

## Product Summary

$V_R$ (V)	$I_F$ (mA)	$V_{F(MAX)}$ (mV)	$I_{R(MAX)}$ ( $\mu$ A)
40	500	550	40

## Applications

- DC – DC Converters
- Mobile Telecomms
- PCMIA

## Features

- High Current Capability ( $I_F = 500\text{mA}$ )
- Low  $V_F$
- **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**
- **PPAP Capable (Note 4)**

## Mechanical Data

- Case: SOT23
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish Annealed over Alloy 42 Leadframe (Lead Free Plating). Solderable per MIL-STD-202, Method 208
- Weight: 0.008 grams (Approximate)

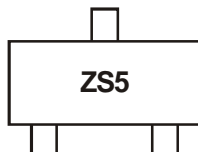


## Ordering Information (Note 5)

Part Number	Case	Packaging
ZHCS500TA	SOT23	3000/Tape & Reel
ZHCS500QTA	SOT23	3000/Tape & Reel
ZHCS500QTC	SOT23	10000/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. Automotive products are AEC-Q101 qualified and are PPAP capable. Automotive, AEC-Q101 and standard products are electrically and thermally the same, except where specified. For more information, please refer to <https://www.diodes.com/quality/>.
  5. For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

## Marking Information



ZS5 = 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>	500	mA
Forward Voltage @ I <sub>F</sub> = 500mA	V <sub>F</sub>	550	mV
Average Peak Forward Current; D.C. = 50%	I <sub>FAV</sub>	1000	mA
Non Repetitive Forward Current	t ≤ 100μs	6.75	A
	t ≤ 10ms	3	A

