



HS1D

1.0A SURFACE MOUNT HYPER-FAST RECTIFIER

Product Summary (@ TA = +25°C)

V _{RRM} (V)	I _O (A)	V _F (MAX) (V)	I _{R(MAX)} (μA)	
200	1	1.1	5	

Features and Benefits

- Low Profile, Small Form Factor Package
- Low Leakage Current
- Glass Passivated for High Reliability
- Hyper-Fast Recovery Time for High Efficiency
- Low Forward Voltage, Low Power Loss
- Lead-Free Finish; RoHS Compliant (Notes 1 & 2)
- Halogen and Antimony Free. "Green" Device (Note 3)

Description and Applications

The HS1D is a rectifier packaged in the SMA package and is suited as a boost diode in power factor correction circuitry. For use in secondary rectification and freewheeling for superfast switching speed AC-DC and DC-DC converters in high temperature conditions for consumer applications.

- DC-DC Converters
- AC-DC Adaptors/Chargers
- Inverters

Mechanical Data

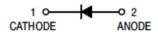
- Case: SMA
- Case Material: Molded Plastic, "Green" Molding Compound.
 UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish Annealed over Copper Leadframe.
 Solderable per MIL-STD-202, Method 208 (§3)
- Polarity: Cathode Band
- Weight: 0.064 grams (Approximate)







Bottom View



Schematic View

Ordering Information (Note 4)

Part Number	Qualification	Case	Packaging
HS1D-13	Commercial	SMA	5,000/Tape & Reel

Notes:

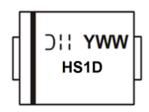
- 1. EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. All applicable RoHS exemptions applied.
- See http://www.diodes.com/quality/lead_free.html for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.

SMA

- 3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
- 4. For packaging details, go to our website at http://www.diodes.com/products/packages.html.

Marking Information

SMA



HS1D = Product Type Marking Code

OH = Manufacturers' Code Marking

YWW = Date Code Marking

Y = Last Digit of Year (ex: 7 for 2017)

WW = Week Code (01 to 53)



Maximum Ratings and Electrical Characteristics (@TA = +25°C unless otherwise specified.)

Single phase, half wave, 60Hz, resistive or inductive load. For capacitive load, derate current by 20%.

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V _{RRM} V _{RWM} V _R	200	٧
Average Rectified Output Current @T _C = +88°C (Note 5)	Ιο	1.0	Α
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I _{FSM}	40	Α

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Terminal (Note 6)	$R_{\theta JT}$	50	°C/W
Typical Thermal Resistance Junction to Ambient (Note 6)	R _{0JA}	92	°C/W
Operating and Storage Temperature Range	T_J , T_{STG}	-55 to +150	°C

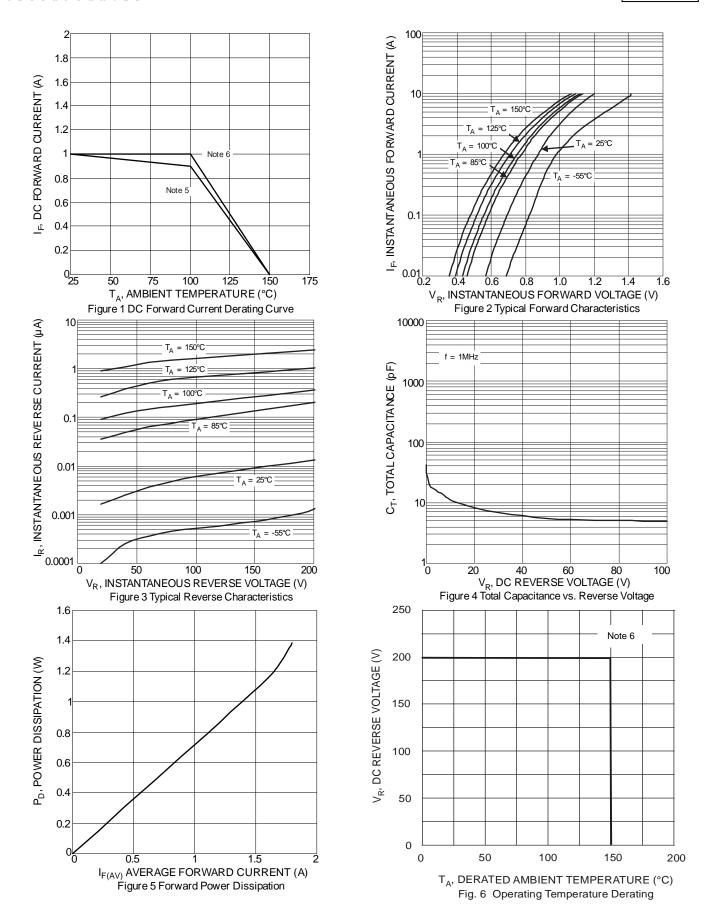
Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 7)	$V_{(BR)R}$	200	_	1	V	$I_R = 10\mu A$
Forward Voltage Drop	V _F	ı	0.87 0.91 0.71	1.1 1.2 —	V	I _F = 1A, T _A = +25°C I _F = 1.5A, T _A = +25°C I _F = 1A, T _A = +125°C
Leakage Current (Note 7)	I _R	l	0.02 1.2	5 100	μA	V _R = 200V, T _A = +25°C V _R = 200V, T _A = +125°C
Reverse Recovery Time	t _{RR}	_	12	15	ns	$I_F = 0.5A$, $I_R = 1.0A$, $I_{RR} = 0.25A$
Total Capacitance	Ст	_	16	_	pF	$V_R = 4.0V_{DC}$, $f = 1MHz$

Notes:

- 5. Device mounted on FR-4 substrate, 1" x 1", 2oz, single-sided, PC boards with 0.1" x 0.15" copper pad.
 6. Device mounted on FR-4 substrate, 0.4" x 0.5", 2oz, single-sided, PC boards with 0.2" x 0.25" copper pad.
 7. Short duration pulse test used to minimize self-heating effect.







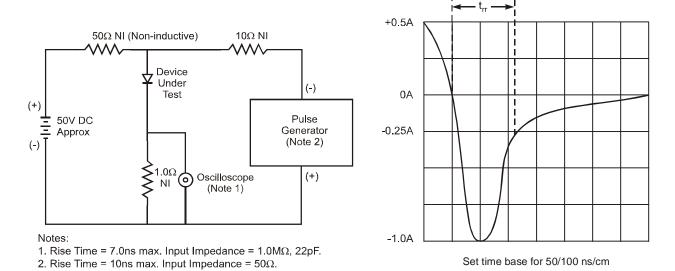
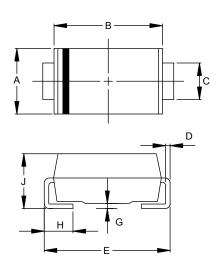


Fig. 7 Reverse Recovery Time Characteristic and Test Circuit



Package Outline Dimensions

Please see http://www.diodes.com/package-outlines.html for the latest version.



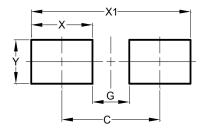
SMA		
Dim	Min	Max
Α	2.29	2.92
В	4.00	4.60
С	1.27	1.63
D	0.15	0.31
Е	4.80	5.59
G	0.05	0.20

Suggested Pad Layout

Please see http://www.diodes.com/package-outlines.html for the latest version.

SMA

SMA



Dimensions	Value		
Dilliensions	(in mm)		
С	4.00		
G	1.50		
Х	2.50		
X1	6.50		
V	1.70		

0.76

1.96

All Dimensions in mm

1.52

2.40



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