

**DATA BUS TRANSIENT SUPPRESSOR/3-PHASE FULL WAVE BRIDGE RECTIFIER**

NEW PRODUCT

**Features**

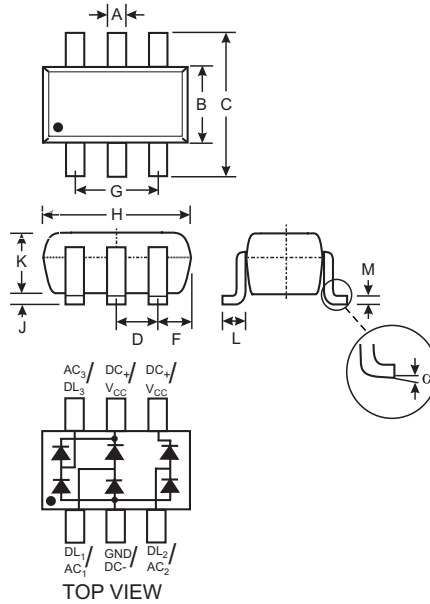
- Fast Switching Speed
- Ultra-Small Surface Mount Package
- For 3-Phase Full Wave Bridge Rectification, or 3 Dataline Rail Clamp
- **Lead Free By Design/RoHS Compliant (Note 3)**
- **"Green" Device (Note 4)**

**IEC Compatibility (Note 5)**

- 61000-4-2 (ESD) Air-10kV Contact-8kV
- 61000-4-5 (Surge) 8x20µs, 14.5 Amperes

**Mechanical Data**

- Case: SOT-363
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0 (Note 4)
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminals: Finish — Matte Tin annealed over Alloy 42 Leadframe. Solderable per MIL-STD-202, Method 208
- Ordering Information, See Page 3
- Marking: JAC (See Page 3)
- Weight: 0.006 grams (approximate)



SOT-363		
Dim	Min	Max
A	0.10	0.30
B	1.15	1.35
C	2.00	2.20
D	0.65 Nominal	
E	0.30	0.40
G	1.80	2.20
H	1.80	2.20
J	—	0.10
K	0.90	1.00
L	0.25	0.40
M	0.10	0.25
α	0°	8°
All Dimensions in mm		

**Maximum Ratings @ T<sub>A</sub> = 25°C unless otherwise specified**

Characteristic	Symbol	Value	Unit
Non-Repetitive Peak Reverse Voltage	V <sub>RM</sub>	100	V
Peak Repetitive Reverse Voltage	V <sub>RPM</sub>	75	V
Working Peak Reverse Voltage	V <sub>RWM</sub>		
DC Blocking Voltage	V <sub>R</sub>		
RMS Reverse Voltage	V <sub>R(RMS)</sub>	53	V
Forward Continuous Current (Note 1)	I <sub>FM</sub>	215	mA
Non-Repetitive Peak Forward Surge Current	I <sub>FSM</sub>	2.0	A
@ t = 1.0µs		1.0	
@ t = 1.0ms		0.5	
Clamping Voltage (Note 6) @ I <sub>pp</sub> = 14.5A 8x20µs Waveform	V <sub>C</sub>	16	V
Power Dissipation (Note 1)	P <sub>d</sub>	200	mW
Thermal Resistance Junction to Ambient Air (Note 1)	R <sub>θJA</sub>	625	°C/W
Power Dissipation (Note 2)	P <sub>d</sub>	300	mW
Thermal Resistance Junction to Ambient Air (Note 2)	R <sub>θJA</sub>	417	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-65 to +150	°C

- Notes:
1. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch; pad layout as shown on Diodes Inc. suggested pad layout document AP02001, which can be found on our website at <http://www.diodes.com/datasheets/ap02001.pdf>.
  2. Device mounted on Alumina PCB, 0.4 inch x 0.3 inch x 0.024 inch; pad layout as shown on Diodes Inc. suggested pad layout document AP02001, which can be found on our website at <http://www.diodes.com/datasheets/ap02001.pdf>.
  3. No purposefully added lead.
  4. Diodes Inc.'s "Green" policy can be found on our website at [http://www.diodes.com/products/lead\\_free/index.php](http://www.diodes.com/products/lead_free/index.php).
  5. Tested with V<sub>CC</sub> connected to Ground to simulate appropriate V<sub>CC</sub> decoupling to Ground.
  6. Reference to V<sub>CC</sub> or Ground.

