ZLLS1000

40V HIGH CURRENT LOW LEAKAGE SCHOTTKY DIODE

Features

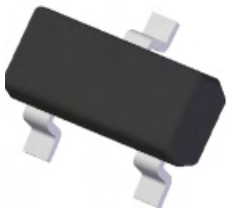
- Low Equivalent on Resistance
- Extremely Low Leakage (typically 6μA @30V)
- High current capability (I_F = 1.16A)
- Low V_F, Fast Switching Schottky
- SOT-23 Package
- ZLLS1000 Complements Low Temperature Equivalent ZHCS1000
- Package Thermally Rated to 150°C
- **Lead, Halogen, and Antimony Free/RoHS Compliant (Note 1)**
- **"Green" Device (Note 2)**
- **Qualified to AEC-Q101 Standards for High Reliability**

Mechanical Data

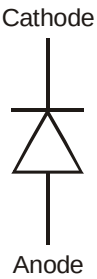
- Case: SOT-23
- UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish
- Weight: 0.008 grams (Approximate)

Applications

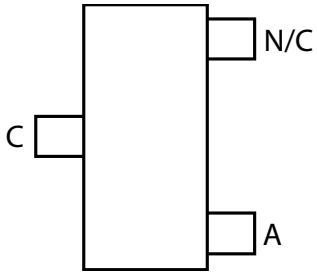
- DC – DC converters
- Strobes
- Mobile phones
- Charging circuits
- Motor control



SOT-23



Device symbol



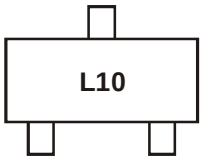
Pinout – top view

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 purposefully added lead. Halogen and Antimony Free.
2. Diodes Inc's "Green" Policy can be found on our website at http://www.diodes.com

Marking Information



L10 = Product type Marking Code

Maximum Ratings @T_A = 25°C unless otherwise specified

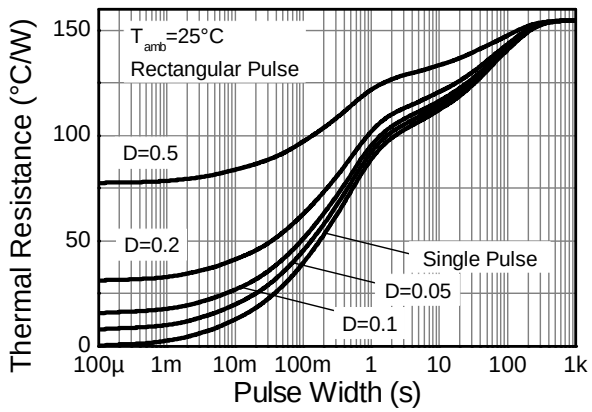
Characteristic	Symbol	Value	Unit
Continuous Reverse Voltage	V_R	40	V
Forward Current	I_F	1.16	A
Peak Repetitive Forward Current Rectangular Pulse Duty Cycle 50% 100µs pulse width	I_{FPK}	2.6	A
Non Repetitive Forward Current t≤100µs t≤10ms	I_{FSM}	22 6.4	A A

Thermal Characteristics

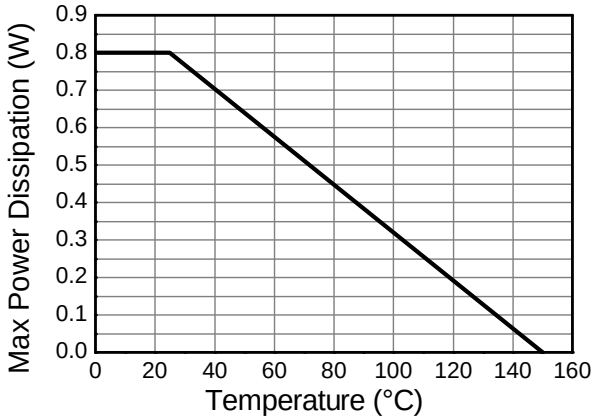
Characteristic	Symbol	Value	Unit
Power Dissipation @T_A = 25°C Single Die Continuous Single Die Measured at t<5 secs	P_D	0.8 1.18	W
Thermal Resistance Junction to Ambient (Note 3)	$R_{\theta JA}$	155	°C/W
Thermal Resistance Junction to Ambient (Note 4)	$R_{\theta JA}$	106	°C/W
Thermal Resistance Junction 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: 3. For a device surface mounted on 25mm x 25mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions.
4. For a device mounted on FRB PCB measured at t<5secs.

