SURFACE MOUNT SCHOTTKY BARRIER DIODE

NEW PRODUCT

Product Summary

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

Features and Benefits

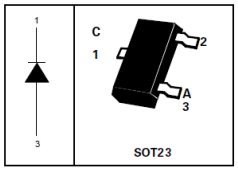
- High Current Capability (I_F = 1A)
- Low V_F
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**
- **PPAP Capable (Note 4)**

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 e3
- Weight: 0.0089 grams (Approximate)



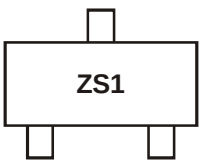
Top View

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 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
5. For packaging details, go to our website at http://www.diodes.com/products/packages.html.

Marking Information



ZS1 = Product Type Marking Code

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

Characteristic		Symbol	Value	Units
Continuous Reverse Voltage		V_R	40	V
Average Rectified Output Current		I_O	1	A
Forward Voltage @ I_F = 1A (Typ)		V_F	425	mV
Average Peak Forward Current; D.C. = 50%		$I_{F(AV)}$	1750	mA
Non Repetitive Forward Current	t ≤ 100µs	I_{FSM}	12	A
	t ≤ 10ms		5.2	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation, T_A = +25°C	P_D	500	mW
Junction Temperature	T_J	+125	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C

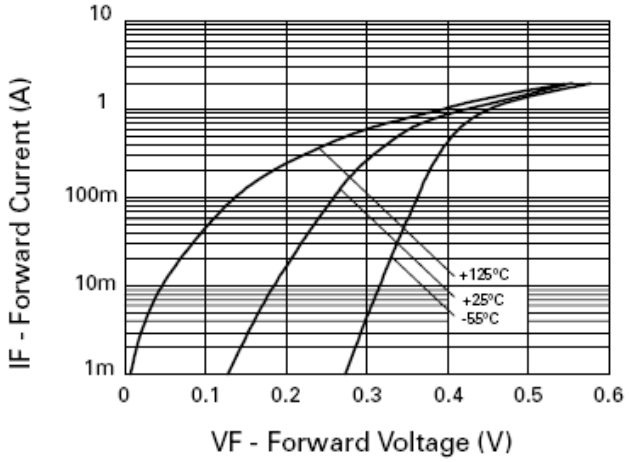
Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage	$V_{(BR)R}$	40	60	—	V	I_R = 300µA
Forward Voltage (Note 6)	V_F	—	240	270	mV	I_F = 50mA
		—	265	290		I_F = 100mA
		—	305	340		I_F = 250mA
		—	355	400		I_F = 500mA
		—	390	450		I_F = 750mA
		—	425	500		I_F = 1A
		—	495	600		I_F = 1.5A
		—	420	—		I_F = 1A, T_A = +100°C
Reverse Current (Note 7)	I_R	—	50	100	µA	V_R = 30V
Total Capacitance	C_T	—	25	—	pF	f = 1MHz, V_R = 30V
Reverse Recovery Time	t_{RR}	—	12	—	ns	Switched from I_F = 500mA to I_R = 500mA Measured @ I_R = 50mA

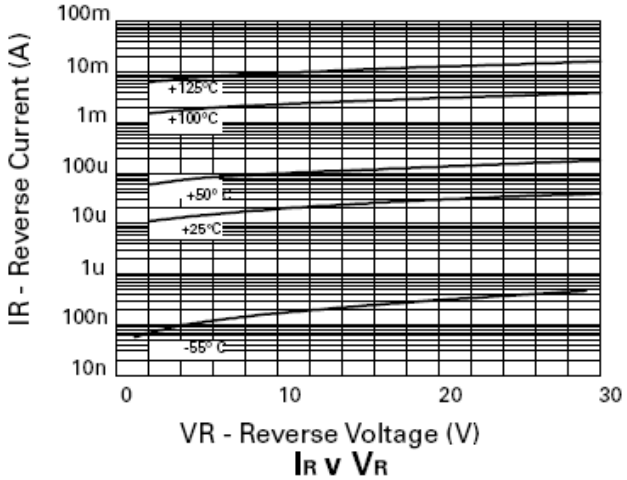
Notes: 6. Measured under pulsed conditions. Pulse width = 300µS.
7. Short duration pulse test used to minimize self-heating effect.

