

Silicon Avalanche Diodes

600W Surface Mount Transient Voltage Suppressors

P6SMBJ Series



Protect sensitive electronics against voltage transients induced by inductive load switching and lightning. Ideal for the protection of I/O interfaces, Vcc bus and other integrated circuits.

FEATURES

- Stand-off voltage range 5.5 to 185 Volts
- Uni-directional and Bi-directional
- Glass passivated junction
- Jedec package designed to meet SM assembly needs
- Low lead inductance
- 100% surge tested
- UL recognised



MAXIMUM RATING

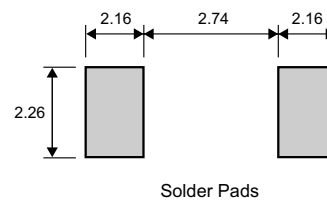
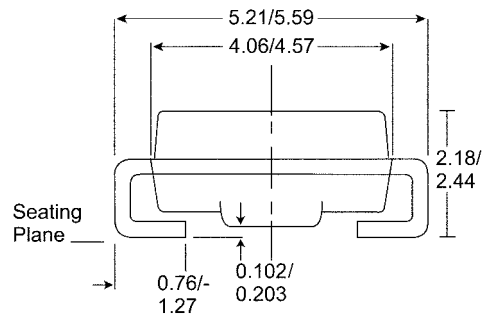
- Peak Pulse Power (Ppk) 600 Watts (10 x 1000μs)@25°C
(see diagram on page 3 for wave form)
- 1.5 watt steady state
- Response time: 1×10^{-12} secs (theoretical)
- Forward surge rating: 100A, 8.3 ms single half sine-wave
(uni-directional only)
- Operating & storage temp.: -55°C to +150°C

MECHANICAL CHARACTERISTICS

- Case: DO-214AA moulded plastic over glass passivated junction UL94V(O) (Thermoset) Epoxy
- Terminals: Solder plated solderable per MIL-STD-750 Method 2026
- Solderable leads: 230°C for 10 seconds.
- Marking: cathode band (positive terminal, uni-directional devices only), device code, logo
- Weight: 0.093 gram (approx).

Agency Approvals: Recognized under the Components Program of Underwriters Laboratories.

