

# ZLLS2000

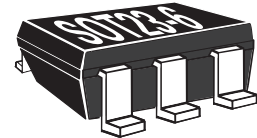
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## 40V SILICON HIGH CURRENT LOW LEAKAGE SCHOTTKY DIODE

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### 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

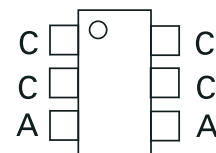
### ORDERING INFORMATION

DEVICE	REEL (inches)	TAPE WIDTH (mm)	QUANTITY PER REEL
ZLLS1000TA	7	8mm embossed	3000 units
ZLLS1000TC	13	8mm embossed	10000 units

Cathode



Anode



Top view

### DEVICE MARKING

L10

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## ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
<b>Schottky Diode</b>			
Continuous Reverse Voltage	$V_R$	40	V
Forward Current	$I_F$	2.2	A
Peak Repetitive Forward Current Rectangular Pulse Duty Cycle	$I_{FPK}$	3.55	A
Non Repetitive Forward Current $t \leq 100\mu s$	$I_{FSM}$	36	A
$t \leq 10ms$		12	A
<b>Package</b>			
Power Dissipation at $T_{amb}=25^\circ C$ single die continuous	$P_D$	1.1	W
single die measured at $t < 5$ secs		1.71	W
Storage Temperature Range	$T_{stg}$	-55 to +150	$^\circ C$
Junction Temperature	$T_j$	150	$^\circ C$

## 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	$^\circ C/W$

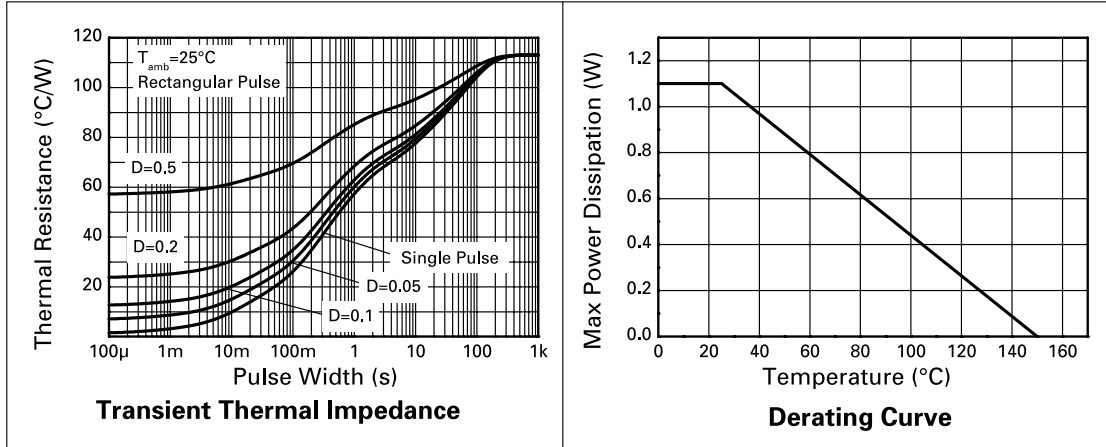
### Notes

(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  $t < 5$ secs.

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## TYPICAL CHARACTERISTICS



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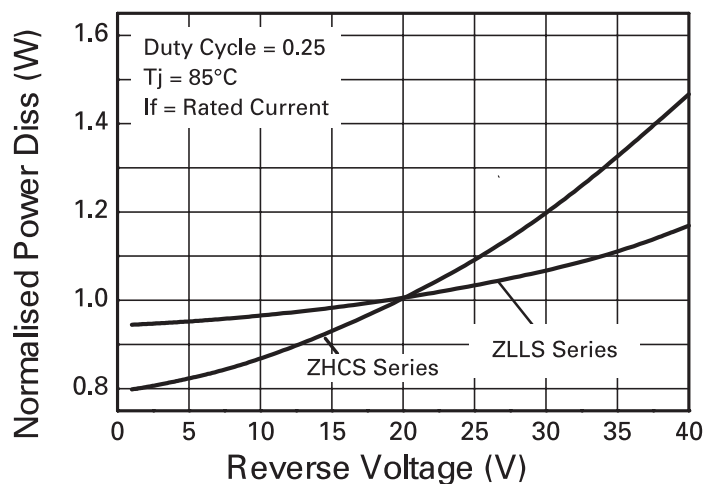
## ELECTRICAL CHARACTERISTICS (at Tamb = 25°C unless otherwise stated).

SCHOTTKY DIODE CHARACTERISTICS						
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	$I_F=250\text{mA}^*$
			360	370	mV	$I_F=400\text{mA}^*$
			420	430	mV	$I_F=750\text{mA}^*$
			470	490	mV	$I_F=1000\text{mA}^*$
			520	640	mV	$I_F=1500\text{mA}^*$
			610		mV	$I_F=1000\text{mA}^*$
		500			$I_F=2000\text{mA}^*, T_a = 100^\circ\text{C}$	
Reverse Current	$I_R$		11	20	$\mu\text{A}$	$V_R=30\text{V}$
Diode Capacitance	$C_D$		31		pF	$f=1\text{MHz}, V_R=30\text{V}$
Reverse Recovery Time	$t_{rr}$		2.58		ns	Switched from $I_F = 500\text{mA}$
Reverse Recovery Charge	$Q_{rr}$		1.45		nC	to $V_R = 5\text{V}$ . Measured @ $I_R 50\text{mA}$ . $di / dt > 1\text{A} / \text{ns}$ . Rsource = 6 ohm.

\*Measured under pulsed conditions.

