

40V HIGH CURRENT LOW LEAKAGE SCHOTTKY DIODE
Product Summary

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

Features and Benefits

- Low Equivalent on Resistance
- Extremely Low Leakage (Typically 6 μA @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

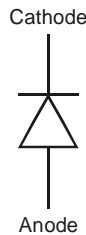
- DC - DC Converters
- Strobes
- Mobile Phones
- Charging Circuits
- Motor Control

Mechanical Data

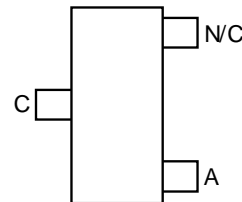
- Case: SOT23
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 3 per J-STD-020
- Terminals: Matte Tin Finish. Solderable per MIL-STD-202, Method 208
- Weight: 0.0089 grams (Approximate)



Top View



Device Symbol

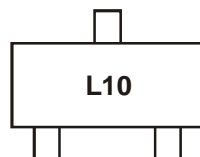


Pinout – Top View

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

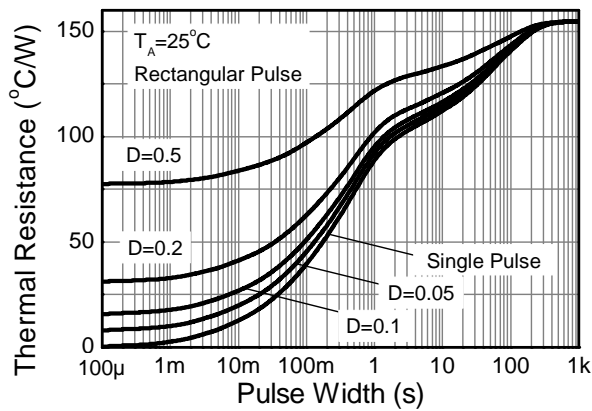
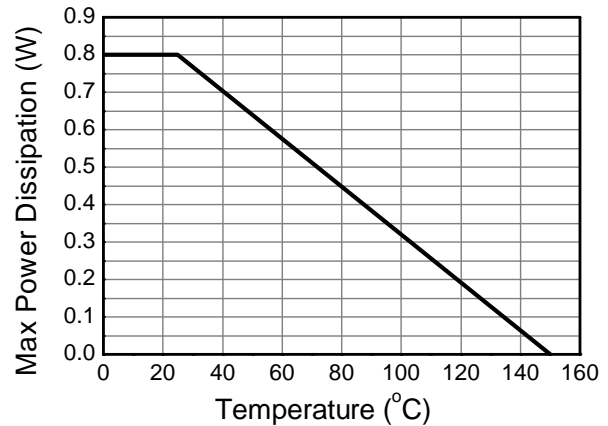
Maximum Ratings (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Continuous Reverse Voltage	V_R	40	V
Average Rectified Output Current	I_O	1.16	A
Peak Repetitive Forward Current Rectangular Pulse Duty Cycle 50% 100 μs Pulse Width	I_{FPK}	2.6	A
Non Repetitive Forward Current	I_{FSM}	$t \leq 100\mu\text{s}$	22
		$t \leq 10\text{ms}$	6.4

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation @ $T_A = +25^\circ\text{C}$ Single Die Continuous Single Die Measured at $t < 5$ secs	P_D	0.8	W
		1.18	
Thermal Resistance Junction to Ambient (Note 6)	$R_{\theta JA}$	155	$^\circ\text{C/W}$
Thermal Resistance Junction to Ambient (Note 7)	$R_{\theta JA}$	106	$^\circ\text{C/W}$
Thermal Resistance Junction to Lead (Solder Point)	$R_{\theta JL}$	80	$^\circ\text{C/W}$
Storage Temperature Range	T_{STG}	-55 to +150	$^\circ\text{C}$
Junction Temperature	T_J	+150	$^\circ\text{C}$

