

**40V SURFACE-MOUNT SCHOTTKY BARRIER DIODE**

**Product Summary**

V <sub>R</sub> (V)	I <sub>F</sub> (A)	V <sub>F</sub> Max @ 400mA (V)	I <sub>R</sub> Max @ 30V (μA)
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 (10μA @30V)
- High-Current Capability (I<sub>F</sub> = 0.52A)
- Low V<sub>F</sub>, 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 (E3)
- Weight: 0.004 grams (Approximate)

SOD323



Top View

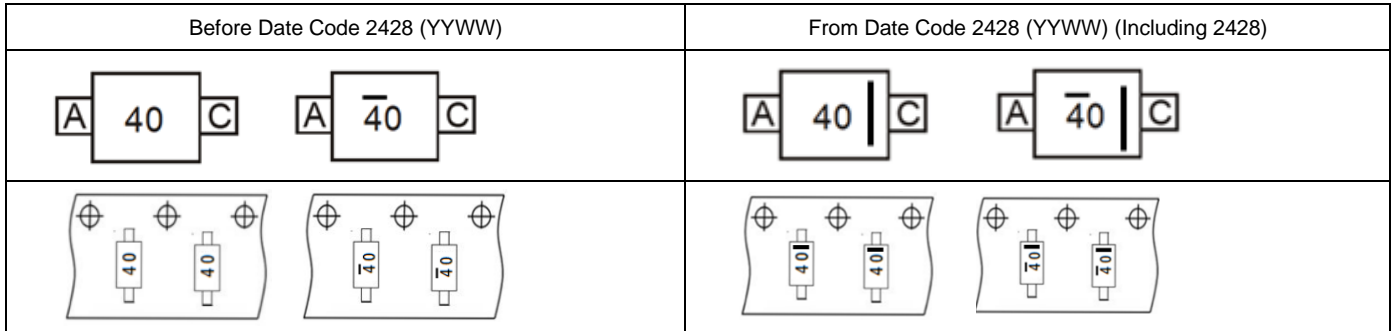
**Ordering Information** (Note 4)

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 & 4̄0 = Product Type Marking Code



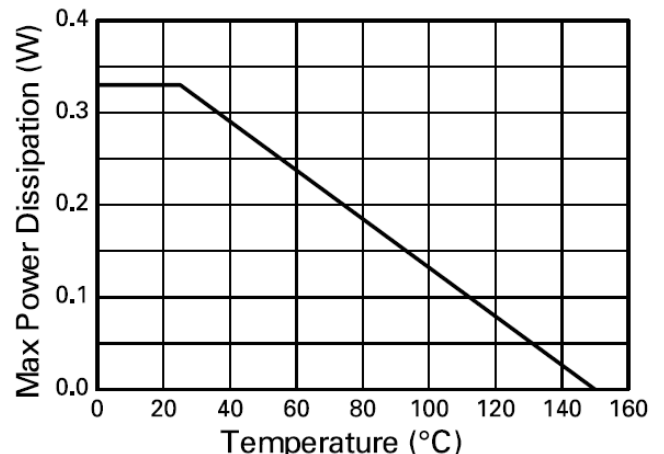
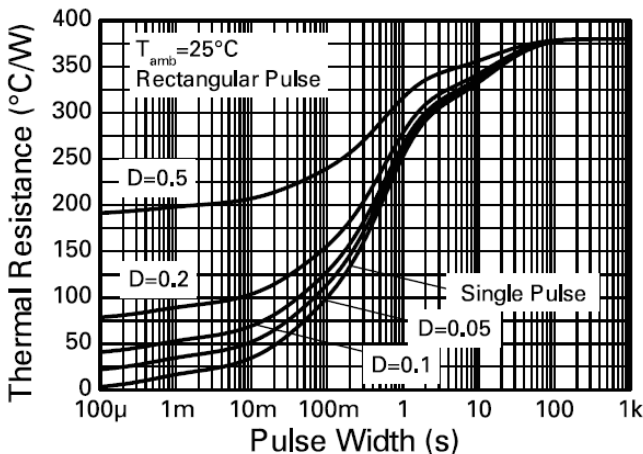
**Maximum Ratings** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit	
Continuous Reverse Voltage	V <sub>R</sub>	40	V	
Continuous Forward Current	I <sub>F</sub>	0.52	A	
Peak Repetitive Forward Current Rectangular Pulse Duty Cycle	I <sub>FPK</sub>	0.85	A	
Non Repetitive Forward Current	I <sub>FSM</sub>	t ≤ 100μs	12	A
		t ≤ 10ms	2.5	A

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit	
Power Dissipation (Note 5)	P <sub>D</sub>	260	mW	
Power Dissipation (Note 6)		370		
Thermal Resistance, Junction to Ambient	R <sub>θJA</sub>	(Note 5)	480	°C/W
		(Note 6)	330	
Junction Temperature	T <sub>J</sub>	+150	°C	
Storage Temperature Range	T <sub>STG</sub>	-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.

