

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

Applications

- DC-DC converters
- Mobile telecoms
- PCMIA & SCSI

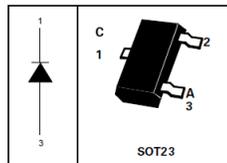
Features and Benefits

- 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)**
- For automotive applications requiring specific change control (i.e.: parts qualified to AEC-Q100/101/104/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please refer to the related automotive grade (Q-suffix) part. A listing can be found at <https://www.diodes.com/products/automotive/automotive-products/>.
- This part is qualified to JEDEC standards (as references in AEC-Q) for High Reliability. <https://www.diodes.com/quality/product-definitions/>

Mechanical Data

- Package: SOT23
- Package 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)

SOT23 (Standard)



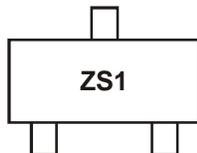
Top View

Ordering Information (Note 4)

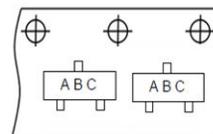
Part Number	Package	Packing	
		Qty.	Carrier
ZHCS1000TA	SOT23 (Standard)	3000	Tape & Reel
ZHCS1000TC	SOT23 (Standard)	10000	Tape & Reel

- 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. For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

Marking Information



ZS1 = Product Type Marking Code



Maximum Ratings (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

Characteristic	Symbol	Value	Unit	
Continuous Reverse Voltage	V_R	40	V	
Continuous Forward Current	I_F	1	A	
Forward Voltage @ $I_F = 1\text{A}$ (typ)	V_F	425	mV	
Average Peak Forward Current; D.C. = 50%	I_{FAV}	1750	mA	
Non Repetitive Forward Current	I_{FSM}	$t \leq 100\mu\text{s}$	12	A
		$t \leq 10\text{ms}$	5.2	A

