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DLPA006-7

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Lead-free Green

DLPA006

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

Features

- Fast Switching Speed
- Ultra-Small Surface Mount Package
- Ideal For Three Dataline Rail Clamp or Three Phase Full Wave Bridge Rectification
- **Lead Free By Design/RoHS Compliant (Note 4)**
- **"Green" Device (Note 5)**

Data Line Transient Protection

In accordance with (Note 1):

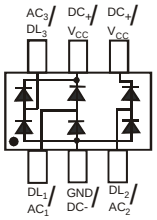
- IEC 61000-4-2 Contact Method: ±15kV
- IEC 61000-4-2 Air Discharge Method: ±25kV

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-020D
- Terminals: Finish — Matte Tin annealed over Alloy 42 Leadframe. Solderable per MIL-STD-202, Method 208
- Ordering Information: See Page 2
- Marking Information: See Page 2
- Weight: 0.006 grams (approximate)

SOT-363

TOP VIEW



TOP VIEW
Internal Schematic

Maximum Ratings @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	85	V
RMS Reverse Voltage	$V_{R(RMS)}$	60	V
Forward Current (Single Diode)	I_{FM}	160	mA
Non-Repetitive Peak Forward Surge Current @ t = 1.0µs @ t = 1.0ms @ t = 1.0s	I_{FSM}	4.0 1.0 0.5	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 2)	P_D	200	mW
Power Dissipation (Note 3)	P_D	300	mW
Thermal Resistance Junction to Ambient Air (Note 2)	$R_{\theta JA}$	625	°C/W
Thermal Resistance Junction to Ambient Air (Note 3)	$R_{\theta JA}$	417	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +150	°C

Electrical Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 6)	$V_{(BR)R}$	85	—	—	V	I_R = 100µA
Forward Voltage	V_F	—	—	0.90 1.0 1.1 1.25	V	I_F = 1.0mA I_F = 10mA I_F = 50mA I_F = 150mA
Leakage Current (Note 6)	I_R	—	—	5.0 80	nA nA	V_R = 75V V_R = 75V, T_J = 150°C
Total Capacitance (per element)	C_T	—	2	—	pF	V_R = 0, f = 1.0MHz
Capacitance Between Two Data Lines (DL_1 & DL_2, DL_1 & DL_3)	C_{LL}	—	1.6	2.6	pF	V_R = 0, f = 1.0MHz
Capacitance Between Data Line and Ground	C_{LG}	—	2.5	3.5	pF	V_R = 0, f = 1.0MHz
Reverse Recovery Time	t_{rr}	—	—	3.0	µs	I_F = I_R = 10mA, I_{rr} = 0.1 x I_R, R_L = 100Ω

Notes:
1. Tested with V_{CC} pins connected to GND pin.
2. 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.
3. 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.
4. No purposefully added lead.
5. Diodes Inc.'s "Green" policy can be found on our website at http://www.diodes.com/products/lead_free/index.php.
6. Short duration pulse test used to minimize self-heating.

