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)

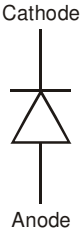
Applications

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

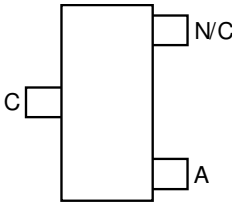
SOT23



Top View



Device Symbol



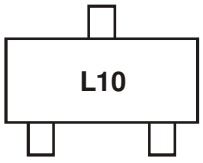
Pinout – Top View

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

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Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

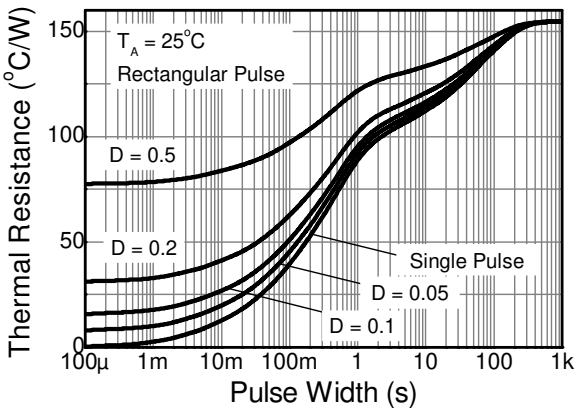
Characteristic	Symbol	Value	Unit
Continuous Reverse Voltage	V_R	40	V
Forward Current	I_F	1.16	A
Peak Repetitive Forward Current Rectangular Pulse Duty Cycle 50% 100µs Pulse Width	I_{FPK}	2.6	A
Non Repetitive Forward Current t ≤ 100µs t ≤ 10ms	I_{FSM}	22 6.4	A A

Thermal Characteristics

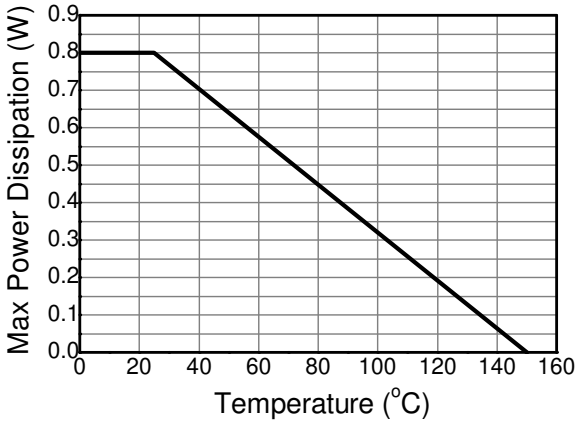
Characteristic	Symbol	Value	Unit
Power Dissipation @T_A = +25°C Single Die Continuous Single Die Measured at t < 5s	P_D	0.8 1.18	W
Thermal Resistance Junction to Ambient (Note 5)	$R_{\theta JA}$	155	°C/W
Thermal Resistance Junction to Ambient (Note 6)	$R_{\theta JA}$	106	°C/W
Thermal Resistance Junction 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

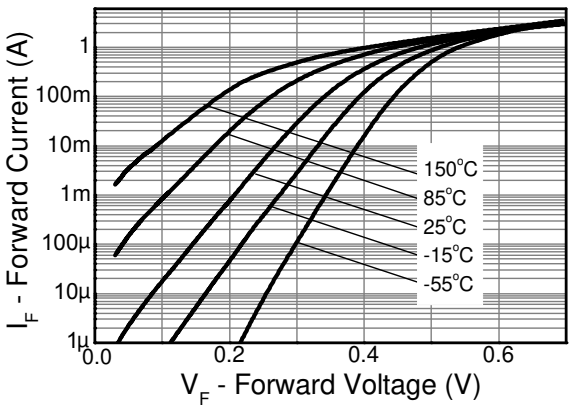
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Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

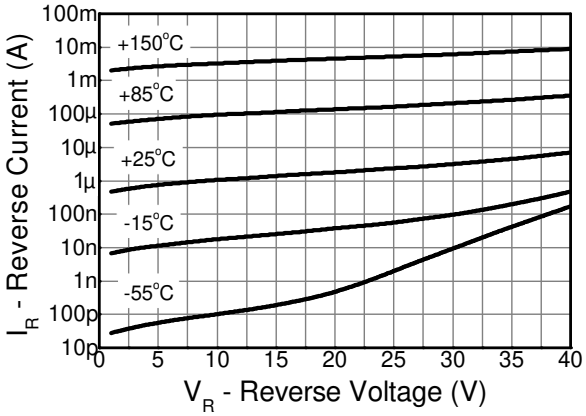
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage	$V_{(BR)R}$	40	—	—	V	I_R = 500µA
Forward Voltage (Note 7)	V_F	—	320	355	mV	I_F = 50mA
			335	380		I_F = 100mA
			380	425		I_F = 250mA
			410	460		I_F = 500mA
			440	510		I_F = 750mA
			470	560		I_F = 1A
			530	660		I_F = 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%.

