

ZLLS500

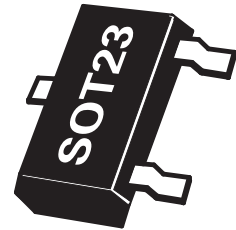
40V SILICON HIGH CURRENT LOW LEAKAGE SCHOTTKY DIODE

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

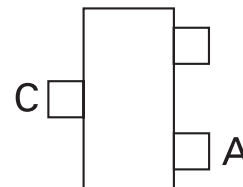
DEVICE MARKING

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 single die measured at $t < 5$ secs	P_D	500	mW
		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	$^\circ C/W$

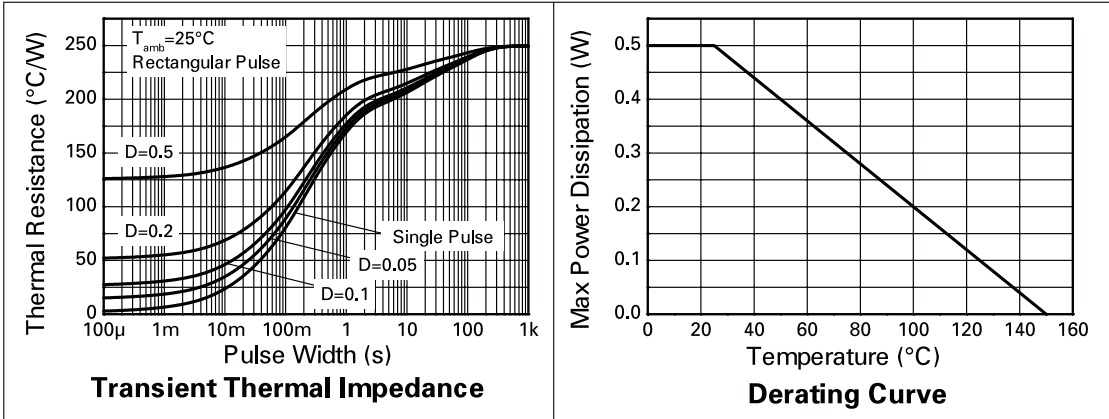
Notes

(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.

ZLLS500

TYPICAL CHARACTERISTICS



ZLLS500

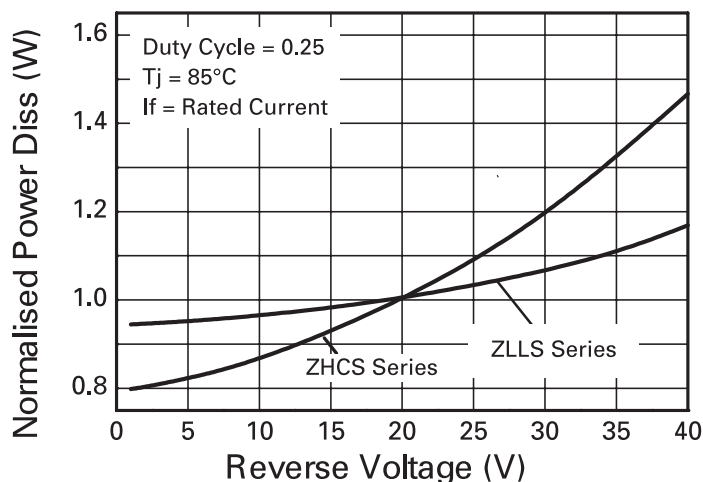
ELECTRICAL CHARACTERISTICS (at Tamb = 25°C unless otherwise stated).

SCHOTTKY DIODE CHARACTERISTICS						
Reverse Breakdown Voltage	$V_{(BR)R}$	40			V	$I_R=500\mu A$
Forward Voltage	V_F		310	350	mV	$I_F=50\text{ mA}^*$
			350	400	mV	$I_F=100\text{ mA}^*$
			425	520	mV	$I_F=250\text{mA}^*$
			520	610	mV	$I_F=400\text{mA}^*$
			610	850	mV	$I_F=750\text{mA}^*$
			690	1000	mV	$I_F=1000\text{mA}^*$
			860	1300	mV	$I_F=1500\text{mA}^*$
		494			mV	$I_F=500\text{mA}^*, T_a = 100^\circ\text{C}$
Reverse Current	I_R		5.5	10	μA	$V_R=30\text{V}$
			370		μA	$V_R=30\text{V}, T_a = 85^\circ\text{C}$
Diode Capacitance	C_D		15.5		pF	$f=1\text{MHz}, V_R=30\text{V}$
Reverse Recovery Time	t_{rr}		2.46		ns	Switched from $I_F = 500\text{mA}$
Reverse Recovery Charge	Q_{rr}		1.38		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.

