

## Features

- Fast Switching Speed
- Ultra-Small Surface Mount Package
- **Lead Free By Design/RoHS Compliant (Note 3)**
- **"Green" Device (Note 4)**
- **Qualified to AEC-Q101 Standards for High Reliability**

## Data Line Transient Protection

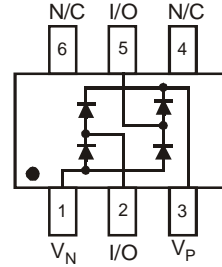
In accordance with (Note 1):

- 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



Device Schematic

## Mechanical Data

- Case: SOT-363
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0 (Note 3)
- 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 3
- Marking Information: See Page 3
- 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)	$I_{FM}$	200	mA
Peak Forward Surge Current 8.3ms Single half Sine-Wave Superimposed on Rated Load	$I_{FM(surge)}$	3.5	A
Average Rectified Forward Current (Note 1)	$I_{F(AV)}$	1	A
Repetitive Peak Forward Current	$I_{FRM}$	450	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
Thermal Resistance Junction to Ambient Air (Note 2)	$R_{\theta JA}$	625	$^\circ\text{C}/\text{W}$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-65 to +150	$^\circ\text{C}$

- 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. 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).

**Electrical Characteristics** @T<sub>A</sub> = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 5)	V <sub>(BR)R</sub>	85	—	—	V	I <sub>R</sub> = 100μA
Forward Voltage	V <sub>F</sub>	—	—	0.80 0.90 1.0 1.25	V	I <sub>F</sub> = 1.0mA I <sub>F</sub> = 10mA I <sub>F</sub> = 50mA I <sub>F</sub> = 150mA
Leakage Current (Note 5)	I <sub>R</sub>	—	—	2.5 30 50	μA	V <sub>R</sub> = 70V V <sub>R</sub> = 25V, T <sub>J</sub> = 150°C V <sub>R</sub> = 70V, T <sub>J</sub> = 150°C
Total Capacitance (per element)	C <sub>T</sub>	—	2	—	pF	V <sub>R</sub> = 0, f = 1.0MHz
Capacitance Between Two Data Lines (DL <sub>1</sub> & DL <sub>2</sub> , DL <sub>1</sub> & DL <sub>3</sub> )	C <sub>LL</sub>	—	1.6	2.0	pF	V <sub>R</sub> = 0, f = 1.0MHz
Capacitance Between Data Line and Ground	C <sub>LG</sub>	—	2.3	3.0	pF	V <sub>R</sub> = 0, f = 1.0MHz
Reverse Recovery Time	t <sub>rr</sub>	—	—	3.0	μs	I <sub>F</sub> = I <sub>R</sub> = 10mA, I <sub>rr</sub> = 0.1 x I <sub>R</sub> , R <sub>L</sub> = 100Ω

Notes: 5. Short duration pulse test used to minimize self-heating effect.