Thermal Characteristics and Derating information



Transient Thermal Impedance

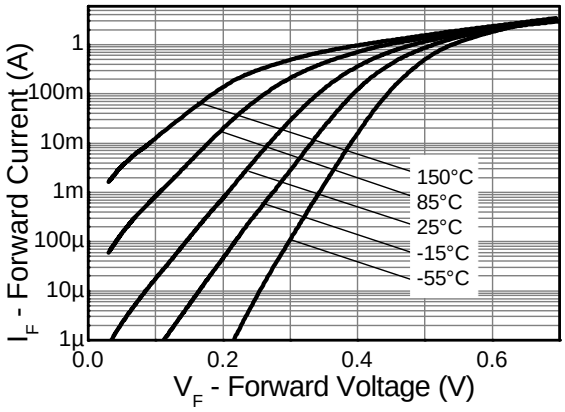


Derating Curve

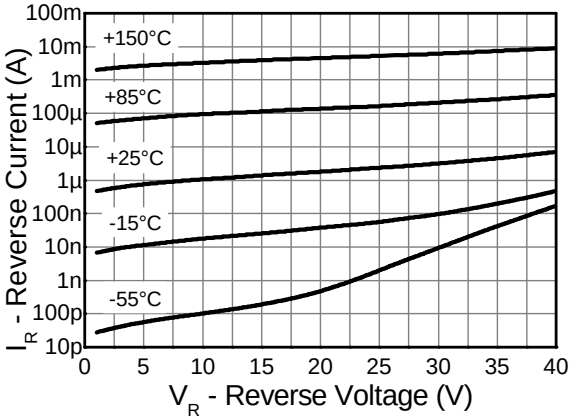
Electrical Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse breakdown voltage	$V_{(BR)R}$	40	-	-	V	I_R = 500µA
Forward voltage (Note 5)	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 Reverse recovery charge	t_{rr} Q_{rr}	-	5 350	-	ns nC	Switched from I_F = 500mA to V_R = 5.5V Measured @ I_R 50mA. di /dt = 500mA/ ns. R_{source} = 6Ω; R_{load} = 10Ω

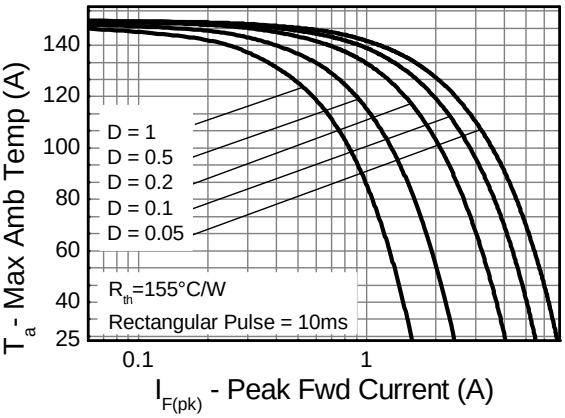
Notes: 5. Measured under pulsed conditions. Pulse width = 300µs. Duty cycle < 2%