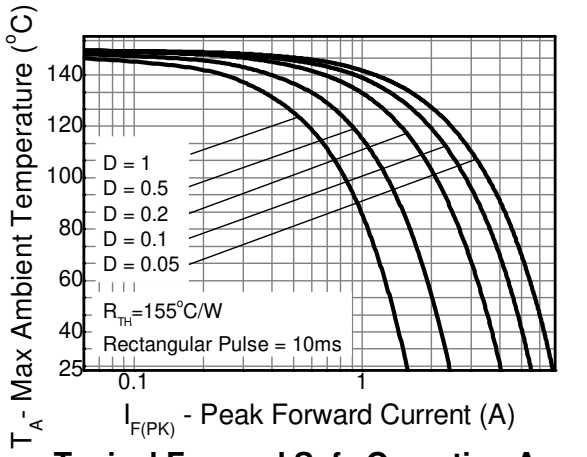
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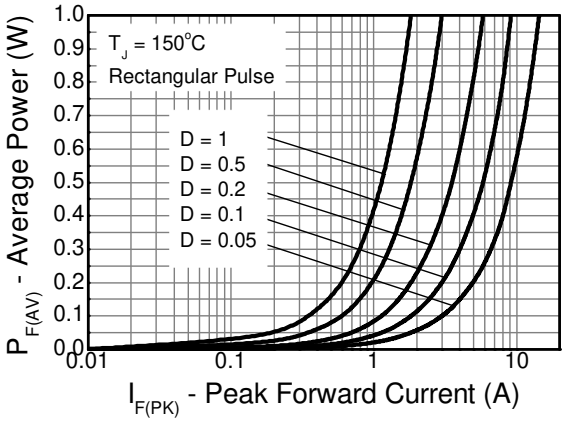
Typical Forward Characteristics



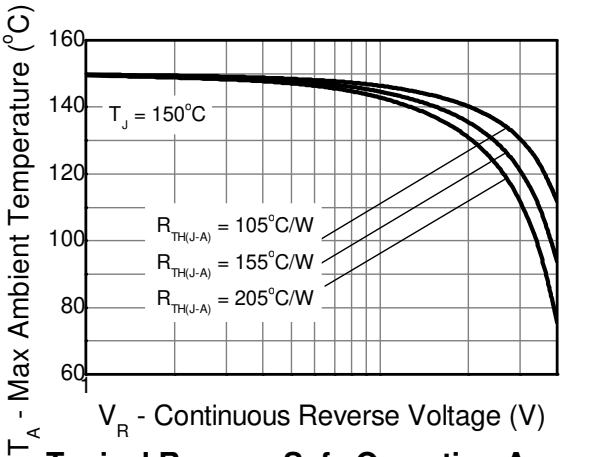
Typical Reverse Characteristics



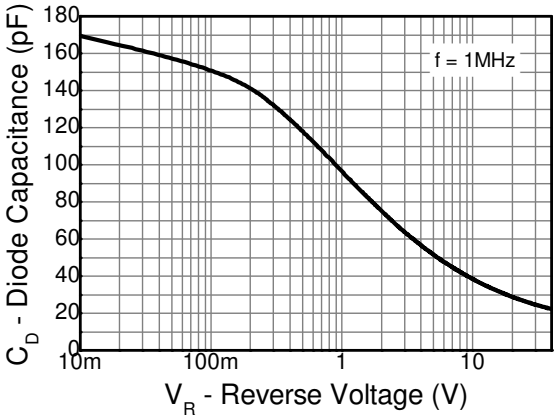
Typical Forward Safe Operating Area



Forward Power vs Peak Current



Typical Reverse Safe Operating Area



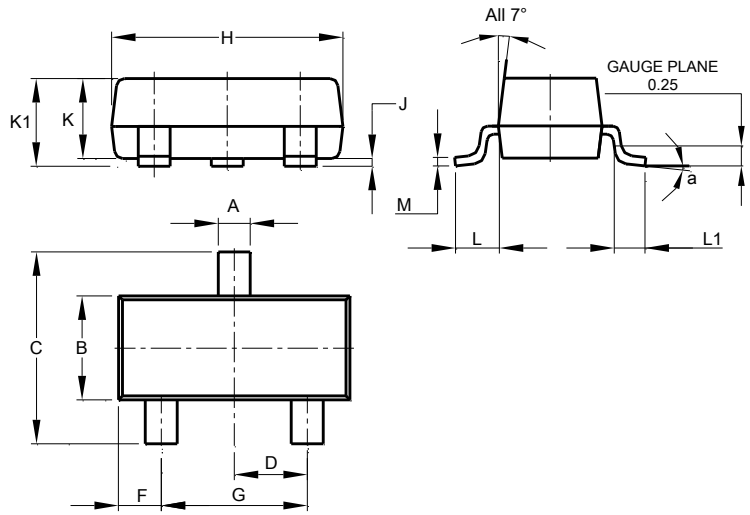
Capacitance vs Reverse Voltage

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Package Outline Dimensions

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

SOT23

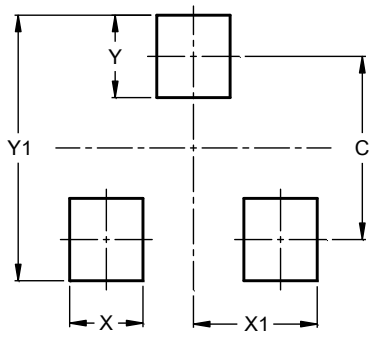


SOT23			
Dim	**Min**	**Max**	**Typ**
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	2.30	2.50	2.40
D	0.89	1.03	0.915
F	0.45	0.60	0.535
G	1.78	2.05	1.83
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.890	1.00	0.975
K1	0.903	1.10	1.025
L	0.45	0.61	0.55
L1	0.25	0.55	0.40
M	0.085	0.150	0.110
a	0°	8°	--
All Dimensions in mm			

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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