

Features

- Fast switching
- Automatic reset
- SMA package
- Suitable for industrial lighting environments
- RoHS compliant*

Applications

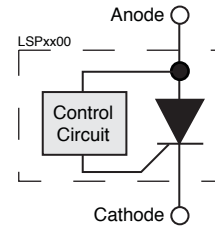
- LED streetlights
- LCD backlighting
- Display lighting
- Intrinsically safe lighting

LSPxxxxAJR Series LED Shunt Protector

General Information

Bourns® LSP Series protectors are electronic shunts that provide a current bypass when an LED element in an LED series string fails open circuit. This ensures the remaining string of LEDs will continue to function. There are many cases where high reliability of the LED lighting must be maintained, such as LCD backlighting, transport lighting, avionics, intrinsically safe and low maintenance lighting.

The LSPxxxAJR Series is available in surface mount package DO-214AC (SMA) size format.



Absolute Maximum Ratings (@ T_A = 25 °C Unless Otherwise Noted)

| Rating | | Symbol | Value | Unit |
|------------------------------------|---------|------------------|-------------|------|
| Repetitive peak off-state voltage | LSP0600 | V _{DRM} | 6 | V |
| | LSP0900 | | 9 | |
| | LSP1300 | | 13 | |
| | LSP1800 | | 18 | |
| Average on-state current (Note 1) | | I _T | 1 | A |
| Operating junction temperature | | T _J | -40 to +150 | °C |
| Storage temperature | | T _S | -65 to +150 | °C |
| Lead temperature, soldering (10 s) | | | 260 | °C |

Notes:

1. Using 75 mm x 75 mm 4-Layer PCB (EIA/JESD51-7).

Electrical Characteristics (@ T_A = 25 °C Unless Otherwise Noted)

| Parameter | Test Conditions | Min. | Nom. | Max. | Unit |
|--|--|---------|------|------|------|
| I _{DRM} Repetitive peak off-state current | V _D = V _{DRM} | | | 10 | μA |
| V _(BO) Breakover voltage | dv/dt = 750 V/ms, R _{SOURCE} = 300 | LSP0600 | 6 | 16 | V |
| | | LSP0900 | 9 | 18 | |
| | | LSP1300 | 13 | 26 | |
| | | LSP1800 | 18 | 33 | |
| I _H Holding current | I _T = 1 A, di/dt = 30 mA/ms | 5 | 30 | | mA |
| I _{BO} Breakover current | di/dt = 0.8 A/ms | | | 75 | mA |
| V _T On-state voltage | I _T = 1 A | | | 1.2 | V |

Thermal Characteristics (@ T_A = 25 °C Unless Otherwise Noted)

| Parameter | Test Conditions | Min. | Nom. | Max. | Unit |
|---|--|------|------|------|------|
| Junction to free air thermal resistance | EIA/JESD51-3 PCB, I _T = 350 mA, T _A = 25 °C | | 230 | | °C/W |
| Junction to free air thermal resistance | EIA/JESD51-7, 75 mm x 75 mm 4-Layer PCB, I _T = 1.0 A, T _A = 25 °C | | 90 | | °C/W |

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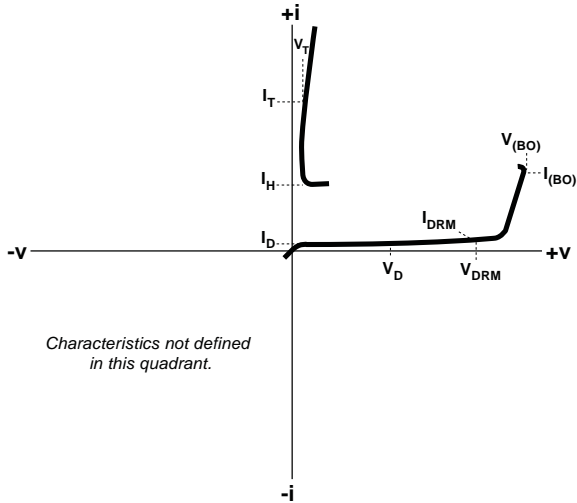
WARNING Cancer and Reproductive Harm
www.P65Warnings.ca.gov

