SDA006

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

NEW PRODUCT

Features

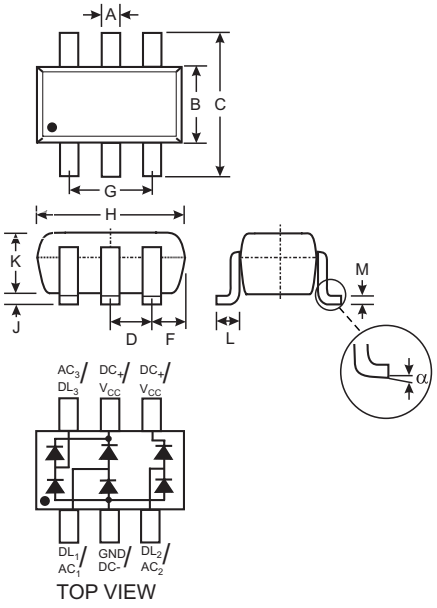
- Fast Switching Speed
- Ultra-Small Surface Mount Package
- For 3-Phase Full Wave Bridge Rectification, or 3 Dataline Rail Clamp
- **Lead Free By Design/RoHS Compliant (Note 3)**
- **"Green" Device (Note 4)**

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_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Non-Repetitive Peak Reverse Voltage	V_{RM}	100	V
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	75	V
RMS Reverse Voltage	$V_{R(RMS)}$	53	V
Forward Continuous Current (Note 1)	I_{FM}	215	mA
Non-Repetitive Peak Forward Surge Current @ t = 1.0μs @ t = 1.0ms @ t = 1.0s	I_{FSM}	2.0 1.0 0.5	A
Clamping Voltage (Note 6) @ Ipp = 14.5A 8x20μs Waveform	V_C	16	V
Power Dissipation (Note 1)	P_d	200	mW
Thermal Resistance Junction to Ambient Air (Note 1)	$R_{\theta JA}$	625	°C/W
Power Dissipation (Note 2)	P_d	300	mW
Thermal Resistance Junction to Ambient Air (Note 2)	$R_{\theta JA}$	417	°C/W
Operating and Storage Temperature Range	T_j , T_{STG}	-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.
5. Tested with V_{CC} connected to Ground to simulate appropriate V_{CC} decoupling to Ground.
6. Reference to V_{CC} or Ground.

