

OBSOLETE - PART DISCONTINUED

Product Summary

- Schottky Bridge and Freewheel diode for use in MR16 LED Drive
- Internal Ambient Temperature = 90°C MAX within MR16 circuit enclosure
- $V_R = 13.2V_{RMS}$
- $I_F = 0.4A_{AVG}$
- $I_R = 10\mu A$

Description and Applications

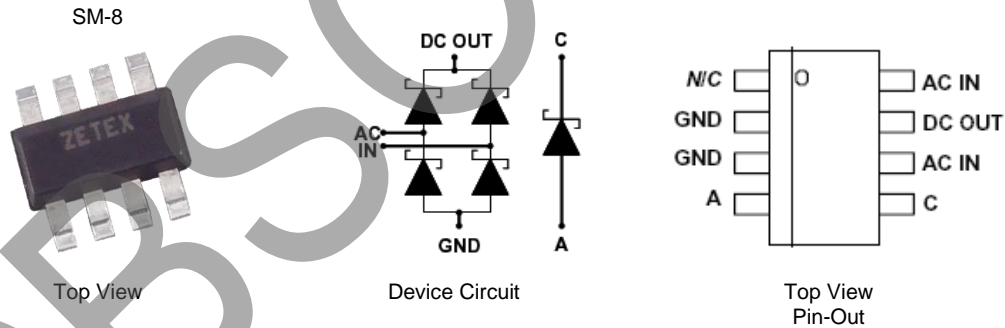
This low leakage Schottky bridge and freewheel diode have been specifically designed for the MR16 LED driver solution alongside ZXLD1350E5 as described in Design Note DN86.

Features and Benefits

- Compact surface mount solution and reduced component count in MR16 LED drive circuit
- Optimized bridge and freewheel diode for use in MR16 LED diode circuitry
- Low V_F and low reverse leakage current
- **For automotive applications requiring specific change control (i.e.: parts qualified to AEC-Q100/101/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please refer to the related automotive grade (Q-suffix) part. A listing can be found at <https://www.diodes.com/products/automotive/automotive-products/>.**
- **This part is qualified to JEDEC standards (as references in AEC-Q) for High Reliability. <https://www.diodes.com/quality/product-definitions/>**

Mechanical Data

- Case: SM-8
- Case Material: TBD
- Moisture Sensitivity: TBD
- Terminals: TBD
- Weight: TBD grams (approximate)

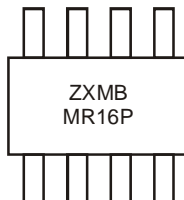


Ordering Information (Note 1)

Device	Packaging	Shipping
ZXSBMR16PT8TA	SM-8	1000/Tape & Reel

Note: 1. For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

Marking Information



ZXSBMR16P = Product Type Marking Code

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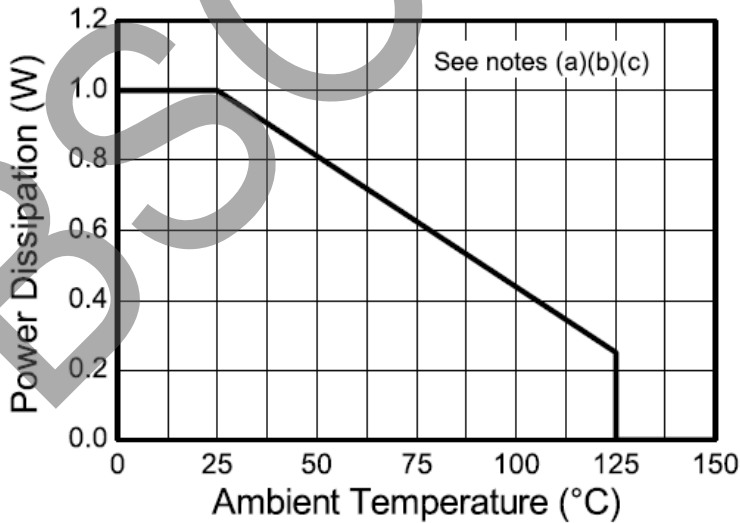
Maximum Ratings @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Value	Units
Maximum Repetitive Reverse Voltage	V_{RRM}	40	V
Maximum RMS Bridge Input Voltage	V_{RMS}	13.2	V
Average Rectified Forward Current (Notes 2 & 3)	$I_{F(AV)}$	0.4	A
Peak Repetitive Forward Current	I_{FPK}	3.5	A
Non Repetitive Forward Current	$t \leq 100\mu\text{s}$	13	A
	$t \leq 10\text{ms}$	3.5	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation, $T_A = 25^\circ\text{C}$ (Note 2)	P_D	1	W
Thermal Resistance, Junction to Ambient (Note 2)	$R_{\theta JA}$	125	$^\circ\text{C/W}$
Junction Temperature, Forward Dissipation Only	T_J	150	$^\circ\text{C}$
Junction Temperature, Reverse Dissipation (Notes 2, 3, & 4)	T_J	125	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55 to +150	$^\circ\text{C}$
MR16 LED Internal Ambient Temperature (Note 4)	T_A	90	$^\circ\text{C}$

