

Features

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

Applications

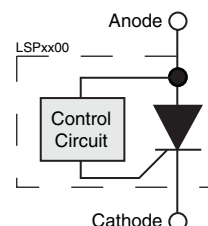
- LED streetlights
- LCD backlighting
- Display lighting
- Intrinsically safe lighting

LSPxxxxBJR 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 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 LSP Series is available in surface mount package DO-214AA (SMB) size format.



Absolute Maximum Ratings (@ $T_A = 25^\circ\text{C}$ 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	$^\circ\text{C}$
Storage temperature		T_S	-65 to +150	$^\circ\text{C}$
Lead temperature, soldering (10 s)			260	$^\circ\text{C}$

Notes:

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

Electrical Characteristics (@ $T_A = 25^\circ\text{C}$ Unless Otherwise Noted)

Parameter	Test Conditions		Min.	Nom.	Max.	Unit
I_{DRM} Repetitive peak off-state current	$V_D = V_{\text{DRM}}$				10	μA
$V_{(\text{BO})}$ Breakover voltage	$dv/dt = 750 \text{ V/ms}$, $R_{\text{SOURCE}} = 300$	LSP0600	6		16	V
		LSP0900	9		18	
		LSP1300	13		26	
		LSP1800	18		33	
I_H Holding current	$I_T = 1 \text{ A}$, $di/dt = 30 \text{ mA/ms}$		5	30		mA
I_{BO} Breakover current	$di/dt = 0.8 \text{ A/ms}$				75	mA
V_T On-state voltage	$I_T = 1 \text{ A}$				1.2	V

Thermal Characteristics (@ $T_A = 25^\circ\text{C}$ Unless Otherwise Noted)

Parameter	Test Conditions	Min.	Nom.	Max.	Unit
Junction to free air thermal resistance	EIA/JESD51-3 PCB, $I_T = 350 \text{ mA}$, $T_A = 25^\circ\text{C}$		230		$^\circ\text{C/W}$
Junction to free air thermal resistance	EIA/JESD51-7, 75 mm x 75 mm 4-Layer PCB, $I_T = 1.0 \text{ A}$, $T_A = 25^\circ\text{C}$		90		$^\circ\text{C/W}$

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*RoHS Directive 2002/95/EC Jan. 27, 2003 including annex and RoHS Recast 2011/65/EU June 8, 2011.

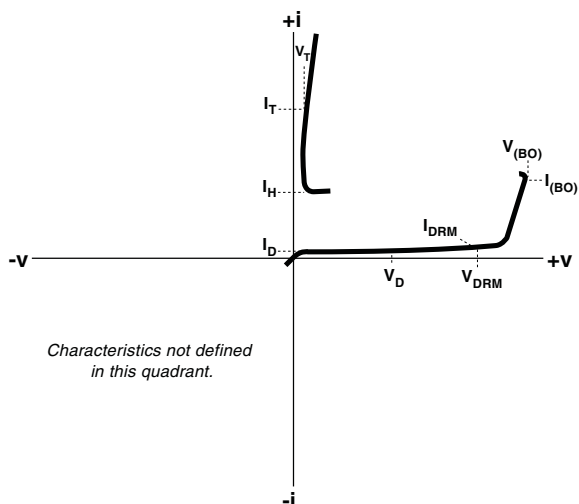
Specifications are subject to change without notice.

Customers should verify actual device performance in their specific applications.

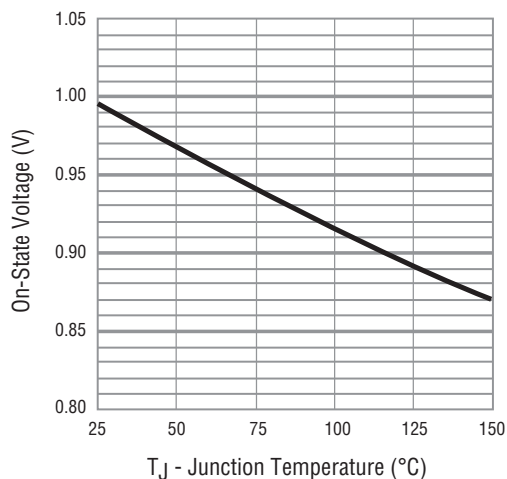
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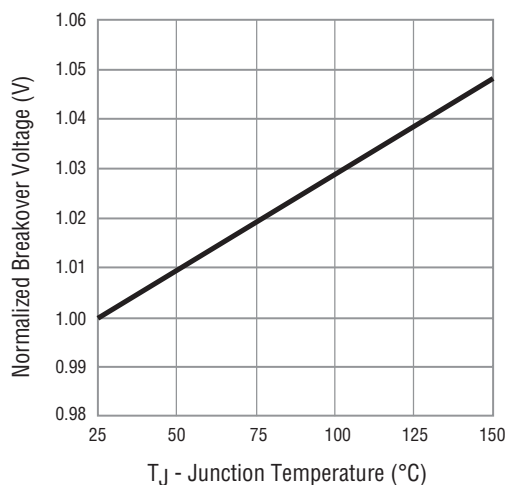
V-I Characteristic



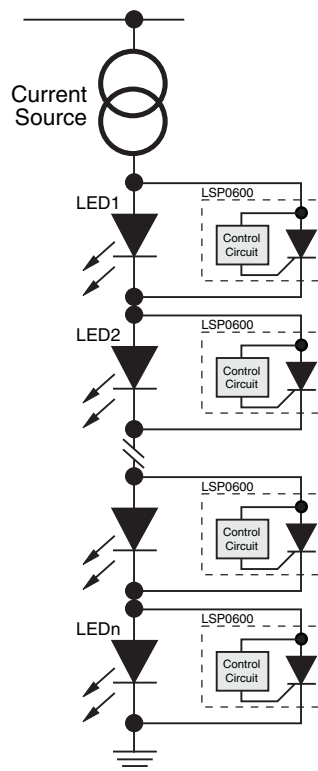
On-state Voltage vs. Junction Temperature



Normalized Breakover Voltage vs. Junction Temperature



Typical Application

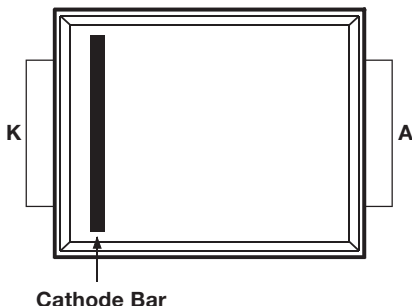


Note: The interaction between the Bourns® LSP device and the power supply for the LED string dictates the power supply architecture. Proper care must be taken in the design of the power supply architecture to ensure that the Bourns® LSP devices operate as intended and the design maintains integrity.

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Product Specifications



Unit Epoxy molded SMB D0-214AA 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 3,000 pieces

Typical Part Marking

Top Side Marking

LSP0600BJR-S LSP060
 LSP0900BJR-S LSP090
 LSP1300BJR-S LSP130
 LSP1800BJR-S LSP180

How to Order

LSP 0600 BJ R - S

Model Series
 LED Shunt Protector
 Off-State Voltage
 0600 = 6 V
 0900 = 9 V
 1300 = 13 V
 1800 = 18 V
 Package
 BJ = SMB DO-214AA Package
 Standard Packaging
 R = Tape and Reel Packaging (3,000 pcs./reel)
 Termination
 S = RoHS Compliant

BOURNS®

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