

# SEMICONDUCTORS

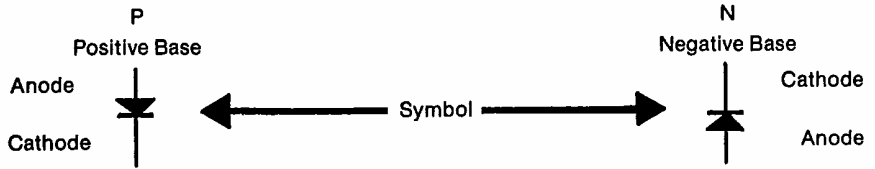
## SILICON AVALANCHE RECTIFIERS 1 TO 350 AMPERES

The part numbers listed below cover the basic axial lead and stud type diodes. Letters may be added to the part number to indicate additional properties such as: polarity, controlled avalanche, special leads, and studs.

CA designates controlled avalanche. The diode avalanches within a specified maximum and minimum voltage.

All rectifiers listed here have avalanche characteristics and surge capabilities 20-50% higher than other rectifiers of the same current rating. They can also be supplied with controlled

Some common letters are:



avalanche characteristics. Large chips and high conductivity construction eliminate the need for additional surge suppression components usually required in power supply circuitry. The stud base

units are normally supplied with the anode connected to the solder terminal. For anode connected to the stud, change suffix letter "P" to suffix "N" in the part number.

Rating (Amps)	1.0	1.0	1.0	1.0	1.0	2.0	2	3	3	
Case Style	G	C	M	E	F	LA	2AF	3AF	3BF	
IFSM (amps)	50	50	70	70	70	30	60	150	150	
I <sup>2</sup> t (A <sup>2</sup> Sec)	10.4	15	20	20	20	3.8	15	93.4	93.4	
T <sup>°</sup> C (Ambient)	40	55	40	55	55	40	40	40	40	
PIV	Max. VRMS									
100	70	G1	10C	10M	E1	F1	10LA	2AF1	3AF1	3BF1
200	140	G2	20C	20M	E2	F2	20LA	2AF2	3AF2	3BF2
300	210	G3	30C	30M	E3	F3	30LA	2AF3	3AF3	3BF3
400	280	G4	40C	M-500	E4	F4	40LA	2AF4	3AF4	3BF4
600	420	G6	60C	60M	E6	F6	60LA	2AF6	3AF6	3BF6
800	560	G8	80C	80M	E8	F8	80LA	2AF8	3AF8	3BF8
1000	700	G10	100C	100M	E10	F10	100LA	2AF10	3AF10	3BF10
1200	840	G12	120C	120M	E12	F12	120LA	2AF12	3AF12	3BF12
1400	980	G14	140C	140M	E14	F14	140LA	2AF14	3AF14	3BF14
Rating (Amps)		6	6	6	12	16	25	40	50	
Case Style		AL	QD	DO4	DO4	DO4	DO5	DO5	DO5	
IFSM (amps)		400	400	200	260	300	400	800	1000	
I <sup>2</sup> t (A <sup>2</sup> Sec)		664	664	1680	280	375	664	2660	4050	
T <sup>°</sup> C (Ambient)		40A	40A	150C	150C	150C	135C	150C	150C	
PIV	Max. VRMS									
100	70	6AL1	6QD1	10H3P	ST210P	ST210E	ST310P	ST410P	ST5A10P	
200	140	6AL2	6QD2	20H3P	ST220P	ST220E	ST320P	ST420P	ST5A20P	
300	210	6AL3	6QD3	30H3P	ST230P	ST230E	ST330P	ST430P	ST5A30P	
400	280	6AL4	6QD6	40H3P	ST240P	ST240E	ST340P	ST440P	ST5A40P	
600	420	6AL6	6QD8	60H3P	ST260P	ST260E	ST360P	ST460P	ST5A60P	
800	560	6AL8	6QD8	80H3P	ST280P	ST280E	ST380P	ST480P	ST5A80P	
1000	700	6AL10	6QD10	100H3P	ST2100P	ST2100E	ST3100P	ST4100P	ST5A100P	
1200	840	6AL12	6QD12	120H3P	ST2120P	ST2120E	ST3120P	ST4120P	ST5A120P	
1400	980	6AL14	6QD14	140H3P	ST2140P	ST2140E	ST3140P	ST4140P	ST5A140P	
Rating (Amps)		70	100	100	160	160	250	275	350	
Case Style		DO5	ST6	ST6A	DO8	ST16A	ST8	DO9	DO9	
IFSM		1200	1600	1600	3000	3000	5000	5000	7000	
I <sup>2</sup> t (A <sup>2</sup> Sec)		6000	10,600	10,600	37,350	37,350	105,000	105,000	203,000	
Temp <sup>°</sup> C Case		150C	150C	150C	150C	150C	150C	150C	150C	
PIV	MAX. VRMS									
100	70	ST1110P	ST610P	ST6A10P	ST1610P	ST16A10P	ST810P	ST910P	ST2010P	
200	140	ST1120P	ST620P	ST6A20P	ST1620P	ST16A20P	ST820P	ST920P	ST2020P	
300	210	ST1130P	ST630P	ST6A30P	ST1630P	ST16A30P	ST830P	ST930P	ST2030P	
400	280	ST1140P	ST640P	ST6A40P	ST1640P	ST16A40P	ST840P	ST940P	ST2040P	
500	350	ST1150P	ST650P	ST6A50P	ST1650P	ST16A50P	ST850P	ST950P	ST2050P	
600	420	ST1160P	ST660P	ST6A60P	ST1660P	ST16A60P	ST860P	ST960P	ST2060P	
800	560	ST1180P	ST680P	ST6A80P	ST1680P	ST16A80P	ST880P	ST980P	ST2080P	
1000	700	ST11100P	ST6100P	ST6A100P	ST16100P	ST16A100P	ST8100P	ST9100P	ST20100P	
1200	840	ST11120P	ST6120P	ST6A120P	ST16120P	ST16A120P	ST8120P	ST9120P	ST20120P	
1400	980	ST11140P	ST6140P	ST6A140P	ST16140P	ST16A140P	ST8140P	ST9140P	ST20140P	

## ENVIRONMENTAL TESTS & BURN-IN—POWER PULSE

We perform the following tests per the standard specified to meet the customer specification.

1. Temperature Cycling
2. Centrifuge
3. Shock
4. Vibration
5. Gross Leak Test—Helium Back Fill  
Sensitivity 10<sup>-4</sup> cc/sec. Air
6. Fine Leak Test—Helium Back Fill —Sensitivity 10<sup>-7</sup>cc/sec.
7. Forward Surge
8. Reverse Power Pulse
9. Environmental Storage

### BURN-IN:

Burn-in has been designed to reduce infant mortality. A reverse bias is applied to either the diode or SCR at a high temper-

ature. Weaker units change characteristics and are discarded. We highly recommend this procedure to maximize reliability and to provide a stabilized product suitable for centerline design purposes in the application.

### POWER PULSE:

Transients may destroy a silicon diode. The avalanche process can be tested to verify its ability to quench transients. A typical test applies the rated joule energy in the form of a fast-rising high dv/dt pulse. This exceeds the dv/dt ratings normally found in practice. The pulse is applied three to five times in rapid succession to insure that the diode will withstand it.

A combination of temperature cycling, reverse power pulsing, and burn-in may be applied to verify diode integrity prior to shipment. High reliability applications may require unique combinations of Environmental, Power, and Burn-In, tests.