

**40V HIGH CURRENT LOW LEAKAGE SCHOTTKY DIODE**

## Features

- Low Equivalent on Resistance
- Extremely Low Leakage (typically 6 $\mu$ A @30V)
- High current capability ( $I_F = 1.16$ A)
- Low  $V_F$ , Fast Switching Schottky
- SOT23 Package
- ZLLS1000 Complements Low Temperature Equivalent ZHCS1000
- Package Thermally Rated to +150°C
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

## Mechanical Data

- Case: SOT23
- UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish
- Weight: 0.008 grams (Approximate)

## Applications

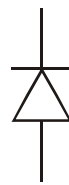
- DC – DC Converters
- Strokes
- Mobile Phones
- Charging Circuits
- Motor Control

SOT23



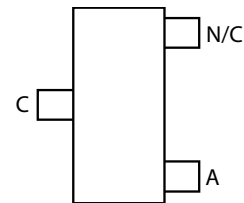
Top View

Cathode



Anode

Device Symbol



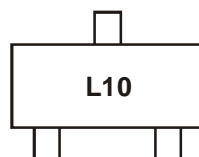
Pinout – Top View

## Ordering Information

Product	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
ZLLS1000TA	L10	7	8	3,000 units
ZLLS1000TC	L10	13	8	10,000 units

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
  2. See <http://www.diodes.com> for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
  3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

## Marking Information



L10 = Product type Marking Code

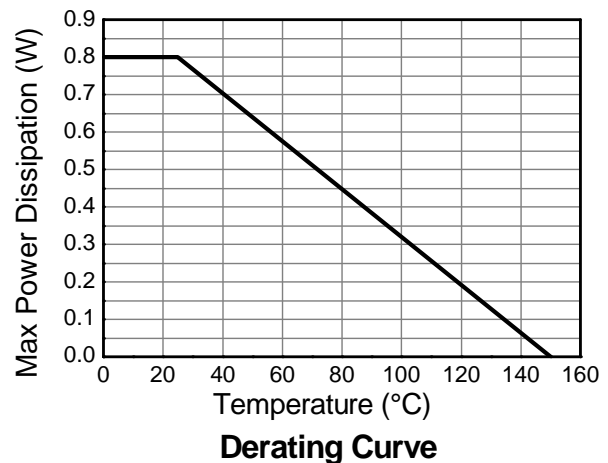
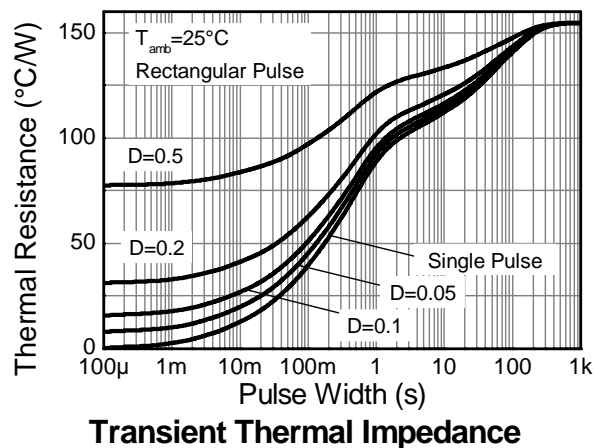
**Maximum Ratings** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Continuous Reverse Voltage	V <sub>R</sub>	40	V
Forward Current	I <sub>F</sub>	1.16	A
Peak Repetitive Forward Current	I <sub>FPK</sub>	2.6	A
Rectangular Pulse Duty Cycle 50% 100µs pulse width			
Non Repetitive Forward Current	I <sub>FSM</sub>	22	A
		6.4	A

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Power Dissipation @T <sub>A</sub> = +25°C	P <sub>D</sub>	0.8	W
Single Die Continuous		1.18	
Single Die Measured at t<5 secs			
Thermal Resistance Junction to Ambient (Note 4)	R <sub>θJA</sub>	155	°C/W
Thermal Resistance Junction to Ambient (Note 5)	R <sub>θJA</sub>	106	°C/W
Thermal Resistance Junction to Lead (Solder Point)	R <sub>θJL</sub>	80	°C/W
Storage temperature range	T <sub>STG</sub>	-55 to +150	°C
Junction temperature	T <sub>J</sub>	150	°C