*RoHS Directive 2015/863, Mar 31, 2015 and Annex.
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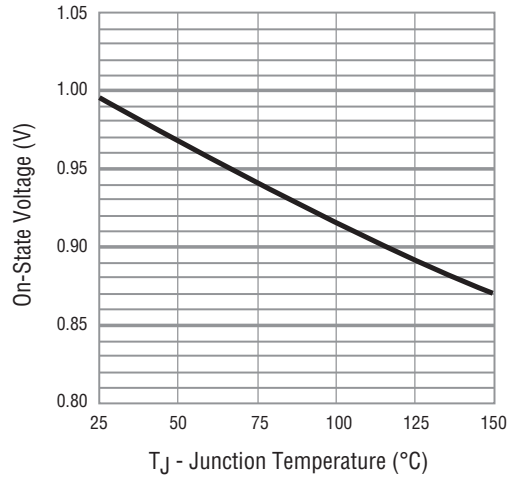
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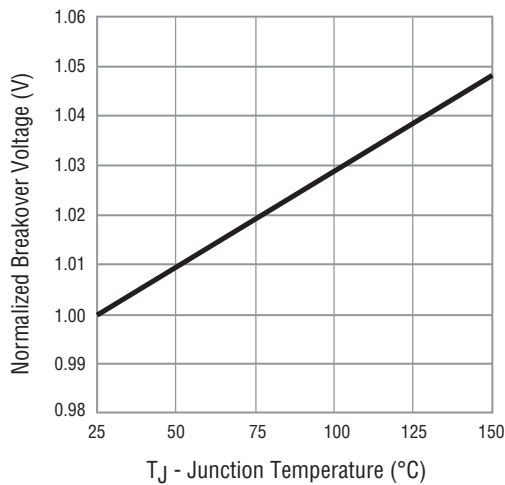
V-I Characteristic



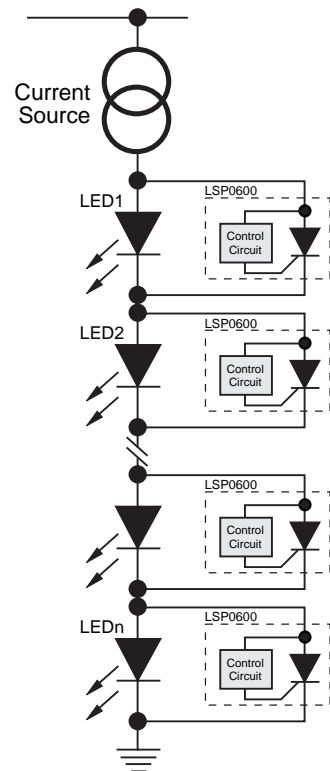
On-state Voltage vs. Junction Temperature



Normalized Breakover Voltage vs. Junction Temperature



Typical Application



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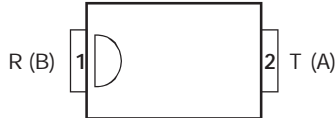
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Note: The interaction between the Bourns® LSP device and the power supply for the LED series string dictates the power supply architecture. Proper care must be taken in the design of the power supply architecture to ensure that the Bourns® LSP devices operate as intended and the design maintains integrity.

LSPxxxxAJR Series LED Shunt Protector

BOURNS®

Product Specifications



MDXXCCE

Unit Epoxy molded SMA DO-214AC package
 Mold Material UL94V-0
 Terminations 100 % matte tin-plated over copper alloy
 Unit Weight 102 mg.

Packaging Specifications

Standard EIA-481-1
 Tape Width 12 mm (.472 in.)
 Reel Diameter 330 mm (12.99 in.)
 Part Alignment Cathode bar adjacent to sprocket hole
 Quantity per Reel 5,000 pieces

Typical Part Marking

Top Side Marking

LSP0600AJR-S LSP060
 LSP0900AJR-S LSP090
 LSP1300AJR-S LSP130
 LSP1800AJR-S LSP180

How to Order

LSP 0600 AJ R - S

Model Series _____
 LED Shunt Protector

Off-State Voltage _____
 0600 = 6 V
 0900 = 9 V
 1300 = 13 V
 1800 = 18 V

Package _____
 AJ = SMA DO-214AC Package

Standard Packaging _____
 R = Tape and Reel Packaging (5,000 pcs./reel)

Termination _____
 S = RoHS Compliant

BOURNS®

Asia-Pacific: Tel: +886-2 2562-4117 • Email: asiacus@bourns.com
 EMEA: Tel: +36 88 885 877 • Email: eurocus@bourns.com
 The Americas: Tel: +1-951 781-5500 • Email: americus@bourns.com
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