40V HIGH CURRENT LOW LEAKAGE SCHOTTKY DIODE

Features

- Low Equivalent on Resistance
- Extremely Low Leakage (Typically 6µA @30V)
- High Current Capability (I_F = 1.16A)
- 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**
- **An Automotive-Compliant Part is Available Under Separate Datasheet (ZLLS1000QTA)**

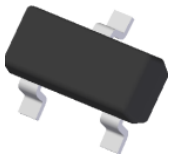
Mechanical Data

- Case: SOT23
- UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish Annealed over Alloy 42 Leadframe. Solderable per MIL-STD-202, Method 208 e3
- Weight: 0.008 grams (Approximate)

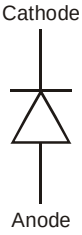
Applications

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

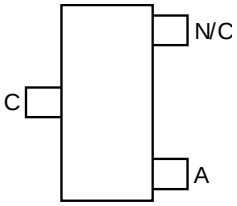
SOT23



Top View



Device Symbol



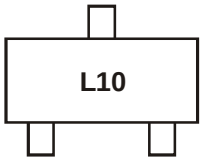
Pinout – Top View

Ordering Information (Note 4)

Part Number	Marking	Reel Size (inches)	Tape Width (mm)	Quantity Per Reel
ZLLS1000TA	L10	7	8	3,000 Units

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. 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°C, unless otherwise specified.)

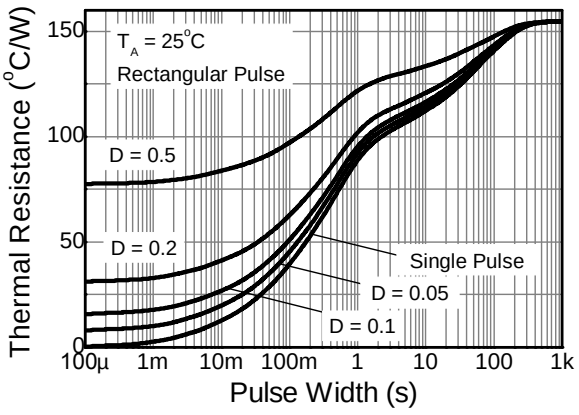
Characteristic	Symbol	Value	Unit
Continuous Reverse Voltage	V_R	40	V
Forward Current	I_F	1.16	A
Peak Repetitive Forward Current Rectangular Pulse Duty Cycle 50% 100µs Pulse Width	I_{FPK}	2.6	A
Non Repetitive Forward Current t ≤ 100µs t ≤ 10ms	I_{FSM}	22 6.4	A A

Thermal Characteristics

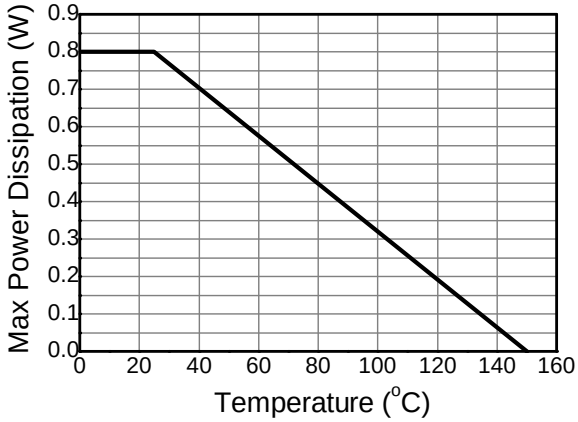
Characteristic	Symbol	Value	Unit
Power Dissipation @T_A = +25°C Single Die Continuous Single Die Measured at t < 5s	P_D	0.8 1.18	W
Thermal Resistance Junction to Ambient (Note 5)	$R_{\theta JA}$	155	°C/W
Thermal Resistance Junction to Ambient (Note 6)	$R_{\theta JA}$	106	°C/W
Thermal Resistance Junction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