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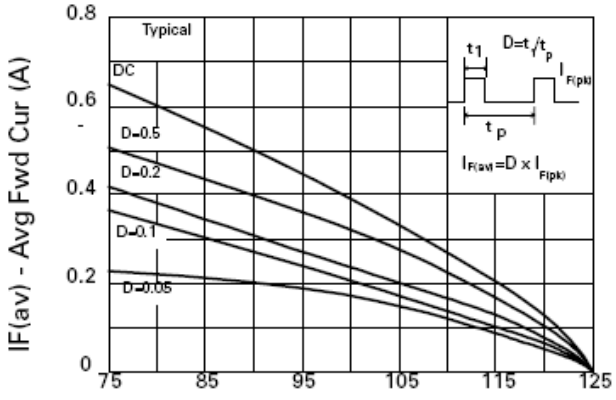
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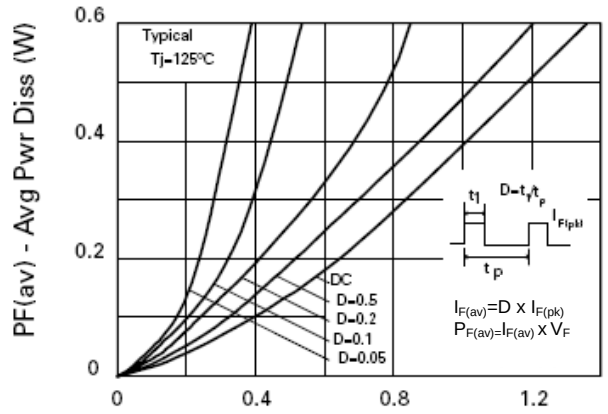
I_F v V_F



