

ZHCS2000

40V SILICON HIGH CURRENT SCHOTTKY BARRIER DIODE

SUMMARY

$V_R=40V$; $I_C=2A$

DESCRIPTION

A surface mount Schottky Barrier Diode featuring low forward voltage drop suitable for high frequency rectification and reverse voltage protection.

FEATURES

- High current capability
- Low forward voltage (V_F max=0.5V)
- Fast recovery time
- Small package size

APPLICATIONS

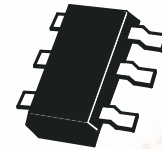
- Mobile telecomms, PCMCIA & SCSI
- DC-DC Conversion
- High frequency rectification

ORDERING INFORMATION

DEVICE	REEL SIZE (inches)	TAPE WIDTH (mm)	QUANTITY PER REEL
ZHCS2000TA	7	8mm embossed	3000 units
ZHCS2000TC	13	8mm embossed	10000 units

DEVICE MARKING

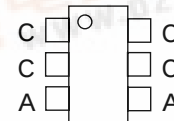
ZS20



SOT23-6



A



Top View

ZHCS2000

ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Continuous Reverse Voltage	V_R	40	V
Forward Current	I_F	2	A
Average Peak Forward Current; D.C.=50%	I_{FAV}	4	A
Non Repetitive Forward Current $t \leq 100\mu s$ $t \leq 10ms$	I_{FSM}	20 10	A A
Power Dissipation at $T_{amb}=25^\circ C$	P_{tot}	1.1	W
Storage Temperature Range	T_{stg}	-55 to +150	$^\circ C$
Junction Temperature	T_j	125	$^\circ C$

THERMAL RESISTANCE

PARAMETER	SYMBOL	VALUE	UNIT
Junction to Ambient (a)	$R_{\theta JA}$	113	$^\circ C/W$
Junction to Ambient (b)	$R_{\theta JA}$	73	$^\circ C/W$

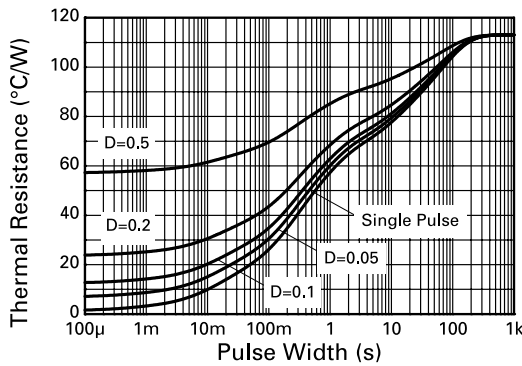
NOTES

(a) For a device surface mounted on 25mm x 25mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions

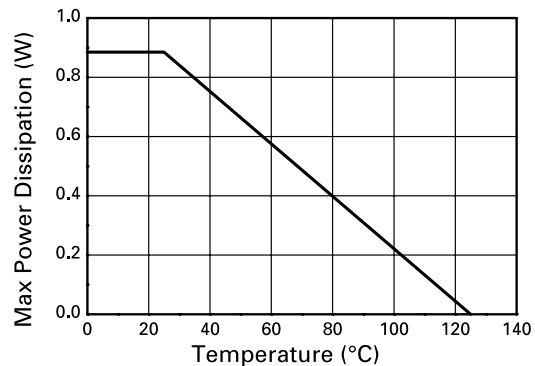
(b) For a device surface mounted on FR4 PCB measured at $t \leq 5$ secs.