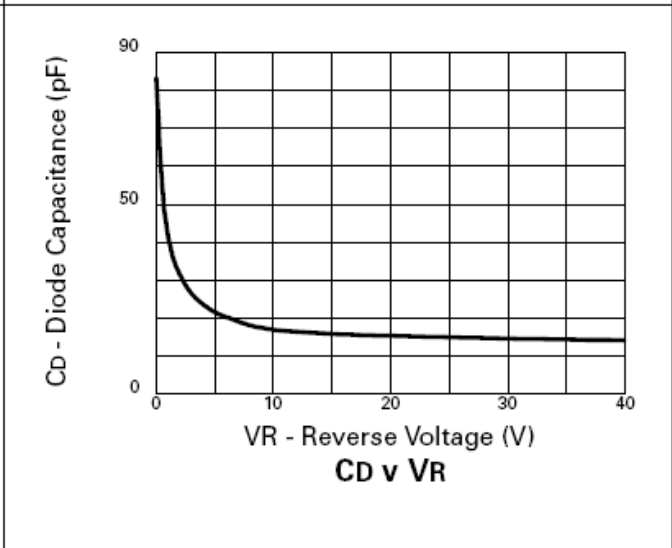
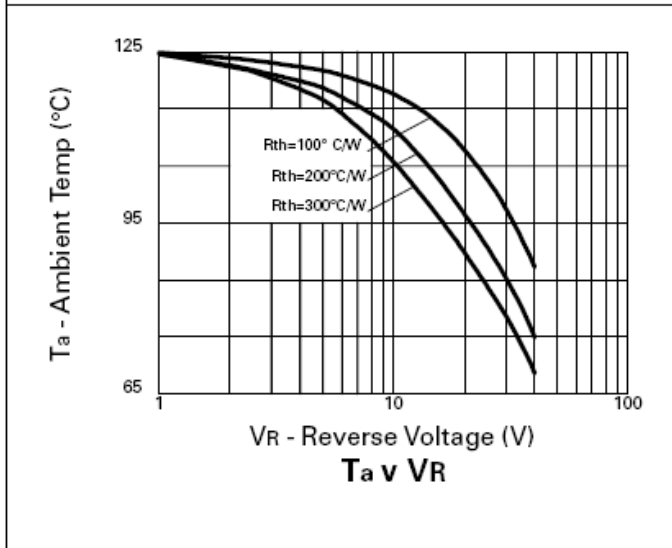
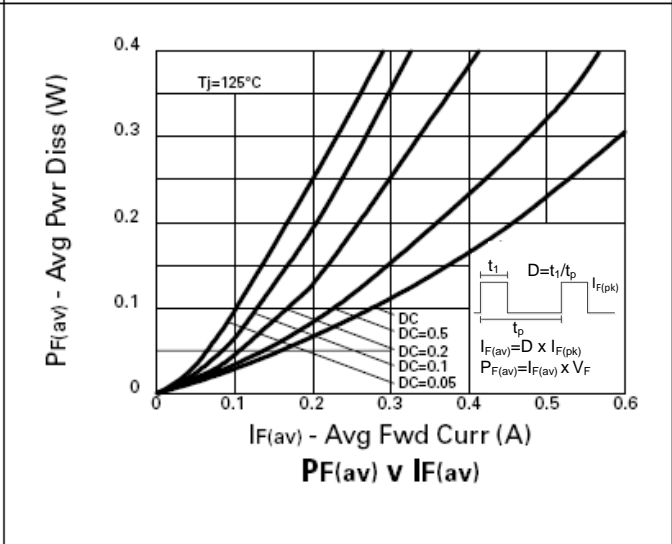
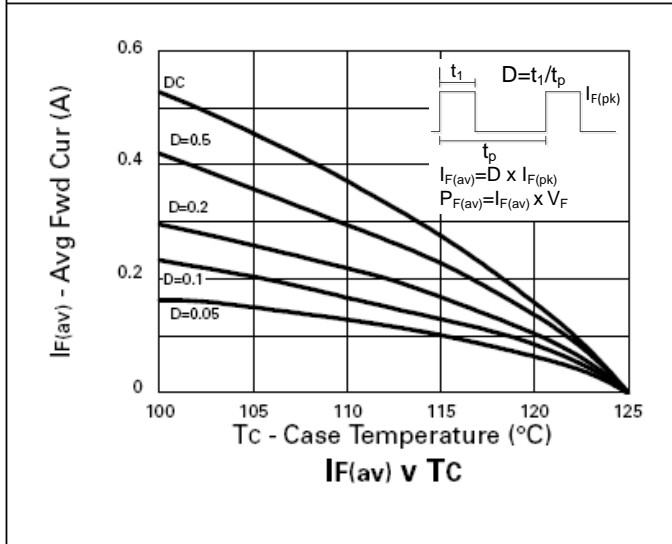
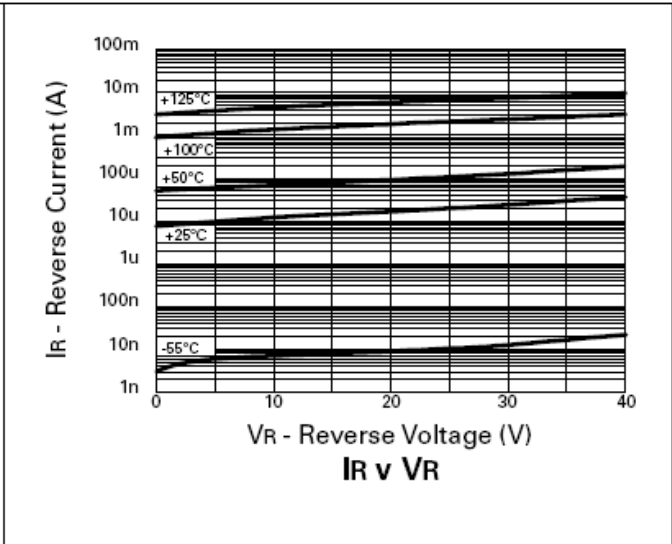
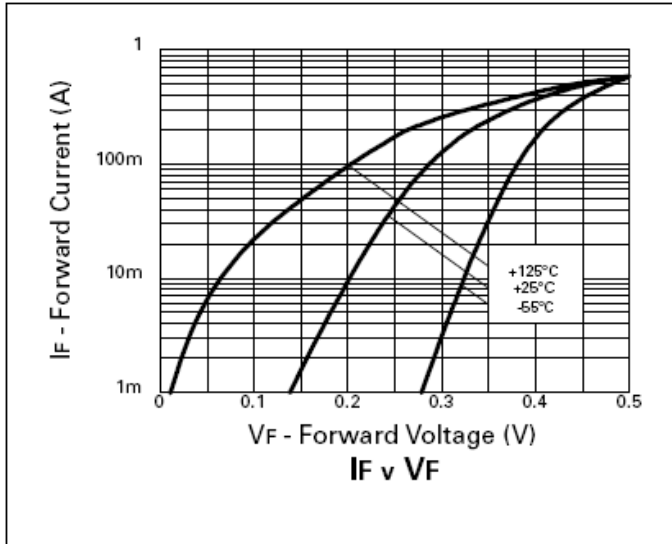
**Thermal Characteristics**