Agency File Number: E128662



All dimensions in mm

ORDERING INFORMATION

P6SMBJ 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161

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ARRAYS

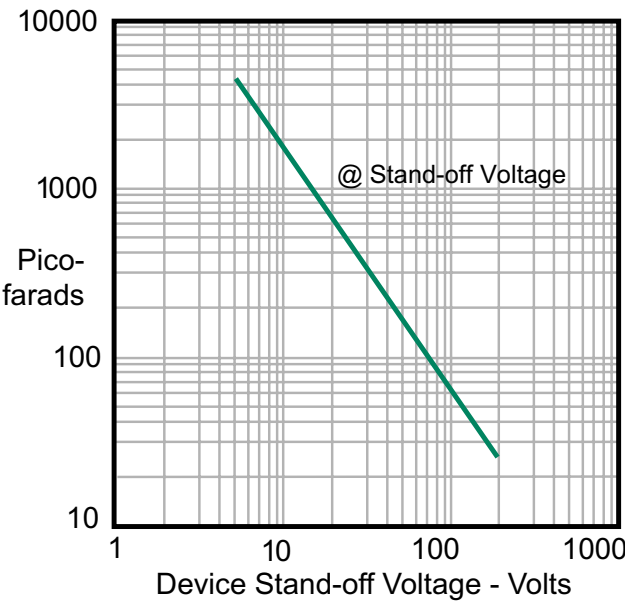


Figure 1 - Capacitance

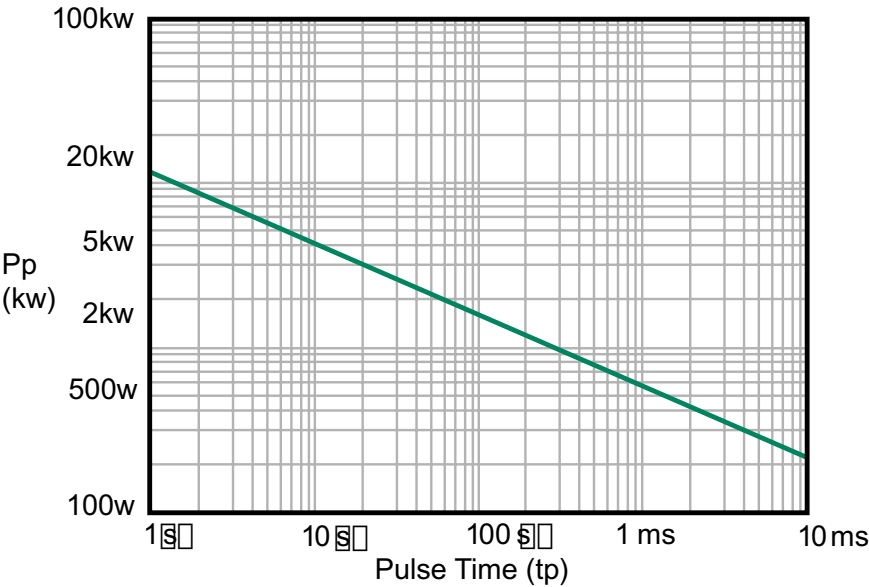


Figure 2 - Peak Pulse Power vs. Pulse Time

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ELECTRICAL SPECIFICATION @ Tamb 25°C

