

# ZLLS1000

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## 40V SILICON HIGH CURRENT LOW LEAKAGE SCHOTTKY DIODE

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### SUMMARY

Schottky Diode  $V_R = 40V$ ;  $I_F = 1.16A$ ;  $I_R = 20\mu A$

### DESCRIPTION

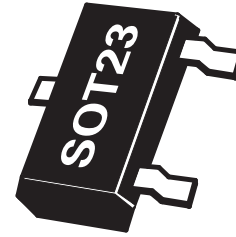
This compact SOT23 packaged Schottky diode offers users an excellent performance combination comprising high current operation, extremely low leakage and low forward voltage ensuring suitability for applications requiring efficient operation at higher temperatures (above 85°C) see Operational Efficiency 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 (20 $\mu A$  @30V)
- High current capability ( $I_F = 1.16A$ )
- Low  $V_F$ , fast switching Schottky
- SOT23 package
- ZLLS1000 complements low temperature equivalent ZHCS1000
- 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

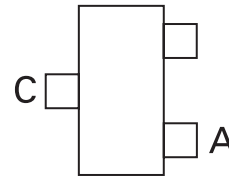
### DEVICE MARKING

L10

Cathode



Anode



Top view

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## ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	VALUE	UNIT	
<b>Schottky diode</b>				
Continuous reverse voltage	$V_R$	40	V	
Forward current	$I_F$	1.16	A	
Peak repetitive forward current Rectangular pulse duty cycle	$I_{FPK}$	1.88	A	
Non repetitive forward current	$I_{FSM}$	$t \leq 100 \mu s$	22	A
		$t \leq 10 ms$	6.4	A
<b>Package</b>				
Power dissipation at $T_{amb}=25^\circ C$ single die continuous single die measured at $t < 5$ secs	$P_D$	625	mW	
		840	mW	
Storage temperature range	$T_{stg}$	-55 to +150	$^\circ C$	
Junction temperature	$T_j$	150	$^\circ C$	

## THERMAL RESISTANCE

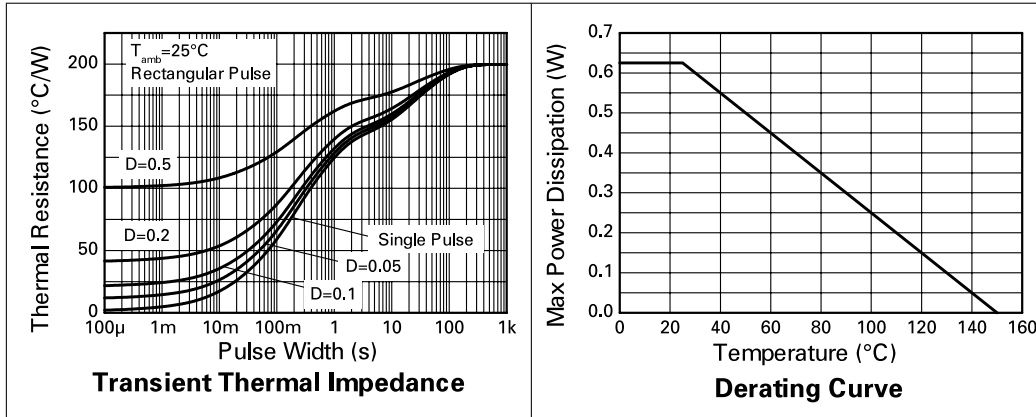
PARAMETER	SYMBOL	VALUE	UNIT
Junction to ambient (a)	$R_{\theta JA}$	200	$^\circ C/W$
Junction to ambient (b)	$R_{\theta JA}$	149	$^\circ C/W$

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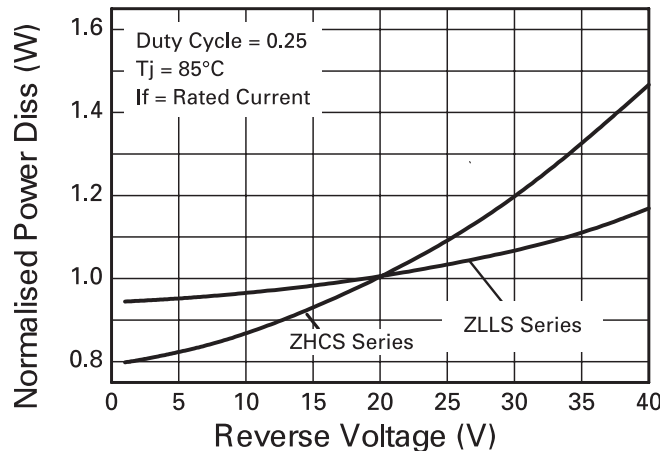
## ELECTRICAL CHARACTERISTICS (at Tamb = 25°C unless otherwise stated)