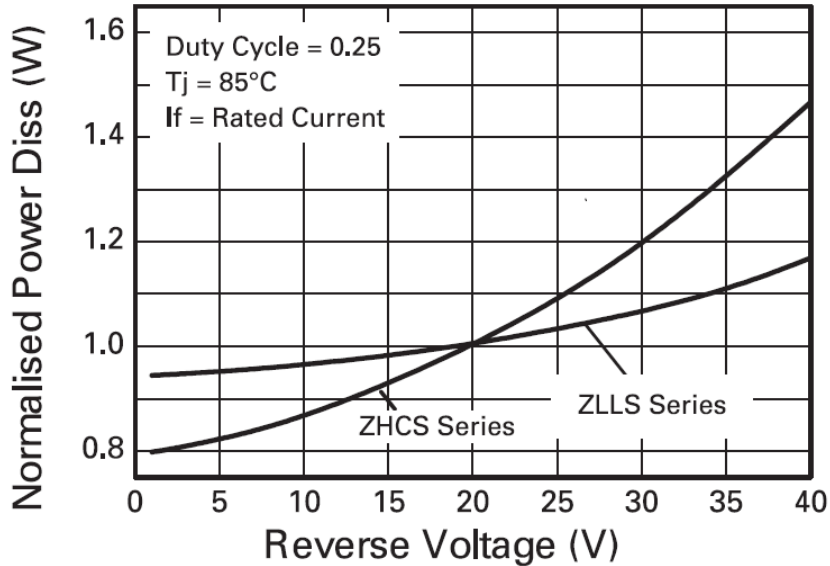


**Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

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

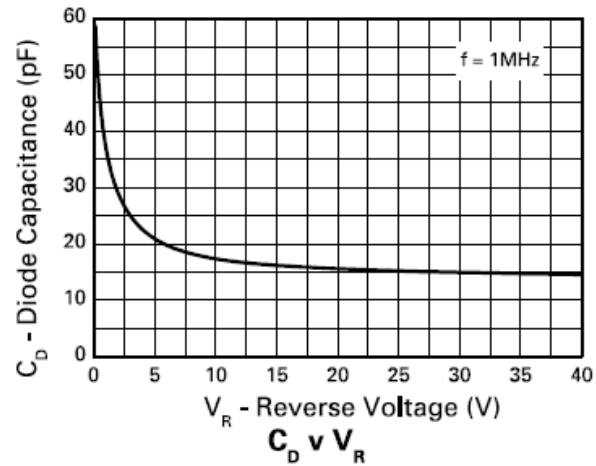
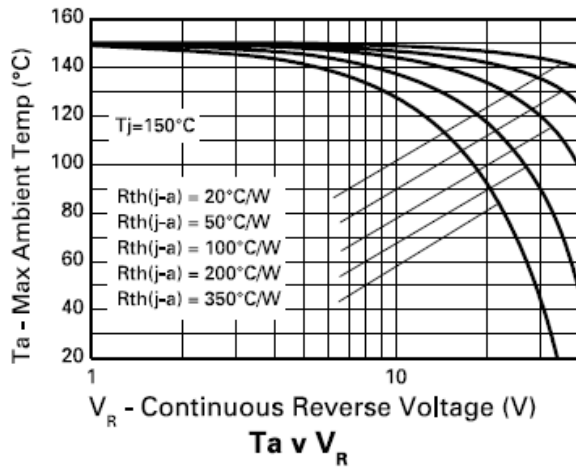
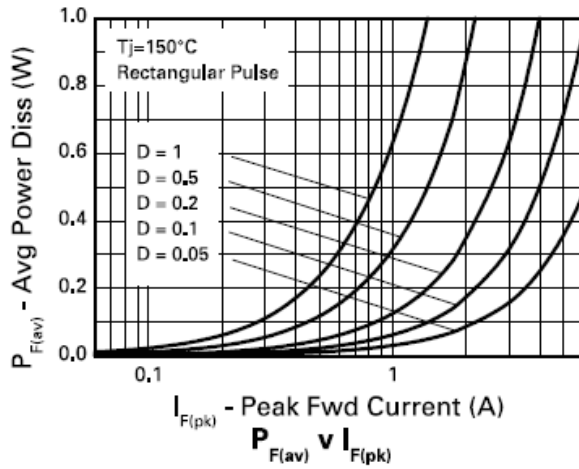
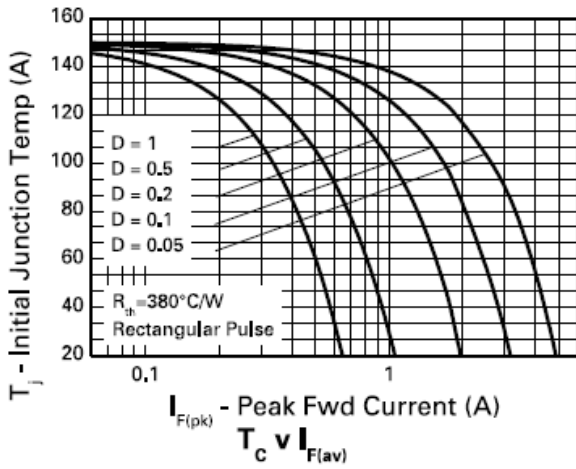
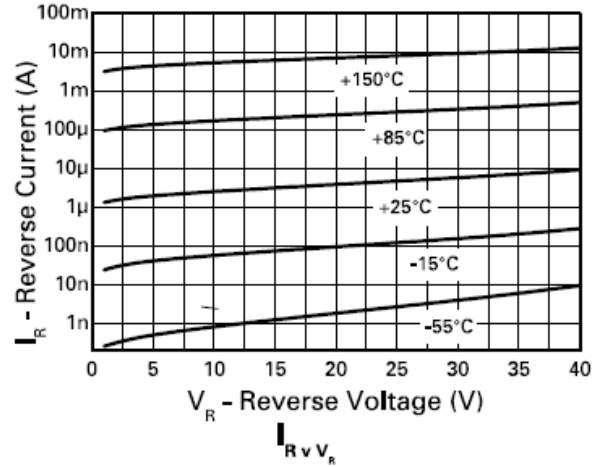
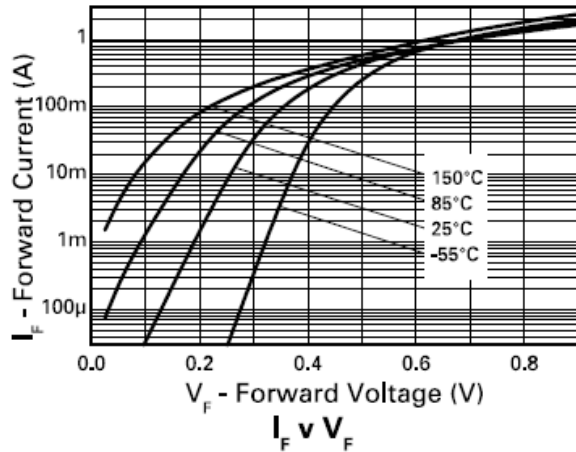
Note: 7. Measured under pulsed conditions. Pulse width = 300μs. Duty cycle ≤ 2%.