ZHCS2000

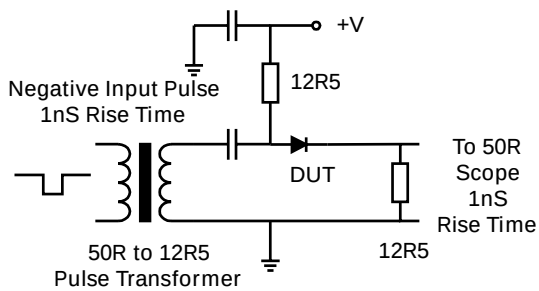
TYPICAL CHARACTERISTICS



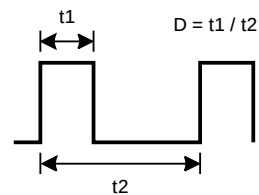
Transient Thermal Impedance



Derating Curve



Reverse Recovery Time Circuit



Duty Cycle

ZHCS2000

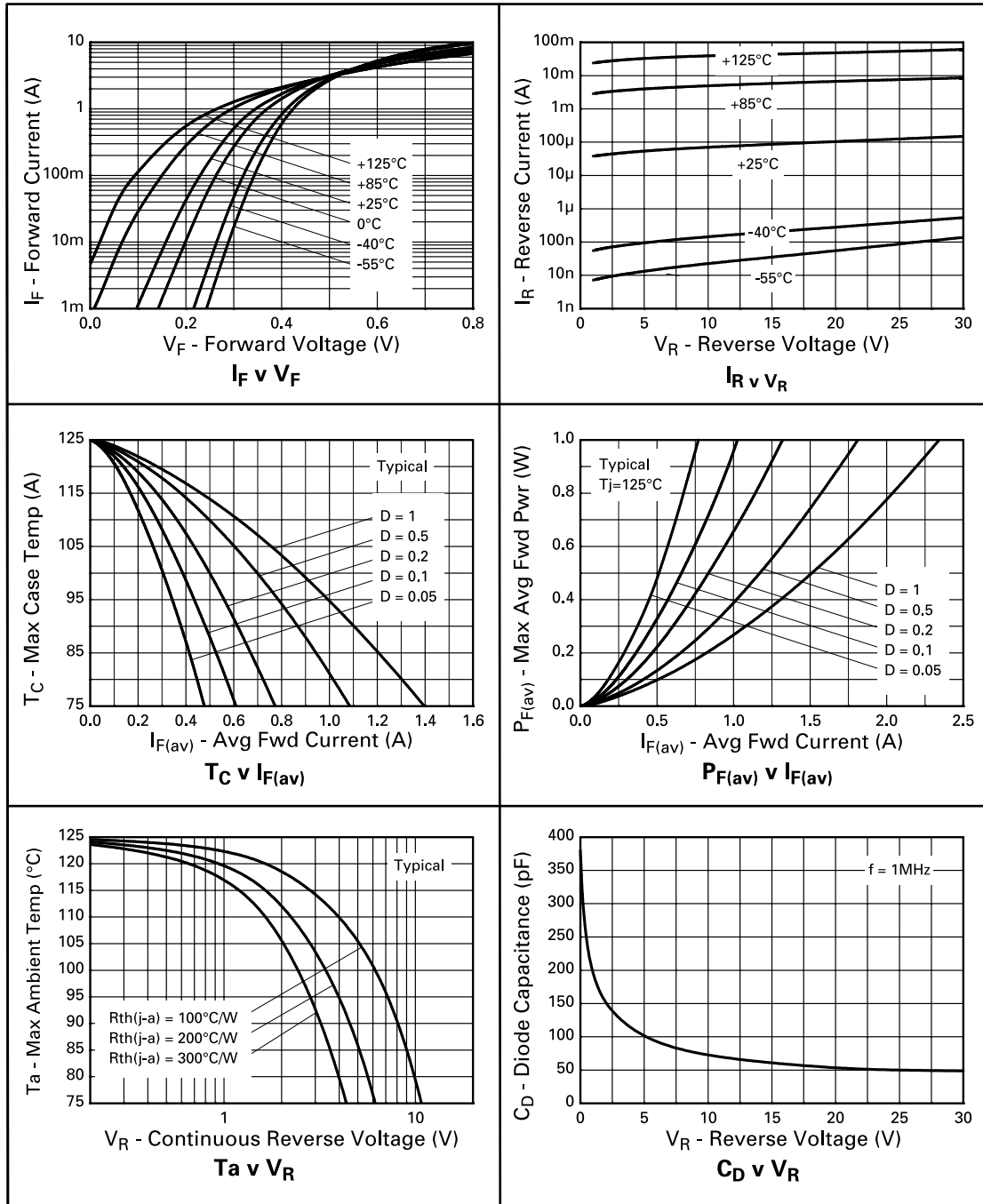
ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^{\circ}\text{C}$ unless otherwise stated).

