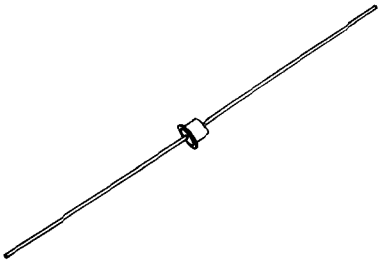
Germanium Diodes

BD1-7

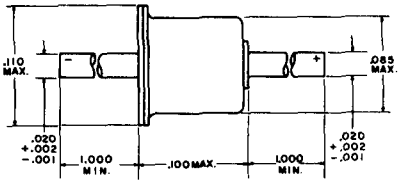
The General Electric types 4JFBD1-7 are germanium back diodes which make use of the quantum mechanical tunneling phenomenon, thereby attaining a very low forward voltage drop and eliminating charge storage effects. They feature closely controlled forward voltage characteristics with very small temperature coefficients. The very low forward voltage and low capacity of the back diode make it ideal for use in high frequency applications and in transistor and tunnel diode switching circuits. The germanium back diodes are characterized in seven types according to the forward current at a forward voltage of 90 millivolts and according to the maximum reverse leakage current.



absolute maximum ratings: (25°C) (unless otherwise specified)

Part Number	1	2	3	4	5	6	7	units
Forward Current (-55 to + 100°C)	30	15	10	5	5	5	5	ma
Reverse Current (-55 to + 100°C)	10	5	5	5	5	5	5	ma
Lead Temperature, from case for 10 seconds	1/16" + 1/32" 260°C							

AXIAL DIODE OUTLINE



ALL DIMENSIONS IN INCHES.
DIMENSIONS ARE REFERENCE UNLESS TOLERANCED.

electrical characteristics: (25°C) (unless otherwise specified)

	Sym.	BD1	BD2	BD3	BD4	BD5	BD6	BD7	Units
Forward Voltage, V_{F1} =90 MV ± 10 mv at I_{F1} =		10	5	2	1	.5	.2	.1 ma	
Forward Voltage at I_{F2} (I_{F2} =3I_{F1})	V_{F2}	120	130	170	170	170	160	160 mv	typ.
Reverse Voltage, I_R =I_P max	V_{R1}	440	420	400	380	350	330	330 mv	min.
Reverse Voltage, I_R =1 ma	V_{R2}	440	465	465	465	465	465	465 mv	min.
Reverse Peak Point Current	I_P	1	.5	.2	.1	.05	.02	.01 ma	max.
Series Inductance (Measured at case)	L_S	1.5	1.5	1.5	1.5	1.5	1.5	1.5 nh	typ.
Total Terminal Capacity	C	8	6	4	3	3	3	3 pf	typ.
(V_R =350 mv)		20	10	10	10	10	10	10 pf	max.
Recovery Time*	t_r	1.0	0.7	0.5	0.4	0.4	0.4	0.4 ns	typ.

*The recovery time is measured to a reverse current of 1 ma. when switching from 0.1 volt forward to 0.4 volt reverse from a 50 ohm source. Since the back diode does not exhibit charge storage, the recovery time is determined by the charging time of the total device capacity.