

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

$V_R$ (V)	$I_O$ (A)	$V_{F(MAX)}$ @ 1A (V)	$I_{R(MAX)}$ @ $V_R=30V$ ( $\mu A$ )
40	1.16	0.56	20

**Features and Benefits**

- Low Equivalent on Resistance
- Extremely Low Leakage (Typically 6 $\mu A$  @30V)
- High Current Capability ( $I_F = 1.16A$ )
- Low  $V_F$ , Fast Switching Schottky
- SOT23 Package
- ZLLS1000Q Complements Low Temperature Equivalent ZHCS1000Q
- 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**
- **PPAP Capable (Note 4)**

**Applications**

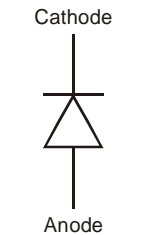
- DC - DC Converters
- Strobes
- Mobile Phones
- Charging Circuits
- Motor Control

**Mechanical Data**

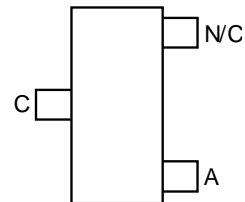
- Case: SOT23
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 3 per J-STD-020
- Terminals: Matte Tin Finish. Solderable per MIL-STD-202, Method 208  $\text{\textcircled{e3}}$
- Weight: 0.0089 grams (Approximate)



Top View



Device Symbol

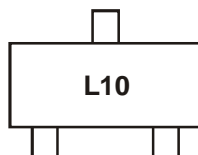


Pinout – Top View

**Ordering Information (Note 5)**

Part Number	Compliance	Case	Packaging
ZLLS1000QTA	Automotive	SOT23	3000/Tape & Reel

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
  2. See <https://www.diodes.com/quality/lead-free/> 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.
  4. Automotive products are AEC-Q101 qualified and are PPAP capable. Refer to <https://www.diodes.com/quality/>.
  5. For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

**Marking Information**


L10 = Product Type Marking Code

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

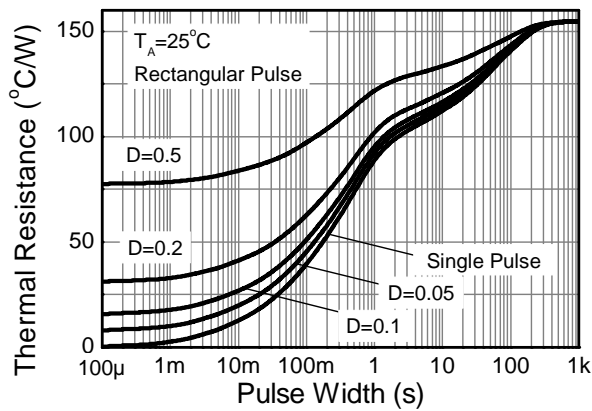
Characteristic	Symbol	Value	Unit
Continuous Reverse Voltage	V <sub>R</sub>	40	V
Average Rectified Output Current	I <sub>O</sub>	1.16	A
Peak Repetitive Forward Current Rectangular Pulse Duty Cycle 50% 100µs Pulse Width	I <sub>FPK</sub>	2.6	A
Non Repetitive Forward Current	I <sub>FSM</sub>	t ≤ 100µs	22
		t ≤ 10ms	6.4

**Thermal Characteristics**

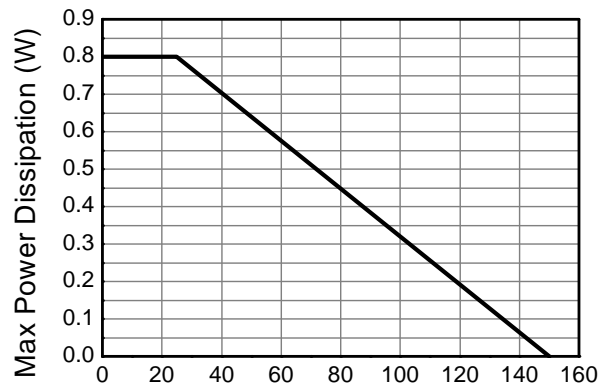
Characteristic	Symbol	Value	Unit
Power Dissipation @T <sub>A</sub> = +25°C	P <sub>D</sub>	Single Die Continuous	0.8
		Single Die Measured at t < 5 secs	1.18
Thermal Resistance Junction to Ambient (Note 6)	R <sub>θJA</sub>	155	°C/W
Thermal Resistance Junction to Ambient (Note 7)	R <sub>θJA</sub>	106	°C/W
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: 6. For a device surface mounted on 25mm x 25mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions.  
7. For a device mounted on FRB PCB measured at t < 5secs.