Electrical Characteristics @ $T_A = 25°C$ unless otherwise specified

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

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

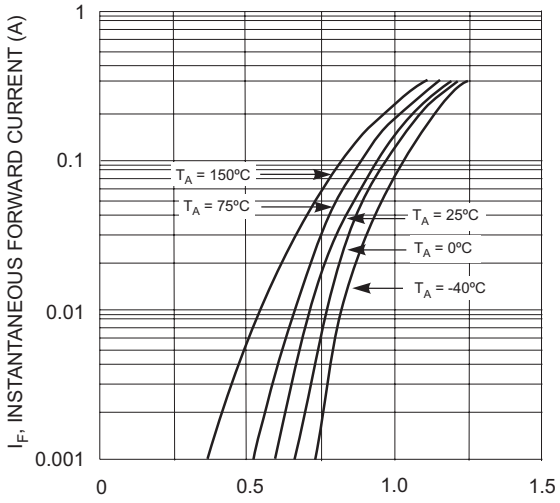


Fig. 1 Forward Characteristics

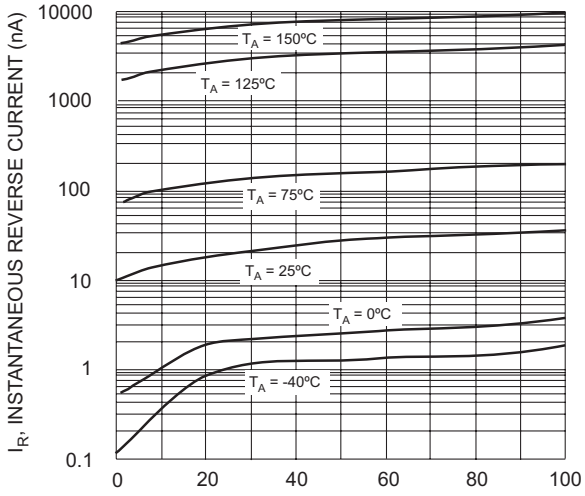


Fig. 2 Typical Reverse Characteristics

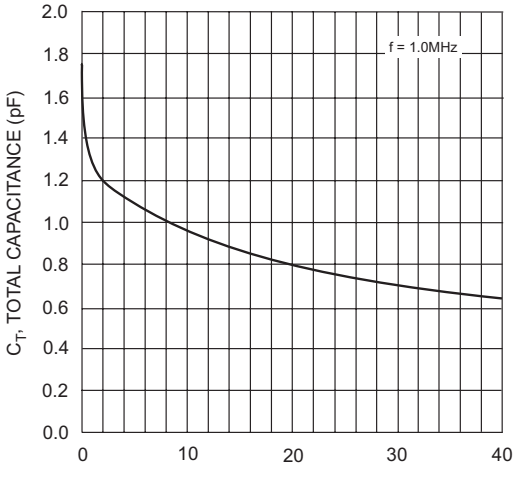


Fig. 3 Typical Junction Capacitance Per Element vs. Reverse Voltage

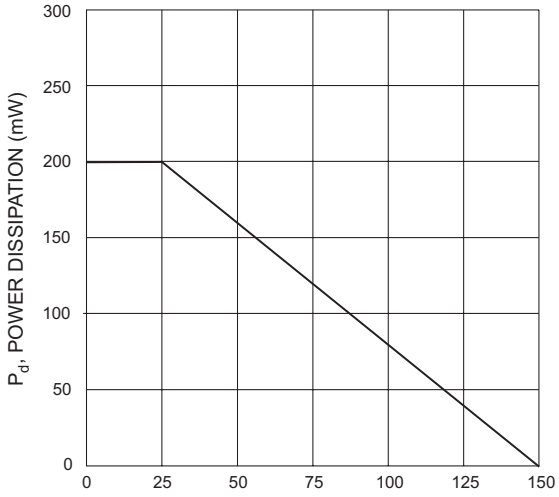


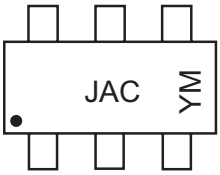
Fig. 4 Power Derating Curve

Ordering Information (Note 8)

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

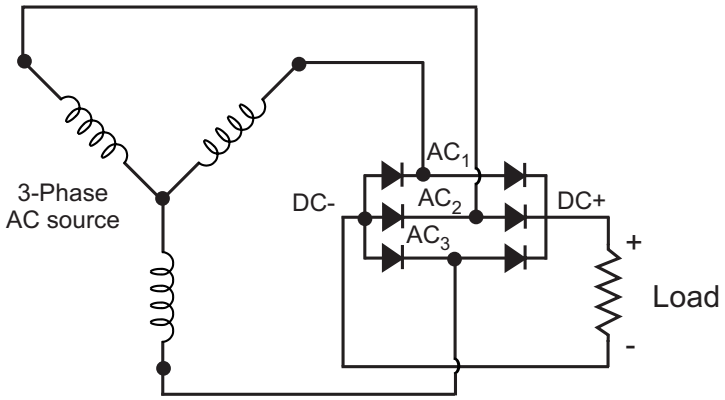
Date Code Key

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

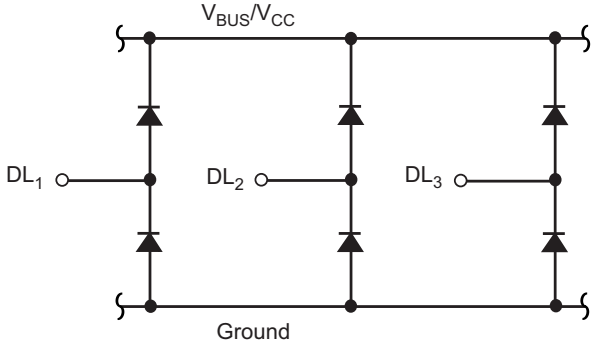
Month	Jan	Feb	March	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

Typical Applications

Three Phase, Full-Wave Bridge Rectifier



Data Line Bus Transient Suppressor



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