

ZLLS2000

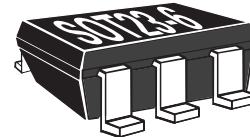
40V SILICON HIGH CURRENT LOW LEAKAGE SCHOTTKY DIODE

SUMMARY

Schottky Diode $V_R = 40V$; $I_F = 2.2A$; $I_R = 40\mu A$

DESCRIPTION

This compact SOT23-6 packaged Schottky diode offers users an excellent performance combination comprising high current operation, extremely low leakage and low forward voltage ensuring suitability for applications requiring efficient operation at higher temperatures (above 85°C) see Operational Efficiency chart on page 4.



Key benefits:

Performance capability equivalent to much larger packages

Improved circuit efficiency & power levels

PCB area savings

FEATURES

- Low equivalent on resistance
- Extremely low leakage ($40\mu A$ @30V)
- High current capability ($I_F = 2.2A$)
- Low V_F , fast switching Schottky
- SOT23-6 package
- ZLLS2000 complements low temperature equivalent ZHCS2000
- Package thermally rated to 150°C

APPLICATIONS

- DC - DC converters
- Strobes
- Mobile phones
- Charging circuits
- Motor control

ORDERING INFORMATION

DEVICE	REEL (inches)	TAPE WIDTH (mm)	QUANTITY PER REEL
ZLLS2000TA	7	8mm embossed	3000 units
ZLLS2000TC	13	8mm embossed	10000 units

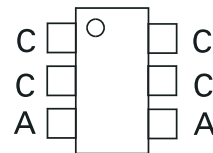
DEVICE MARKING

LL20

Cathode



Anode



Top view

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ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	VALUE	UNIT
Schottky Diode			
Continuous reverse voltage	V _R	40	V
Forward current	I _F	2.2	A
Peak repetitive forward current	I _{FPK}	3.55	A
Rectangular pulse duty cycle			
Non repetitive forward current	I _{FSM}	36	A
t=≤100μs			
t=≤10ms		12	A
Package			
Power dissipation at T _{amb} =25°C	P _D		
single die continuous		1.1	W
single die measured at t<5 secs		1.71	W
Storage temperature range	T _{stg}	-55 to +150	°C
Junction temperature	T _j	150	°C

THERMAL RESISTANCE

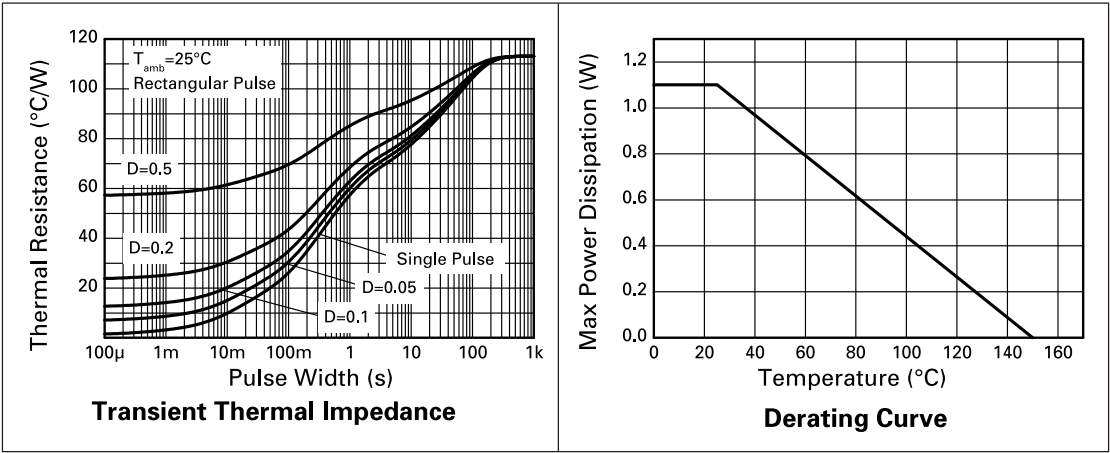
PARAMETER	SYMBOL	VALUE	UNIT
Junction to ambient (a)	$R_{\theta JA}$	113	$^\circ C/W$
Junction to ambient (b)	$R_{\theta JA}$	73	$^\circ C/W$

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 $t < 5$ secs.