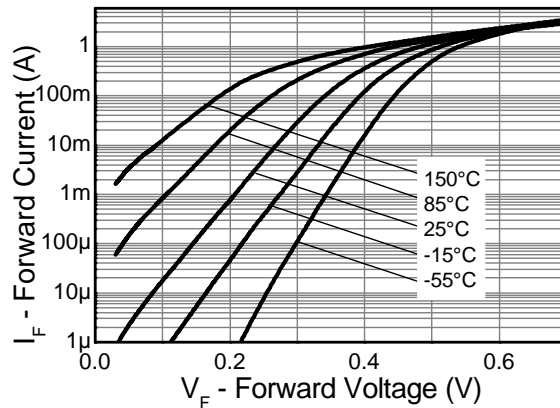
Notes: 4. For a device surface mounted on 25mm x 25mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions.  
 5. For a device mounted on FRB PCB measured at t<5secs.

**Thermal Characteristics and Derating information**


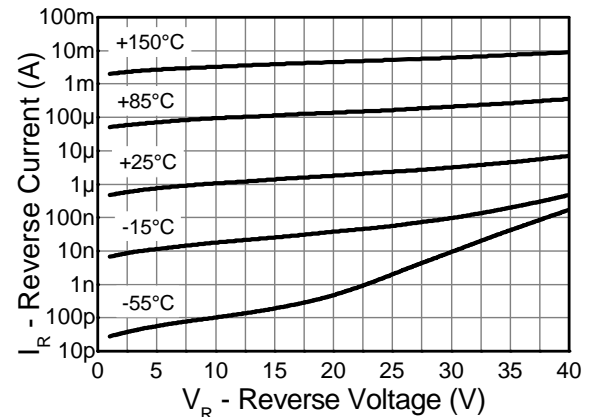
**Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse breakdown voltage	V <sub>(BR)R</sub>	40	-	-	V	I <sub>R</sub> = 500μA
Forward voltage (Note 6)	V <sub>F</sub>	-	320	355	mV	I <sub>F</sub> = 50mA
			335	380		I <sub>F</sub> = 100mA
			380	425		I <sub>F</sub> = 250mA
			410	460		I <sub>F</sub> = 500mA
			440	510		I <sub>F</sub> = 750mA
			470	560		I <sub>F</sub> = 1A
			530	660		I <sub>F</sub> = 1.5A
			430	-		I <sub>F</sub> = 1000mA, T <sub>A</sub> = +100°C
Reverse current	I <sub>R</sub>	-	5 500	20 -	μA μA	V <sub>R</sub> = 30V V <sub>R</sub> = 30V, T <sub>A</sub> = +85°C
Diode capacitance	C <sub>D</sub>	-	28	-	pF	f = 1MHz, V <sub>R</sub> = 30V
Reverse recovery time	t <sub>rr</sub>	-	5	-	ns	Switched from I <sub>F</sub> = 500mA to V <sub>R</sub> = 5.5V
Reverse recovery charge	Q <sub>rr</sub>	-	350	-	nC	Measured @ I <sub>R</sub> 50mA. di/dt = 500mA/ns. R <sub>source</sub> = 6Ω; R <sub>load</sub> = 10Ω

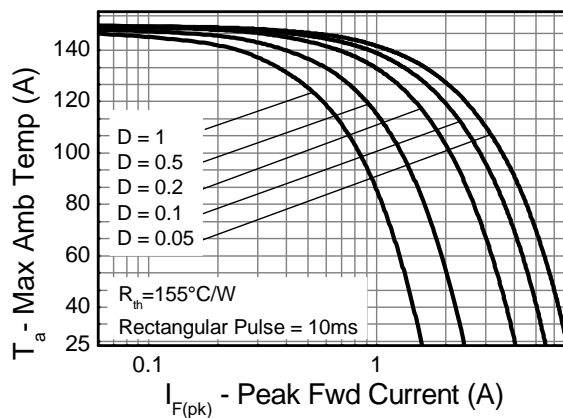
Notes: 6. Measured under pulsed conditions. Pulse width = 300μs. Duty cycle &lt; 2%



