

ZLLS1000

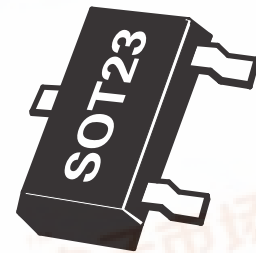
40V SILICON HIGH CURRENT LOW LEAKAGE SCHOTTKY DIODE

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 μA @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

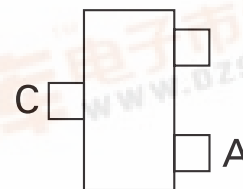
DEVICE MARKING

L10

Cathode



Anode



Top view

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ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT	
Schottky Diode				
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
Package				
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	$^\circ C/W$

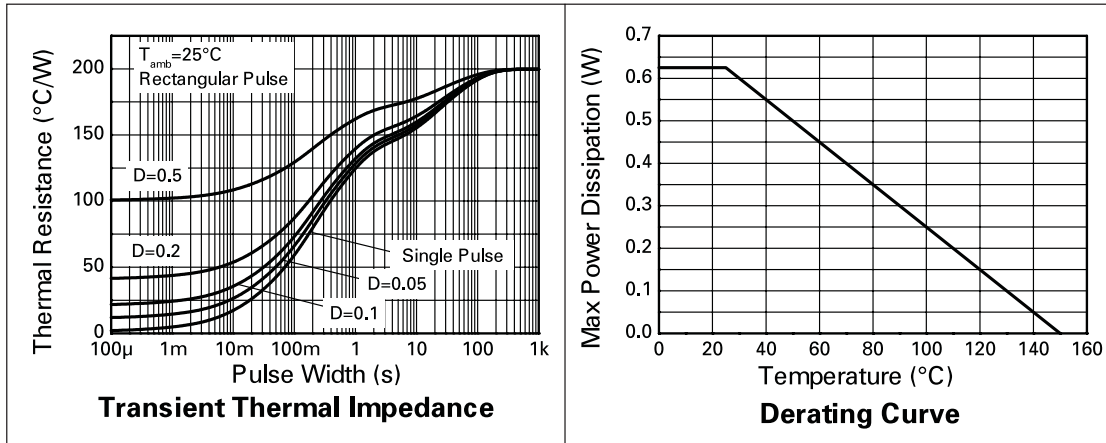
Notes

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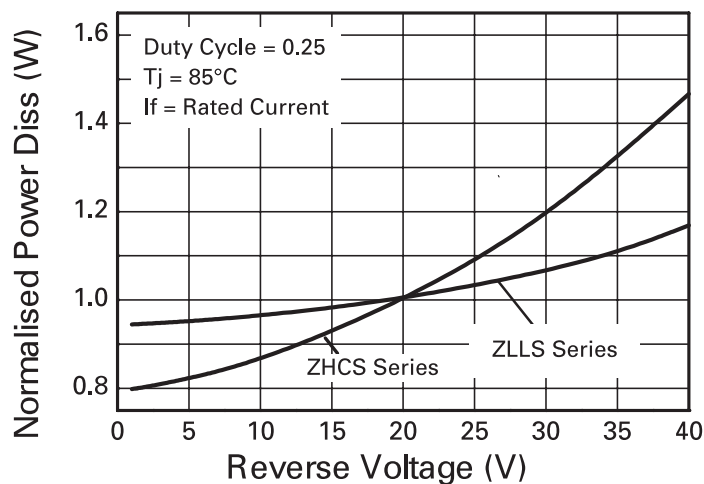
ELECTRICAL CHARACTERISTICS (at Tamb = 25°C unless otherwise stated).

SCHOTTKY DIODE CHARACTERISTICS						
Reverse Breakdown Voltage	$V_{(BR)R}$	40			V	$I_R=500\mu A$
Forward Voltage	V_F		285	310	mV	$I_F=50\text{ mA}^*$
			314	340	mV	$I_F=100\text{ mA}^*$
			368	390	mV	$I_F=250\text{mA}^*$
			428	460	mV	$I_F=400\text{mA}^*$
			478	510	mV	$I_F=750\text{mA}^*$
			520	560	mV	$I_F=1000\text{mA}^*$
			610	660	mV	$I_F=1500\text{mA}^*$
		492			mV	$I_F=1000\text{mA}^*, T_a = 100^\circ\text{C}$
Reverse Current	I_R		11	20	μA	$V_R=30\text{V}$
			750		μA	$V_R=30\text{V}, T_a = 85^\circ\text{C}$
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 @ $I_R 50\text{mA}$. $di / dt > 1\text{A} / \text{ns}$. $R_{source} = 6\text{ ohm}$.

*Measured under pulsed conditions.

