

ZLLS500

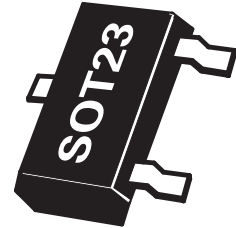
40V SILICON HIGH CURRENT LOW LEAKAGE SCHOTTKY DIODE

SUMMARY

Schottky Diode $V_R = 40V$; $I_F = 0.7A$; $I_R = 10\mu A$

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

- Extremely low leakage ($10\mu A @ 30V$)
- High current capability ($I_F = 0.7A$)
- Low V_F , fast switching Schottky
- SOT23 package
- ZLLS500 complements low temperature equivalent ZHCS500
- 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
ZLLS500TA	7	8mm embossed	3000 units
ZLLS500TC	13	8mm embossed	10000 units

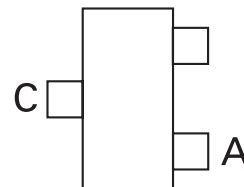
DEVICE MARKING

L05

Cathode



Anode



Top view

ZLLS500

ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	VALUE	UNIT
Schottky Diode			
Continuous reverse voltage	V_R	40	V
Forward current	I_F	0.7	A
Peak repetitive forward current Rectangular pulse duty cycle	I_{FPK}	1.14	A
Non repetitive forward current	I_{FSM}	$t \leq 100\mu s$ 13	A
		$t \leq 10ms$ 3.2	A
Package			
Power dissipation at $T_{amb}=25^\circ C$ single die continuous	P_D	500	mW
single die measured at $t < 5$ secs		630	mW
Storage temperature range	T_{stg}	-55 to +150	$^\circ C$
Junction temperature	T_j	150	$^\circ C$

THERMAL RESISTANCE

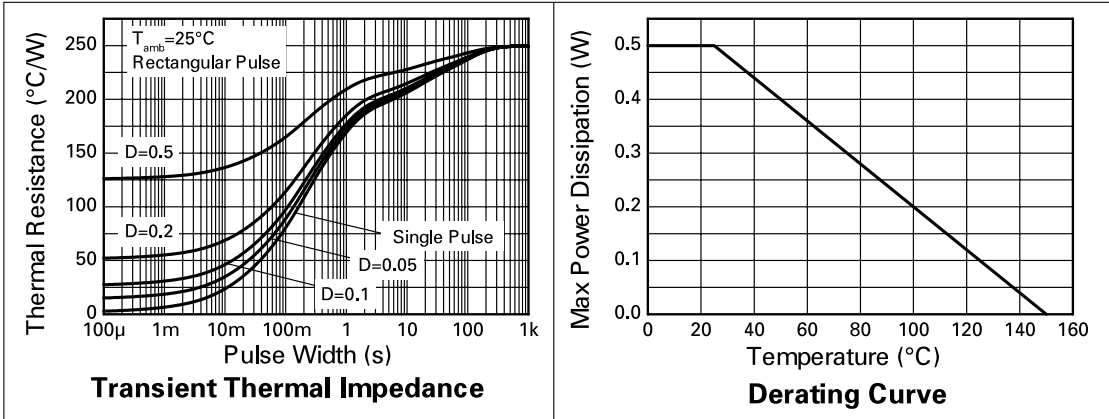
PARAMETER	SYMBOL	VALUE	UNIT
Junction to ambient (a)	$R_{\theta JA}$	250	$^\circ C/W$
Junction to ambient (b)	$R_{\theta JA}$	198	$^\circ C/W$

