

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)

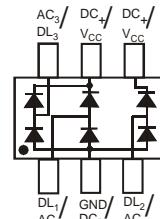
IEC Compatibility (Note 5)

- 61000-4-2 (ESD) Air-10kV Contact-8kV
- 61000-4-5 (Surge) 8x20 μ s, 14.5 Amperes



TOP VIEW

SOT-363


 TOP VIEW
 Internal Schematic

Maximum Ratings

$\text{@T}_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Value	Unit
Non-Repetitive Peak Reverse Voltage	V_{RM}	100	V
Peak Repetitive Reverse Voltage	V_{RRM}		
Working Peak Reverse Voltage	V_{RWM}	75	V
DC Blocking Voltage	V_R		
RMS Reverse Voltage	$V_{R(RMS)}$	53	V
Forward Continuous Current (Note 1)	I_{FM}	215	mA
Non-Repetitive Peak Forward Surge Current @ $t = 1.0\mu\text{s}$	I_{FSM}	2.0	
@ $t = 1.0\text{ms}$		1.0	
@ $t = 1.0\text{s}$		0.5	A
Clamping Voltage (Note 6) @ $I_{pp} = 14.5\text{A}$ 8x20 μs Waveform	V_C	16	V

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 1)	P_D	200	mW
Power Dissipation (Note 2)	P_D	300	mW
Thermal Resistance Junction to Ambient Air (Note 1)	$R_{\theta JA}$	625	$^\circ\text{C/W}$
Thermal Resistance Junction to Ambient Air (Note 2)	$R_{\theta JA}$	417	$^\circ\text{C/W}$
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +150	$^\circ\text{C}$

Notes:

- 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>.
- 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>.
- No purposefully added lead.
- Diodes Inc.'s "Green" policy can be found on our website at http://www.diodes.com/products/lead_free/index.php.
- Tested with V_{CC} connected to Ground to simulate appropriate V_{CC} decoupling to Ground.
- Reference to V_{CC} or Ground.

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 7)	$V_{(\text{BR})R}$	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	μA μA μA 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	$I_F = I_R = 10\text{mA}$, $I_{\text{rr}} = 0.1 \times I_R, R_L = 100\Omega$