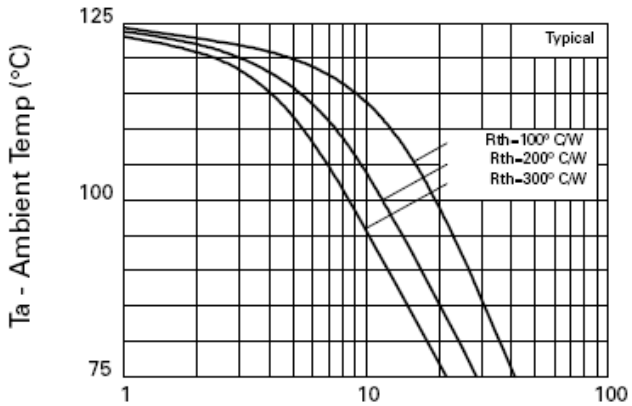
I_R v V_R



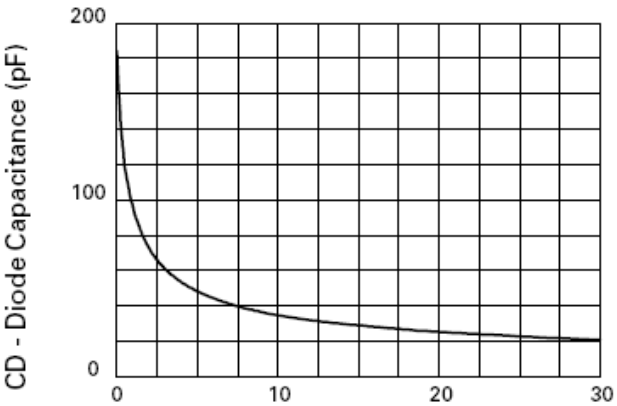
$I_{F(av)}$ v T_C



$P_{F(av)}$ v $I_{F(av)}$



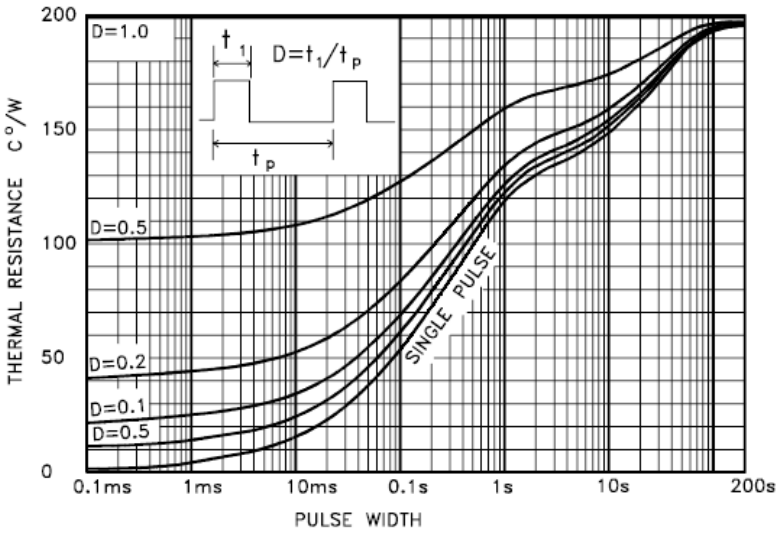
T_a v V_R



C_D v V_R

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Maximum Transient Thermal Resistance*

* Devices were mounted on a 15mmx15mm ceramic substrate.

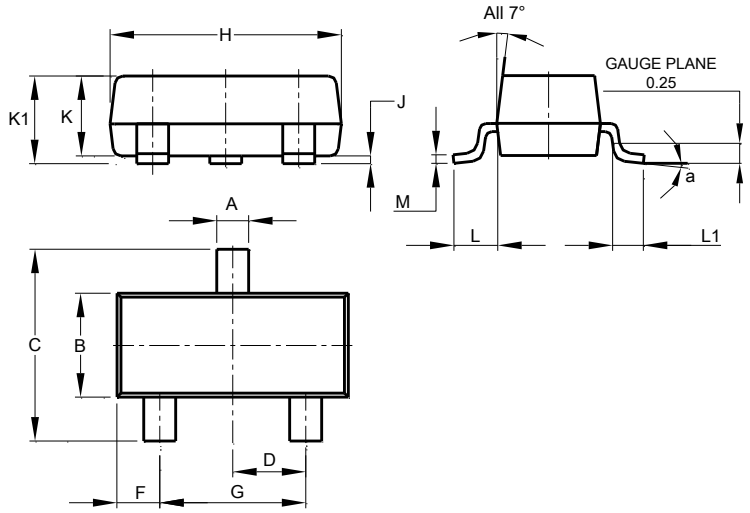
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Package Outline Dimensions

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

SOT23

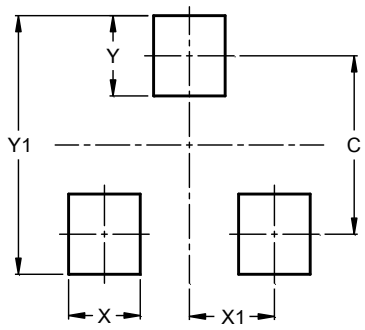


SOT23			
Dim	**Min**	**Max**	**Typ**
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	2.30	2.50	2.40
D	0.89	1.03	0.915
F	0.45	0.60	0.535
G	1.78	2.05	1.83
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.890	1.00	0.975
K1	0.903	1.10	1.025
L	0.45	0.61	0.55
L1	0.25	0.55	0.40
M	0.085	0.150	0.110
a	0°	8°	--
All Dimensions in mm			

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

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