**Electrical Characteristics** @  $T_A = 25^\circ\text{C}$  unless otherwise specified

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Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 7)	$V_{(BR)R}$	75	—	—	V	$I_R = 2.5\mu\text{A}$
Forward Voltage (Note 7)	$V_F$	—	—	0.715 0.855 1.0 1.25	V	$I_F = 1.0\text{mA}$ $I_F = 10\text{mA}$ $I_F = 50\text{mA}$ $I_F = 150\text{mA}$
Reverse Current (Note 7)	$I_R$	—	—	2.5 50 30 25	$\mu\text{A}$ $\mu\text{A}$ $\mu\text{A}$ nA	$V_R = 75\text{V}$ $V_R = 75\text{V}, T_j = 150^\circ\text{C}$ $V_R = 25\text{V}, T_j = 150^\circ\text{C}$ $V_R = 20\text{V}$
Junction Capacitance (per element)	$C_J$	—	—	2.0	pF	$V_R = 0\text{V}, f = 1.0\text{MHz}$
Capacitance, Between I/O Lines (I/O1 & I/O2)	$C_{LL}$	—	35	—	pF	$V_R = 0\text{V}, f = 1.0\text{MHz}$
Capacitance, Between I/O Line and Ground	$C_{LG}$	—	11	—	pF	$V_R = 0\text{V}, f = 1.0\text{MHz}$
Reverse Recovery Time	$t_{rr}$	—	—	4.0	ns	$I_F = I_R = 10\text{mA}$ , $t_{rr} = 0.1 \times I_R, R_L = 100\Omega$

Notes: 7. Short duration test pulse used to minimize self-heating effect.

