

Product Summary

V_R (V)	I_F (A)	V_F Max @ 400mA (V)	I_R Max @ 30V (μ A)
40	0.52	0.5	10

Description

This compact SOD323 packaged Schottky diode offers users an excellent performance combination comprising high-current operation, extremely low leakage and low-forward voltage, ensuring suitability for applications requiring efficient operation at higher temperatures (above +85°C) see Operational Efficiency Chart on page 3.


Applications

- DC–DC converters
- Mobile telecoms
- Charging circuits
- Motor controls

Features and Benefits

- Low Equivalent On-Resistance
- Extremely Low Leakage (10 μ A @30V)
- High-Current Capability ($I_F = 0.52$ A)
- Low V_F , Fast Switching Schottky
- ZLLS400 Complements Low Temperature Equivalent ZHCS400
- Package Thermally Rated to +150°C
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **An Automotive Compliant part is available under a separate datasheet ([ZLLS400Q](#))**

Mechanical Data

- Package: SOD323
- Package Material: UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin Annealed over Alloy 42 Leadframe. Solderable per MIL-STD-202, Method 208 
- Weight: 0.004 grams (Approximate)

SOD323



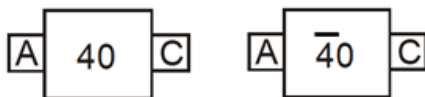
Top View

Ordering Information (Note 4)

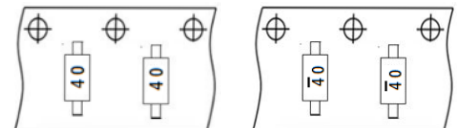
Part Number	Package	Packing	
		Qty.	Carrier
ZLLS400TA	SOD323	3,000	Tape & Reel
ZLLS400TC	SOD323	10,000	Tape & Reel

- 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. For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

Marking Information



40 & $\bar{40}$ = Product Type Marking Code



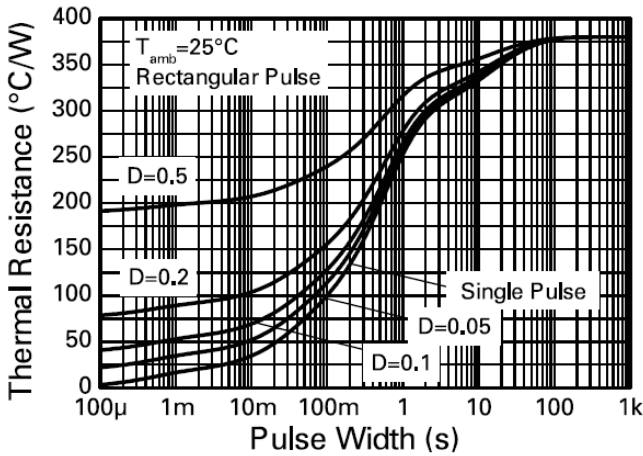
Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit	
Continuous Reverse Voltage	V _R	40	V	
Continuous Forward Current	I _F	0.52	A	
Peak Repetitive Forward Current Rectangular Pulse Duty Cycle	I _{FPK}	0.85	A	
Non Repetitive Forward Current		t ≤ 100μs	12	A
		t ≤ 10ms	2.5	A

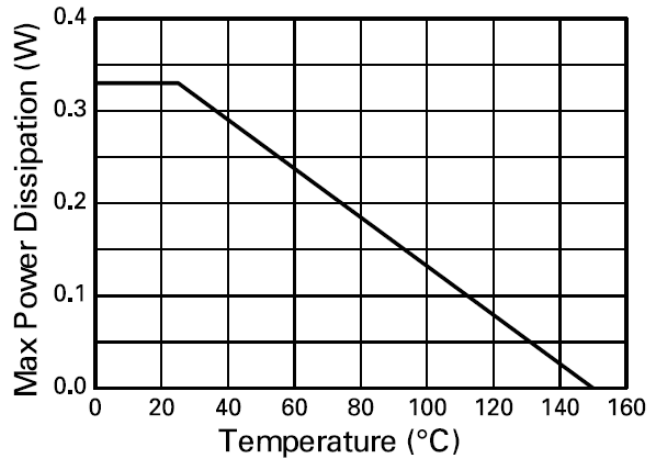
Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P _D	260	mW
Power Dissipation (Note 6)		370	
Thermal Resistance, Junction to Ambient	(Note 5)	480	°C/W
		(Note 6)	
Junction Temperature	T _J	+150	°C
Storage Temperature Range	T _{STG}	-55 to +150	°C

