

40V SURFACE-MOUNT SCHOTTKY BARRIER DIODE

Product Summary (@T_A = +25°C)

V _{RRM} (V)	I _O (A)	V _{F(MAX)} (V)	I _{R(MAX)} (µA)
40	0.4	0.5	40

Description and Applications

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. It is qualified by AEC-Q101, supported by a PPAP and is ideal for use in:

- DC-DC converters
- Mobile telecoms
- Blocking diodes
- Reverse polarity protections

Features and Benefits

- High-Current Capability (I_F = 0.40A)
- Miniature Surface-Mount Package
- Low V_F, Fast Switching Schottky
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **The ZHCS400Q is suitable for automotive applications requiring specific change control; this part is AEC-Q101 qualified, PPAP capable, and manufactured in IATF 16949 certified facilities.**

<https://www.diodes.com/quality/product-definitions/>

Mechanical Data

- Package: SOD323
- Package Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections: Cathode Band
- Terminals: Finish - Matte Tin Annealed over Alloy 42 Leadframe. Solderable per MIL-STD-202, Method 208 [Ⓔ]₃
- Weight: 0.004 grams (Approximate)

SOD323



Top View

Ordering Information (Note 4)

Part Number	Package	Packing	
		Qty.	Carrier
ZHCS400QTA	SOD323	3,000	Tape & Reel
ZHCS400QTC	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

BD = Product Type Marking Code

Before Date Code 2428 (YYWW)	From Date Code 2428 (YYWW) (Including 2428)

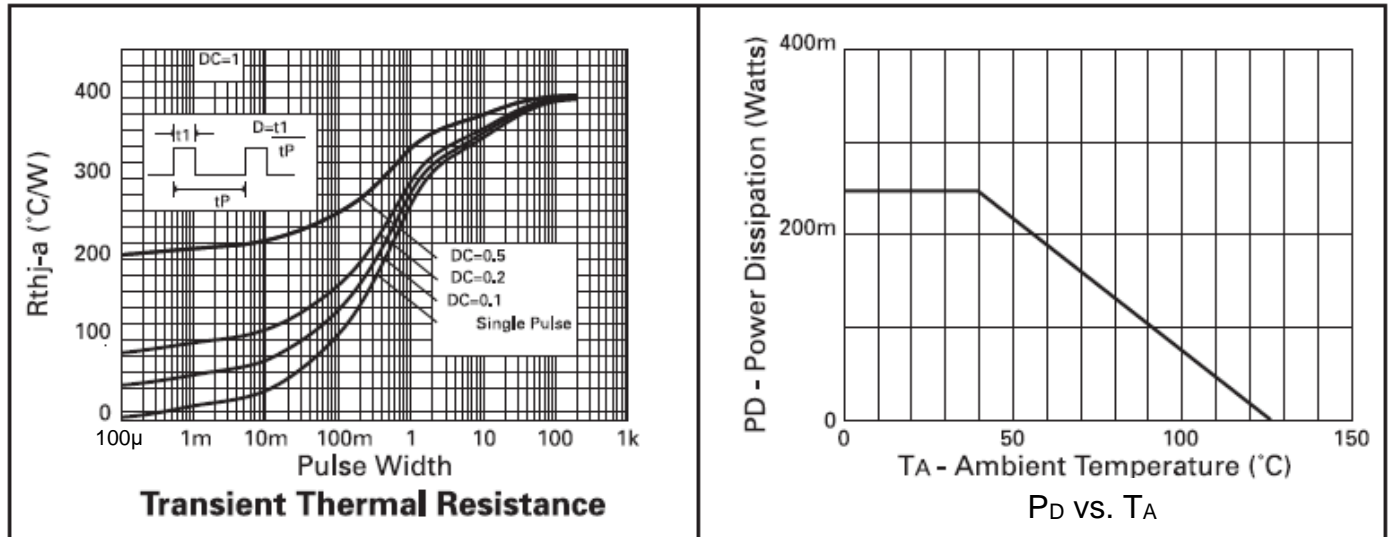
Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Continuous Reverse Voltage	V _R	40	V
Average Rectified Output Current	I _O	400	mA
Average Peak Forward Current, D.C. = 50%	I _{F(AV)}	1000	mA
Non Repetitive Forward Current	I _{FSM}	t ≤ 100μs	6.75
		t ≤ 10ms	3
Human Body Mode ESD Protection	ESD HBM	4000	V
Machine Model ESD Protection	ESD MM	400	V
Charged Device Model	ESD CDM	1	kV