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



ZLLS500

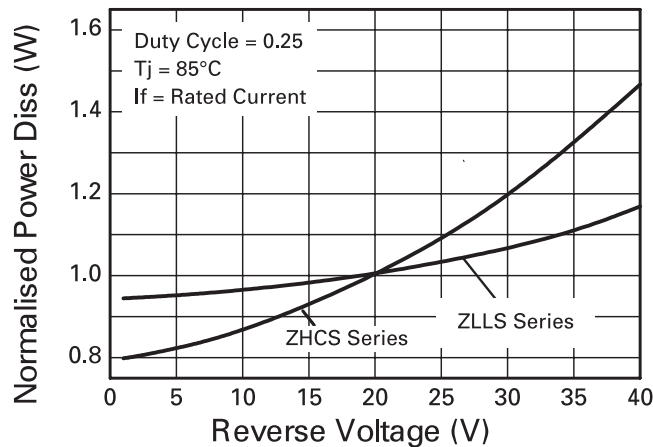
ELECTRICAL CHARACTERISTICS (at Tamb = 25°C unless otherwise stated)

SCHOTTKY DIODE CHARACTERISTICS						
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS
Reverse breakdown voltage	$V_{(BR)R}$	40			V	$I_R=200\mu A$
Forward voltage	V_F		305	360	mV	$I_F=50\text{ mA}^*$
			335	390	mV	$I_F=100\text{ mA}^*$
			395	450	mV	$I_F=250\text{mA}^*$
			465	530	mV	$I_F=500\text{mA}^*$
			550	630	mV	$I_F=750\text{mA}^*$
			620	710	mV	$I_F=1\text{A}^*$
			710	800	mV	$I_F=1.5\text{A}^*$
Reverse current	I_R		6	10	μA	$V_R=30\text{V}$
			370		μA	$V_R=30\text{V}, T_a = 85^\circ\text{C}$
Diode capacitance	C_D		16		pF	$f=1\text{MHz}, V_R=30\text{V}$
Reverse recovery time	t_{rr}		3		ns	Switched from $I_F = 500\text{mA}$ to $V_R = 5.5\text{V}$
Reverse recovery charge	Q_{rr}		210		pC	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 μ S. Duty cycle \leq 2%.