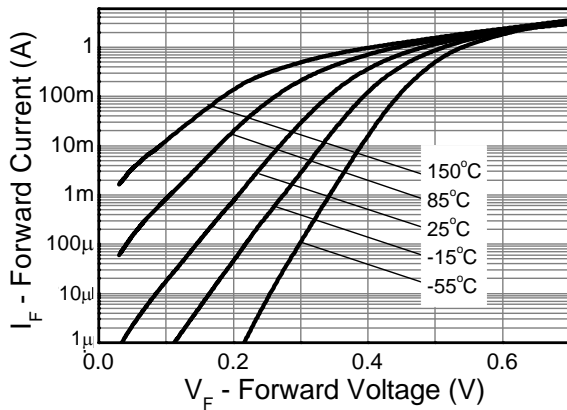
Notes: 6. For a device surface mounted on 25mm x 25mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions.
7. For a device mounted on FRB PCB measured at $t < 5$ secs.

Thermal Characteristics and Derating information

Transient Thermal Impedance

Derating Curve

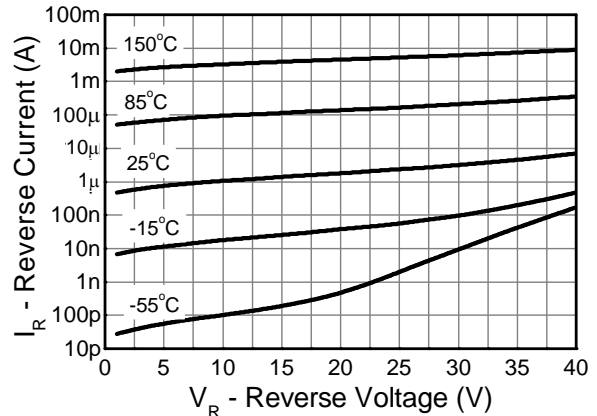
Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage	V _{(BR)R}	40	-	-	V	I _R = 500μA
Forward Voltage (Note 8)	V _F	-	320	355	mV	I _F = 50mA
			335	380		I _F = 100mA
			380	425		I _F = 250mA
			410	460		I _F = 500mA
			440	510		I _F = 750mA
			470	560		I _F = 1A
			530	660		I _F = 1.5A
			430	-		I _F = 1000mA, T _A = +100°C
Reverse Current	I _R	-	5 500	20 -	μA μA	V _R = 30V V _R = 30V, T _A = +85°C
Diode Capacitance	C _D	-	28	-	pF	f = 1MHz, V _R = 30V
Reverse Recovery Time	t _{RR}	-	5	-	ns	Switched from I _F = 500mA to V _R = 5.5V Measured @ I _R = 50mA. di/dt = 500mA/ns.
Reverse Recovery Charge	Q _{RR}	-	350	-	nC	R _{SOURCE} = 6Ω; R _{LOAD} = 10Ω

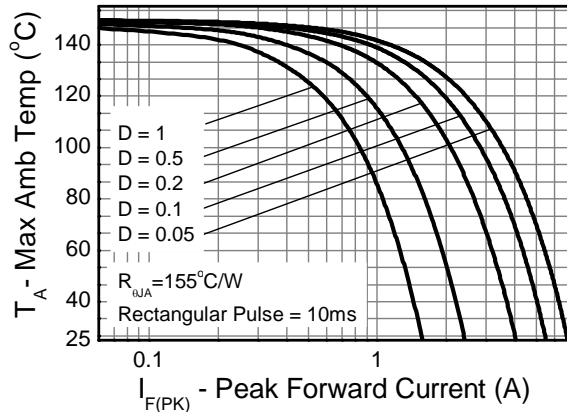
Note: 8. Measured under pulsed conditions. Pulse width = 300μs. Duty cycle < 2%