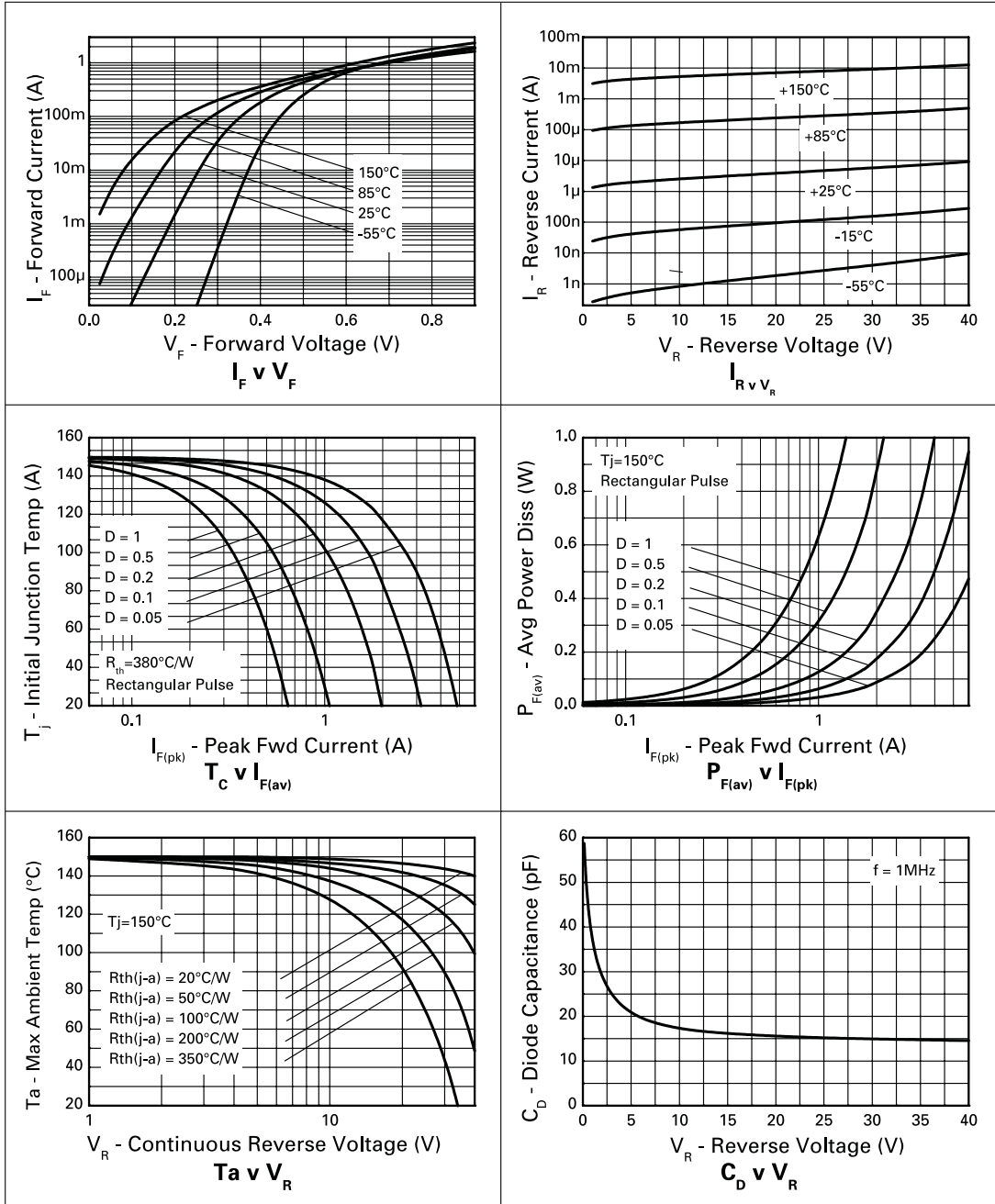


Operational Efficiency Example



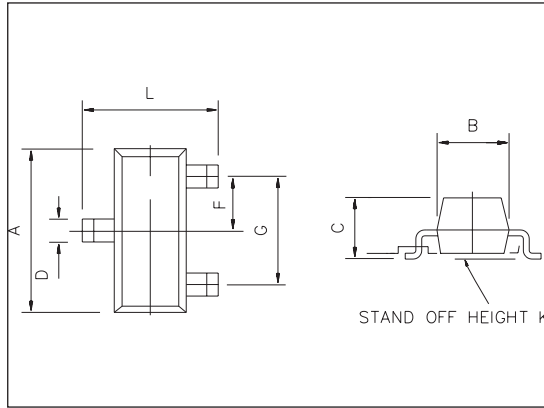
ISSUE 1 - JANUARY 2002

TYPICAL CHARACTERISTICS



ZLLS500

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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ISSUE 1 - JANUARY 2002