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Ambient (Note 5)	R _{θJA}	500	°C/W
Power Dissipation, T _A = +25°C	P _D	250	mW
Junction Temperature	T _J	+125	°C
Storage Temperature Range	T _{STG}	-55 to +150	°C

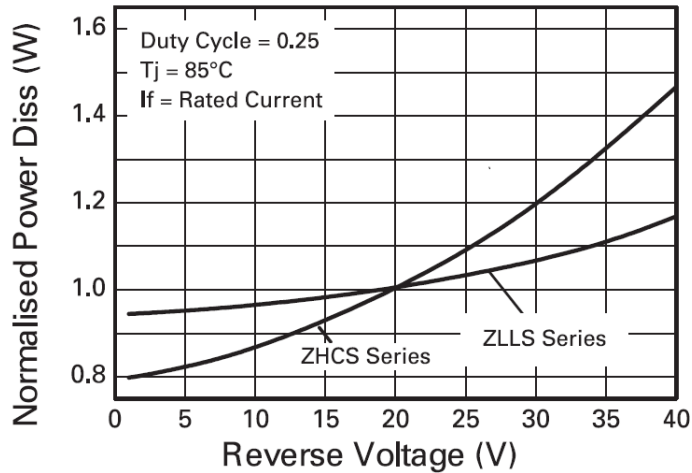
Note: 5. 1*MRP FR-4 PC board, 2oz.