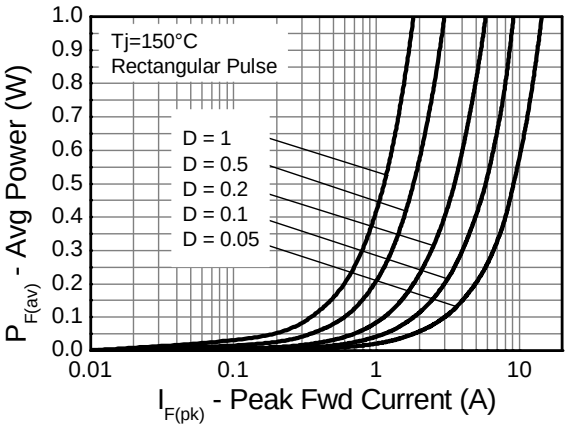
Typical Forward Characteristics



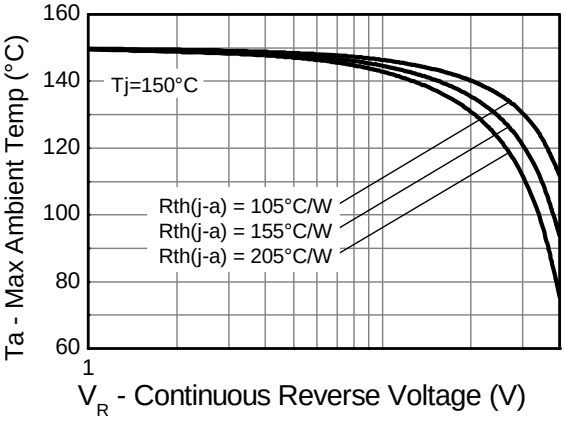
Typical Reverse Characteristics



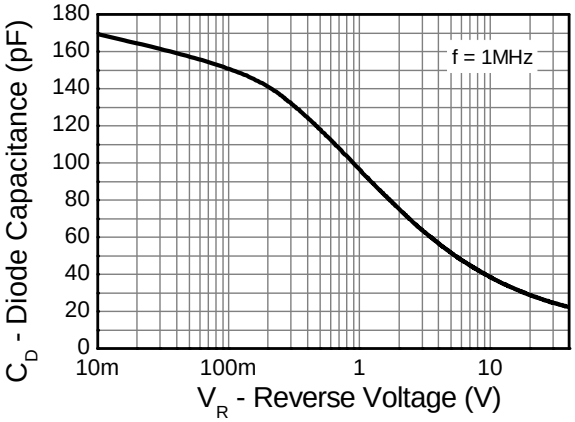
Typical Forward Safe Operating Area



Forward Power vs Peak Current

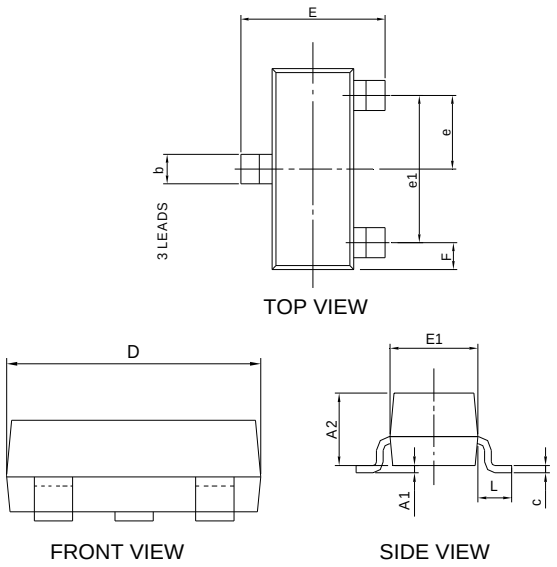


Typical Reverse Safe Operating Area



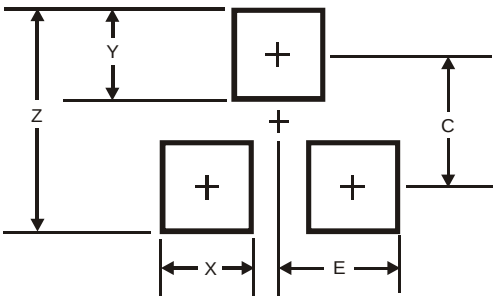
Capacitance vs Reverse Voltage

Package Outline Dimensions



SOT-23			
Dim	**Min**	**Max**	**Typ**
A1	0.013	0.100	0.05
A2	0.903	1.100	1.00
b	0.37	0.51	0.40
c	0.85	0.180	0.110
D	2.80	3.00	2.90
E	2.30	2.50	2.40
E1	1.20	1.40	1.30
e	0.89	1.03	0.915
e1	1.78	2.05	1.83
F	0.45	0.60	0.535
L	0.45	0.60	0.535
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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