- Notes:
- For a bridge mounted on 1.6mm FR4 PCB with minimum copper pads and track dimensions in still air.
 - Supply 12V RMS with capacitive bridge load.
 - Maximum bridge operating junction temperature must be reduced with increased reverse bias voltage to maintain unconditional thermal stability.
 - Refer to Design Note DN86



Package Thermal Characteristic

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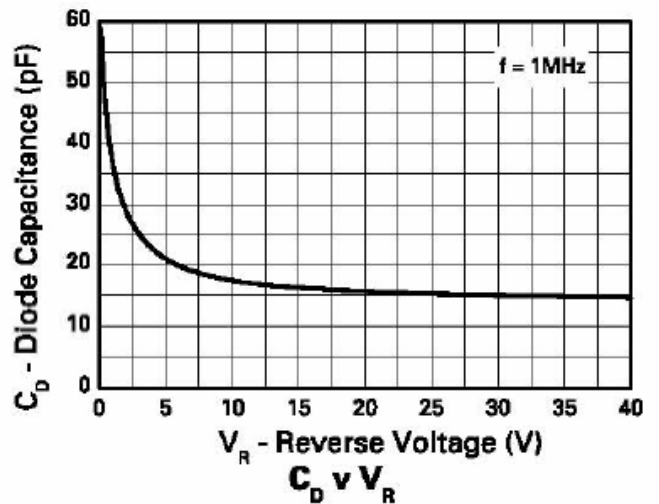
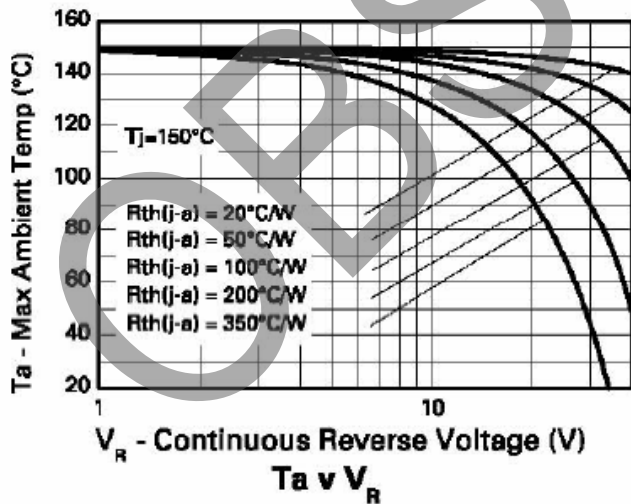
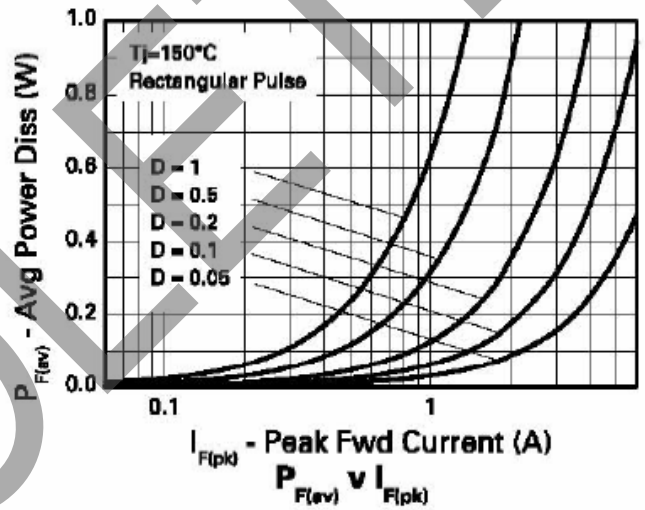
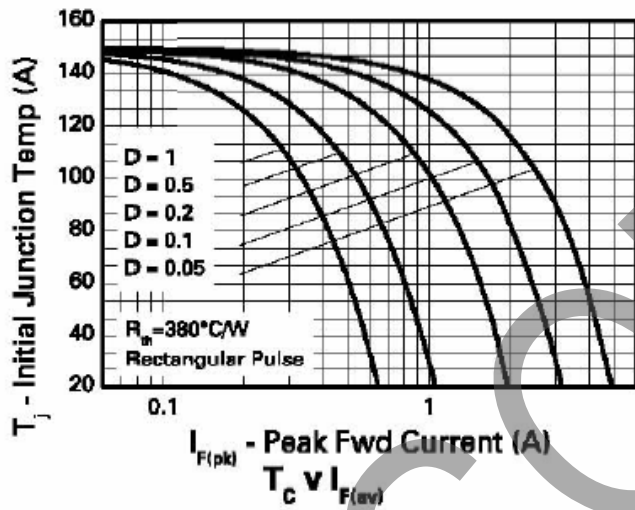
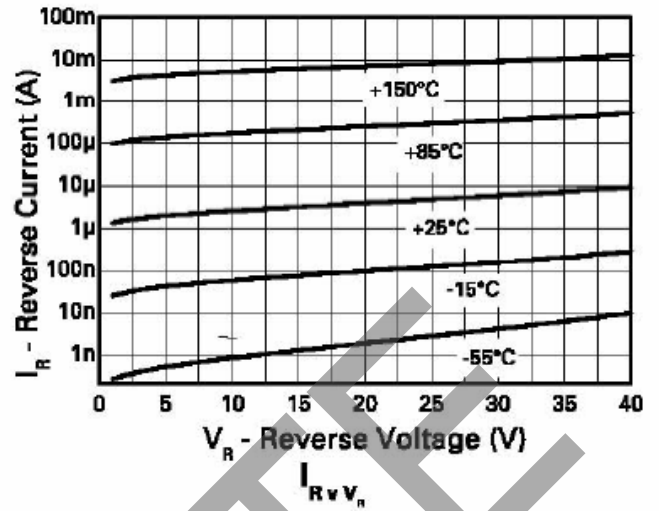
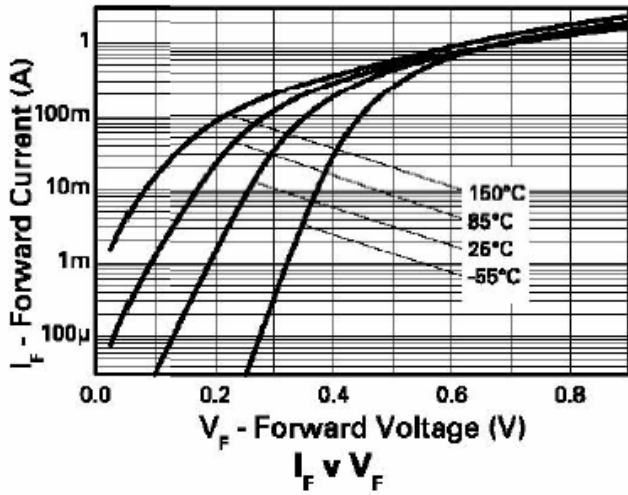
Electrical Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage	V _{(BR)R}	40	—	—	V	I _R = 200μA
Forward Voltage (Note 4)	V _F	—	305	360	mV	I _F = 50mA
		—	355	410		I _F = 100mA
		—	405	470		I _F = 250mA
		—	485	550		I _F = 500mA
		—	570	660		I _F = 750mA
		—	640	750		I _F = 1A
		—	415	—		I _F = 500mA, T _A = 100°C
Reverse Current	I _R	—	6	10	μA	V _R = 30V
		—	370	—		V _R = 30V, T _A = 85°C
Diode Capacitance	C _D	—	16	—	pF	f = 1MHz, V _R = 30V
Reverse Recovery Time	t _{rr}	—	3	—	ns	Switched from I _F = 100mA to I _R = 100mA
Reverse Recovery Charge	Q _{rr}	—	210	—	pC	Measured @ I _R = 10mA di/dt = 500mA/ns. R _{source} = 6Ω; R _{load} = 10Ω