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

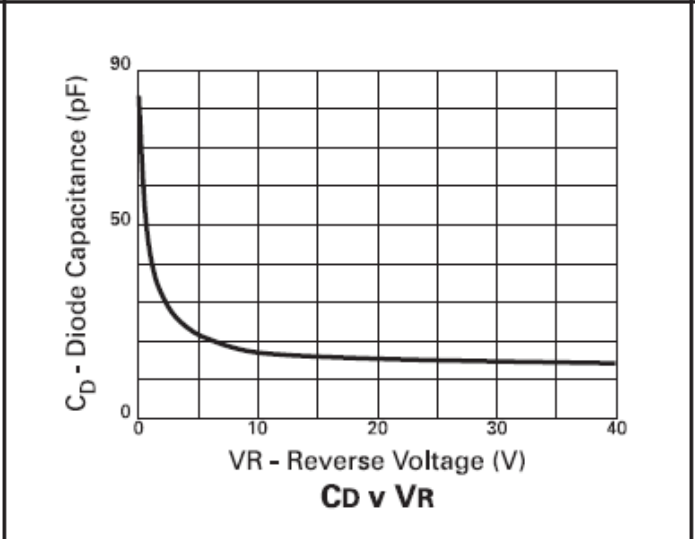
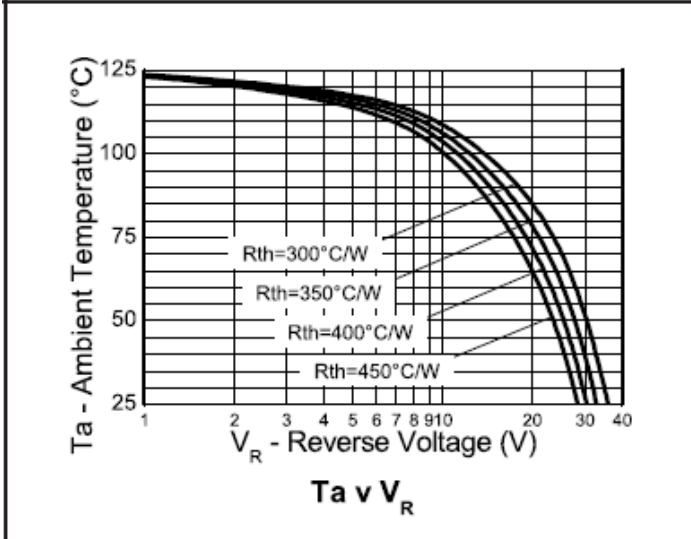
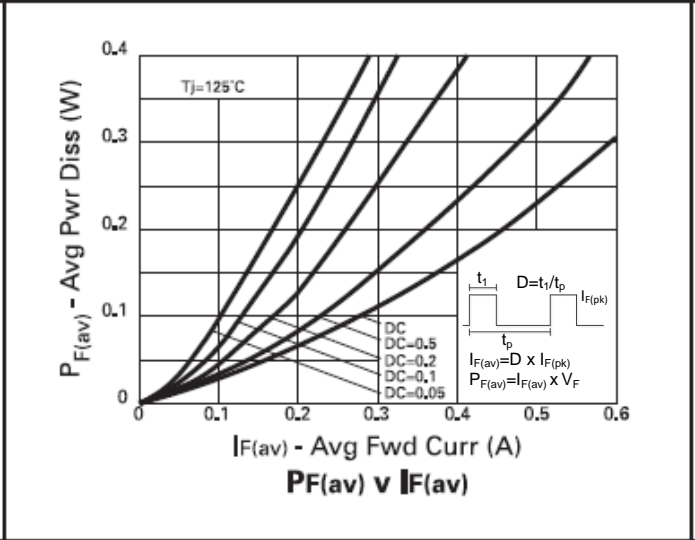
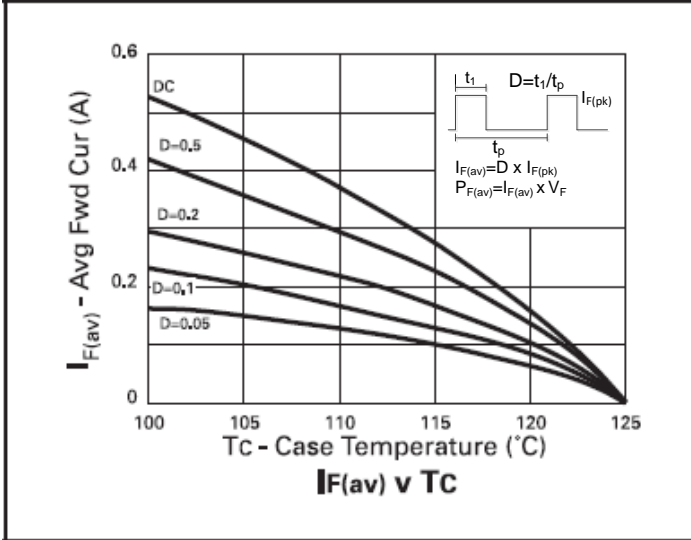
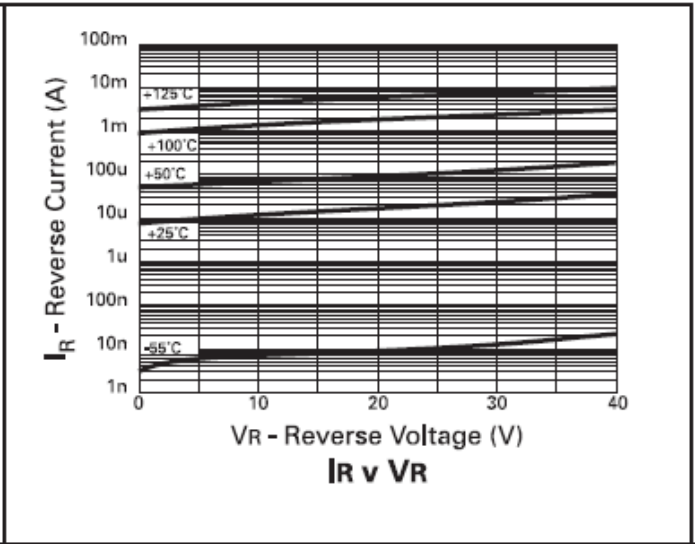
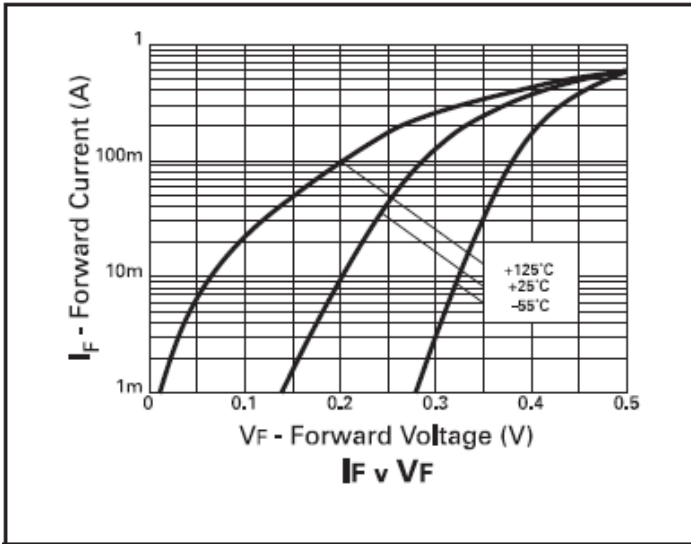
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage	V _{(BR)R}	40	60	—	V	I _R = 200μA
Forward Voltage	V _F	—	270	300	mV	I _F = 50mA
		—	300	350		I _F = 100mA
		—	370	460		I _F = 250mA
		—	425	500		I _F = 400mA
		—	550	670		I _F = 750mA
		—	640	780		I _F = 1,000mA
		—	810	1050		I _F = 1,500mA
		—	440	—		I _F = 500mA, T _A = +100°C
Reverse Current	I _R	—	15	40	μA	V _R = 30V
Diode Capacitance	C _D	—	20	—	pF	f = 1MHz, V _R = 25V
Switching Speed	t _{RR}	—	12	—	ns	I _F = 10mA, I _{RR} = 0.1*I _R , T _A = +25°C