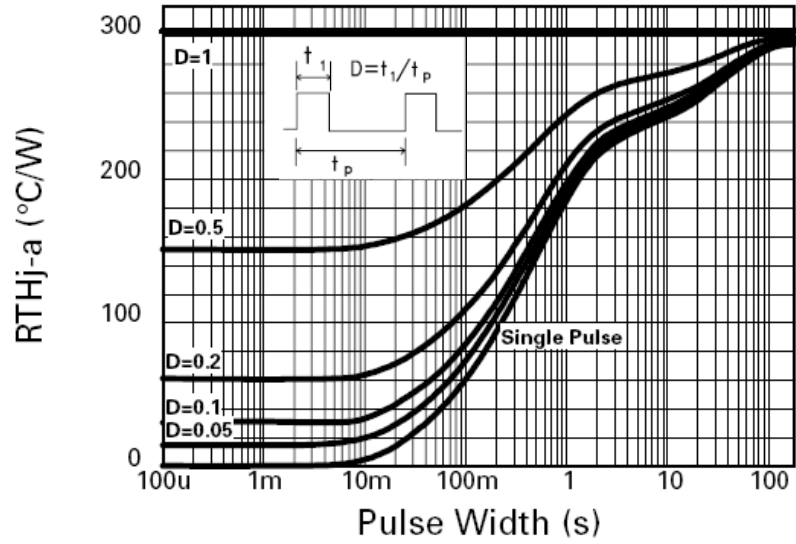
Characteristic	Symbol	Value	Unit
Power Dissipation, T <sub>A</sub> = +25°C	P <sub>D</sub>	330	mW
Junction Temperature	T <sub>J</sub>	125	°C
Storage Temperature Range	T <sub>STG</sub>	-55 to +150	°C

**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 6)	V <sub>F</sub>	—	270	300	mV	I <sub>F</sub> = 50mA
		—	300	350		I <sub>F</sub> = 100mA
		—	370	460		I <sub>F</sub> = 250mA
		—	465	550		I <sub>F</sub> = 500mA
		—	550	670		I <sub>F</sub> = 750mA
		—	640	780		I <sub>F</sub> = 1A
		—	810	1050		I <sub>F</sub> = 1.5A
		—	440	—		I <sub>F</sub> = 500mA, T <sub>A</sub> = +100°C
Reverse Current	I <sub>R</sub>	—	15	40	μA	V <sub>R</sub> = 30V
Diode Capacitance	C <sub>D</sub>	—	20	—	pF	f = 1MHz, V <sub>R</sub> = 25V
Reverse Recovery Time	t <sub>RR</sub>	—	10	—	ns	Switched from I <sub>F</sub> = 500mA to I <sub>R</sub> = 500mA Measured @ I <sub>R</sub> = 50mA

Notes: 6. Measured under pulsed conditions. Pulse width = 300μs. Duty cycle = 2%.

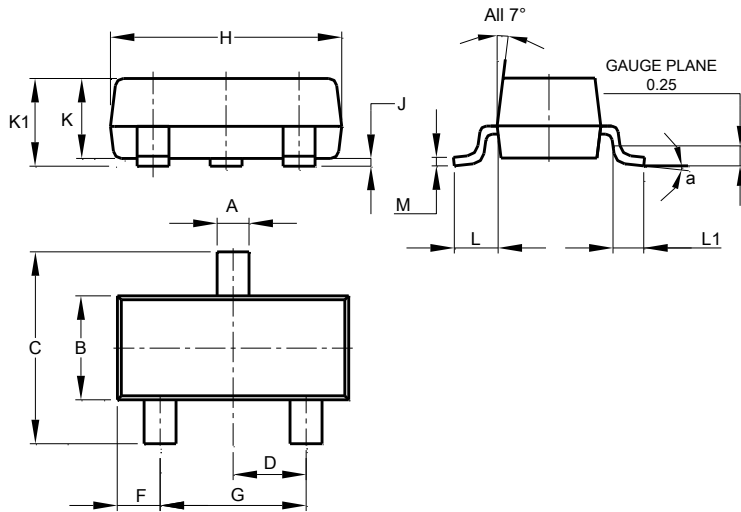




**Package Outline Dimensions**

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

**SOT23**

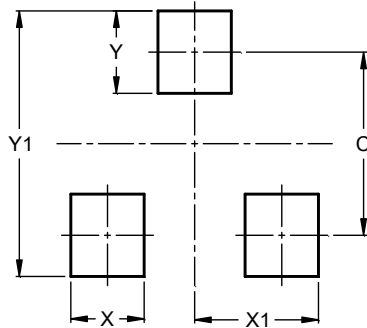


SOT23			
Dim	Min	Max	Typ
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	2.30	2.50	2.40
D	0.89	1.03	0.915
F	0.45	0.60	0.535
G	1.78	2.05	1.83
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.890	1.00	0.975
K1	0.903	1.10	1.025
L	0.45	0.61	0.55
L1	0.25	0.55	0.40
M	0.085	0.150	0.110
a	0°	8°	--
All Dimensions in mm			

## 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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Телефон: 8 (812) 309-75-97 (многоканальный)

Факс: 8 (812) 320-03-32

Электронная почта: [ocean@oceanchips.ru](mailto:ocean@oceanchips.ru)

Web: <http://oceanchips.ru/>

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, д. 2, корп. 4, лит. А