**Operational Efficiency Chart**



**Operational Efficiency Example**

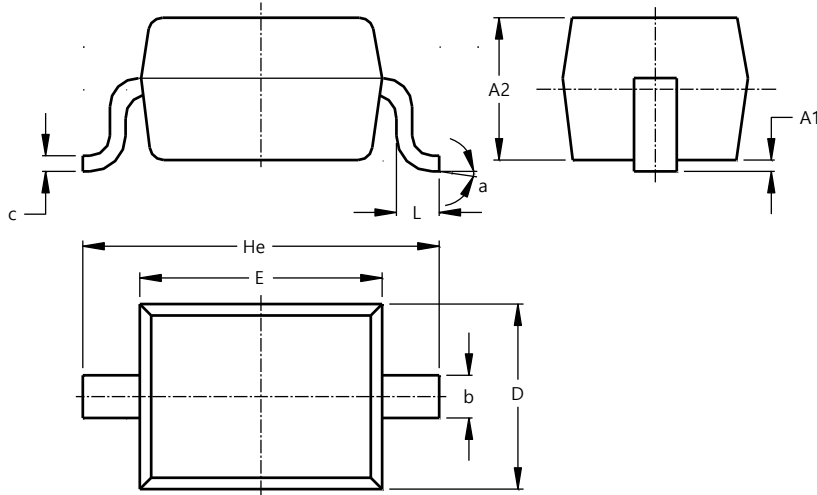
The operational efficiency chart indicates the beneficial use of the ZLLS series diodes in applications requiring higher voltage and higher temperature operation. Circuits requiring low-voltage low-temperature operation will benefit from using Zetex low V<sub>F</sub> ZHCS series diodes.



**Package Outline Dimensions**

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

**SOD323**

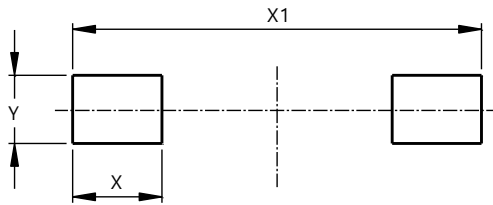


SOD323			
Dim	Min	Max	Typ
A1	--	0.10	0.05
A2	1.00	1.10	1.05
b	0.25	0.35	0.30
c	0.10	0.15	0.11
D	1.20	1.40	1.30
E	1.60	1.80	1.70
He	2.30	2.70	2.50
L	0.20	0.40	0.30
a	0°	8°	--
All Dimensions in mm			

**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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