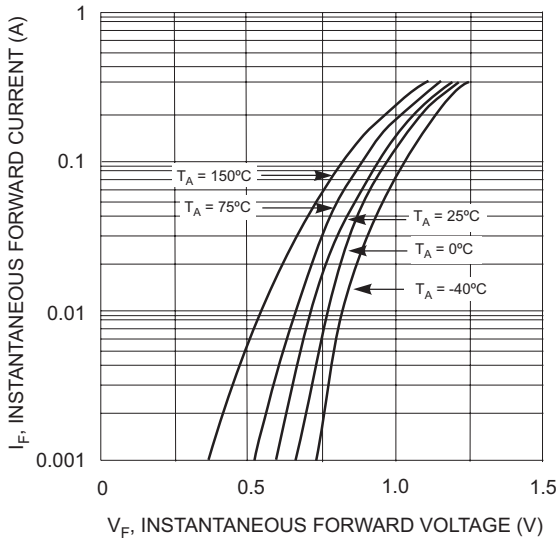


Fig. 1 Forward Characteristics

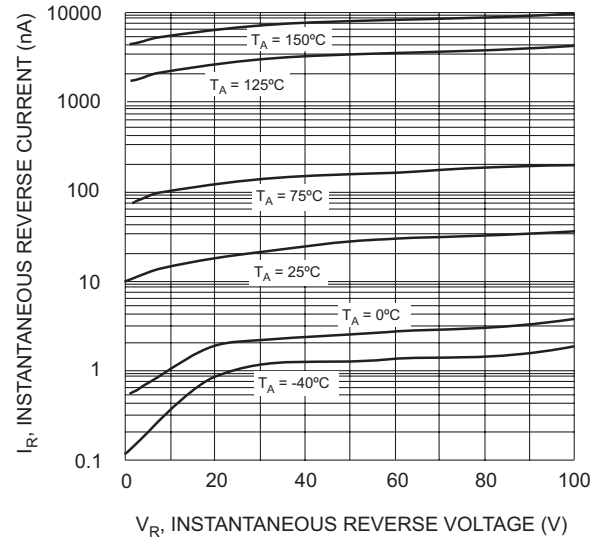


Fig. 2 Typical Reverse Characteristics

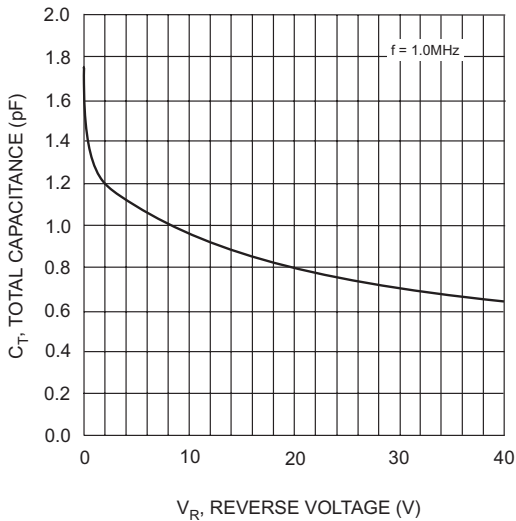


Fig. 3 Typical Junction Capacitance Per Element vs. Reverse Voltage

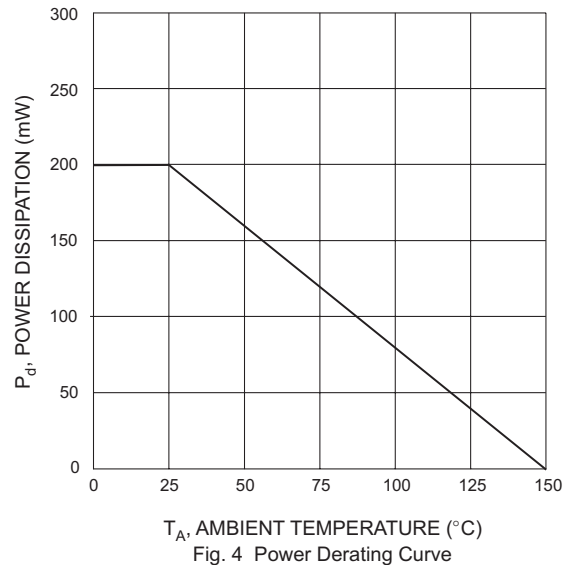


Fig. 4 Power Derating Curve

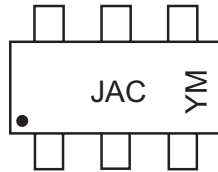
**Ordering Information** (Note 8)

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Device	Packaging	Shipping
SDA006-7	SOT-363	3000/Tape & Reel

Notes: 8. For Packaging Details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

**Marking Information**



JAC = Product Type Marking Code  
 YM = Date Code Marking  
 Y = Year ex: N = 2002  
 M = Month ex: 9 = September

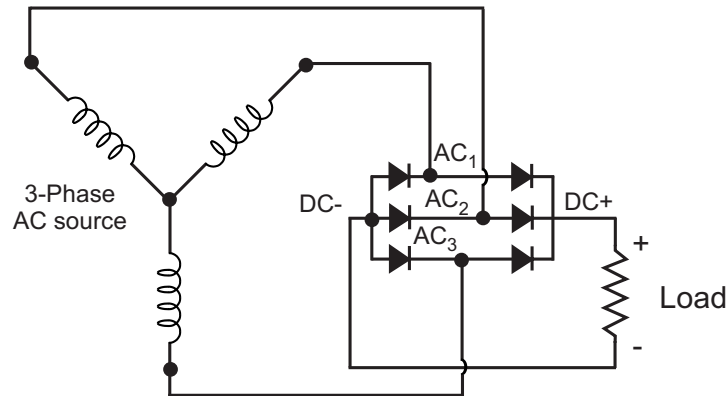
Date Code Key

Year	2004	2005	2006	2007	2008	2009
Code	R	S	T	U	V	W

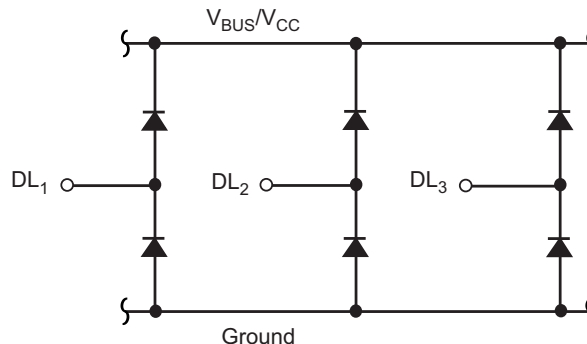
Month	Jan	Feb	March	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

**Typical Applications**

Three Phase, Full-Wave Bridge Rectifier



Data Line Bus Transient Suppressor



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