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Reverse Breakdown Voltage	$V_{(BR)R}$	40			V	$I_R = 1\text{mA}$
Forward Voltage	V_F		290 340 380 420 485 420	325 385 445 500 615	mV mV mV mV mV mV	$I_F = 500\text{mA}^*$ $I_F = 1000\text{mA}^*$ $I_F = 1500\text{mA}^*$ $I_F = 2000\text{mA}^*$ $I_F = 3000\text{mA}^*$ $I_F = 2000\text{mA}^*, T_{amb} = 100^{\circ}\text{C}^*$
Reverse Current	I_R		160	300	μA	$V_R = 30\text{V}$
Diode Capacitance	C_D		50		pF	$f = 1\text{MHz}, V_R = 25\text{V}$
Reverse Recovery Time	t_{rr}		5.5		ns	switched from $I_F = 500\text{mA}$ to $I_R = 500\text{mA}$ Measured at $I_R = 50\text{mA}$

* Measured under pulsed conditions. Pulse width=300 μs . Duty cycle $\leq 2\%$

ZHCS2000

TYPICAL CHARACTERISTICS

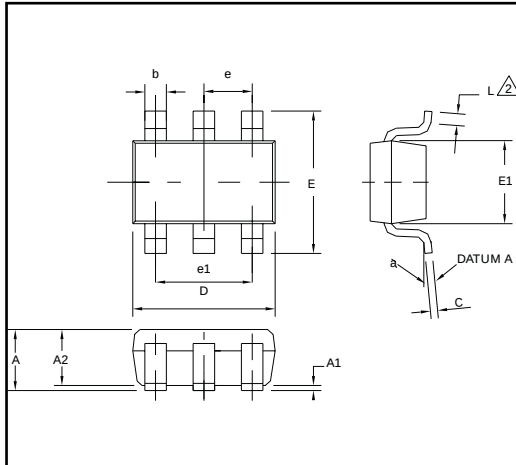


ZHCS2000

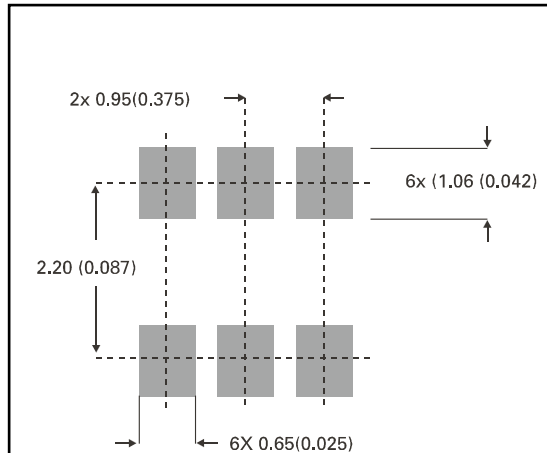
ZHCS2000

ZHCS2000

PACKAGE DIMENSIONS



PAD LAYOUT DETAILS



DIM	Millimetres		Inches	
	Min	Max	Min	Max
A	0.90	1.45	0.35	0.057
A1	0.00	0.15	0	0.006
A2	0.90	1.30	0.035	0.051
b	0.35	0.50	0.014	0.019
C	0.09	0.20	0.0035	0.008
D	2.80	3.00	0.110	0.118
E	2.60	3.00	0.102	0.118
E1	1.50	1.75	0.059	0.069
L	0.10	0.60	0.004	0.002
e	0.95 REF		0.037 REF	
e1	1.90 REF		0.074 REF	



Zetex plc.
Fields New Road, Chadderton, Oldham, OL9-8NP, United Kingdom.
Telephone: (44)161 622 4422 (Sales), (44)161 622 4444 (General Enquiries)
Fax: (44)161 622 4420

Zetex GmbH
Streitfeldstraße 19
D-81673 München
Germany
Telefon: (49) 89 45 49 49 0
Fax: (49) 89 45 49 49 49

Zetex Inc.
47 Mall Drive, Unit 4
Commack NY 11725
USA
Telephone: (631) 543-7100
Fax: (631) 864-7630

Zetex (Asia) Ltd.
3701-04 Metroplaza, Tower 1
Hing Fong Road,
Kwai Fong, Hong Kong
Telephone: (852) 26100 611
Fax: (852) 24250 494

These are supported by
agents and distributors in
major countries world-wide
© Zetex plc 2000

www.zetex.com

This publication is issued to provide outline information only which (unless agreed by the Company in writing) may not be used, applied or reproduced for any purpose or form part of any order or contract or be regarded as a representation relating to the products or services concerned. The Company reserves the right to alter without notice the specification, design, price or conditions of supply of any product or service.

ISSUE 2 - DECEMBER 2002