Part Number Uni-polar	Device Code	Reverse Standoff Voltage V _R (Volts)	Breakdown Voltage V _{BR} (Volts) @ I _T			Maximum Reverse Leakage I _R @ V _R (μA)	Maximum Clamping Voltage V _C @ I _{PP} (Volts)	Maximum Peak Pulse Current I _{PP} @ V _C (A)	Maximum Forward Voltage (V _F) @ I _T (Volts)
			Min	Max	(mA)				
P6SMBJ 6V8 / P6SMBJ 6V8C	6V8 / 6V8C	5.50	6.12	7.48	10.0	1000.0 (4)	10.8	56.0	3.5
P6SMBJ 6V8A / P6SMBJ 6V8CA	6V8A / 6V8CA	5.80	6.45	7.14	10.0	1000.0 (4)	10.5	57.0	3.5
P6SMBJ 7V5 / P6SMBJ 7V5C	7V5 / 7V5C	6.05	6.75	8.25	10.0	500.0 (4)	11.7	51.0	3.5
P6SMBJ 7V5A / P6SMBJ 7V5CA	7V5A / 7V5CA	6.40	7.13	7.88	10.0	500.0 (4)	11.3	53.0	3.5
P6SMBJ 8V2 / P6SMBJ 8V2C	8V2 / 8V2C	6.63	7.38	9.02	10.0	200.0 (4)	12.5	48.0	3.5
P6SMBJ 8V2A / P6SMBJ 8V2CA	8V2A / 8V2CA	7.02	7.79	8.61	10.0	200.0 (4)	12.1	50.0	3.5
P6SMBJ 9V1 / P6SMBJ 9V1C	9V1 / 9V1C	7.37	8.19	10.00	1.0	50.0 (4)	13.8	44.0	3.5
P6SMBJ 9V1A / P6SMBJ 9V1CA	9V1A / 9V1CA	7.78	8.65	9.55	1.0	50.0 (4)	13.4	45.0	3.5
P6SMBJ 10 / P6SMBJ 10C	10 / 10C	8.10	9.00	11.00	1.0	10.0 (4)	15.0	40.0	3.5
P6SMBJ 10A / P6SMBJ 10CA	10A / 10CA	8.55	9.50	10.50	1.0	10.0 (4)	14.5	41.0	3.5
P6SMBJ 11 / P6SMBJ 11C	11 / 11C	8.92	9.90	12.10	1.0	5.0 (4)	16.2	37.0	3.5
P6SMBJ 11A / P6SMBJ 11CA	11A / 11CA	9.40	10.50	11.60	1.0	5.0 (4)	15.6	38.0	3.5
P6SMBJ 12 / P6SMBJ 12C	12 / 12C	9.72	10.80	13.20	1.0	5.0 (4)	17.3	35.0	3.5
P6SMBJ 12A / P6SMBJ 12CA	12A / 12CA	10.20	11.40	12.60	1.0	5.0	16.7	36.0	3.5
P6SMBJ 13 / P6SMBJ 13C	13 / 13C	10.50	11.70	14.30	1.0	5.0	19.0	32.0	3.5
P6SMBJ 13A / P6SMBJ 13CA	13A / 13CA	11.10	12.40	13.70	1.0	5.0	18.2	33.0	3.5
P6SMBJ 15 / P6SMBJ 15C	15 / 15C	12.10	13.50	16.50	1.0	5.0	22.0	27.0	3.5
P6SMBJ 15A / P6SMBJ 15CA	15A / 15CA	12.80	14.30	15.80	1.0	5.0	21.2	28.0	3.5
P6SMBJ 16 / P6SMBJ 16C	16 / 16C	12.90	14.40	17.60	1.0	5.0	23.5	26.0	3.5
P6SMBJ 16A / P6SMBJ 16CA	16A / 16CA	13.60	15.20	16.80	1.0	5.0	22.5	27.0	3.5
P6SMBJ 18 / P6SMBJ 18C	18 / 18C	14.50	16.20	19.80	1.0	5.0	26.1	23.0	3.5
P6SMBJ 18A / P6SMBJ 18CA	18A / 18CA	15.30	17.10	18.90	1.0	5.0	25.2	24.0	3.5
P6SMBJ 20 / P6SMBJ 20C	20 / 20C	16.20	18.00	22.00	1.0	5.0	29.1	21.0	3.5
P6SMBJ 20A / P6SMBJ 20CA	20A / 20CA	17.10	19.00	21.00	1.0	5.0	27.7	22.0	3.5
P6SMBJ 22 / P6SMBJ 22C	22 / 22C	17.80	19.80	24.20	1.0	5.0	31.9	19.0	3.5
P6SMBJ 22A / P6SMBJ 22CA	22A / 22CA	18.80	20.90	23.10	1.0	5.0	30.6	20.0	3.5
P6SMBJ 24 / P6SMBJ 24C	24 / 24C	19.40	21.60	26.40	1.0	5.0	34.7	17.0	3.5
P6SMBJ 24A / P6SMBJ 24CA	24A / 24CA	20.50	22.80	25.20	1.0	5.0	33.2	18.0	3.5
P6SMBJ 27 / P6SMBJ 27C	27 / 27C	21.80	24.30	29.70	1.0	5.0	39.1	15.0	3.5
P6SMBJ 27A / P6SMBJ 27CA	27A / 27CA	23.10	25.70	28.40	1.0	5.0	37.5	16.0	3.5
P6SMBJ 30 / P6SMBJ 30C	30 / 30C	24.30	27.00	33.0	1.0	5.0	43.5	14.0	3.5
P6SMBJ 30A / P6SMBJ 30CA	30A / 30CA	25.60	28.50	31.50	1.0	5.0	41.4	14.4	3.5
P6SMBJ 33 / P6SMBJ 33C	30 / 33C	26.80	29.70	36.30	1.0	5.0	47.7	12.6	3.5
P6SMBJ 33A / P6SMBJ 33CA	33A / 33CA	28.20	31.40	34.70	1.0	5.0	45.7	13.2	3.5

Notes:

1. B_v is measured using a pulse of 20 milliseconds or less.
2. V_F, for Uni-directional devices, is measured using a 300 microsecond square wave pulse I_F = 50A
3. I_R is doubled for Bi-directional devices only with V_R equal or less than 10 volts.