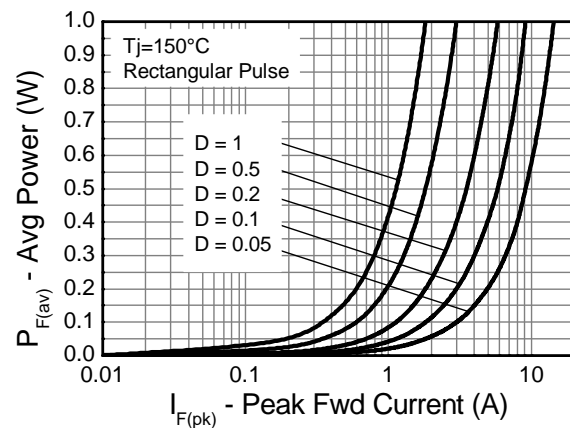
**Typical Forward Characteristics**



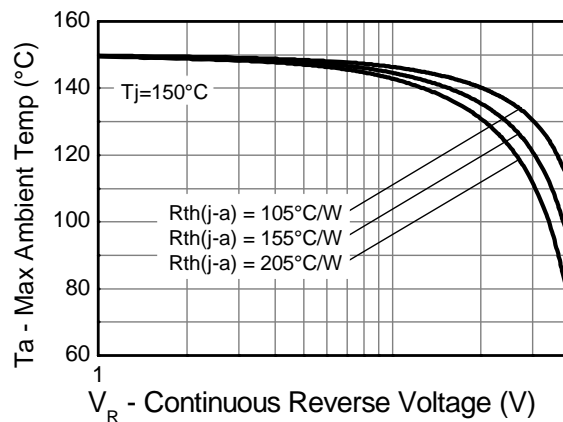
**Typical Reverse Characteristics**



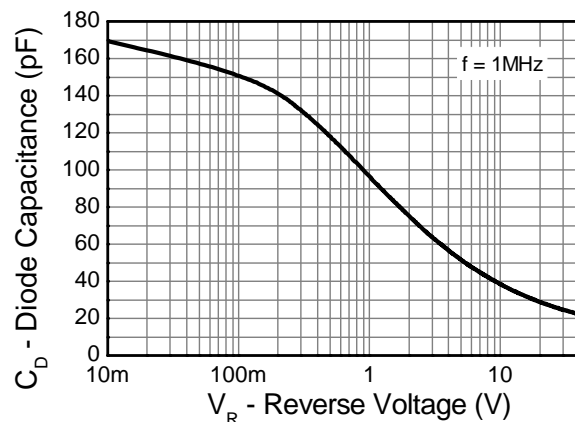
**Typical Forward Safe Operating Area**



**Forward Power vs Peak Current**

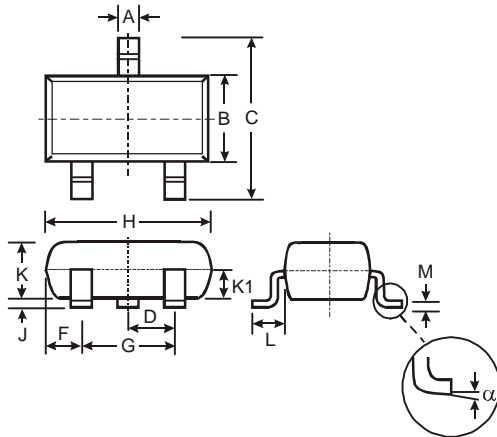


**Typical Reverse Safe Operating Area**



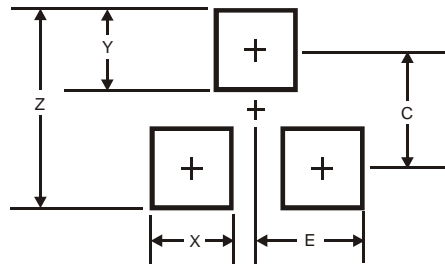
**Capacitance vs Reverse Voltage**

## Package Outline Dimensions



SOT23			
Dim	Min	Max	Typ
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	2.30	2.50	2.40
D	0.89	1.03	0.915
F	0.45	0.60	0.535
G	1.78	2.05	1.83
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.903	1.10	1.00
K1	-	-	0.400
L	0.45	0.61	0.55
M	0.085	0.18	0.11
$\alpha$	0°	8°	-
All Dimensions in mm			

## Suggested Pad Layout



Dimensions	Value (in mm)
Z	2.9
X	0.8
Y	0.9
C	2.0
E	1.35

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Website :

Welcome to visit [www.ameya360.com](http://www.ameya360.com)

Contact Us :

➤ Address :

401 Building No.5, JiuGe Business Center, Lane 2301, Yishan Rd  
Minhang District, Shanghai , China

➤ Sales :

Direct     +86 (21) 6401-6692  
  
Email       amall@ameya360.com  
  
QQ         800077892  
  
Skype      ameyasales1 ameyasales2

➤ Customer Service :

Email       service@ameya360.com

➤ Partnership :

Tel         +86 (21) 64016692-8333  
  
Email      mkt@ameya360.com