Notes: 5. For a device surface mounted on 1*MRP FR-4 PC board, 2oz. in still air conditions.
6. For a device surface mounted on 1inch sq. copper pad, 2oz. in still air conditions.



Transient Thermal Impedance



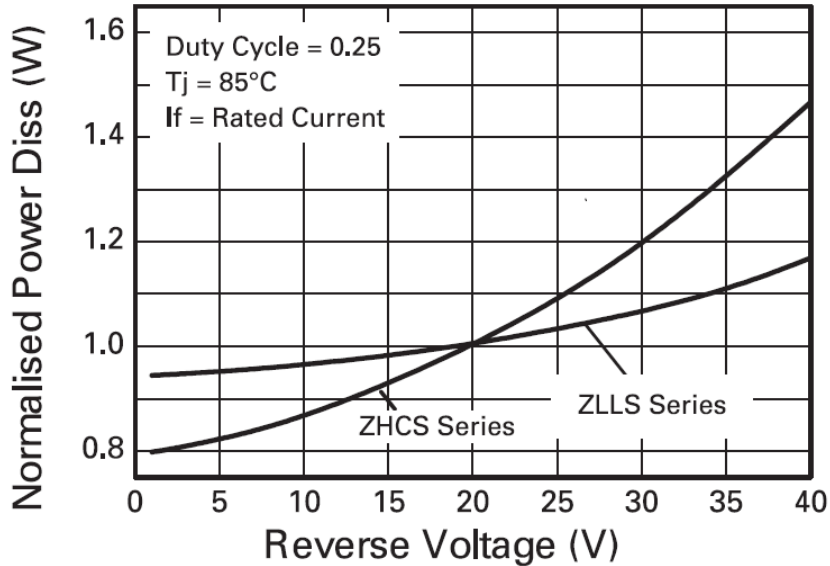
Derating Curve

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage	V _{(BR)R}	40	60	—	V	I _R = 200μA
Forward Voltage (Note 7)	V _F	—	305	360	mV	I _F = 50mA
		—	335	390		I _F = 100mA
		—	395	450		I _F = 250mA
		—	445	500		I _F = 400mA
		—	550	630		I _F = 750mA
		—	620	710		I _F = 1A
		—	710	800		I _F = 1.5A
		—	405	—		I _F = 400mA, T _A = +100°C
Reverse Current	I _R	—	6	10	μA	V _R = 30V
		—	370	—		V _R = 30V, T _A = +85°C
Diode Capacitance	C _D	—	15	—	pF	f = 1MHz, V _R = 30V
Reverse Recovery Time	t _{RR}	—	3	—	ns	Switched from I _F = 500mA to V _R = 5.5V Measured @
Reverse Recovery Charge	Q _{RR}	—	210	—	pC	I _R = 50mA, di/dt = 500mA/ns R _{SOURCE} = 6Ω, R _{LOAD} = 10Ω