### 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.

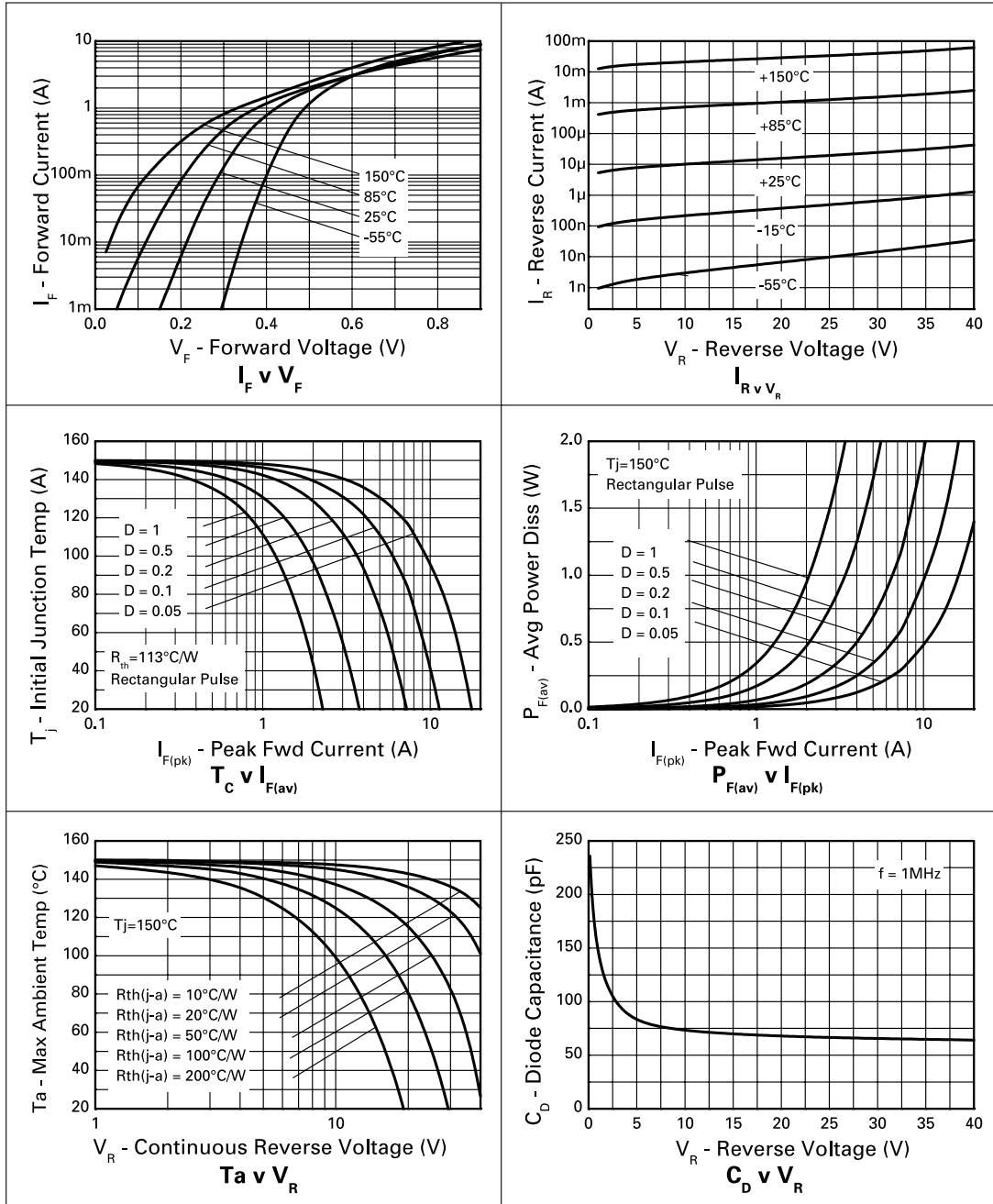


### Operational Efficiency Example



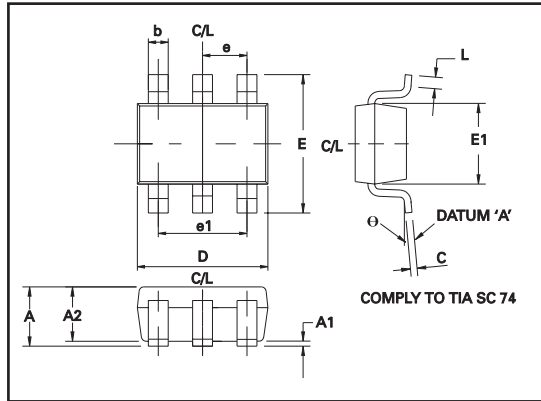
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## TYPICAL CHARACTERISTICS

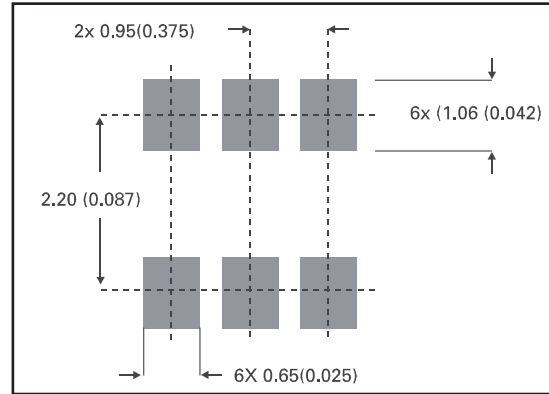


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## PACKAGE DIMENSIONS



## PAD LAYOUT DETAILS



DIM	Millimetres	
	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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Zetex plc  
Fields New Road  
Chadderton  
Oldham, OL9 8NP  
United Kingdom  
Telephone (44) 161 622 4422  
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  
700 Veterans Memorial Hwy  
Hauppauge, NY11788  
USA  
Telephone: (631) 360 2222  
Fax: (631) 360 8222

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

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