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

Thermal Characteristics and Derating information



Transient Thermal Impedance

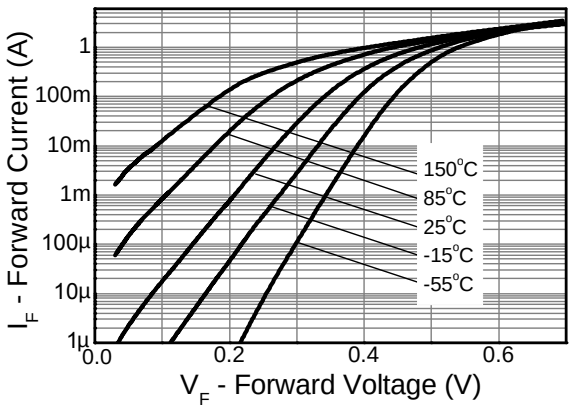


Derating Curve

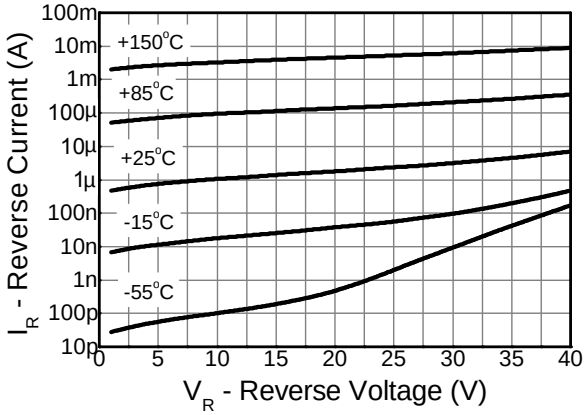
Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage	$V_{(BR)R}$	40	—	—	V	I_R = 500µA
Forward Voltage (Note 7)	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	20	µA	V_R = 30V
			500	—	µA	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
Reverse Recovery Charge	Q_{RR}		350		nC	Measured @ I_R 50mA, di/dt = 500mA/ns
						R_{SOURCE} = 6Ω; R_{LOAD} = 10Ω

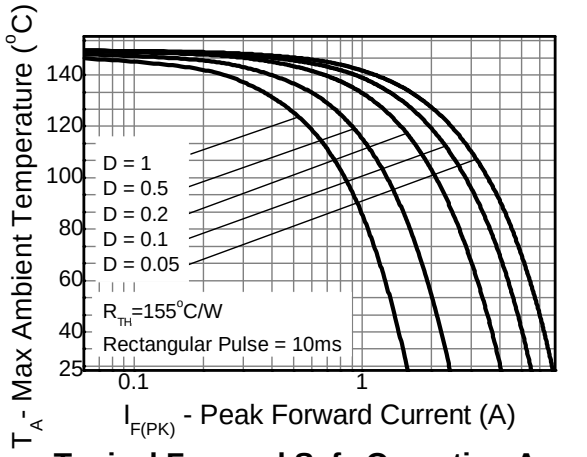
Note: 7. Measured under pulsed conditions. Pulse width = 300µs. Duty cycle < 2%.



