

# High power rectifier diodes

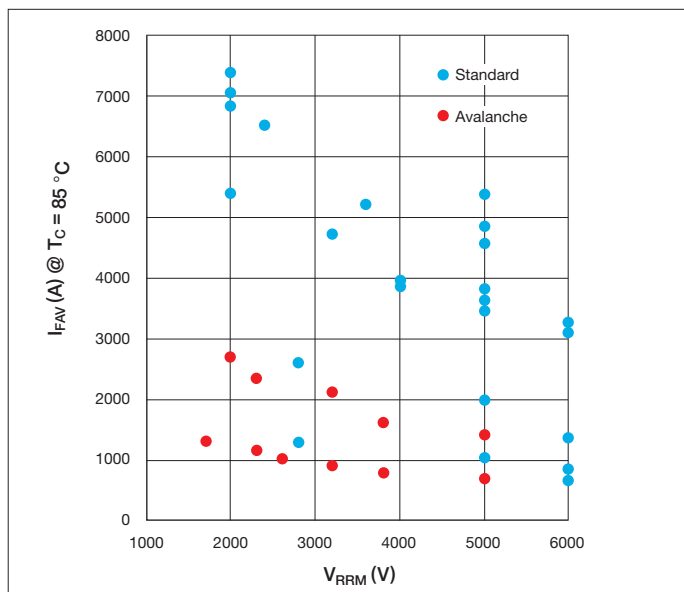
ABB Semiconductors' reliable high-power rectifier diodes for demanding applications in industry and traction.

ABB offers two families of high power rectifier diodes with the following features:

- Reverse repetitive voltage from 1700 V to 6000 V
- High average forward current rating from 700 A to 7400 A
- Excellent surge current capabilities up to 87 kA
- Operating temperature from -40 °C to 190 °C
- High current handling capabilities
- Diodes for parallel or series connection available
- Hermetically sealed presspack devices



## Portfolio map



## Standard rectifier diodes

Optimized for line frequency and low forward losses.

Applications:

- Input rectifiers for large AC-drives
- Aluminum smelting and other metal refining
- Rectifier traction substations

## Avalanche diodes

Self protected against transient over-voltages, offering reduced snubber requirements and maximum avalanche power dissipation.

Applications:

- Input rectifiers in traction converters
- High voltage power rectifiers

## Documentation

Document title	Document number
High current rectifier diodes for welding applications	5SYA2013
Application note: High power rectifier diodes	5SYA2029
Recommendations regarding mechanical clamping of high power presspack semiconductors	5SYA2036
Field measurements on high power presspack semiconductors	5SYA2048
Voltage ratings of high power semiconductors	5SYA2051
Specification of environmental class for pressure contact diodes, PCTs and GTO - STORAGE	5SZK9104
Specification of environmental class for pressure contact diodes, PCTs and GTO - TRANSPORTATION	5SZK9105
Specification of environmental class for pressure contact diodes, PCTs and GTO, operation industry	5SZK9115
Specification of environmental class for pressure contact diodes, PCTs and GTO, operation traction	5SZK9116