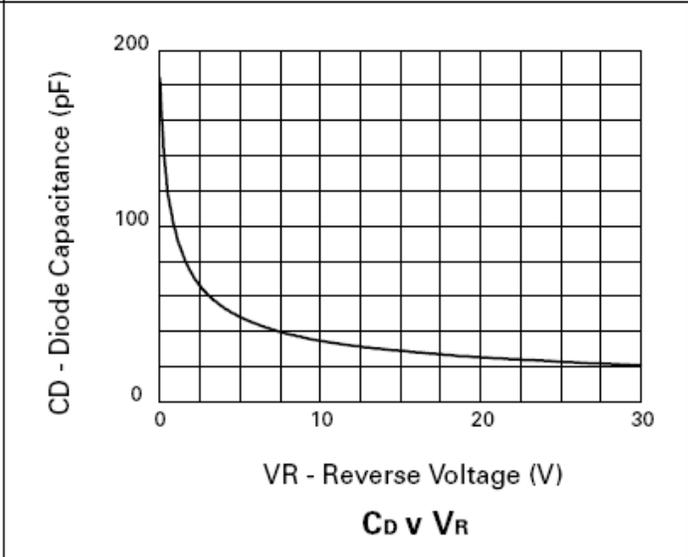
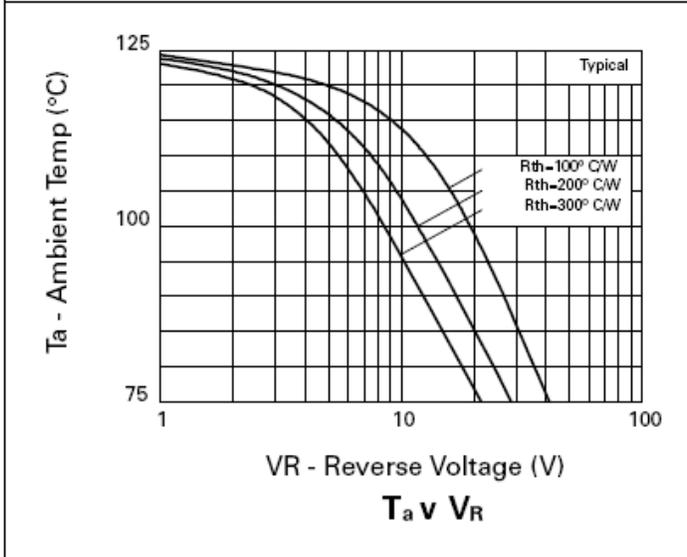
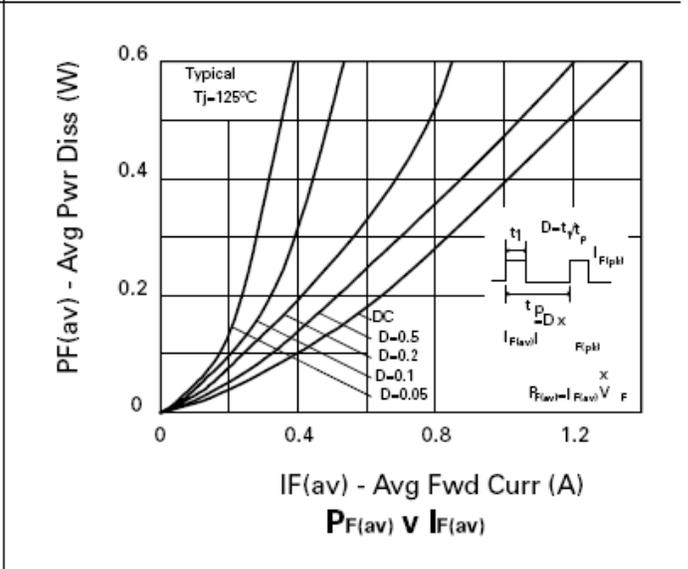
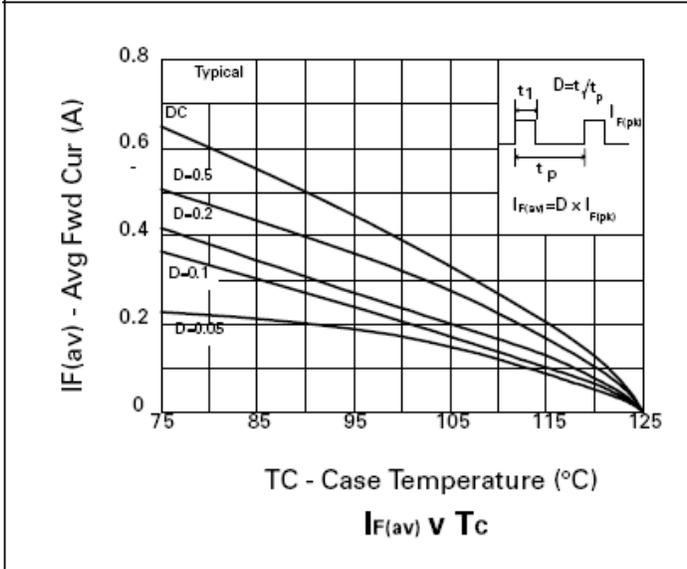
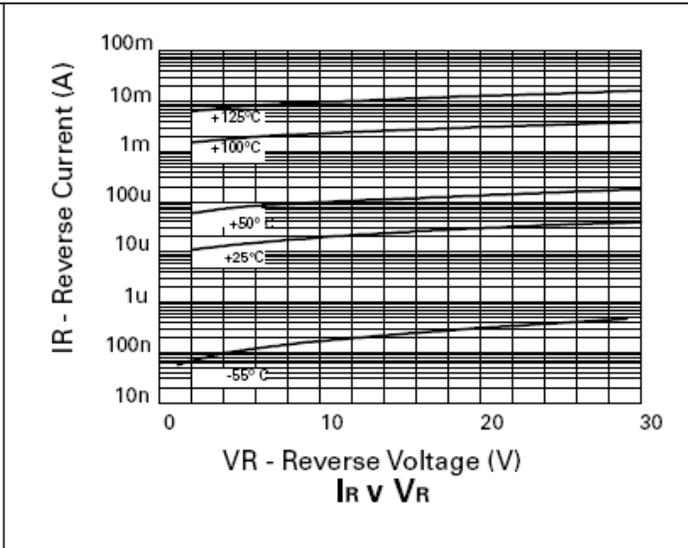
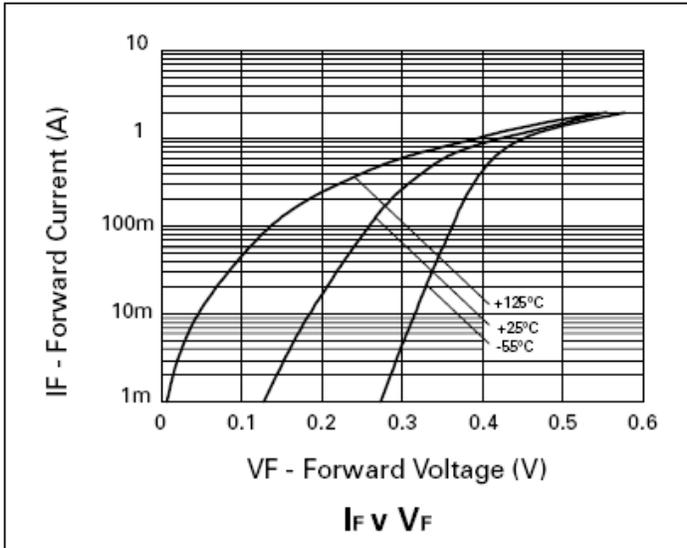
Thermal Characteristics

