

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

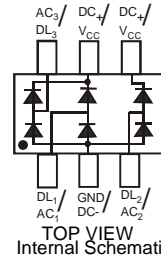
In accordance with (Note 1):

- IEC 61000-4-2 Contact Method: $\pm 15\text{kV}$
- IEC 61000-4-2 Air Discharge Method: $\pm 25\text{kV}$



TOP VIEW

SOT-363



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)

Maximum Ratings @ $T_A = 25^\circ\text{C}$ unless otherwise specified

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

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 | $^\circ\text{C/W}$ |
| Thermal Resistance Junction to Ambient Air (Note 3) | $R_{\theta JA}$ | 417 | $^\circ\text{C/W}$ |
| Operating and Storage Temperature Range | T_J, T_{STG} | -65 to +150 | $^\circ\text{C}$ |

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

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

- 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.

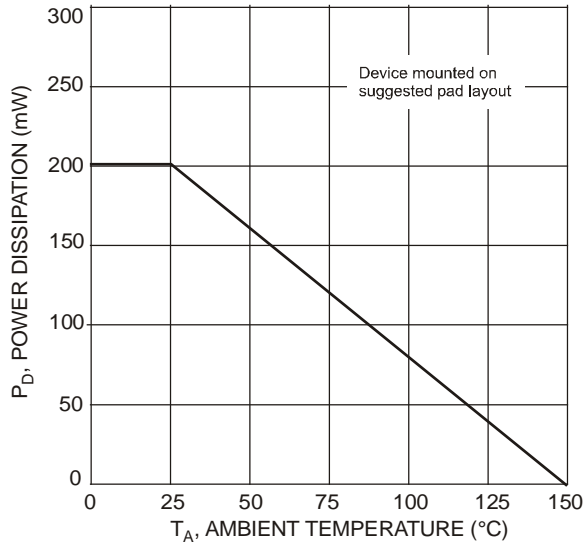


Fig. 1 Power Derating Curve, Total Package

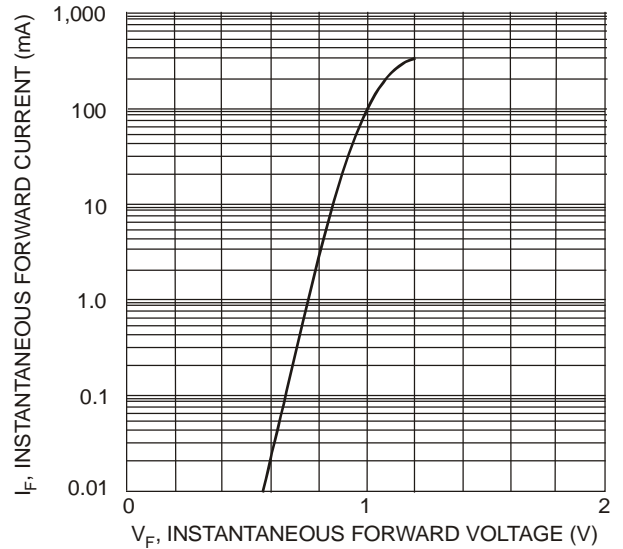


Fig. 2 Typical Forward Characteristics, Per Element

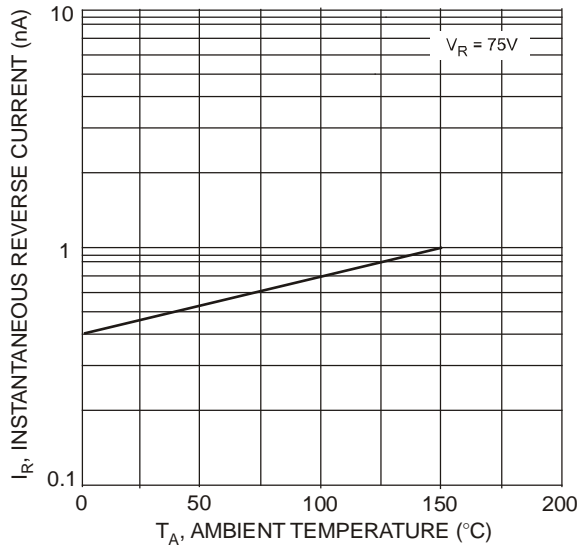


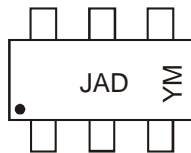
Fig. 3 Typical Reverse Characteristics, Per Element

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)

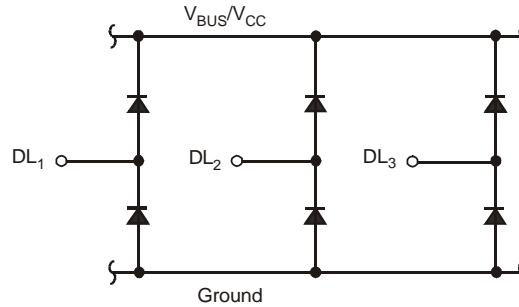
Date Code Key

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

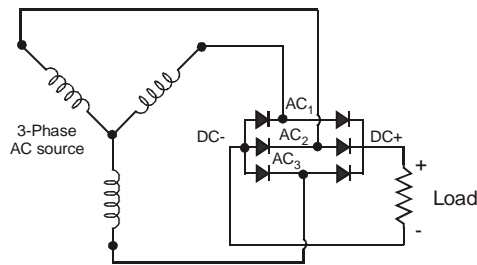
| Month | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Code | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | O | N | D |

Typical Applications

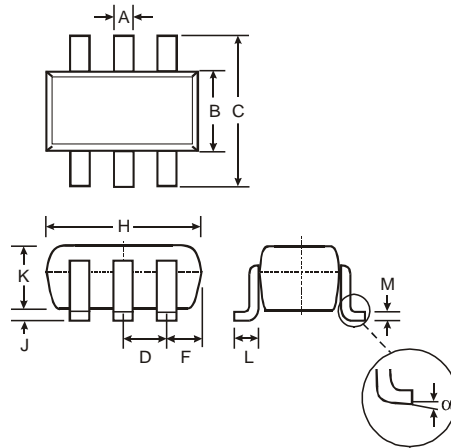
Data Line Bus Transient Suppressor



Three Phase, Full-Wave Bridge Rectifier

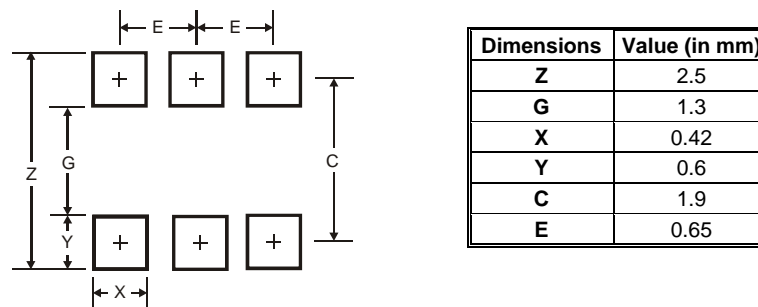


Package Outline Dimensions



| 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



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