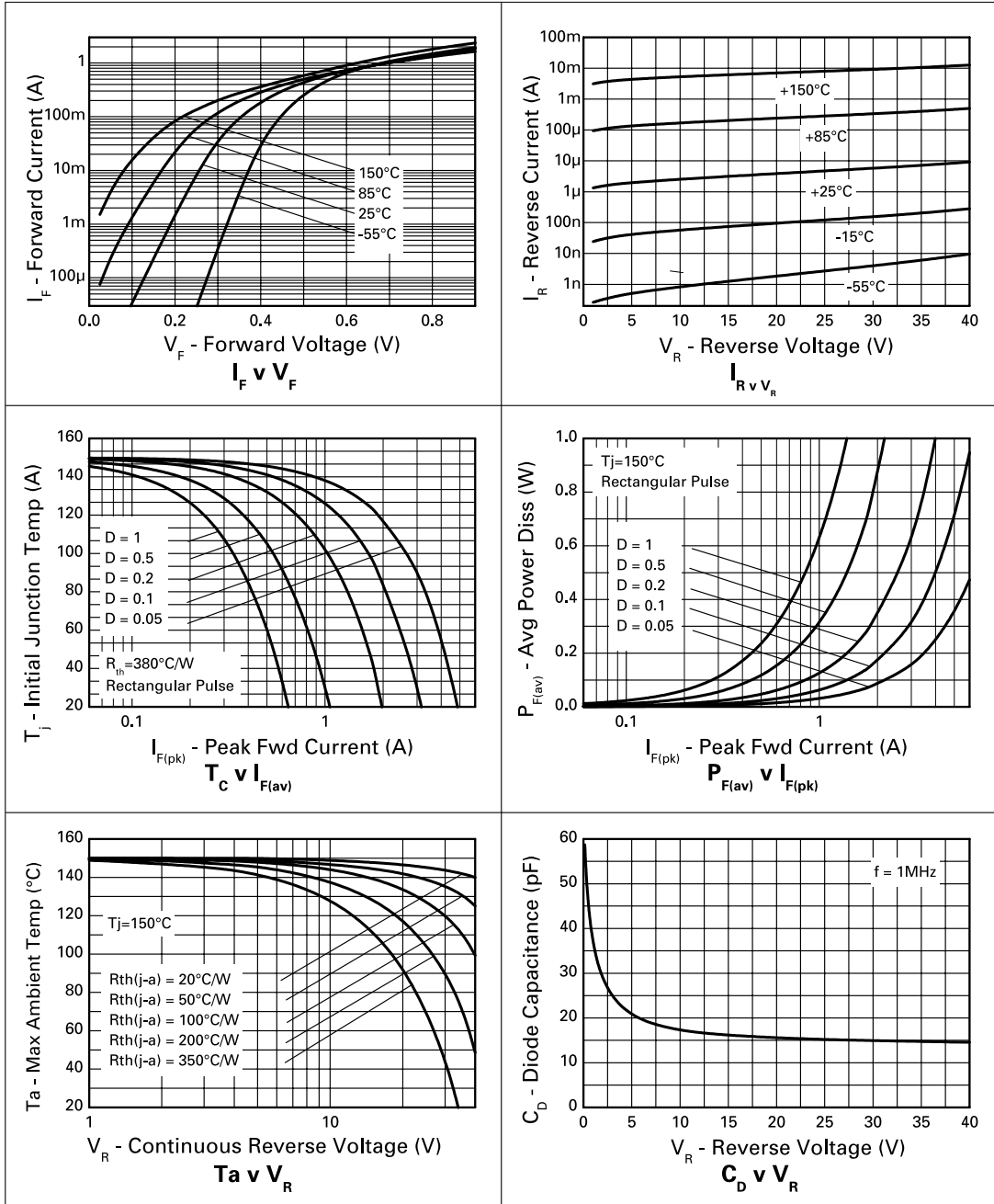
Operational efficiency chart

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 using Zetex low V_F ZHCS series diodes.



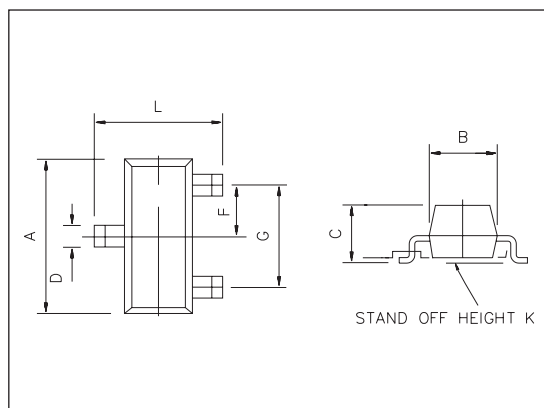
Operational Efficiency Example

TYPICAL CHARACTERISTICS

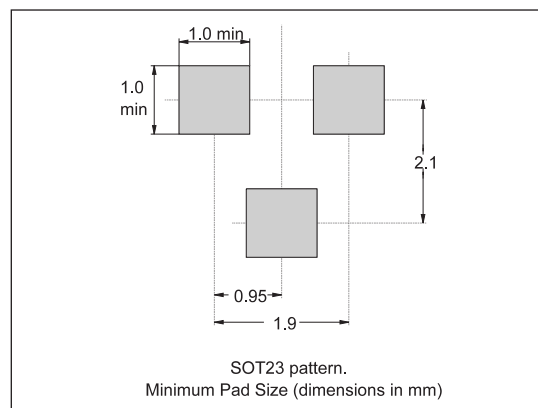


ZLLS500

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
N	NOM 0.95		NOM 0.037	

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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 europe.sales@zetex.com	Telephone: (1) 631 360 2222 Fax: (1) 631 360 8222 usa.sales@zetex.com	Telephone: (852) 26100 611 Fax: (852) 24250 494 asia.sales@zetex.com	Telephone (44) 161 622 4444 Fax: (44) 161 622 4446 hq@zetex.com

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