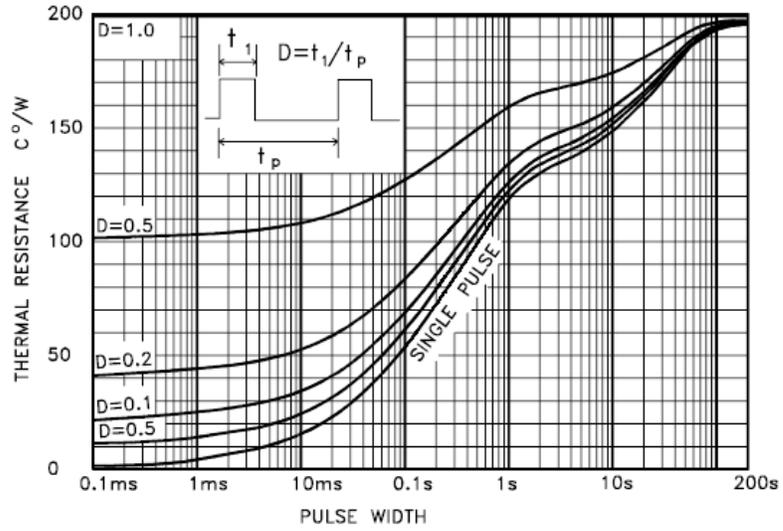
Characteristic	Symbol	Value	Unit
Power Dissipation, $T_A = +25^\circ\text{C}$	P_D	500	mW
Junction Temperature	T_J	+125	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55 to +150	$^\circ\text{C}$

Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage	$V_{(BR)R}$	40	60	—	V	$I_R = 300\mu\text{A}$
Forward Voltage (Note 5)	V_F	—	240	270	mV	$I_F = 50\text{mA}$
		—	265	290		$I_F = 100\text{mA}$
		—	305	340		$I_F = 250\text{mA}$
		—	355	400		$I_F = 500\text{mA}$
		—	390	450		$I_F = 750\text{mA}$
		—	425	500		$I_F = 1\text{A}$
		—	495	600		$I_F = 1.5\text{A}$
		—	420	—		$I_F = 1\text{A}, T_A = +100^\circ\text{C}$
Reverse Current (Note 6)	I_R	—	50	100	μA	$V_R = 30\text{V}$
Total Capacitance	C_T	—	25	—	pF	$f = 1\text{MHz}, V_R = 30\text{V}$
Reverse Recovery Time	t_{rr}	—	12	—	ns	Switched from $I_F = 500\text{mA}$ to $I_R = 500\text{mA}$ Measured @ $I_R = 50\text{mA}$

Notes: 5. Measured under pulsed conditions. Pulse width = 300 μs .
6. Short duration pulse test used to minimize self-heating effect.





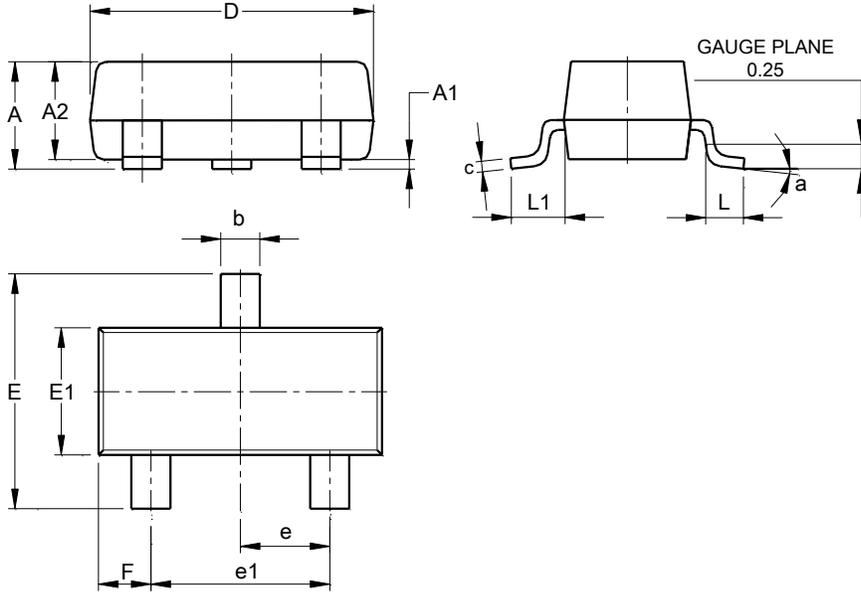
Maximum Transient Thermal Resistance*

* Devices were mounted on a 15mm x 15mm ceramic substrate.

Package Outline Dimensions

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

SOT23 (Standard)

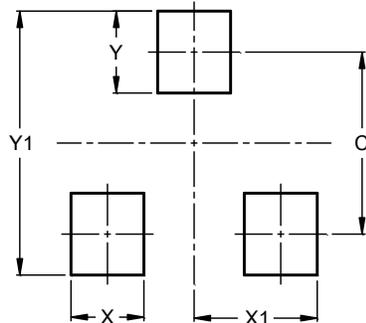


SOT23 (Standard)			
Dim	Min	Max	Typ
A	0.90	1.15	1.025
A1	0.00	0.10	0.05
A2	0.85	1.10	0.975
b	0.30	0.51	0.40
c	0.080	0.202	0.11
D	2.80	3.00	2.90
E	2.25	2.55	2.40
E1	1.20	1.40	1.30
e	0.89	1.03	0.915
e1	1.78	2.05	1.83
F	0.40	0.60	0.535
L1	0.45	0.61	0.55
L	0.25	0.55	0.40
a	0°	8°	--
All Dimensions in mm			

Suggested Pad Layout

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

SOT23 (Standard)



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

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