

ZLLS500

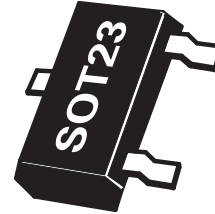
40V SILICON HIGH CURRENT LOW LEAKAGE SCHOTTKY DIODE

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
- Strokes
- Mobile phones
- Charging circuits
- Motor control

Cathode



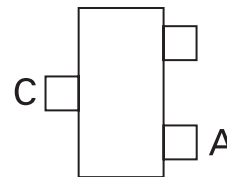
Anode

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



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	I _{FPK}	1.14	A
Rectangular pulse duty cycle			
Non repetitive forward current	I _{FSM}	13	A
t ≤ 100μ.s			
		3.2	A
t ≤ 10ms			A
Package			
Power dissipation at T _{amb} =25°C	P _D		
single die continuous		500	mW
single die measured at t<5 secs		630	mW
Storage temperature range	T _{stg}	-55 to +150	°C
Junction temperature	T _j	150	°C

THERMAL RESISTANCE

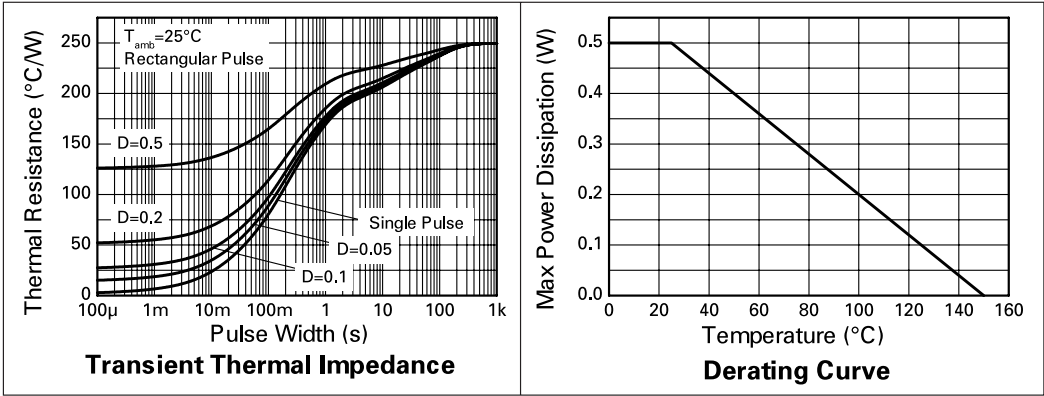
PARAMETER	SYMBOL	VALUE	UNIT
Junction to ambient (a)	$R_{\theta JA}$	250	$^\circ C/W$
Junction to ambient (b)	$R_{\theta JA}$	198	$^\circ C/W$

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

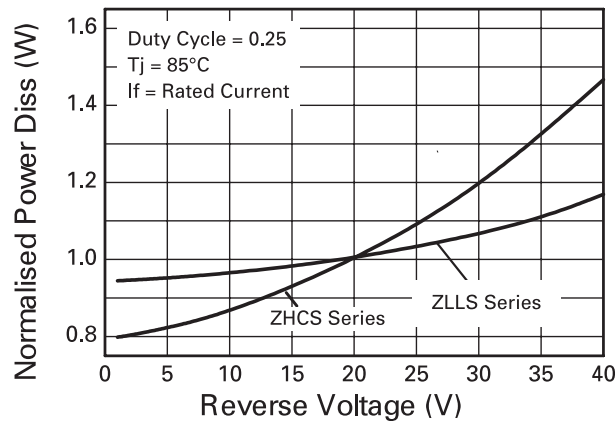
ELECTRICAL CHARACTERISTICS (at Tamb = 25°C unless otherwise stated)

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	$I_F=1.5\text{ A}^*$
			415		mV	$I_F=500\text{ mA}^*, T_a = 100^\circ\text{C}$
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.