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TYPICAL CHARACTERISTICS



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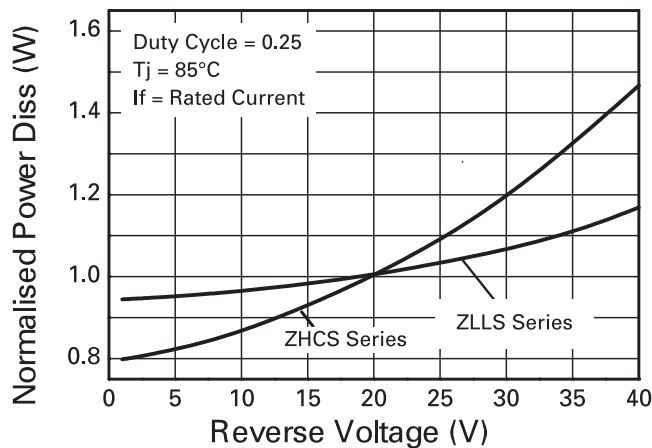
ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^{\circ}\text{C}$ unless otherwise stated)

SCHOTTKY DIODE CHARACTERISTICS						
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS
Reverse breakdown voltage	$V_{(BR)R}$	40			V	$I_R = 1\text{mA}$
Forward voltage	V_F		260	-	mV	$I_F = 50\text{mA}^*$
			290	-	mV	$I_F = 100\text{mA}^*$
			322	-	mV	$I_F = 250\text{mA}^*$
			345	370	mV	$I_F = 500\text{mA}^*$
			395	430	mV	$I_F = 1000\text{mA}^*$
			440	490	mV	$I_F = 1500\text{mA}^*$
			475	540	mV	$I_F = 2000\text{mA}^*$
			550	640	mV	$I_F = 3000\text{mA}^*$
Reverse current	I_R		25	40	μA	$V_R = 30\text{V}$
			1.7		mA	$V_R = 30\text{V}, T_a = 85^{\circ}\text{C}$
Diode capacitance	C_D		65		pF	$f = 1\text{MHz}, V_R = 30\text{V}$
Reverse recovery time	t_{rr}		6		ns	Switched from
Reverse recovery charge	Q_{rr}		685		pC	$I_F = 500\text{mA}$ to $V_R = 5.5\text{V}$ Measured @ $I_R = 50\text{mA}$. $di/dt > 500\text{mA}/\text{ns}$. $R_{source} = 6\Omega$; $R_{load} = 10\Omega$

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

Operational efficiency chart

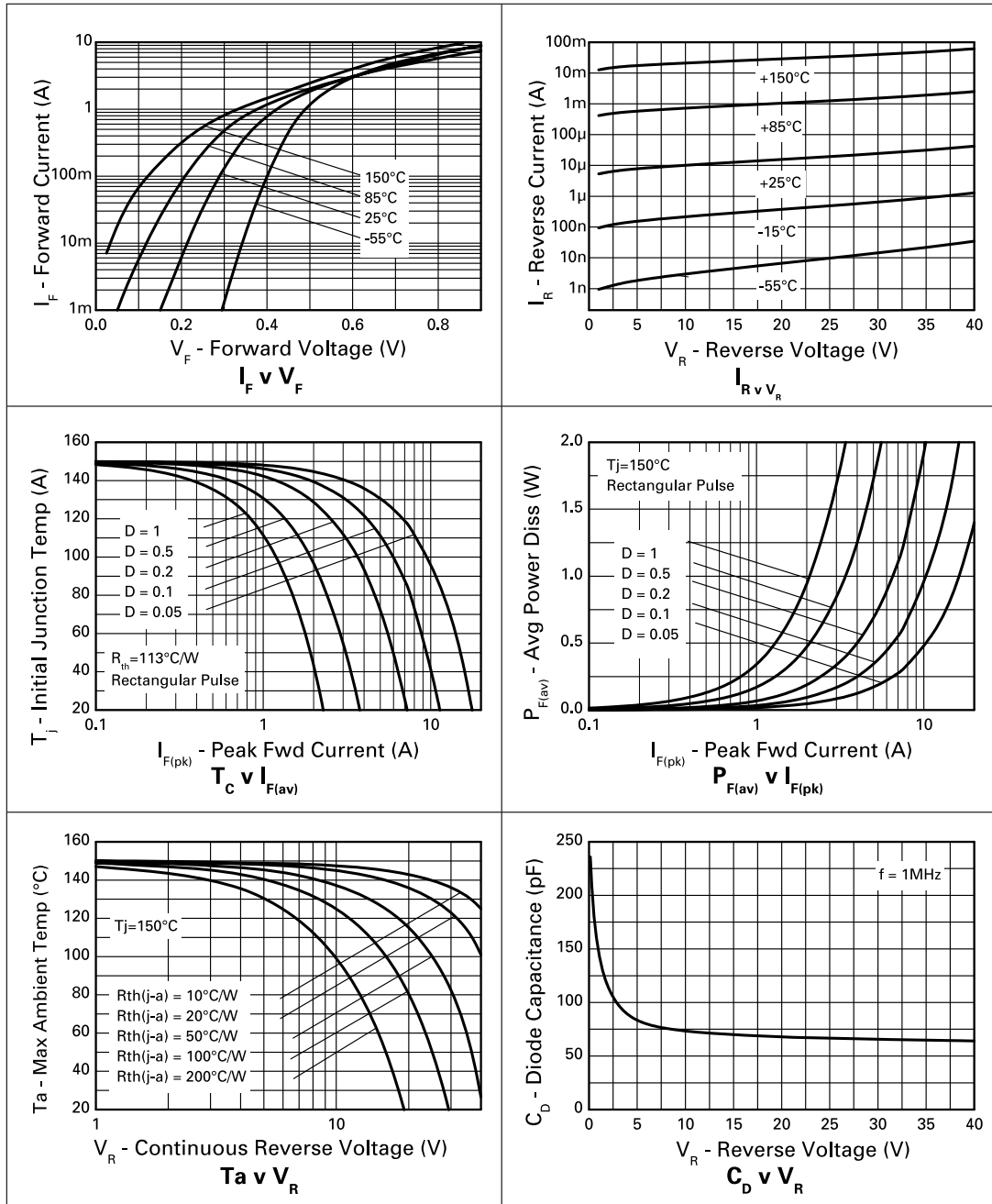
The operational efficiency chart indicates the beneficial use of the ZLLS series diodes in applications requiring higher voltage, higher temperature operation. Circuits requiring low voltage low temperature operation will benefit from using Zetex low V_F ZHCS series diodes.