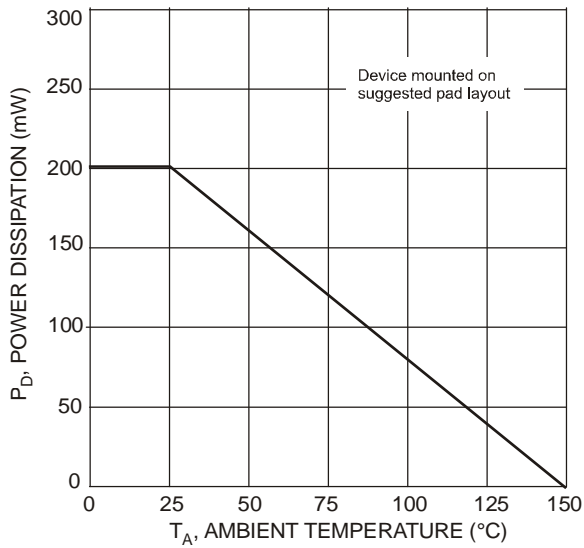


Fig. 1 Power Derating Curve, Total Package

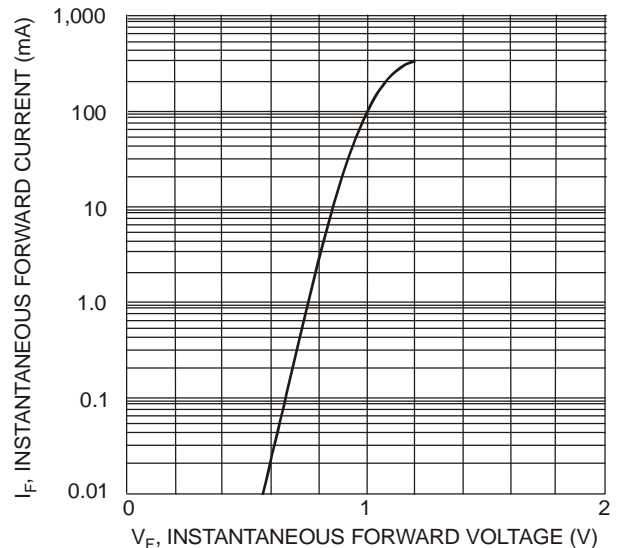


Fig. 2 Typical Forward Characteristics, Per Element

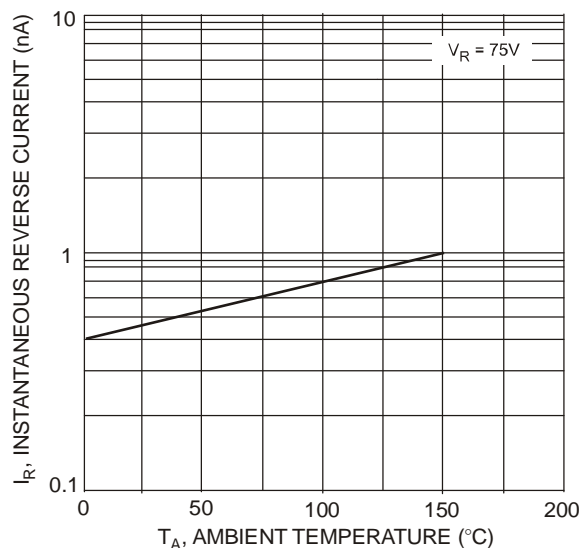


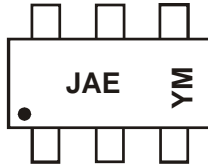
Fig. 3 Typical Reverse Characteristics, Per Element

**Ordering Information** (Note 6)

Part Number	Case	Packaging
DLPA004-7	SOT-363	3000/Tape & Reel

Notes: 6. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

**Marking Information**



JAE = Product Type Marking Code  
 YM = Date Code Marking  
 Y = Year (ex: V = 2008)  
 M = Month (ex: 9 = September)

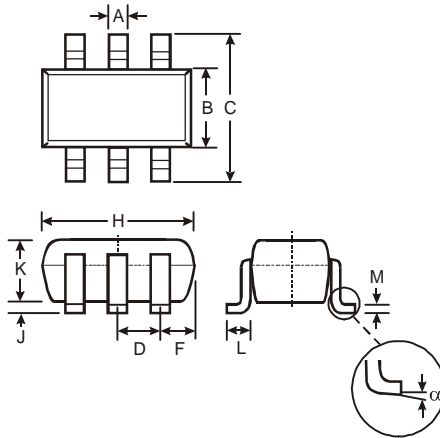
Date Code Key

Year	2008	2009	2010	2011	2012	2013	2014	2015
Code	V	W	X	Y	Z	A	B	C

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

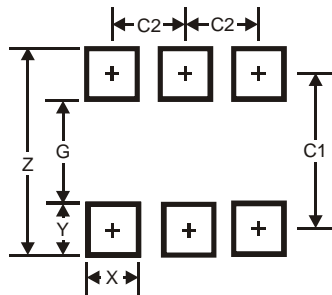
**Package Outline Dimensions**



SOT-363		
Dim	Min	Max
A	0.10	0.30
B	1.15	1.35
C	2.00	2.20
D	0.65 Typ	
F	0.40	0.45
H	1.80	2.20
J	0	0.10
K	0.90	1.00
L	0.25	0.40
M	0.10	0.22
$\alpha$	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
C1	1.9
C2	0.65

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