Note: 4. Measured under pulsed conditions. Pulse width = 300μs. Duty cycle ≤ 2%.

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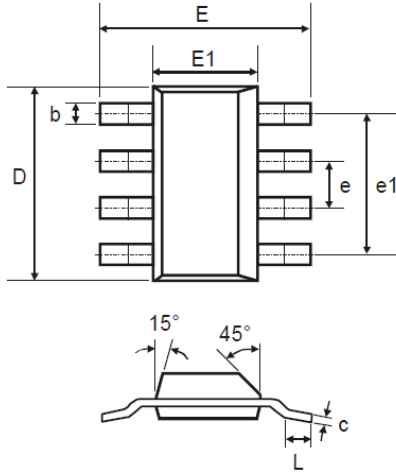
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Package Outline Dimensions

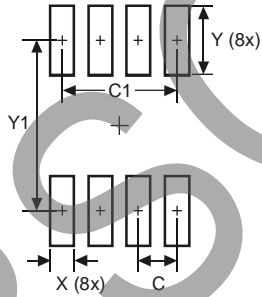
Please see <http://www.diodes.com/package-outlines.html> for the latest version.



SM-8			
Dim	Min	Max	Typ
A	-	1.7	-
A1	0.02	0.1	-
b	-	0.7	-
c	0.24	0.32	-
D	6.3	6.7	-
e	-	-	1.53
e1	-	-	4.59
E	6.7	7.3	-
E1	3.3	3.7	-
L	0.9	-	-
All Dimensions in mm			

Suggested Pad Layout

Please see <http://www.diodes.com/package-outlines.html> for the latest version.



Dimensions	Value (in mm)
C	1.52
C1	4.6
X	0.95
Y	2.80
Y1	6.80

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