

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 ($V_F \text{ max} = 0.5V$)
- Fast recovery time
- Small package size

APPLICATIONS

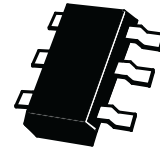
- Mobile telecomms, PCMCIA & SCSI
- DC-DC Conversion
- High frequency rectification

ORDERING INFORMATION

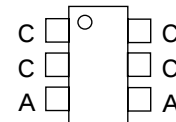
DEVICE	REEL SIZE (inches)	TAPE WIDTH (mm)	QUANTITY PER REEL
ZHCS2000TA	7	8mm embossed	3000 units
ZHCS2000TC	13	8mm embossed	10000 units

DEVICE MARKING

ZS20



SOT23-6



Top View

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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

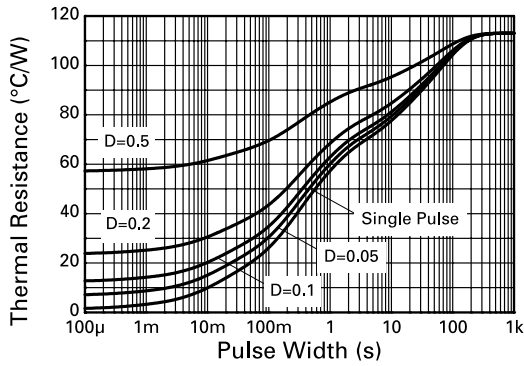
PARAMETER	SYMBOL	VALUE	UNIT
Junction to Ambient (a)	$R_{\theta JA}$	113	$^\circ C/W$
Junction to Ambient (b)	$R_{\theta JA}$	73	$^\circ C/W$

NOTES

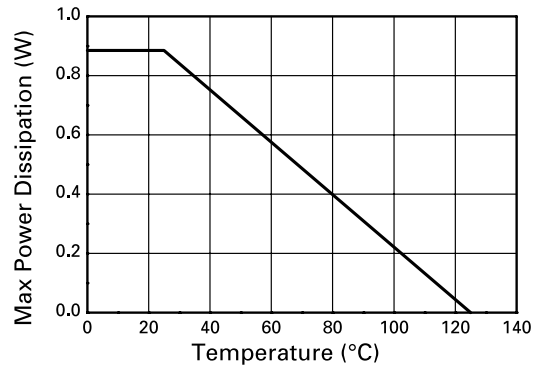
(a) For a device surface mounted on 25mm x 25mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions

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

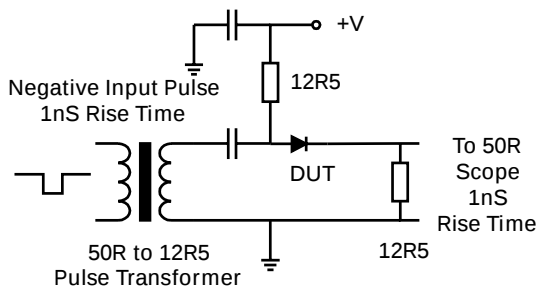
TYPICAL CHARACTERISTICS



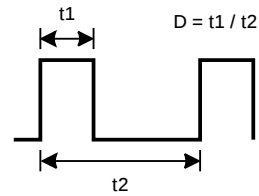
Transient Thermal Impedance



Derating Curve



Reverse Recovery Time Circuit



Duty Cycle

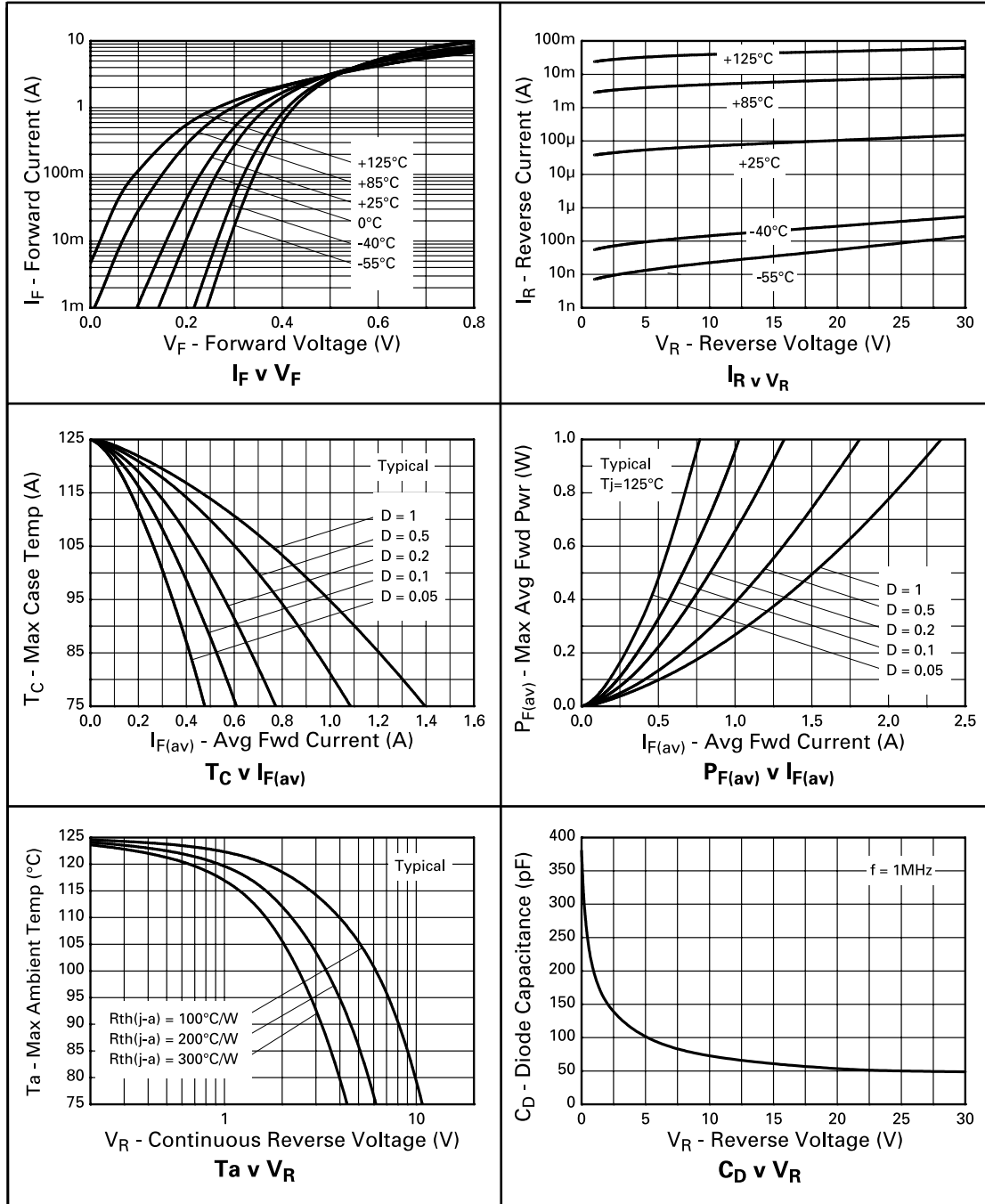
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ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^{\circ}\text{C}$ unless otherwise stated).

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 $\leq 2\%$

TYPICAL CHARACTERISTICS

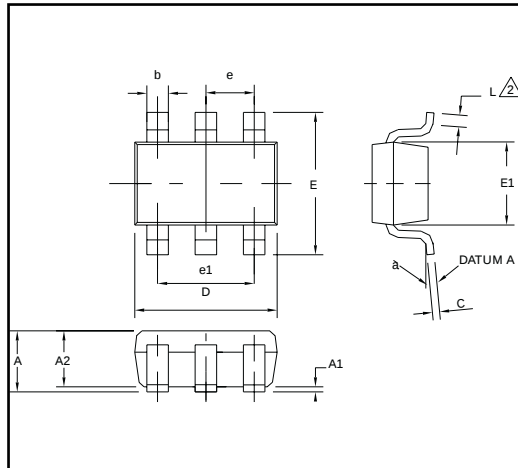


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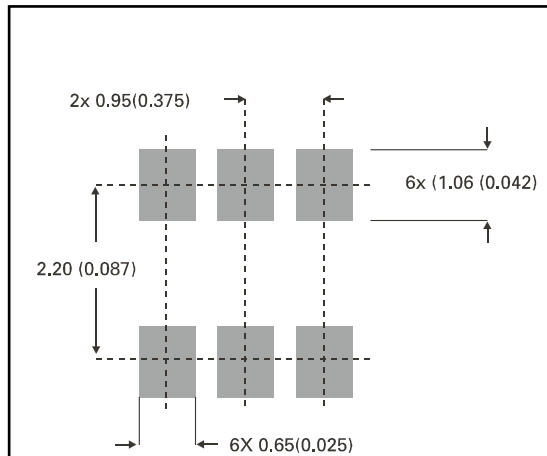
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PACKAGE DIMENSIONS



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	



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