Operational Efficiency chart

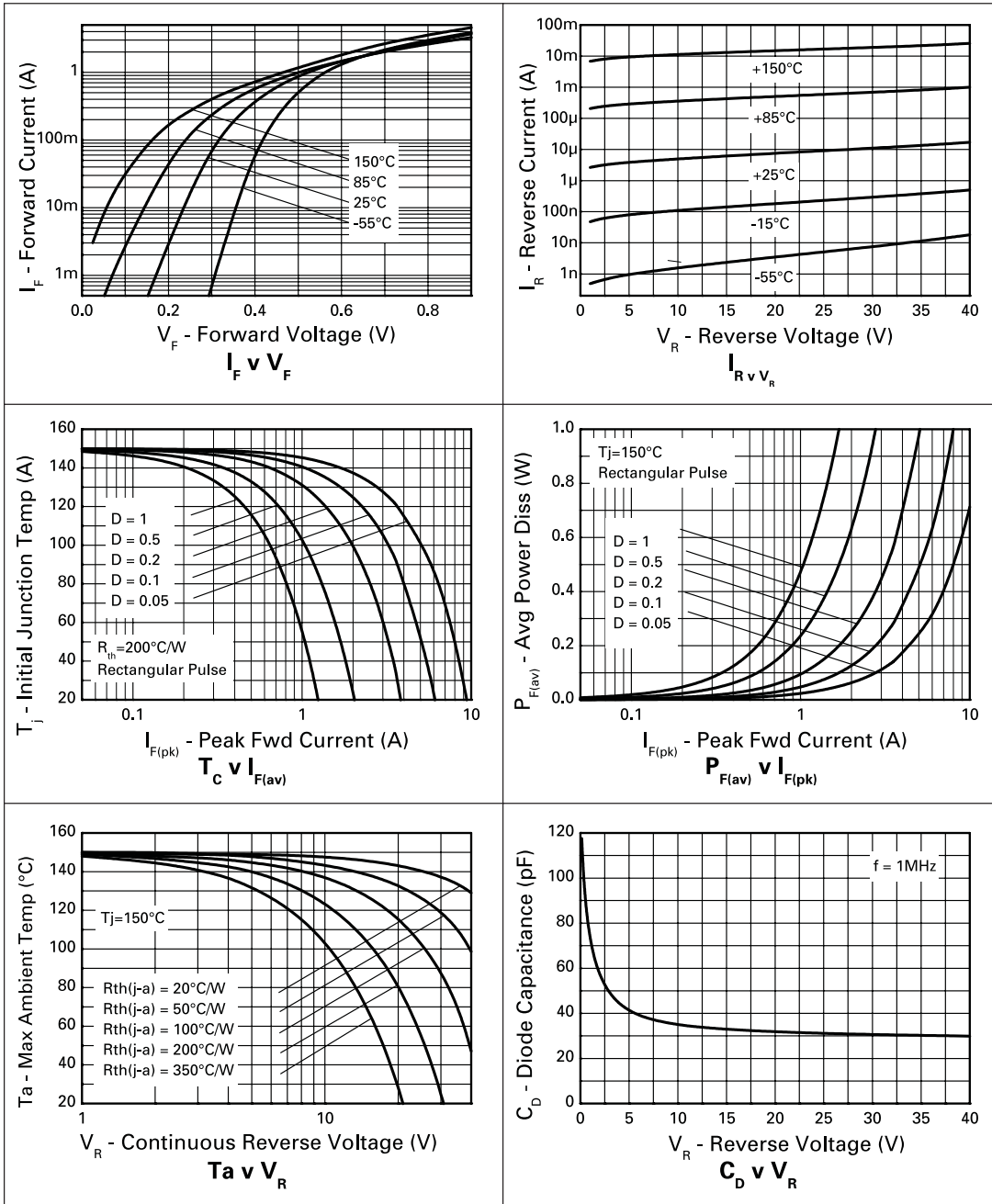
The operational efficiency chart indicates the beneficial use of the ZLLS Series diodes in applications requiring higher voltage, higher temperature operation. Circuits requiring Low voltage Low temperature operation will benefit from using Zetex low V_F ZHCS Series diodes.



Operational Efficiency Example

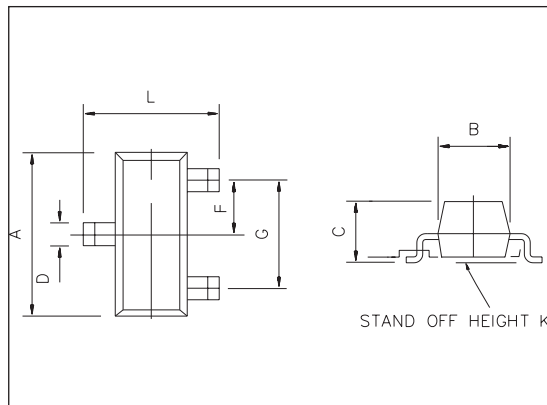
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TYPICAL CHARACTERISTICS

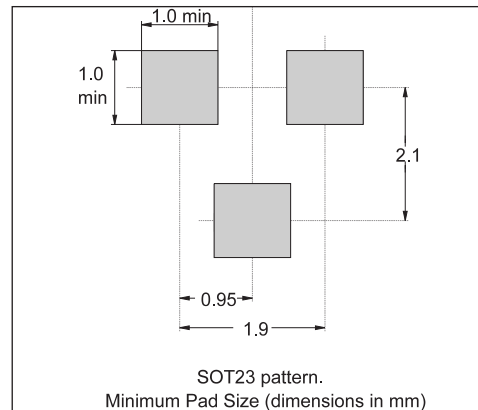


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Package Outline



Pad Layout



Package Dimensions

DIM	Millimetres		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
N	NOM 0.95		NOM 0.037	

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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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