250	0.10	2.0	500	70
GC4222	250	0.20	1.5	500	70
GC4223	250	0.30	1.0	500	60
GC4224	250	0.40	0.8	500	50
GC4225	250	0.50	0.6	500	40

Notes:

1. Capacitance is measured at 1 MHz and -10 volts.
2. Resistance is measured using transmission loss techniques.
3. This series of devices is available in standard case styles 00, 15, 30, 35 and 85, plus other styles on request.

The tabulated specifications above are for the style 30 package. Diodes may also be available in other case styles. Some limitations apply / contact factory for details.

Each type offers trade offs in series resistance, junction capacitance and carrier lifetime; the proper choice of which depends on the end application. Reverse polarity diodes (NIP) and higher voltage PIN and NIP diodes are also available. (See data sheets for GC4300, GC4400, and GC4500 series respectively.)



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RATINGS

Max Leakage Current: 0.5mA at 80% of minimum rated breakdown

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

Storage Temperature: -65°C to +200°C

Typical Performance Curves