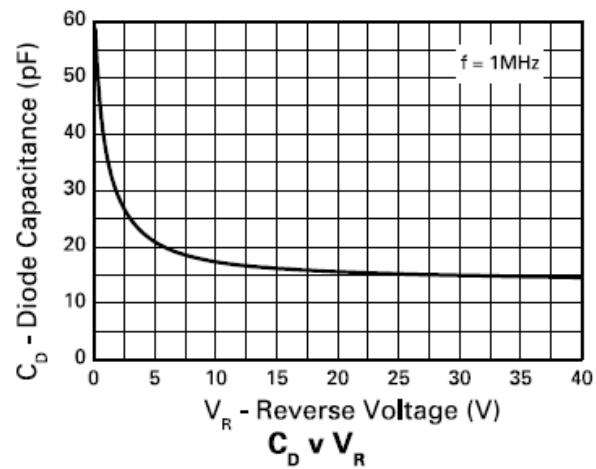
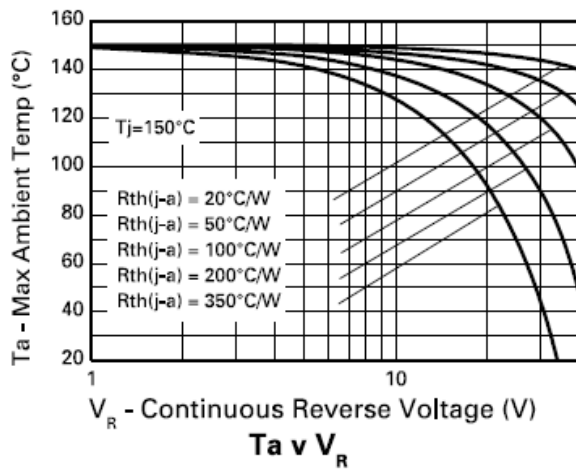
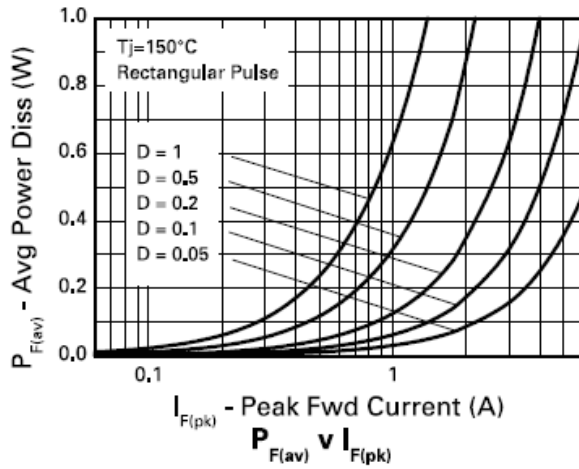
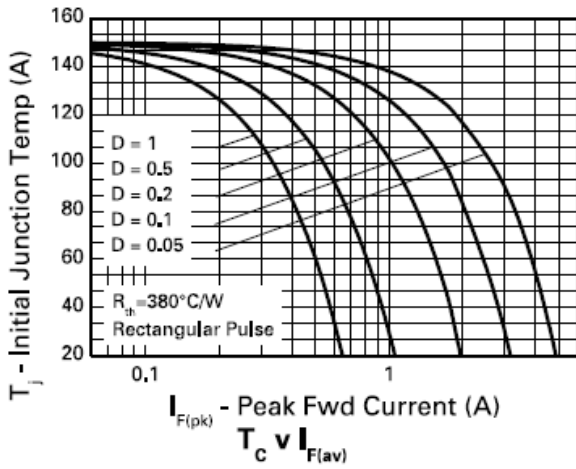
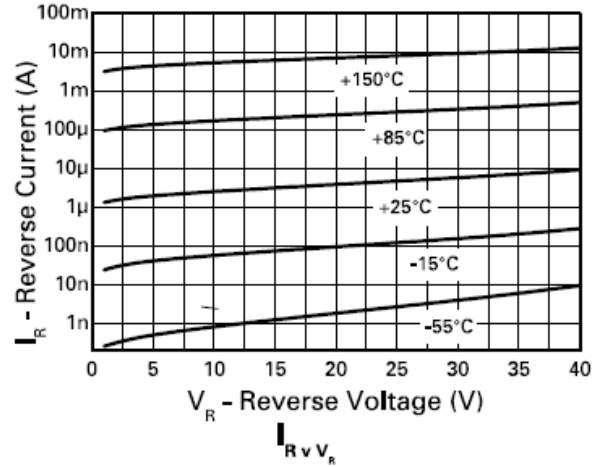
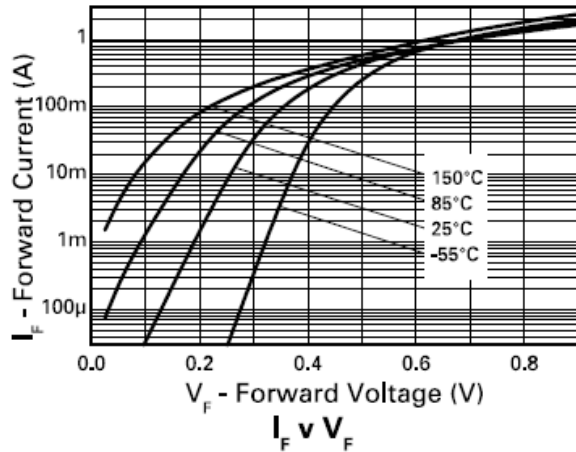
Note: 7. Measured under pulsed conditions. Pulse width = 300μs. Duty cycle ≤ 2%.

