

## Product Summary

$V_{RRM}$ (V)	$I_O$ (A)	$V_{F(TYP)}$ @ 1A (V)	$I_{R(TYP)}$ @ $V_R=30V$ ( $\mu A$ )
40	1	0.425	50

## Features and Benefits

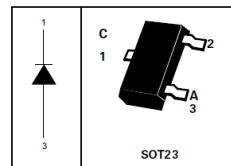
- High Current Capability ( $I_F = 1A$ )
- Low  $V_F$
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**
- **PPAP Capable (Note 4)**

## Applications

- DC-DC Converters
- Mobile Telecomms
- Blocking Diodes
- Reverse Polarity Protection

## 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. Solderable per MIL-STD-202, Method 208
- Weight: 0.0089 grams (Approximate)



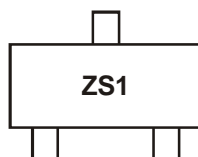
Top View

## Ordering Information (Note 5)

Device	Compliance	Case	Packaging
ZHCS1000QTA	Automotive	SOT23	3000/Tape & Reel

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
  2. See [http://www.diodes.com/quality/lead\\_free.html](http://www.diodes.com/quality/lead_free.html) 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. For more information, please refer to [http://www.diodes.com/product\\_compliance\\_definitions.html](http://www.diodes.com/product_compliance_definitions.html)
  5. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

## Marking Information



ZS1 = Product Type Marking Code

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

Characteristic	Symbol	Value	Units	
Continuous Reverse Voltage	V <sub>R</sub>	40	V	
Average Rectified Output Current	I <sub>O</sub>	1	A	
Forward Voltage @ I <sub>F</sub> = 1A (Typ)	V <sub>F</sub>	425	mV	
Average Peak Forward Current; D.C. = 50%	I <sub>F(AV)</sub>	1750	mA	
Non Repetitive Forward Current	I <sub>FSM</sub>	t ≤ 100μs	12	A
		t ≤ 10ms	5.2	A