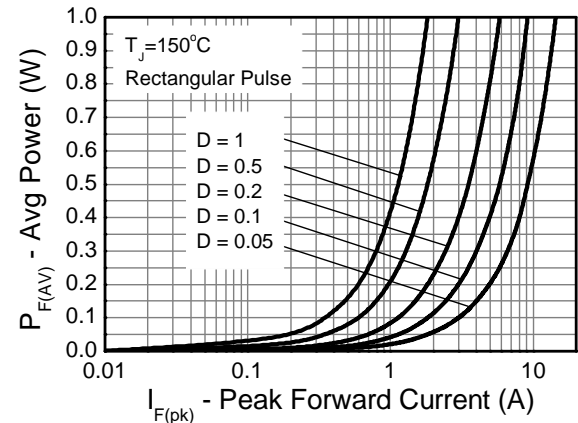
Typical Forward Characteristics



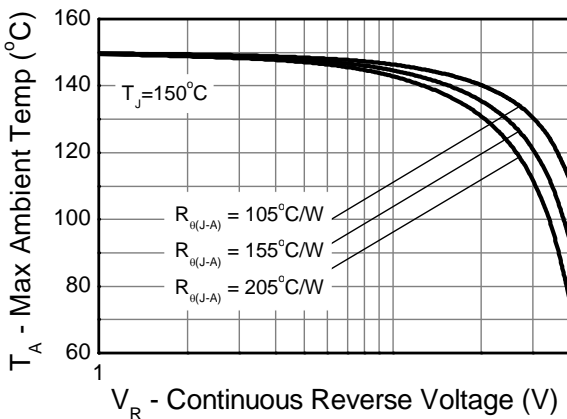
Typical Reverse Characteristics



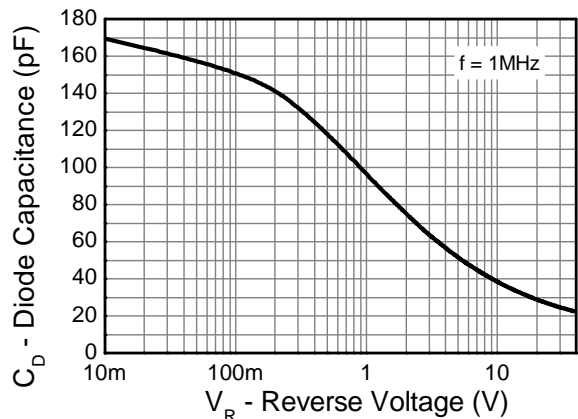
Typical Forward Safe Operating Area



Forward Power vs Peak Current



Typical Reverse Safe Operating Area

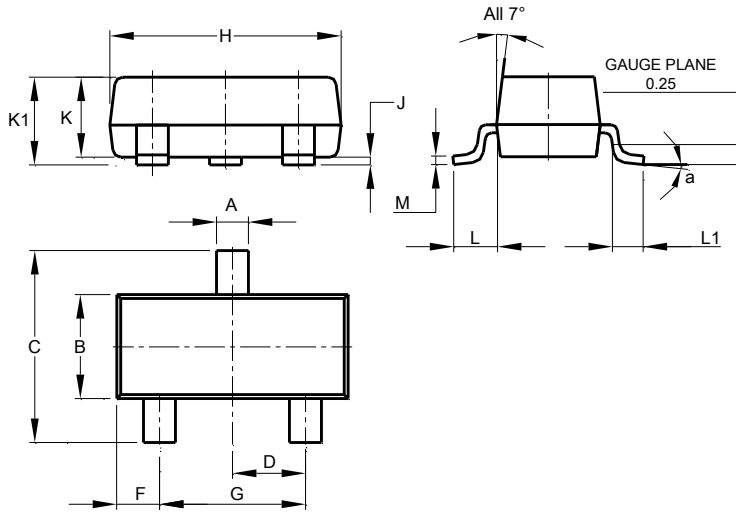


Capacitance vs Reverse Voltage

Package Outline Dimensions

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

SOT23

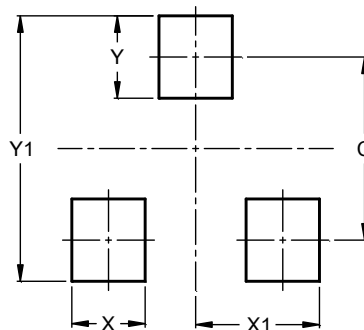


SOT23			
Dim	Min	Max	Typ
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	2.30	2.50	2.40
D	0.89	1.03	0.915
F	0.45	0.60	0.535
G	1.78	2.05	1.83
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.890	1.00	0.975
K1	0.903	1.10	1.025
L	0.45	0.61	0.55
L1	0.25	0.55	0.40
M	0.085	0.150	0.110
a	0°	8°	--
All Dimensions in mm			

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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