

## A Novel 1 amp Void Free Glass Ceramic Nanosize Package 9 nsec Hyper Fast Soft Recovery Nanospeed Rectifier

SSDI announces our latest technological advancement, the SHF1150. The SHF1150 is a void free glass ceramic encapsulated rectifier that provides a more rugged, high reliability replacement for a 1N6642 and a smaller, faster replacement for the 1N5806.

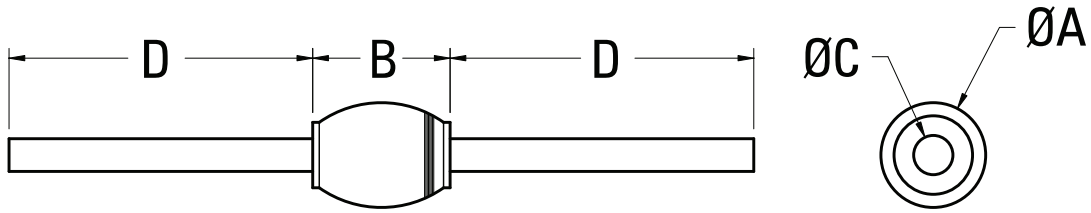
### Features

- Hyper fast recovery time (soft recovery / low EMI): 9 nsec max
- Low reverse leakage current
- Low forward voltage drop
- Hermetically sealed in a glass ceramic void free construction in a DO-35 package envelope
- High temperature metallurgical category I bond
- Solid silver leads (copper leads also available)
- Excellent liquid-to-liquid thermal shock performance
- Designed for high efficiency applications
- Radiation tolerant
- Avalanche breakdown
- Replacement for 1N6638, 1N6643 and 1N5806
- Available in axial leaded and surface mount square tab versions
- Available in single phase, three phase and diode array configurations
- TX, TXV, and S-level screening available
- Samples available on request

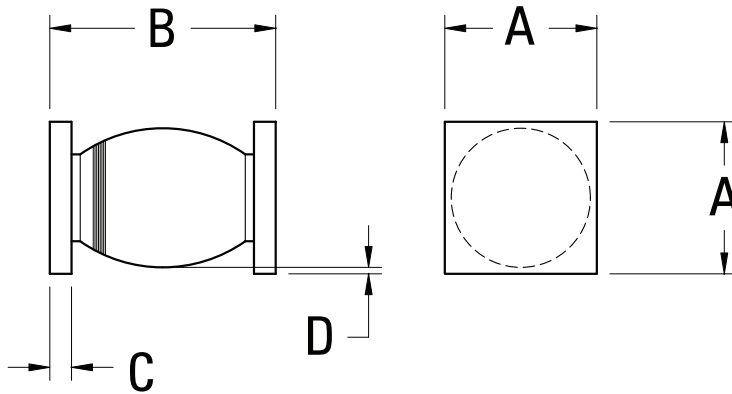


		1N6642	SHF1150	1N5806
$I_O$	@25°C	0.3 A	1.0 A	2.5 A
$I_{FSM}$	@ 8.3mS, 25°C	2.5 A	20 A	35 A
$R_{\theta JL}$	@.375", 25°C	150°C/W	80°C/W	36°C/W
$R_{\theta JE}$	@25°C	40°C/W	20°C/W	13°C/W
$B_{VR}$	@100μA, 25°C	100 V min	160 V min	160 V min
$I_R$	@20V, 25°C	25 nA max	50 nA max	--
$I_R$	@75V, 25°C	500 nA max	75 nA max	--
$I_R$	@150V, 25°C	--	150 nA max	1.0 μA max
$V_F$	@1mA, 25°C	--	0.575 V max	--
$V_F$	@10mA, 25°C	0.8 V max	0.7 V max	--
$V_F$	@100mA, 25°C	1.00 V max	0.8 V max	--
$V_F$	@200mA, 25°C	--	0.85 V max	--
$V_F$	@500mA, 25°C	--	0.90 V max	--
$V_F$	@1.0A, 25°C	--	0.975 V max	0.875 V max
$I_R$	@20V, 150°C	50 μA max	50 μA max	--
$I_R$	@75V, 150°C	100 μA max	75 μA max	--
$I_R$	@150V, 150°C	--	150 μA max	175 μA @ 125°C
$V_F$	@10mA, 150°C	0.8 V max	0.5 V max	--
$V_F$	@100mA, 150°C	--	0.62 V max	--
$V_F$	@10mA, -55°C	--	0.81 V max	--
$V_F$	@100mA, -55°C	1.2 V max	0.92 V max	--