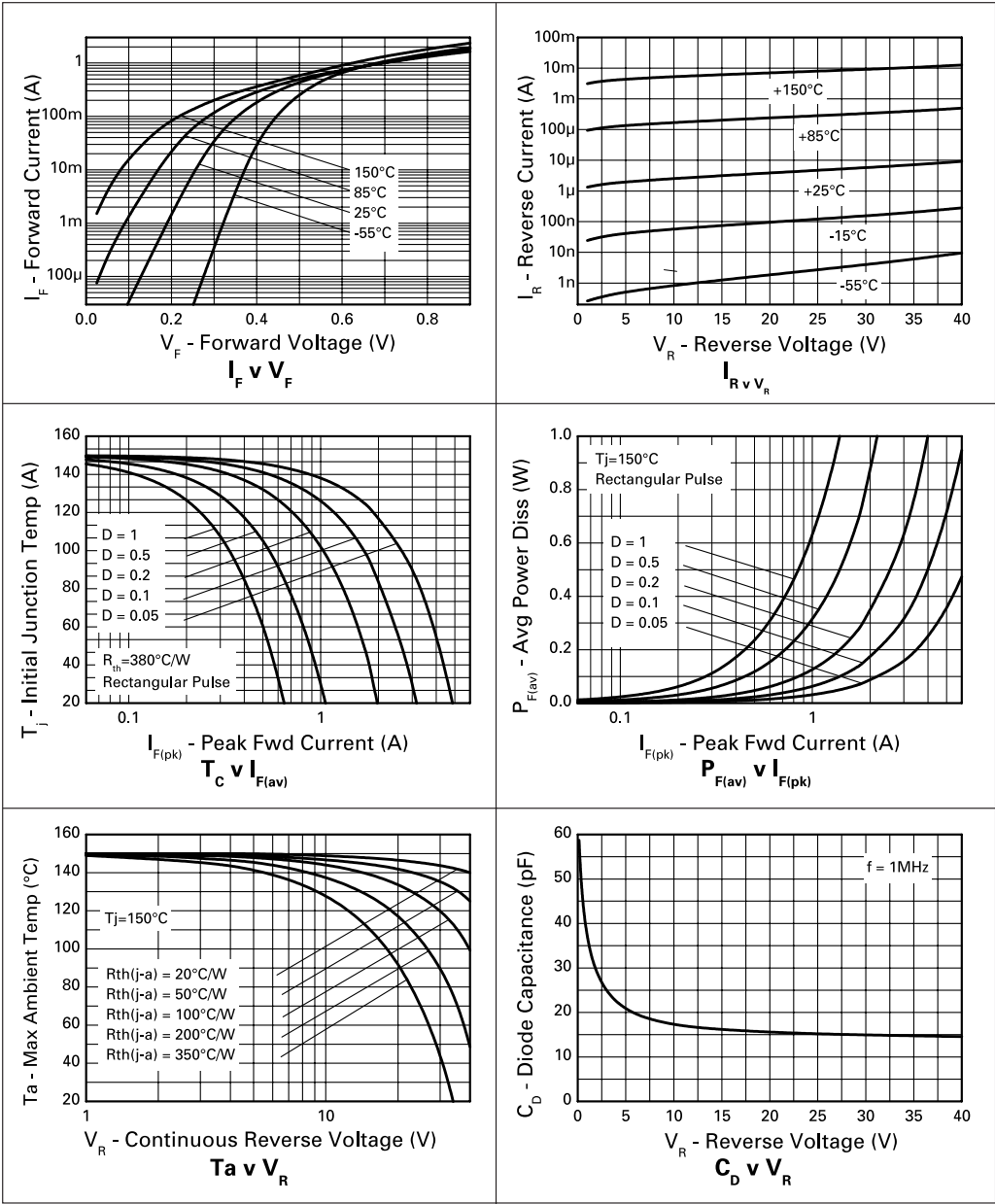
Operational Efficiency Example



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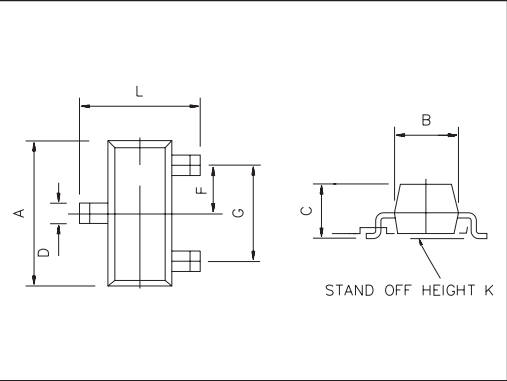
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TYPICAL CHARACTERISTICS

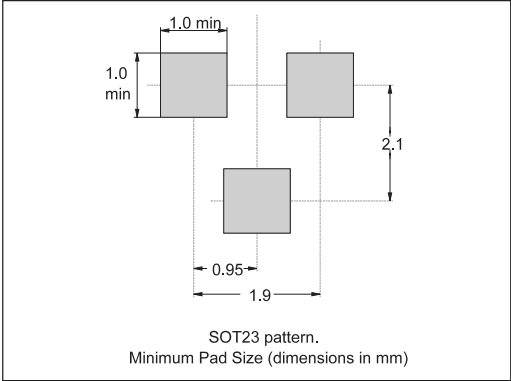


ZLLS500

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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