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ELECTRICAL SPECIFICATION @ Tamb 25°C

Part Number	Device Code	Reverse Standoff Voltage V_R (Volts)	Breakdown Voltage V_{BR} (Volts) @ I_T			Maximum Reverse Leakage I_R @ V_R (μA)	Maximum Clamping Voltage V_C @ I_{PP} (Volts)	Maximum Peak Pulse Current I_{PP} @ V_C (A)	Maximum Forward Voltage (V_F) @ I_T (Volts)
			Min	Max	(mA)				
P6SMBJ 36 / P6SMBJ 36C	36 / 36C	29.10	32.40	39.60	1.0	5.0	52.0	11.6	3.5
P6SMBJ 36A / P6SMBJ 36CA	36A / 36CA	30.80	34.20	37.80	1.0	5.0	49.9	12.0	3.5
P6SMBJ 39 / P6SMBJ 39C	39 / 39C	31.60	35.10	42.90	1.0	5.0	56.4	10.5	3.5
P6SMBJ 39A / P6SMBJ 39CA	39A / 39CA	33.30	37.10	41.00	1.0	5.0	53.9	11.2	3.5
P6SMBJ 43 / P6SMBJ 43C	43 / 43C	34.80	38.70	47.30	1.0	5.0	61.9	9.6	3.5
P6SMBJ 43A / P6SMBJ 43CA	43A / 43CA	36.80	40.90	45.20	1.0	5.0	59.3	10.1	3.5
P6SMBJ 47 / P6SMBJ 47C	47 / 47C	38.10	42.30	51.70	1.0	5.0	67.8	8.9	3.5
P6SMBJ 47A / P6SMBJ 47CA	47A / 47CA	40.20	44.70	49.40	1.0	5.0	64.8	9.3	3.5
P6SMBJ 51 / P6SMBJ 51C	51 / 51C	41.30	45.90	56.10	1.0	5.0	73.5	8.2	3.5
P6SMBJ 51A / P6SMBJ 51CA	51A / 51CA	43.60	48.50	53.60	1.0	5.0	70.1	8.6	3.5
P6SMBJ 56 / P6SMBJ 56C	56 / 56C	45.4	50.40	61.60	1.0	5.0	80.5	7.4	3.5
P6SMBJ 56A / P6SMBJ 56CA	56A / 56CA	47.8	53.20	58.80	1.0	5.0	77.0	7.8	3.5
P6SMBJ 62 / P6SMBJ 62C	62 / 62C	50.2	55.80	68.20	1.0	5.0	89.0	6.8	3.5
P6SMBJ 62A / P6SMBJ 62CA	62A / 62CA	53.0	58.90	65.10	1.0	5.0	85.0	7.1	3.5
P6SMBJ 68 / P6SMBJ 68C	68 / 68C	55.1	61.20	74.80	1.0	5.0	98.0	6.1	3.5
P6SMBJ 68A / P6SMBJ 68CA	68A / 68CA	58.1	64.60	71.40	1.0	5.0	92.0	6.5	3.5
P6SMBJ 75 / P6SMBJ 75C	75 / 75C	60.7	67.50	82.50	1.0	5.0	108.0	5.5	3.5
P6SMBJ 75A / P6SMBJ 75CA	75A / 75CA	64.1	71.30	78.80	1.0	5.0	103.0	5.8	3.5
P6SMBJ 82 / P6SMBJ 82C	82 / 82C	66.4	73.80	90.20	1.0	5.0	118.0	5.1	3.5
P6SMBJ 82A / P6SMBJ 82CA	82A / 82CA	70.1	77.90	86.10	1.0	5.0	113.0	5.3	3.5
P6SMBJ 91 / P6SMBJ 91C	91 / 91C	73.7	81.90	100.00	1.0	5.0	131.0	4.5	3.5
P6SMBJ 91A / P6SMBJ 91CA	91A / 91CA	77.8	86.50	95.50	1.0	5.0	125.0	4.8	3.5
P6SMBJ 100 / P6SMBJ 100C	100 / 100C	81.0	90.00	110.00	1.0	5.0	144.0	4.2	3.5
P6SMBJ 100A / P6SMBJ 100CA	100A / 100CA	85.5	95.00	105.00	1.0	5.0	137.0	4.4	3.5
P6SMBJ 110 / P6SMBJ 110C	110 / 110C	89.2	99.00	121.00	1.0	5.0	158.0	3.8	3.5
P6SMBJ 110A / P6SMBJ 110CA	110A / 110CA	94.0	105.00	116.00	1.0	5.0	152.0	4.0	3.5
P6SMBJ 120 / P6SMBJ 120C	120 / 120C	97.2	108.00	132.00	1.0	5.0	173.0	3.5	3.5
P6SMBJ 120A / P6SMBJ 120CA	120A / 120CA	102.0	114.00	126.00	1.0	5.0	165.0	3.6	3.5
P6SMBJ 130 / P6SMBJ 130C	130 / 130C	105.0	117.00	143.00	1.0	5.0	187.0	3.2	3.5
P6SMBJ 130A / P6SMBJ 130CA	130A / 130CA	111.0	124.00	137.00	1.0	5.0	179.0	3.3	3.5
P6SMBJ 150 / P6SMBJ 150C	150 / 150C	121.0	135.00	165.00	1.0	5.0	215.0	2.8	3.5
P6SMBJ 150A / P6SMBJ 150CA	150A / 150CA	128.0	143.00	158.00	1.0	5.0	207.0	2.9	3.5