Operational Efficiency Example

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TYPICAL CHARACTERISTICS



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"Preview"Future device intended for production at some point. Samples may be available

"Active"Product status recommended for new designs

"Last time buy (LTB)"Device will be discontinued and last time buy period and delivery is in effect

"Not recommended for new designs"Device is still in production to support existing designs and production

"Obsolete"Production has been discontinued

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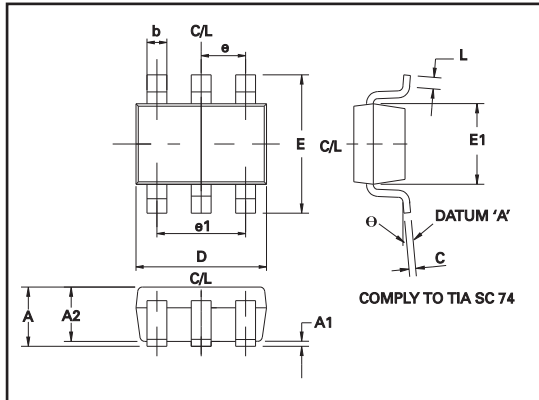
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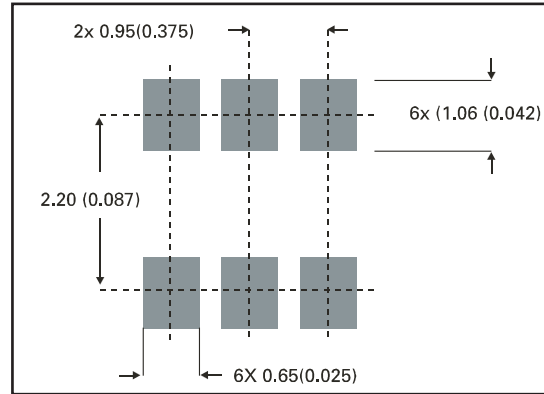
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PACKAGE DIMENSIONS



PAD LAYOUT DETAILS



DIM	Millimeters	
	Min.	Max.
A	0.90	1.45
A1	0.00	0.15
A2	0.90	1.30
b	0.20	0.50
C	0.09	0.26
D	2.70	3.10
E	2.20	3.20
E1	1.30	1.80
L	0.10	0.60
e	0.95 REF	
e1	1.90 REF	
Θ	0°	30°

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Europe	Americas	Asia Pacific	Corporate Headquarters
Zetex GmbH Kustermann-Park Balanstraße 59 D-81541 München Germany Telefon: (49) 89 45 49 49 0 Fax: (49) 89 45 49 49 49 europa.sales@zetex.com	Zetex Inc 700 Veterans Memorial Hwy Hauppauge, NY 11788 USA Telephone: (1) 631 360 2222 Fax: (1) 631 360 8222 usa.sales@zetex.com	Zetex (Asia) Ltd 3701-04 Metroplaza Tower 1 Hing Fong Road, Kwai Fong Hong Kong Telephone: (852) 26100 611 Fax: (852) 24250 494 asia.sales@zetex.com	Zetex Semiconductors plc Zetex Technology Park Chadderton, Oldham, OL9 9LL United Kingdom Telephone (44) 161 622 4444 Fax: (44) 161 622 4446 hq@zetex.com

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