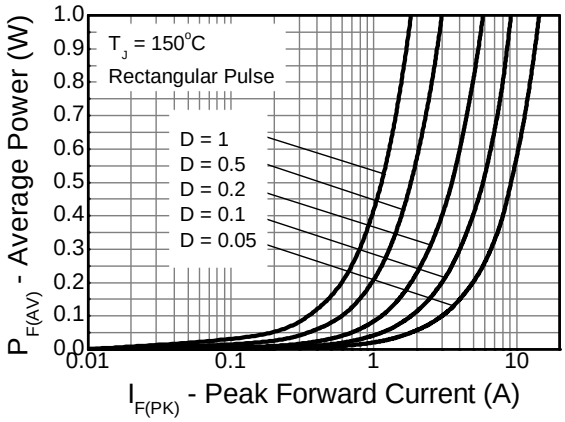
Typical Forward Characteristics



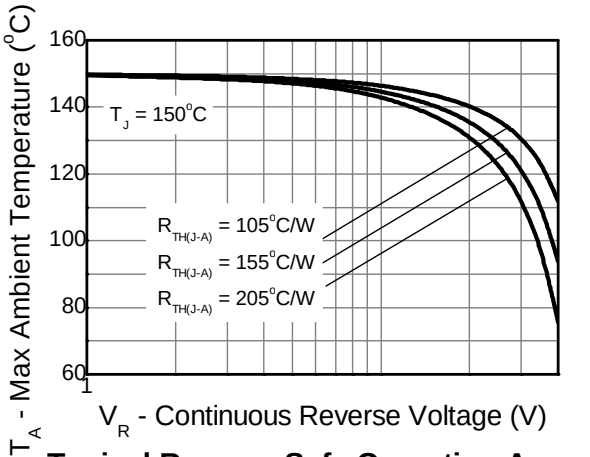
Typical Reverse Characteristics



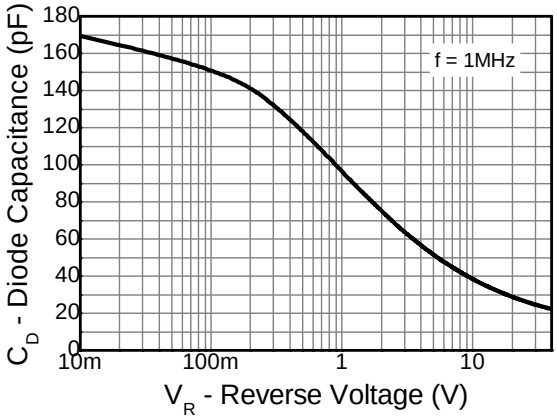
Typical Forward Safe Operating Area



Forward Power vs Peak Current



Typical Reverse Safe Operating Area

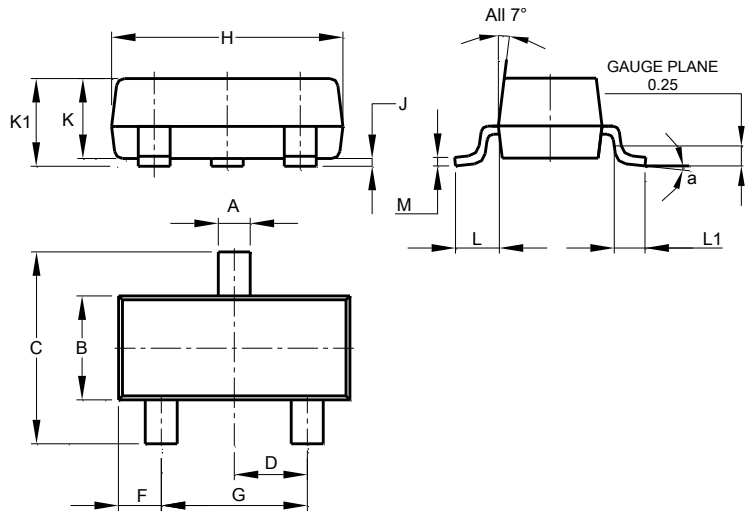


Capacitance vs Reverse Voltage

Package Outline Dimensions

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

SOT23

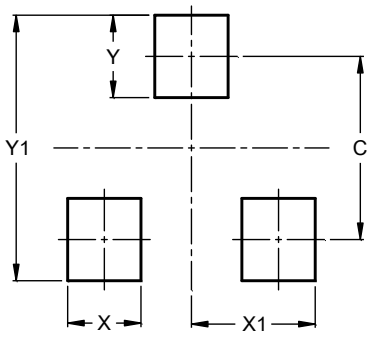


SOT23			
Dim	**Min**	**Max**	**Typ**
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	2.30	2.50	2.40
D	0.89	1.03	0.915
F	0.45	0.60	0.535
G	1.78	2.05	1.83
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.890	1.00	0.975
K1	0.903	1.10	1.025
L	0.45	0.61	0.55
L1	0.25	0.55	0.40
M	0.085	0.150	0.110
a	0°	8°	--
All Dimensions in mm			

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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