Notes:

1. B_V is measured using a pulse of 20 milliseconds or less.
2. V_F , for Uni-directional devices, is measured using a 300 microsecond square wave pulse $I_F = 50A$.
3. I_R is doubled for Bi-directional devices only with V_R equal or less than 10 volts.

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ELECTRICAL SPECIFICATION @ Tamb 25°C

Part Number	Device Code	Reverse Standoff Voltage V_R (Volts)	Breakdown Voltage V_{BR} (Volts) @ I_T			Maximum Reverse Leakage I_R @ V_R (μA)	Maximum Clamping Voltage V_C @ I_{PP} (Volts)	Maximum Peak Pulse Current I_{PP} @ V_C (A)	Maximum Forward Voltage (V_F) @ I_T (Volts)
			Min	Max	(mA)				
P6SMBJ 160 / P6SMBJ 160C	160 / 160C	130.0	144.00	176.00	1.0	5.0	230.0	2.6	3.5
P6SMBJ 160A / P6SMBJ 160CA	160A / 160CA	136.0	152.00	168.00	1.0	5.0	219.0	2.7	3.5
P6SMBJ 170 / P6SMBJ 170C	170 / 170C	138.0	153.00	187.00	1.0	5.0	244.0	2.5	3.5
P6SMBJ 170A / P6SMBJ 170CA	170A / 170CA	145.0	162.00	179.00	1.0	5.0	234.0	2.6	3.5
P6SMBJ 180 / P6SMBJ 180C	180 / 180C	146.0	162.00	198.00	1.0	5.0	258.0	2.3	3.5
P6SMBJ 180A / P6SMBJ 180CA	180A / 180CA	154.0	171.00	189.00	1.0	5.0	246.0	2.4	3.5
P6SMBJ 200 / P6SMBJ 200C	200 / 200C	162.0	180.00	220.00	1.0	5.0	287.0	2.1	3.5
P6SMBJ 200A / P6SMBJ 200CA	200A / 200CA	171.0	190.00	210.00	1.0	5.0	274.0	2.2	3.5
P6SMBJ 220 / P6SMBJ 220C	220 / 220C	175.0	198.00	242.00	1.0	5.0	344.0	1.8	3.5
P6SMBJ 220A / P6SMBJ 220CA	220A / 220CA	185.0	209.00	231.00	1.0	5.0	328.0	1.8	3.5

Notes:

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