Solid State Devices, Inc.
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SPD1510HF thru SPD1520HF Series

15 AMP HYPERFAST RECOVERY RECTIFIER

100 – 200 VOLTS, 30 nsec

Designer's Data Sheet

Part Number/Ordering Information [1/]

SPD15 __ HF __ __

- **Screening** [2/]
  - __ = Not Screened
  - TX = TX Level
  - TXV = TXV
  - S = S Level
- **Package Type**
  - SMS = Surface Mount Square Tab
  - GW = Gullwing
  - BT = Button Tab
- **Voltage/Family**
  - 10 = 100V
  - 15 = 150V
  - 20 = 200V

FEATURES:

- **Hyper fast reverse recovery: 30 nsec maximum** [4/]
- **High surge current: 450 A maximum**
- **Low forward voltage drop .95 V @15 A**
- **Hermetically sealed, void free construction**
- **High temperature category I eutectic metallurgical bond**
- **Depending on board configuration, two SPD1520HF devices can match the current output of larger and heavier DO-4 and TO-25X packages**
- **Weight: SMS – 0.45 g (typ), GW – 0.35 g (typ), BT – 0.3 g (typ)**
- **Surface mount components eliminate mounting hardware required for DO-4 and TO-25X packages**
- **Available in surface mount square tab, gullwing, and button tab versions**
- **Excellent thermal shock performance**
- **High temperature operation at junction and case temperature of 175°C**
- **TX, TXV, and S-level screening available** [2/]

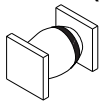
MAXIMUM RATINGS [3/]

RATING		SYMBOL	VALUE	UNIT
Peak Repetitive Reverse Voltage and DC Blocking Voltage	SPD1510HF SPD1515HF SPD1520HF	V_{RRM} V_{RWM} V_R	100 150 200	Volts
Average Rectified Forward Current (SMS $T_{EC} \leq 100°C$) [5/]		I_O	15	Amps
Peak Surge Current (8.3 ms pulse, half sine wave, superimposed on Io, V_{RWM} = rated, allow junction to reach equilibrium between pulses, T_A= 25°C)		I_{FSM}	450	Amps
Operating & Storage Temperature		T_J and T_{STG}	-65 to +175	°C
Thermal Resistance	Surface Mount Square Tab (SMS) Gullwing (GW) Button Tab (BT)	$R_{\theta JE}$ $R_{\theta JL}$ $R_{\theta JC}$	3.5 4.5 2.0	°C/W

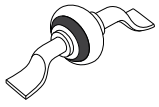
NOTES:

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 @ 25°C.
4/ I_F = 1A, I_R = 1A, I_{RR} = 0.1A, T_A = 25°C
5/ Operating at higher I_O currents may be achieved based on specific application and device mounting if T_J is maintained below 175°C.

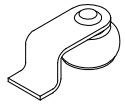
Surface Mount Square Tab (SMS)



Gullwing (GW)



Button Tab (BT)



NOTE: All specifications are subject to change without notification. SCD's for these devices should be reviewed by SSDI prior to release.	**DATA SHEET #: RC0173A**	**DOC**

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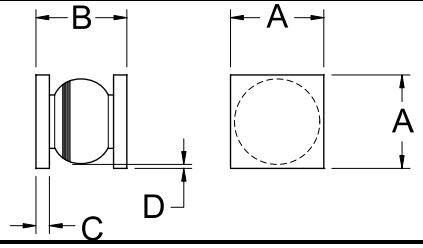
SPD1510HF thru SPD1520HF
Series

ELECTRICAL CHARACTERISTICS [3/]		SYMBOL	TYP	MAX	UNIT
Instantaneous Forward Voltage Drop Pulsed	I_F = 6 Adc	V_{F1}	--	0.86	Vdc
	I_F = 15 Adc	V_{F2}	0.90	0.95	
	I_F = 20 Adc	V_{F3}	--	1.00	
	I_F = 15 Adc, T_A = +125°C	V_{F4}	--	0.90	
	I_F = 15 Adc, T_A = +150°C	V_{F5}	--	0.86	
	I_F = 15 Adc, T_A = -55°C	V_{F6}	--	1.20	
Reverse Leakage Current At rated V_R, 300 µs pulse	T_A = +25°C	I_{R1}	0.1	2	µA
	T_A = +125°C	I_{R2}	15	100	µA
	T_A = +150°C	I_{R3}	50	500	µA
Breakdown Voltage I_R = 100 µA	SPD1510HF	BV_R	--	110	V
	SPD1515HF		--	160	
	SPD1520HF		--	210	
Junction Capacitance V_R = 10 Vdc, f = 1 MHz		C_J	110	150	pF
Reverse Recovery Time I_F = 0.5 A, I_R = 1 A, I_{RR} = 0.25 A		t_{rr}	--	30	nsec

Surface Mount Square Tab (SMS)

DIMENSIONS (inches)

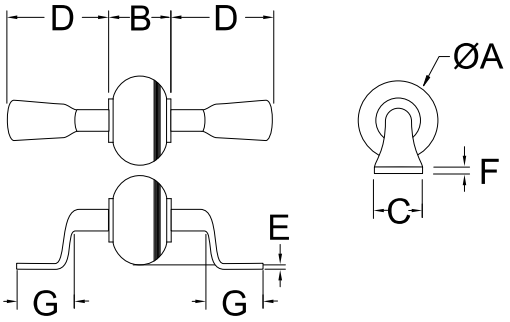
DIM	MIN	MAX
A	.157	.162
B	.130	.175
C	.020	.030
D	.002	--



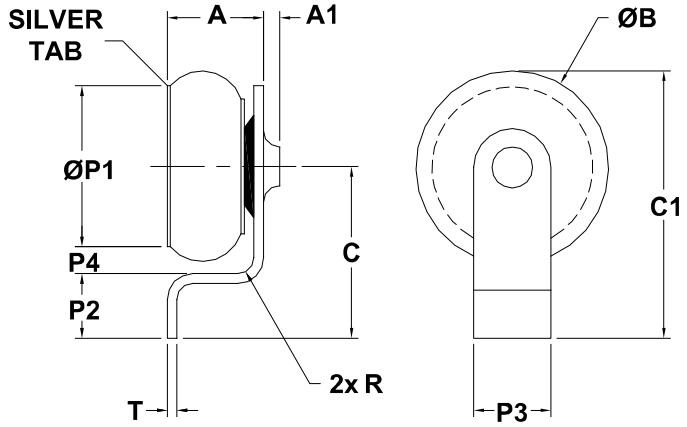
Gullwing (GW)

DIMENSIONS (inches)

DIM	MIN	MAX
ØA	.135	.155
B	.090	.115
C	.060	.100
D	.150	.200
E	.002	--
F	.020	.028
G	.090	.130



Button Tab (BT)



DIMENSIONS (in)

DIM	MIN	MAX
A	.080	.115
A1	--	.020
ØB	.135	.155
C	.175	.195
C1	.265 REF	
P1	.090	.115
P2	.055	.075
P3	.090	.110
P4	.060 REF	
T	.008	.012
R	.015 REF	