SCHOTTKY DIODE CHARACTERISTICS						
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS
Reverse breakdown voltage	$V_{(BR)R}$	40			V	$I_R=500\mu A$
Forward voltage	$V_F$		280	310	mV	$I_F=50\text{ mA}^*$
			310	340	mV	$I_F=100\text{ mA}^*$
			355	390	mV	$I_F=250\text{mA}^*$
			405	460	mV	$I_F=500\text{mA}^*$
			450	510	mV	$I_F=750\text{mA}^*$
			490	560	mV	$I_F=1\text{A}^*$
			570	660	mV	$I_F=1.5\text{A}^*$
			475		mV	$I_F=1000\text{mA}^*, T_a = 100^\circ\text{C}$
Reverse current	$I_R$		11	20	$\mu A$	$V_R=30\text{V}$
			750		$\mu A$	$V_R=30\text{V}, T_a = 85^\circ\text{C}$
Diode capacitance	$C_D$		26		pF	$f=1\text{MHz}, V_R=30\text{V}$
Reverse recovery time	$t_{rr}$		4		ns	Switched from $I_F = 500\text{mA}$ to $V_R = 5.5\text{V}$
Reverse recovery charge	$Q_{rr}$		335		nC	Measured @ $I_R 50\text{mA}$ . $di/dt = 500\text{mA/ns}$ . $R_{source} = 6\Omega; R_{load} = 10\Omega$

\*Measured under pulsed conditions. Pulse width = 300 $\mu$ S. 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 low  $V_F$  ZHCS Series diodes. using Zetex Series diodes.