**Thermal Characteristics and Derating information**



**Transient Thermal Impedance**

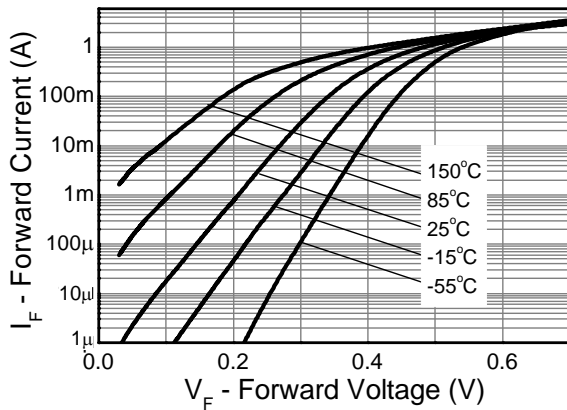


**Derating Curve**

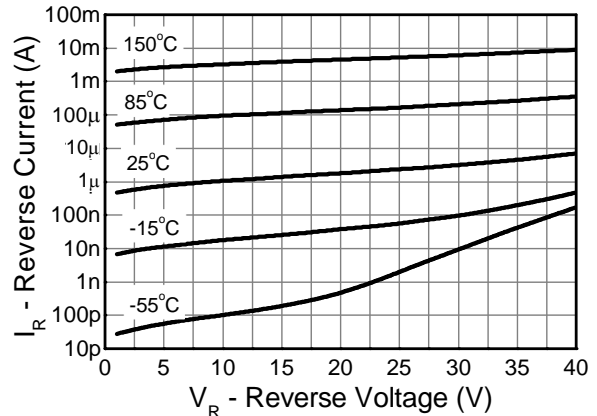
**Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

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 8)	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 Measured @ I <sub>R</sub> = 50mA. di/dt = 500mA/ns.
Reverse Recovery Charge	Q <sub>RR</sub>	-	350	-	nC	R <sub>SOURCE</sub> = 6Ω; R <sub>LOAD</sub> = 10Ω

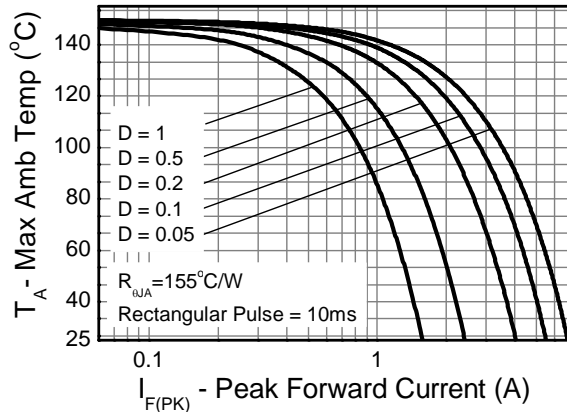
Note: 8. Measured under pulsed conditions. Pulse width = 300μs. Duty cycle < 2%



