

Solid State Devices, Inc.

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SPD5415 thru SPD5420 and SPD5415SMS thru SPD5420SMS

Designer's Data Sheet

Part Number/Ordering Information 1/

SPD

L Screening 2/

= Not Screened $\overline{TX} = TX \text{ Level}$ TXV = TXV

S = S Level

Package Type

= Axial Leaded

SMS = Surface Mount Square Tab

Voltage/Family

5415 = 50V

5416 = 100V

5417 = 200V

5418 = 400V

5419 = 500V

5420 = 600V

3 AMPS 50 - 600 VOLTS150 – 400 nsec FAST RECOVERY RECTIFIER

FEATURES:

- **Fast Reverse Recovery (Faster Versions Available)**
- PIV to 600 Volts (Higher Voltages Available)
- **Hermetically Sealed**
- **Controlled Avalanche**
- **Low Thermal Resistance**
- **High Surge Capability**
- Available in Axial & Square Tab Versions
- **Metallurgically Bonded**
- TX, TXV, and S-Level Screening Available ^{2/}
- Replacement for: 1N 5415, US thru 1N5420, US

MAXIMUM RATINGS ^{3/}								
RATING			VALUE	UNIT				
Peak Repetitive Reverse Voltage And DC Blocking Voltage	SPD5415 SPD5416 SPD5417 SPD5418 SPD5419 SPD5420	$egin{array}{c} V_{RRM} \ V_{RWM} \ V_{R} \end{array}$	50 100 200 400 500 600	Volts				
Average Rectified Forward Current 4	$T_A = 55$ °C $T_A = 100$ °C	I_0	3 2	Amps				
Peak Surge Current (10 surges of 8.3 msec each at 1 minute interv	als superimposed on $I_O = 0$, $V_{RSM} = 0$, $T_A = 100$ °C)	I_{FSM}	80	Amps				
Operating & Storage Temperature		T_J and T_{STG}	-65 to +175	°C				
Thermal Resistance	Junction to Lead for Axial, L =.375" Junction to End Tab for Surface Mount	$R_{ heta JL} \ R_{ heta JEC}$	20 10	°C/W				

NOTES:

1/ For Ordering Information, Price, Operating Curves, and Availability- Contact Factory.

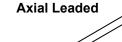
2/ Screened to MIL-PRF-19500.

3/ Unless Otherwise Specified, All Electrical Characteristics @25°C.

4/ These ratings are typical for PC boards where thermal resistance from mounting point to ambient is sufficiently controlled where $T_{J(MAX)}$ is not exceeded.

For 3.0 Amps at $T_A = 55$ °C, derate linearly at 22 mA for 55°C $\leq T_A \leq 100$ °C.

For 2.0 Amps at $T_A = 100$ °C, derate linearly at 25 mA for 100°C $\leq T_A \leq 175$ °C.









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CHARACTERISTICS			VALUE		UNIT
			MIN	MAX	
Forward Voltage	$I_F = 1.5$ Adc $I_F = 9$ Adc, 300 μ s Pulse $I_F = 0.5$ Adc, $T_A = -55^{\circ}$ C	$egin{array}{c} V_{F1} \ V_{F2} \ V_{F3} \end{array}$	0.5 0.6 0.5	1.2 1.5 1.4	Vdc
Breakdown Voltage $(I_R = 50 \mu Adc)$	SPD5415 SPD5416 SPD5417 SPD5418 SPD5419 SPD5420	$ m V_{(BR)}$	55 110 220 440 550 660		Vdc
Maximum Reverse Leakage Current	(Rated V_R , T_A = 25°C) (SPD5415 thru 5417- Rated V_R , T_A = 100°C) (SPD5418 thru 5420- Rated V_R , T_A = 100°C)	$I_{R1} \\ I_{R2} \\ I_{R3}$		1.0 20 30	μΑ
Junction Capacitance $(V_R = 4 \text{ Vdc}, 100 \text{KHz} \le f \le 1 \text{MHz})$		$\mathbf{C}_{\mathbf{J}}$		120	pF
Maximum Reverse Recovery Time $(I_F = 500\text{mA}, I_R = 1\text{A}, I_{RR} = 250\text{mA})$	SPD5415 thru SPD5418 SPD5419 SPD5420	t _{rr}		150 250 400	ns

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Package Outlines:

DIMENSIONS (inches)		DIMENSIONS (inches)			
DIM.	Minimum	Maximum	DIM	Minimum	Maximum
A	.140	.180	A	.170	.180
В	.190	.260	В	.240	.300
C	.037	.042	С	.023	.028
D	.90	1.30	D	.002	
AXIAL D O O O O O O O O O O O O		SMS A A A C			