Operational Efficiency Chart



Operational Efficiency Example

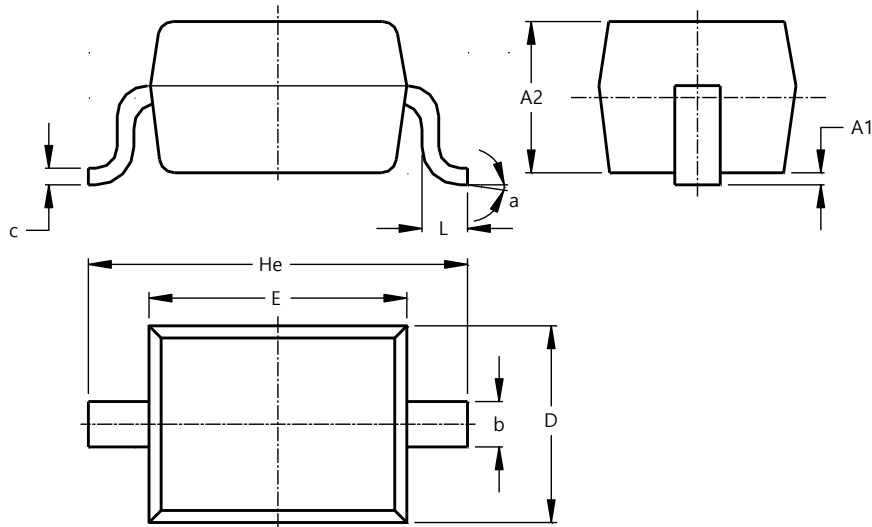
The operational efficiency chart indicates the beneficial use of the ZLLS series diodes in applications requiring higher voltage, higher temperature operation. Circuits requiring low voltage low temperature operation will benefit from using Zetex low V_F ZHCS series diodes.



Package Outline Dimensions

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

SOD323

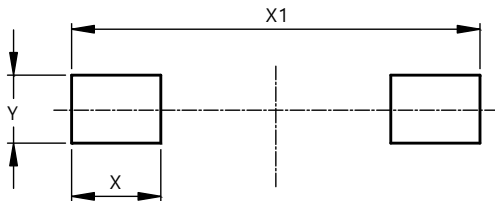


SOD323			
Dim	Min	Max	Typ
A1	--	0.10	0.05
A2	1.00	1.10	1.05
b	0.25	0.35	0.30
c	0.10	0.15	0.11
D	1.20	1.40	1.30
E	1.60	1.80	1.70
He	2.30	2.70	2.50
L	0.20	0.40	0.30
a	0°	8°	--
All Dimensions in mm			

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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