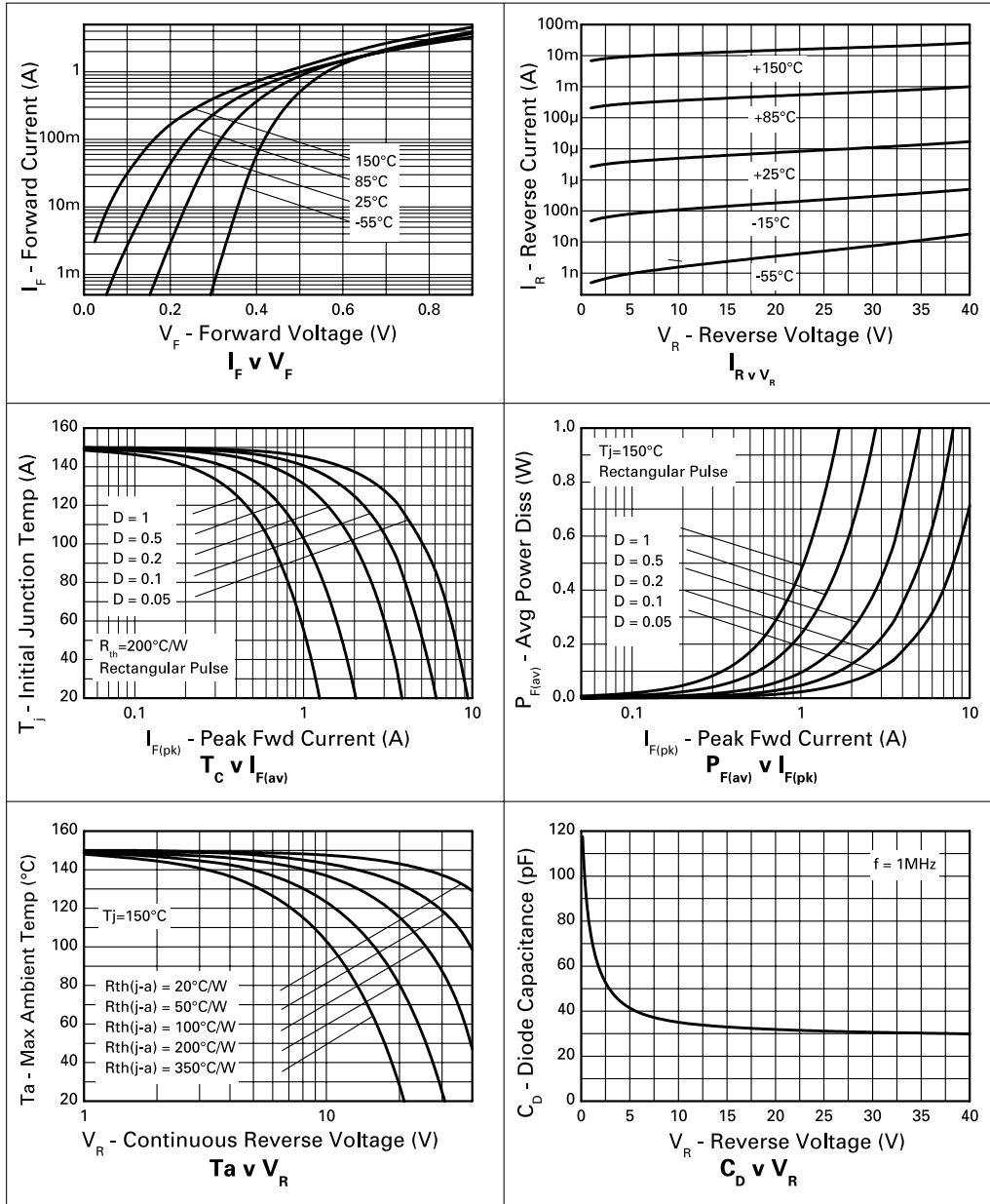
### Operational Efficiency Example



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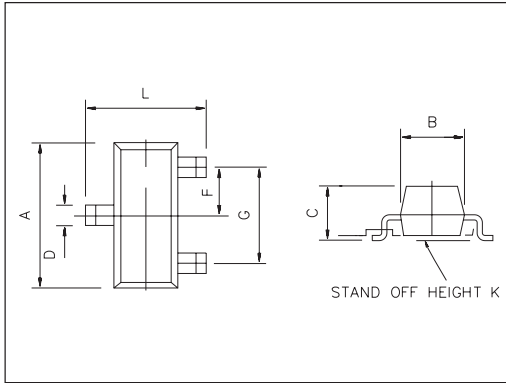
# ZLLS1000

## TYPICAL CHARACTERISTICS

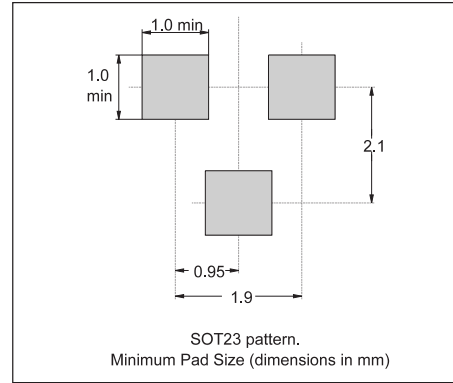


# ZLLS1000

## Package Outline



## Pad Layout



## Package Dimensions

DIM	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.67	3.05	0.105	0.120
B	1.20	1.40	0.047	0.055
C	-	1.10	-	0.043
D	0.37	0.53	0.0145	0.021
F	0.085	0.15	0.0033	0.0059
G	NOM 1.9		NOM 0.075	
K	0.01	0.10	0.0004	0.004
L	2.10	2.50	0.0825	0.0985

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Europe	Americas	Asia Pacific	Corporate Headquarters
Zetex GmbH Streitfeldstraße 19 D-81673 München Germany	Zetex Inc 700 Veterans Memorial Hwy Hauppauge, NY 11788 USA	Zetex (Asia) Ltd 3701-04 Metroplaza Tower 1 Hing Fong Road, Kwai Fong Hong Kong	Zetex Semiconductors plc Zetex Technology Park Chadderton, Oldham, OL9 9LL United Kingdom
Telefon: (49) 89 45 49 49 0 Fax: (49) 89 45 49 49 49 <a href="mailto:europa.sales@zetex.com">europa.sales@zetex.com</a>	Telephone: (1) 631 360 2222 Fax: (1) 631 360 8222 <a href="mailto:usa.sales@zetex.com">usa.sales@zetex.com</a>	Telephone: (852) 26100 611 Fax: (852) 24250 494 <a href="mailto:asia.sales@zetex.com">asia.sales@zetex.com</a>	Telephone (44) 161 622 4444 Fax: (44) 161 622 4446 <a href="mailto:hq@zetex.com">hq@zetex.com</a>

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