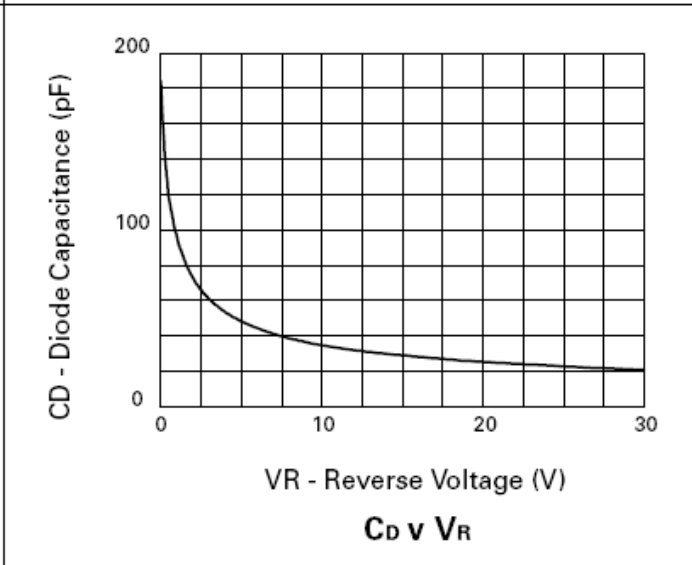
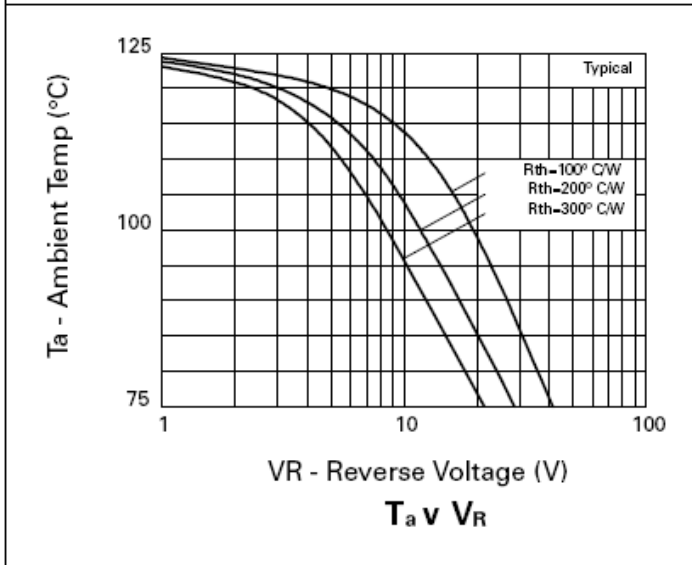
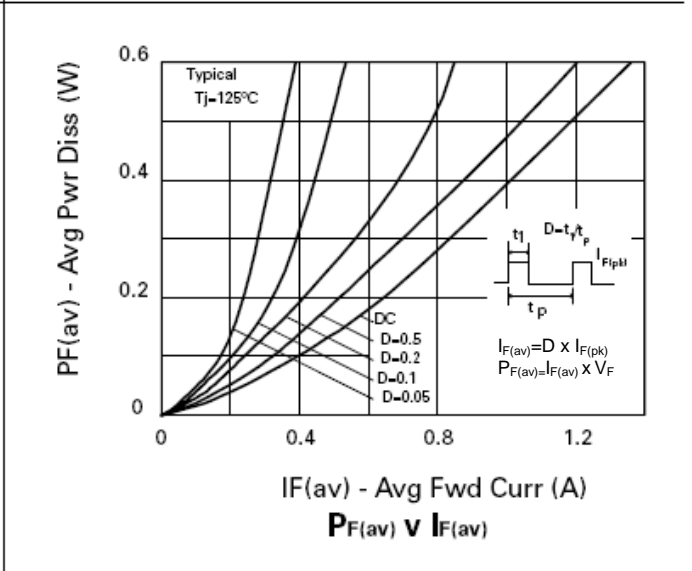
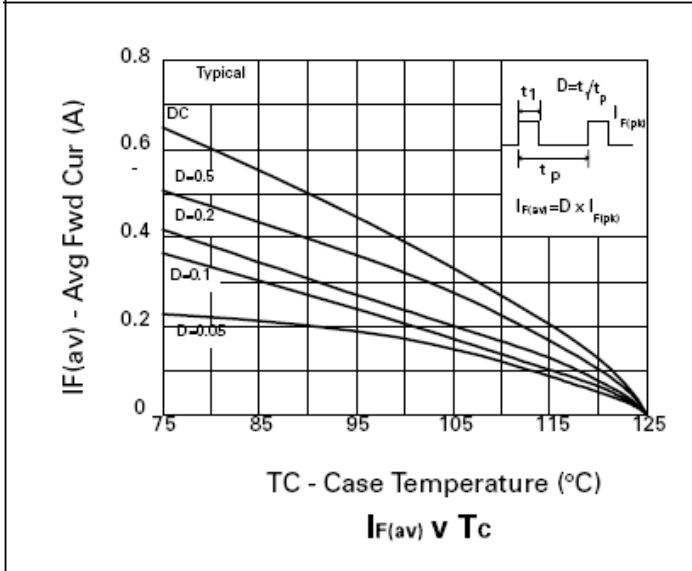
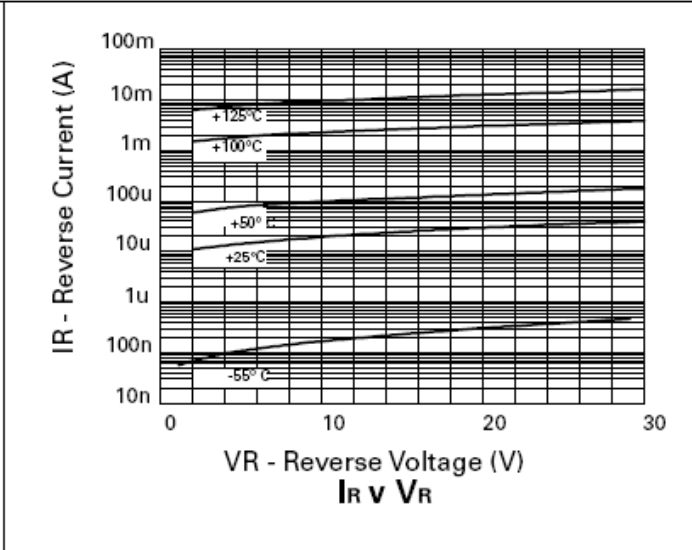
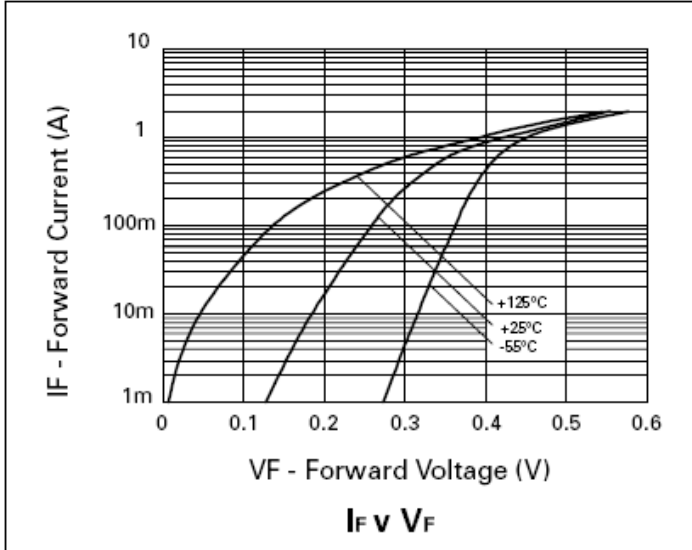
**Thermal Characteristics**