## Standard rectifier diodes

Part number	$V_{RSM}$	$V_{RRM}$	$I_{FAVM}$	$I_{FSM}$	$V_{T0}$	$R_T$	$T_{VJM}$	$R_{thJC}$	$R_{thCH}$	$F_m$
			$T_C = 85^\circ\text{C}$	10 ms $T_{VJM}$	$T_{VJM}$					
	V	V	A	kA	V	m $\Omega$				
5SDD 70H2000	2000	2000	7030	65	0.861	0.046	190	8.0	2.5	50
5SDD 65H2400	2400	2400	6520	59	0.870	0.057	190	8.0	2.5	50
5SDD 51L2800	2800	2000	5380	65	0.770	0.082	175	8.0	3.0	70
5SDD 60N2800	2800	2000	6830	87	0.800	0.050	160	5.7	1.0	90
5SDD 60Q2800	2800	2000	7385	87	0.800	0.050	160	5.0	1.0	90
5SDD 11T2800	2800	2800	1285	15	0.933	0.242	160	32.0	8.0	10
5SDD 11D2800	3000	2800	1285	15	0.933	0.242	160	32.0	8.0	10
5SDD 24F2800	3000	2800	2600	30	0.906	0.135	160	15.0	4.0	22
5SDD 48H3200	3200	3200	4710	61	0.992	0.067	160	8.0	2.5	50
5SDD 40H4000	4000	4000	3847	46	0.900	0.133	160	8.0	2.5	50
5SDD 39K4000	4000	4000	3941	46	0.905	0.109	160	9.2	2.5	50
5SDD 54N4000	4000	3600	5200	85	0.800	0.086	150	5.7	1.0	90
5SDD 08D5000	5000	5000	1028	12	0.894	0.487	160	32.0	8.0	10
5SDD 08T5000	5000	5000	1028	12	0.894	0.487	160	32.0	8.0	10
5SDD 20F5000	5000	5000	1978	24	0.940	0.284	160	15.0	4.0	22
5SDD 36K5000	5000	5000	3638	45	0.903	0.136	160	9.2	2.5	50
5SDD 38H5000	5000	5000	3814	45	0.903	0.136	160	8.0	2.5	50
5SDD 33L5500	5500	5000	3480	46	0.940	0.147	150	7.0	1.5	70
5SDD 50N5500	5500	5000	4570	73	0.800	0.107	150	5.7	1.0	90
5SDD 50M5500 <b>New</b>	5500	5000	4850	76	0.912	0.089	150	6.5	1.5	70
5SDD 55L5500 <b>New</b>	5500	5000	5372	76	0.912	0.089	150	5.5	1.5	70
5SDD 06D6000	6000	6000	662	11	1.066	0.778	150	42.0	8.0	11
5SDD 09D6000	6000	6000	845	11	0.893	0.647	150	32.0	8.0	10
5SDD 10F6000	6000	6000	1363	18	1.015	0.407	150	20.0	5.0	22
5SDD 14F6000	6000	6000	1363	18	1.015	0.407	150	20.0	5.0	22
5SDD 31K6000	6000	6000	3097	40	0.894	0.166	150	9.2	2.5	50
5SDD 31H6000	6000	6000	3246	40	0.894	0.166	150	8.0	2.5	50

## Avalanche diodes

Part number	$V_{RRM}$	$I_{FAVM}$	$I_{FSM}$	$V_{T0}$	$r_F$	$P_{RSM}$	$T_{VJM}$	$R_{thJC}$	$R_{thCH}$	$F_m$
		$T_C = 85^\circ\text{C}$	10 ms $T_{VJM}$	$T_{VJM}$	20 $\mu\text{s}$ $T_{VJM}$					
	V	A	kA	V	m $\Omega$	kW				
5SDA 11D1702	1700	1310	15.0	0.740	0.250	50	160	40	10	11
5SDA 27F2002	2000	2700	31.0	0.790	0.090	100	160	20	5	22
5SDA 10D2303	2300	1140	14.0	0.830	0.300	50	160	40	10	11
5SDA 24F2303	2300	2350	29.0	0.840	0.130	75	160	20	5	22
5SDA 09D2604	2600	1020	12.0	0.870	0.390	50	160	40	10	11
5SDA 08D3205	3200	910	9.0	0.930	0.520	50	160	40	10	11
5SDA 21F3204	3200	2110	26.0	0.890	0.170	75	160	20	5	22
5SDA 07D3806	3800	790	8.0	1.010	0.720	50	160	40	10	11
5SDA 16F3806	3800	1620	21.0	1.030	0.320	50	160	20	5	22
5SDA 06D5007	5000	690	7.0	1.100	1.010	50	160	40	10	11
5SDA 14F5007	5000	1410	18.0	1.130	0.440	50	160	20	5	22

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