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

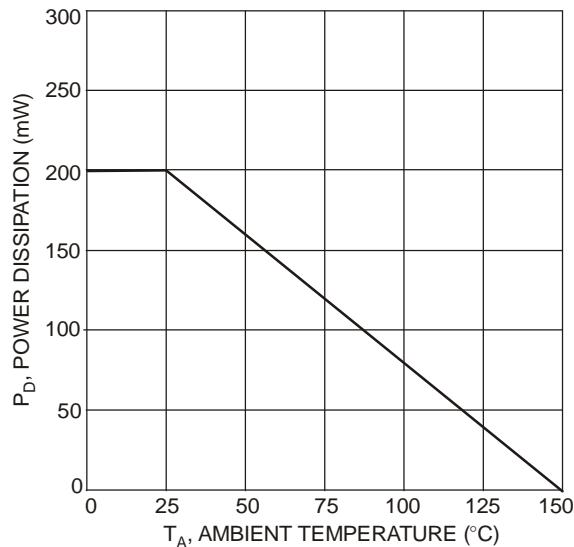


Fig. 1 Power Derating Curve, Total Package

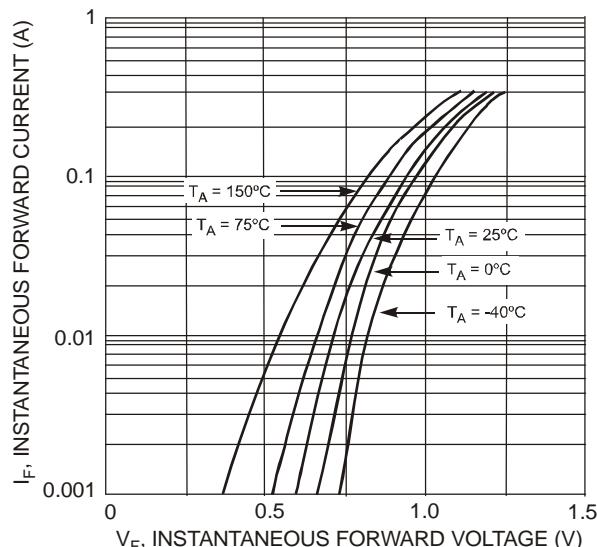


Fig. 2 Typical Forward Characteristics, Per Element

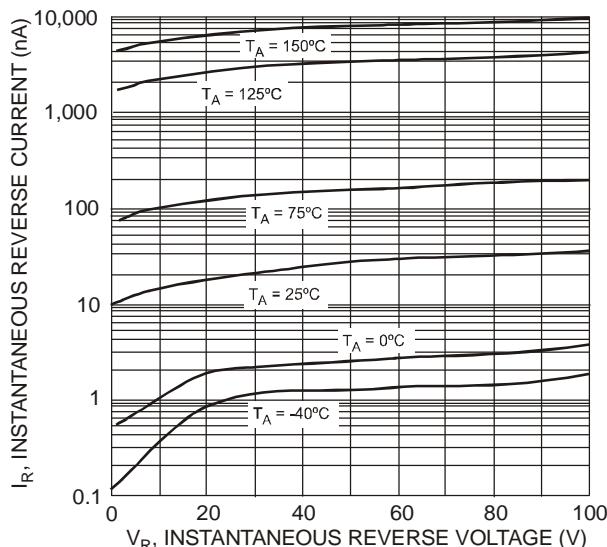


Fig. 3 Typical Reverse Characteristics, Per Element

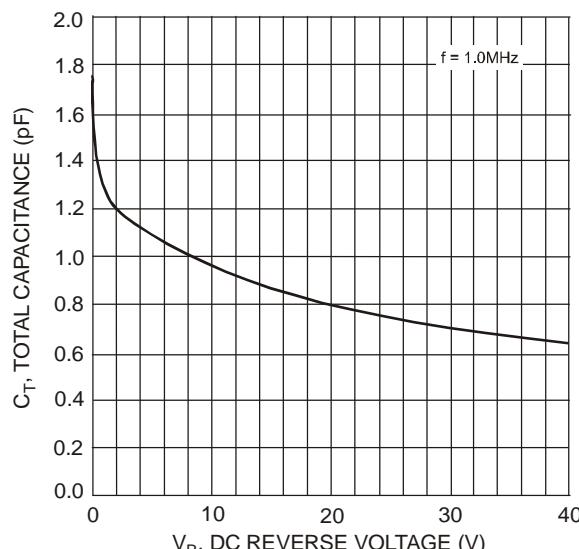
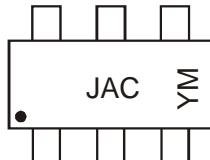


Fig. 4 Total Capacitance vs. Reverse Voltage, Per Element

Ordering Information (Note 8)

Part Number	Case	Packaging
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


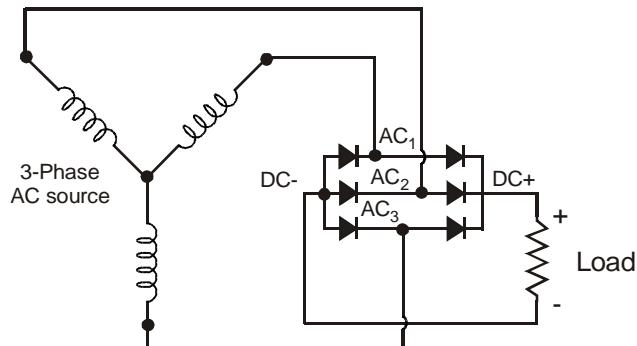
JAC = Product Type Marking Code
 YM = Date Code Marking
 Y = Year ex: N = 2002
 M = Month ex: 9 = September

Date Code Key

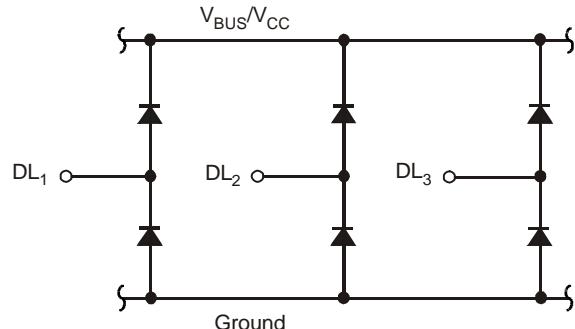
Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	
Code	N	P	R	S	T	U	V	W	X	Y	Z	
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

Typical Applications

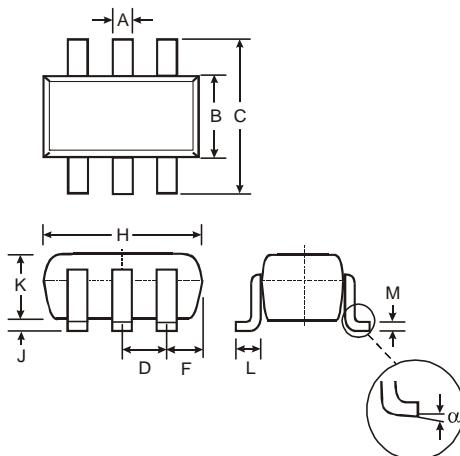
Three Phase, Full-Wave Bridge Rectifier



Data Line Bus Transient Suppressor



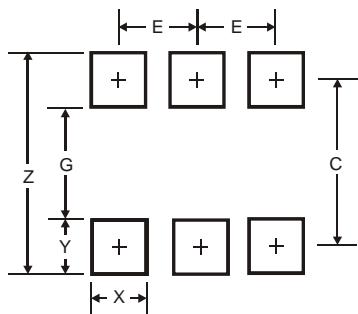
Package Outline Dimensions



SOT-363		
Dim	Min	Max
A	0.10	0.30
B	1.15	1.35
C	2.00	2.20
D	0.65 Nominal	
F	0.30	0.40
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

Suggested Pad Layout



Dimensions	Value (in mm)
Z	2.5
G	1.3
X	0.42
Y	0.6
C	1.9
E	0.65

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