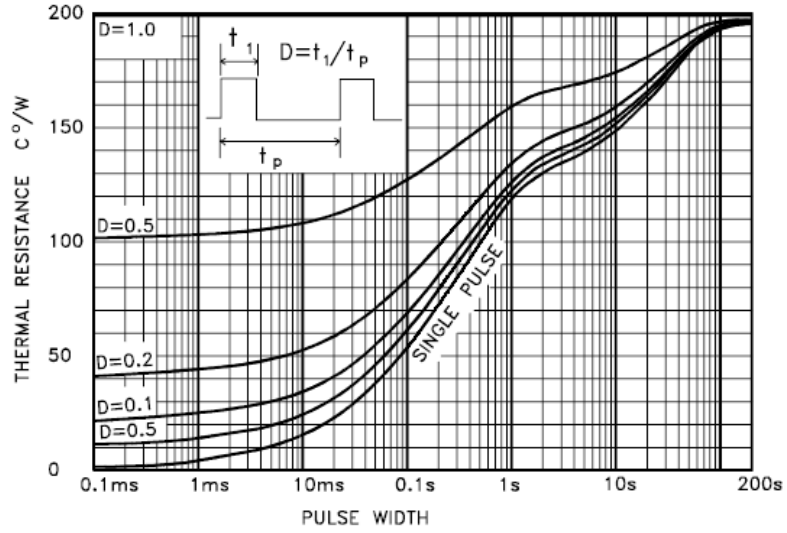
Characteristic	Symbol	Value	Unit
Power Dissipation, T <sub>A</sub> = +25°C	P <sub>D</sub>	500	mW
Junction Temperature	T <sub>J</sub>	+125	°C
Storage Temperature Range	T <sub>STG</sub>	-55 to +150	°C

**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> = 300μA
Forward Voltage (Note 6)	V <sub>F</sub>	—	240	270	mV	I <sub>F</sub> = 50mA
		—	265	290		I <sub>F</sub> = 100mA
		—	305	340		I <sub>F</sub> = 250mA
		—	355	400		I <sub>F</sub> = 500mA
		—	390	450		I <sub>F</sub> = 750mA
		—	425	500		I <sub>F</sub> = 1A
		—	495	600		I <sub>F</sub> = 1.5A
		—	420	—		I <sub>F</sub> = 1A, T <sub>A</sub> = +100°C
Reverse Current (Note 7)	I <sub>R</sub>	—	50	100	μA	V <sub>R</sub> = 30V
Total Capacitance	C <sub>T</sub>	—	25	—	pF	f = 1MHz, V <sub>R</sub> = 30V
Reverse Recovery Time	t <sub>RR</sub>	—	12	—	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.
  - 7. Short duration pulse test used to minimize self-heating effect.





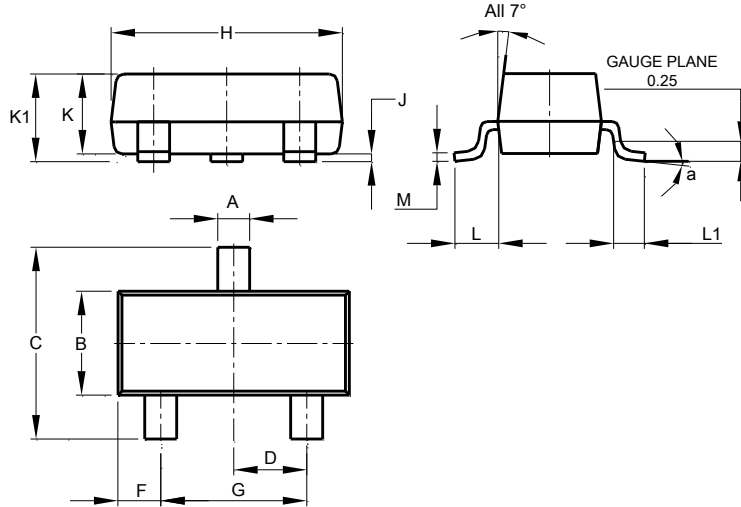
Maximum Transient Thermal Resistance\*

\* Devices were mounted on a 15mmx15mm ceramic substrate.

**Package Outline Dimensions**

Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version.

**SOT23**

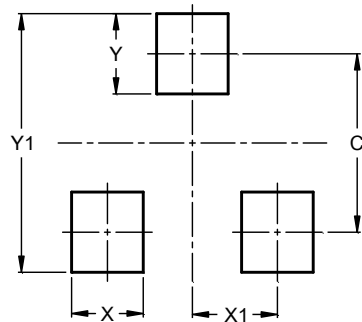


SOT23			
Dim	Min	Max	Typ
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	2.30	2.50	2.40
D	0.89	1.03	0.915
F	0.45	0.60	0.535
G	1.78	2.05	1.83
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.890	1.00	0.975
K1	0.903	1.10	1.025
L	0.45	0.61	0.55
L1	0.25	0.55	0.40
M	0.085	0.150	0.110
a	0°	8°	--
All Dimensions in mm			

**Suggested Pad Layout**

Please see AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> for the latest version.

**SOT23**



Dimensions	Value (in mm)
C	2.0
X	0.8
X1	1.35
Y	0.9
Y1	2.9

NEW PRODUCT

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