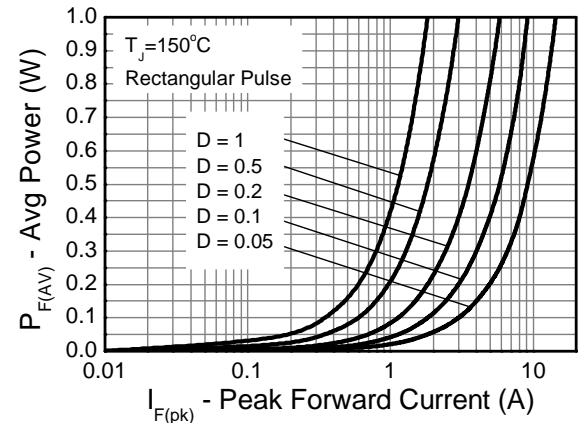
**Typical Forward Characteristics**



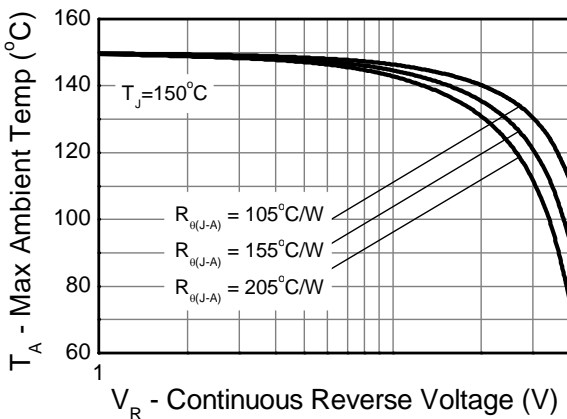
**Typical Reverse Characteristics**



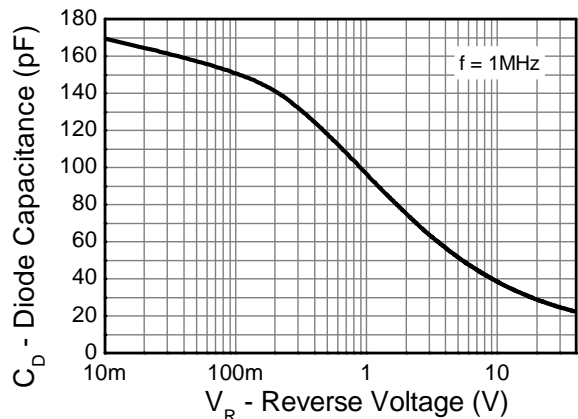
**Typical Forward Safe Operating Area**



**Forward Power vs Peak Current**



**Typical Reverse Safe Operating Area**

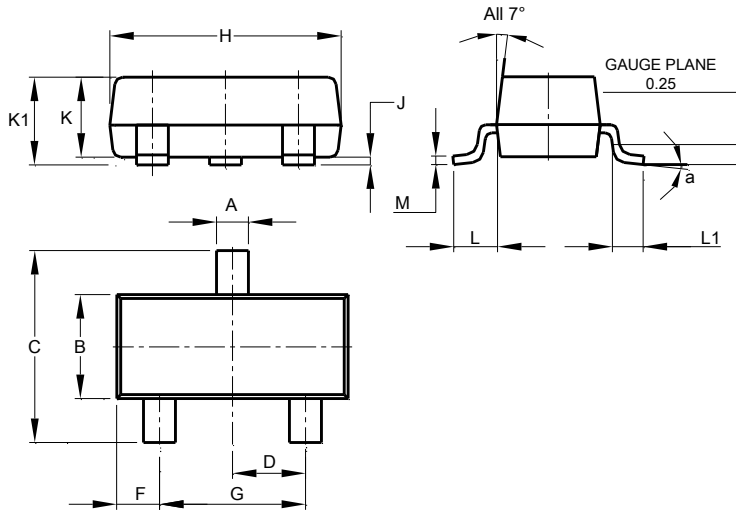


**Capacitance vs Reverse Voltage**

**Package Outline Dimensions**

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

**SOT23**

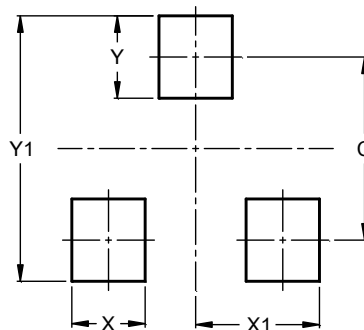


SOT23			
Dim	Min	Max	Typ
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	2.30	2.50	2.40
D	0.89	1.03	0.915
F	0.45	0.60	0.535
G	1.78	2.05	1.83
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.890	1.00	0.975
K1	0.903	1.10	1.025
L	0.45	0.61	0.55
L1	0.25	0.55	0.40
M	0.085	0.150	0.110
a	0°	8°	--
All Dimensions in mm			

**Suggested Pad Layout**

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

**SOT23**



Dimensions	Value (in mm)
C	2.0
X	0.8
X1	1.35
Y	0.9
Y1	2.9

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