## CASE OUTLINES



AXIAL		
DIM	MIN	MAX
A	.056"	.075"
B	.125"	.140"
C	.018"	.022"
D	1.00"	1.50"



SMS		
DIM	MIN	MAX
A	.070"	.085"
B	.168"	.200"
C	.019"	.028"
D	.001"	--



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## SHF1100 thru SHF1150 SERIES

**1 AMP**  
**100 – 150 VOLTS**  
**9 nsec**  
**HYPER FAST**  
**SOFT RECOVERY RECTIFIER**

### Designer's Data Sheet

#### Part Number/Ordering Information <sup>1/</sup>

SHF1 \_ \_ \_

**L Screening <sup>2/</sup>**  
\_ = Not Screened  
TX = TX Level  
TXV = TXV  
S = S Level

**L Package Type**  
\_ = Axial Leaded  
SMS = Surface Mount Square Tab

**L Device Type (VRWM)**

100 = 100 V

150 = 150 V

#### FEATURES:

- Hyper Fast Reverse Recovery Time 9 ns Max
- Low Forward Voltage Drop
- Low Reverse Leakage Current
- Avalanche Breakdown
- Void Free Glass Ceramic Chip Construction
- Hermetically Sealed
- Solid Silver Lead
- Excellent liquid-to-liquid thermal shock performance
- Available in Axial & Square Tab Versions
- For High Efficiency Applications
- TX, TXV, and S-Level Screening Available <sup>2/</sup>
- Replacement for 1N6638, 1N6642 and 1N5806
- High Temperature Metallurgical Class I Bond

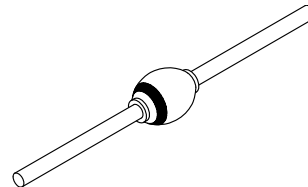
#### MAXIMUM RATINGS <sup>3/</sup>

RATING		SYMBOL	VALUE	UNIT
Peak Repetitive Reverse Voltage DC Blocking Voltage	SHF1100	$V_{RWM}$	100	Volts
	SHF1150	$V_R$	150	
Average Rectified Forward Current (Resistive Load, 60 Hz, Sine Wave, $T_C = 25^\circ C$ )		$I_o$	1	Amp
Peak Surge Current (8.3 msec Pulse, Half Sine Wave Superimposed on $I_o$ , allow junction to reach equilibrium between pulses, $T_C = 25^\circ C$ )		$I_{FSM}$	20	Amps
Operating & Storage Temperature		$T_{OP}$ and $T_{STG}$	-65 to +175	$^\circ C$
Thermal Resistance SMS- Junction to End Tab Axial- Junction to Lead @ .375"		$R_{\theta JE}$	20	$^\circ C/W$
		$R_{\theta JL}$	80	

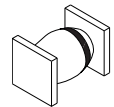
#### NOTES:

- 1/** For Ordering Information, Price, 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.

Axial Leaded



SMS



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

**DATA SHEET #: RC0158A**

**DOC**



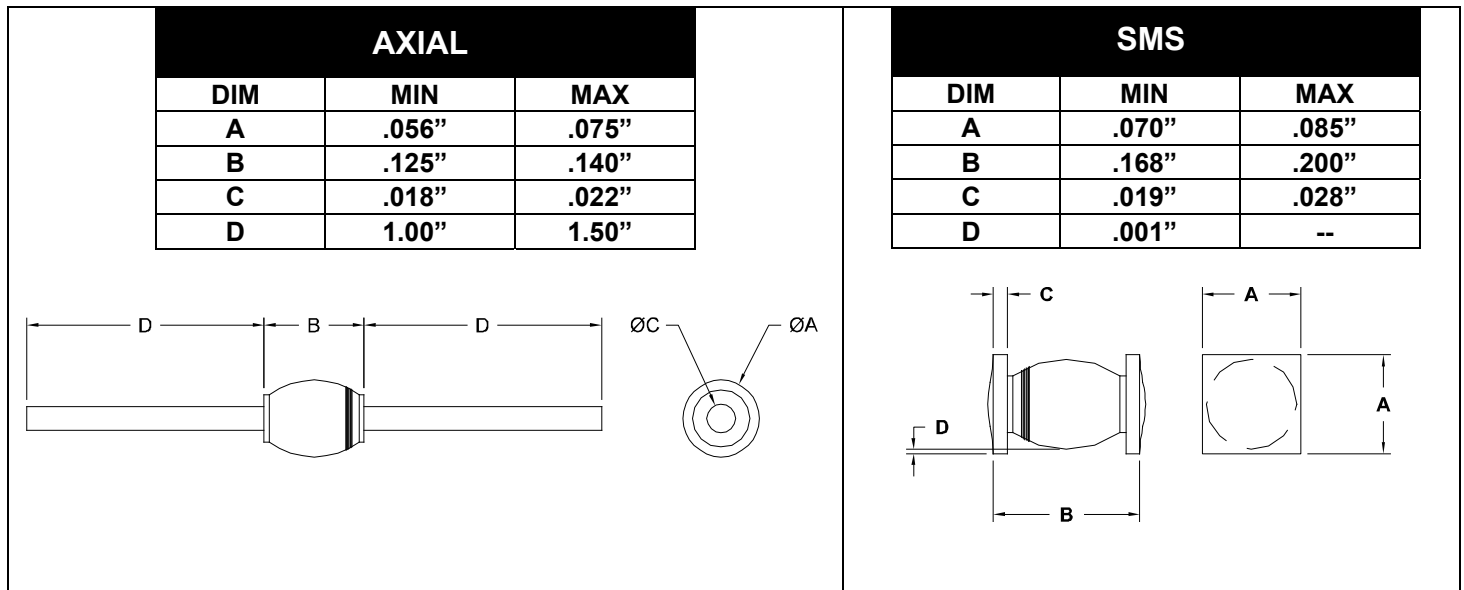
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**SHF1100 thru SHF1150  
 SERIES**