Operational Efficiency Chart



Operational Efficiency Example

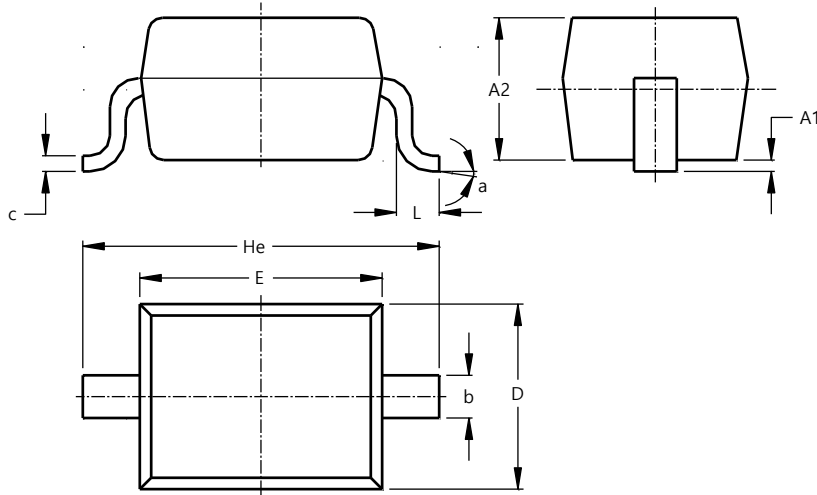
The operational efficiency chart indicates the beneficial use of the ZLLS series diodes in applications requiring higher voltage and higher temperature operation. Circuits requiring low-voltage low-temperature operation will benefit from using Zetex low V_F ZHCS series diodes.



Package Outline Dimensions

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

SOD323

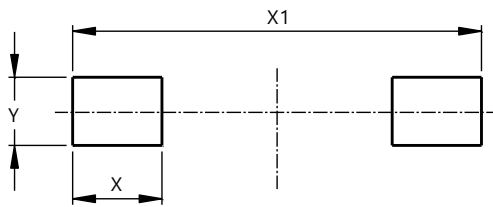


SOD323			
Dim	Min	Max	Typ
A1	--	0.10	0.05
A2	1.00	1.10	1.05
b	0.25	0.35	0.30
c	0.10	0.15	0.11
D	1.20	1.40	1.30
E	1.60	1.80	1.70
He	2.30	2.70	2.50
L	0.20	0.40	0.30
a	0°	8°	--
All Dimensions in mm			

Suggested Pad Layout

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

SOD323



Dimensions	Value (in mm)
X	0.590
X1	2.700
Y	0.450

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