

Features

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

Applications

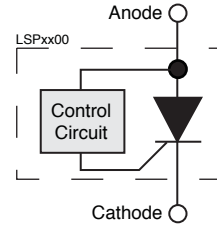
- LED streetlights
- LCD backlighting
- Display lighting
- Intrinsically safe lighting

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 °C Unless Otherwise Noted)

Rating	Symbol	Value	Unit
Repetitive peak off-state voltage	V _{DRM}	LSP0600 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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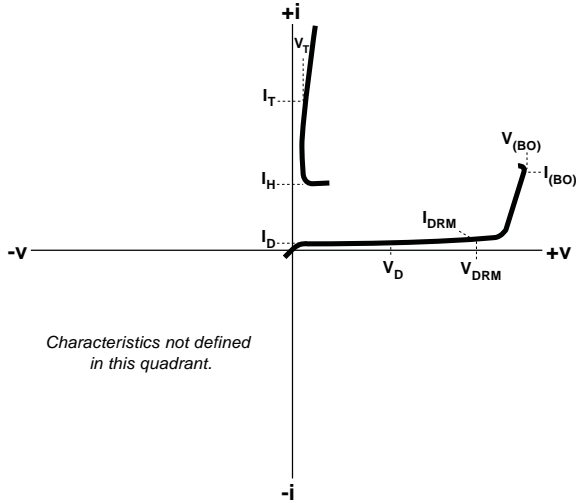
WARNING Cancer and Reproductive Harm
www.P65Warnings.ca.gov

*RoHS Directive 2015/863, Mar 31, 2015 and Annex.
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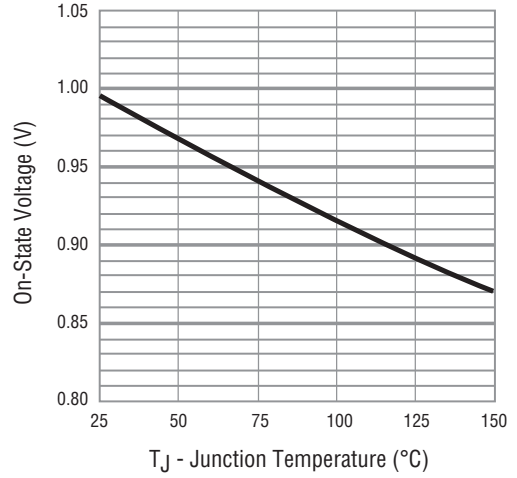
LSPxxxxBJR Series LED Shunt Protector

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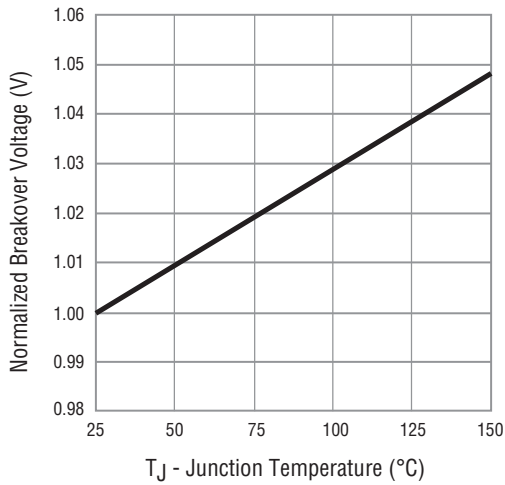
V-I Characteristic



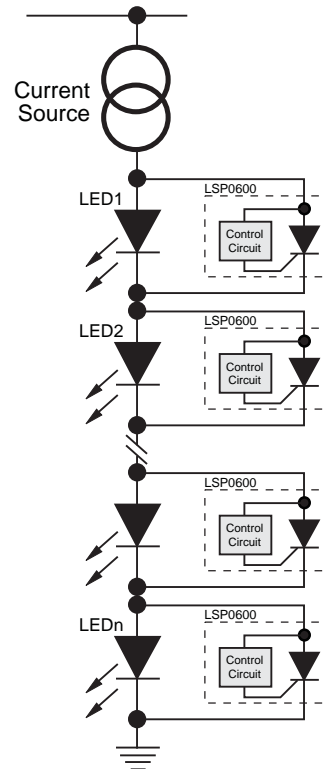
On-state Voltage vs. Junction Temperature



Normalized Breakover Voltage vs. Junction Temperature



Typical Application



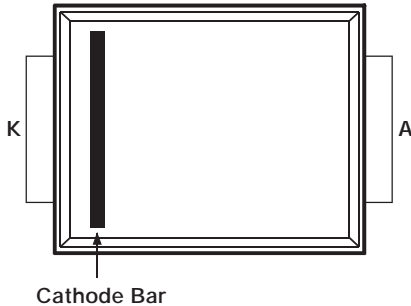
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Note: The interaction between the Bourns® LSP device and the power supply for the LED string dictates the power supply architecture. Proper care must be taken in the design of the power supply architecture to ensure that the Bourns® LSP devices operate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

LSPxxxxBJR Series LED Shunt Protector

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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						

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