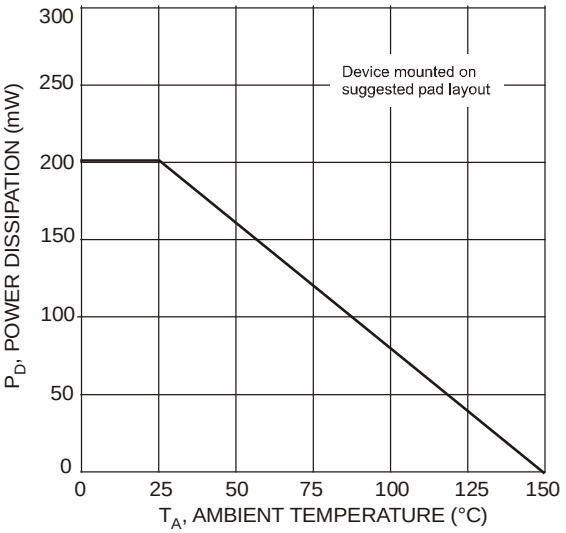


Fig. 1 Power Derating Curve, Total Package

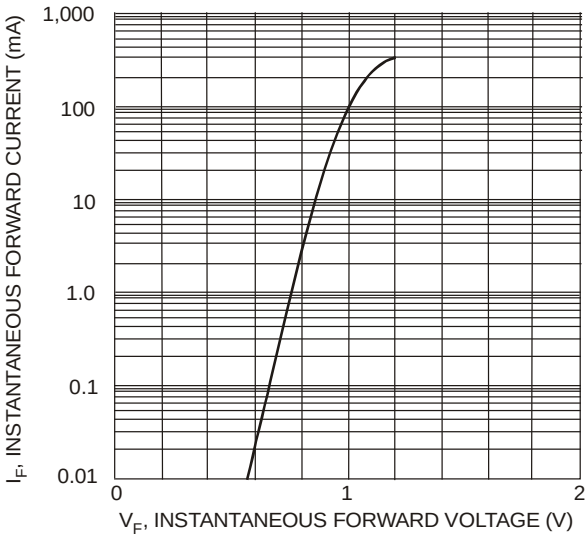


Fig. 2 Typical Forward Characteristics, Per Element

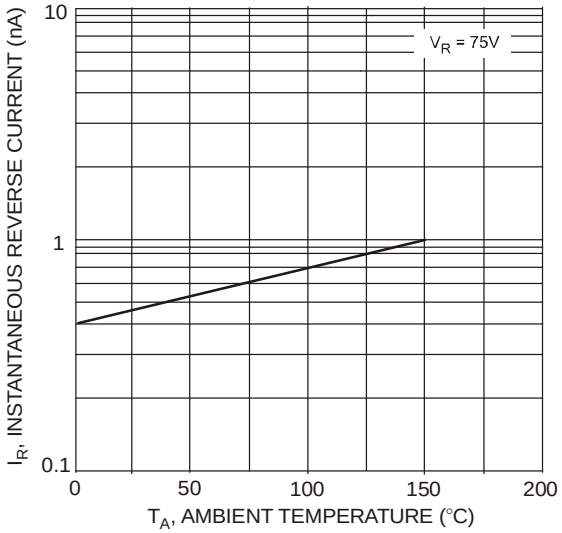


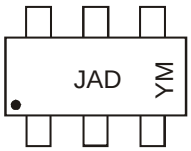
Fig. 3 Typical Reverse Characteristics, Per Element

Ordering Information (Note 7)

Part Number	Case	Packaging
DLPA006-7	SOT-363	3000/Tape & Reel

Notes: 7. For packaging details, go to our website at http://www.diodes.com/datasheets/ap02007.pdf.

Marking Information



JAD = Product Type Marking Code
YM = Date Code Marking
Y = Year (ex: S = 2005)
M = Month (ex: 9 = September)

Date Code Key

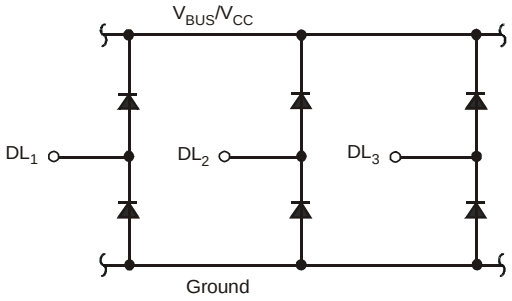
Year	2005	2006	2007	2008	2009	2010	2011	2012
Code	S	T	U	V	W	X	Y	Z

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

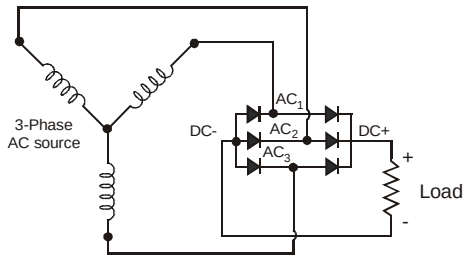
DLPA006

Typical Applications

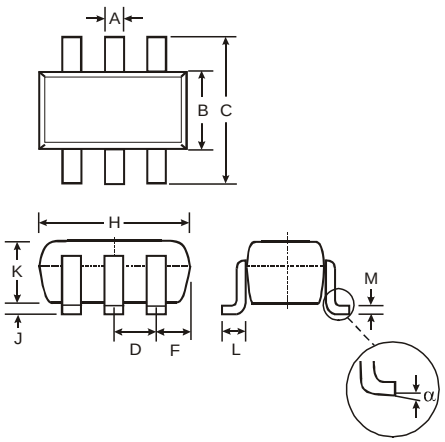
Data Line Bus Transient Suppressor



Three Phase, Full-Wave Bridge Rectifier

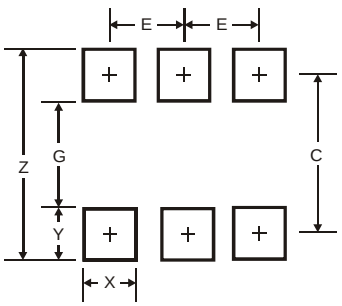


Package Outline Dimensions



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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