**ELECTRICAL CHARACTERISTICS <sup>3/</sup>**

CHARACTERISTICS	SYMBOL	LIMIT	UNIT
Maximum Instantaneous Forward Voltage Drop (Pulsed, T <sub>A</sub> = 25°C)	@ I <sub>F</sub> = 1mA	V <sub>F1</sub>	0.575
	@ I <sub>F</sub> = 10mA	V <sub>F2</sub>	0.700
	@ I <sub>F</sub> = 100mA	V <sub>F3</sub>	0.800
	@ I <sub>F</sub> = 200mA	V <sub>F4</sub>	0.850
	@ I <sub>F</sub> = 500mA	V <sub>F5</sub>	0.900
	@ I <sub>F</sub> = 1A	V <sub>F6</sub>	0.975
Maximum Instantaneous Forward Voltage Drop (Pulsed, T <sub>A</sub> = 150°C)	@ I <sub>F</sub> = 10mA	V <sub>F7</sub>	0.5
	@ I <sub>F</sub> = 100mA	V <sub>F8</sub>	0.62
Maximum Instantaneous Forward Voltage Drop (Pulsed, T <sub>A</sub> = -55°C)	@ I <sub>F</sub> = 10mA	V <sub>F9</sub>	0.81
	@ I <sub>F</sub> = 100mA	V <sub>F10</sub>	0.92
Minimum Breakdown Voltage I <sub>r</sub> = 100 μA	B <sub>VR</sub>	100	Vdc
Maximum Reverse Leakage Current (300 μs Pulse Minimum , T <sub>A</sub> = 25°C)	@ V <sub>R</sub> = 20V	I <sub>R1</sub>	50
	@ V <sub>R</sub> = 75V	I <sub>R2</sub>	75
	@ V <sub>R</sub> = max rated	I <sub>R3</sub>	150
Maximum Reverse Leakage Current (300 μs Pulse Minimum , T <sub>A</sub> = 150°C)	@ V <sub>R</sub> = 20V	I <sub>R4</sub>	50
	@ V <sub>R</sub> = 75V	I <sub>R5</sub>	75
	@ V <sub>R</sub> = max rated	I <sub>R6</sub>	150
Maximum Junction Capacitance (T <sub>A</sub> = 25°C , f = 1MHz) V <sub>R</sub> = 0V	C <sub>J1</sub>	14	pf
Maximum Junction Capacitance (T <sub>A</sub> = 25°C , f = 1MHz) V <sub>R</sub> = 1.5V	C <sub>J2</sub>	10	pf
Maximum Junction Capacitance (T <sub>A</sub> = 25°C , f = 1MHz) V <sub>R</sub> = 10V	C <sub>J3</sub>	6	pf
Maximum Reverse Recovery Time (I <sub>F</sub> = 50 mA, I <sub>R</sub> = 100 mA, I <sub>RR</sub> = 25 mA)	t <sub>rr</sub>	9	nsec
Maximum Forward Recovery Time (I <sub>F</sub> = 50 mA)	T <sub>fr</sub>	18	nsec



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