Solid State Devices, Inc.
14701 Firestone Blvd * La Mirada, Ca 90638
Phone: (562) 404-4474 * Fax: (562) 404-1773
ssdi@ssdi-power.com * www.ssdi-power.com

SPD5415 thru SPD5420
Series

Designer's Data Sheet

3 AMP
FAST RECOVERY RECTIFIER
50 – 600 VOLTS, 150 – 400 nsec

Part Number/Ordering Information [1/]

SPD ___ ___ ___

Screening [2/]
- ___ = Not Screened
- TX = TX Level
- TXV = TXV Level
- S = S Level

Package Type
- ___ = Axial Leaded
- SMS = Surface Mount Square Tab
- FL = Flat Leads

Voltage/Family

5415 = 50V	5418 = 400V
5416 = 100V	5419 = 500V
5417 = 200V	5420 = 600V

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 Leaded, Square Tab, and Flat Leads Versions
- Available with Solid Silver or Copper Leads (Axial & Flat Leads)
- TX, TXV, and S Level Screening Available [2/]
- Replacement for: 1N5415, US thru 1N5420, US (MIL-PRF-19500/411)

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

NOTES:

1/ For ordering information, price, operating curves, and availability - contact factory.

2/ Screening based on MIL-PRF-19500. Screening flows available on request.

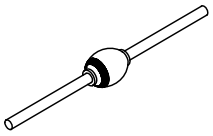
3/ Unless otherwise specified, all electrical characteristics @25ºC.

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 ≤ T_A ≤ 100°C.

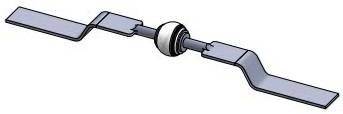
For 2.0 Amps at T_A = 100°C, derate linearly at 25 mA for 100°C ≤ T_A ≤ 175°C.

Axial Leaded



SMS

Flat Leads (FL)



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ELECTRICAL CHARACTERISTICS 3/

CHARACTERISTICS		SYMBOL	VALUE		UNIT
			MIN	MAX	
Forward Voltage	I_F = 1.5 Adc	V_{F1}	0.5	1.2	V
	I_F = 9 Adc, 300 µs Pulse	V_{F2}	0.6	1.5	
	I_F = 0.5 Adc, T_A = -55°C	V_{F3}	0.5	1.4	
Breakdown Voltage (I_R = 50 µAdc)	SPD5415	$V_{(BR)}$	55	--	V
	SPD5416		110	--	
	SPD5417		220	--	
	SPD5418		440	--	
	SPD5419		550	--	
	SPD5420		660	--	
Maximum Reverse Leakage Current	(Rated V_R, T_A = 25°C)	I_{R1}	--	1.0	µA
	(SPD5415 thru 5417- Rated V_R, T_A = 100°C)	I_{R2}	--	20	
	(SPD5418 thru 5420- Rated V_R, T_A = 100°C)	I_{R3}	--	30	
Junction Capacitance (V_R = 4 Vdc, 100KHz ≤ f ≤ 1MHz)		C_J	--	120	pF
Maximum Reverse Recovery Time (I_F = 500mA, I_R = 1A, I_{RR} = 250mA)	SPD5415 thru SPD5418	t_{rr}	--	150	ns
	SPD5419		--	250	
	SPD5420		--	400	

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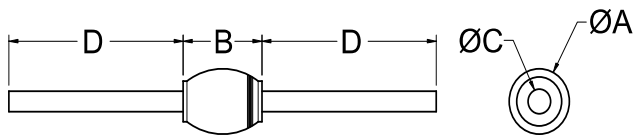
Package Outlines:

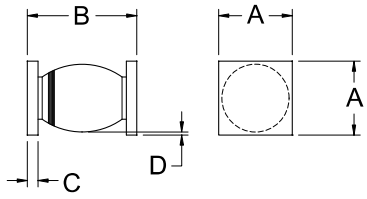
AXIAL LEADED
DIMENSIONS (inches)

DIM.	Minimum	Maximum
A	.110	.180
B	.130	.260
C	.036	.042
D	.90	1.30



SMS
DIMENSIONS (inches)

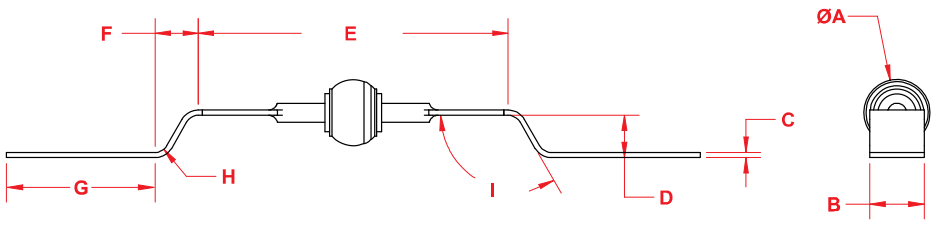
DIM.	Minimum	Maximum
A	.137	.148
B	.200	.225
C	.019	.028
D	.003	---



FLAT LEADS (FL)

DIMENSIONS (inches)

DIM.	Minimum	Maximum
ØA	.115	.135
B	.065	.085
C	.015	.021
D	.084	.104
E	.620	.660
F	REF .093	
G	.295	.335
H	REF R.03	
I	REF120°	



FEATURES FOR FLAT LEADS PACKAGE

- Solid silver leads
- Provide stress relief (customizable to customer specifications)
- Ideal for welding to BUS bar
- Typical application: solar array bypass / blocking diodes for photovoltaic (PV) panels