

## ZLLS500

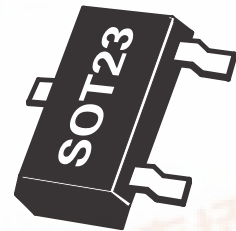
### 40V SILICON HIGH CURRENT LOW LEAKAGE SCHOTTKY DIODE

#### 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
- Stobes
- Mobile Phones
- Charging Circuits
- Motor control

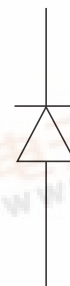
#### ORDERING INFORMATION

DEVICE	REEL (inches)	TAPE WIDTH (mm)	QUANTITY PER REEL
ZLLS500TA	7	8mm embossed	3000 units
ZLLS500TC	13	8mm embossed	10000 units

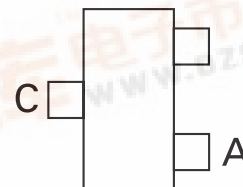
#### DEVICE MARKING

L05

Cathode



Anode



Top view

# ZLLS500

## ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT	
<b>Schottky Diode</b>				
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
		$t \leq 10 ms$	3.2	A
<b>Package</b>				
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	$^\circ C/W$

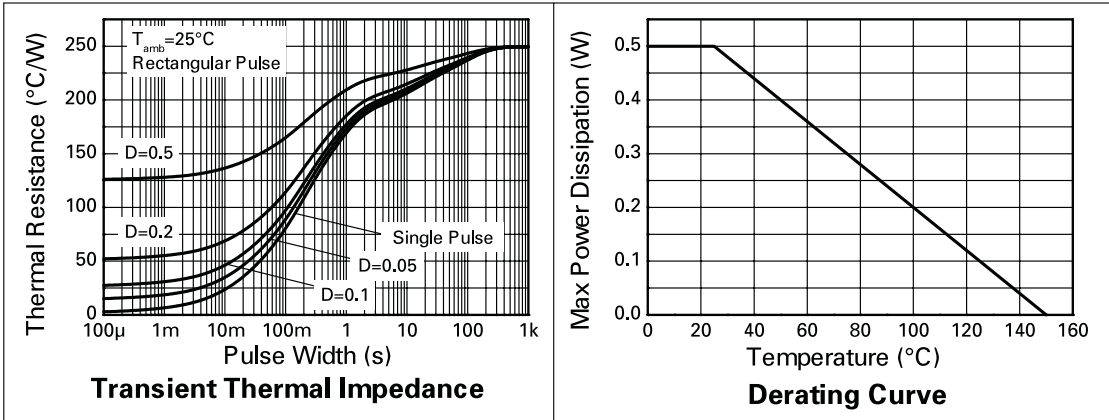
### Notes

(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.

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## TYPICAL CHARACTERISTICS



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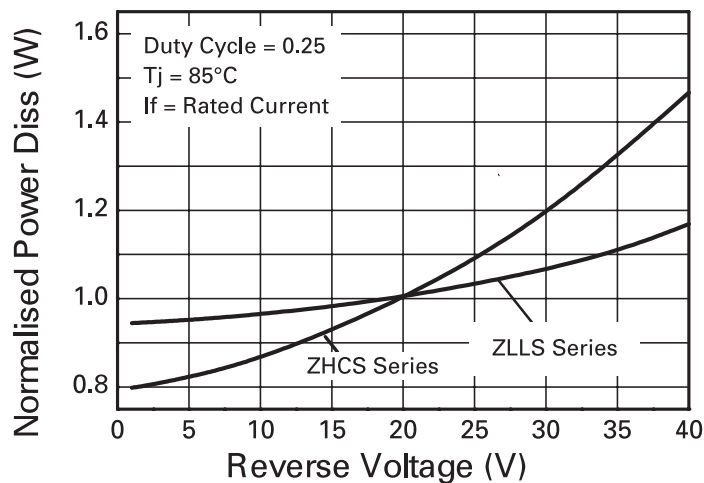
## ELECTRICAL CHARACTERISTICS (at Tamb = 25°C unless otherwise stated).

SCHOTTKY DIODE CHARACTERISTICS						
Reverse Breakdown Voltage	$V_{(BR)R}$	40			V	$I_R=500\mu A$
Forward Voltage	$V_F$		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	$\mu A$	$V_R=30V$
			370		$\mu A$	$V_R=30V, T_a = 85^\circ\text{C}$
Diode Capacitance	$C_D$		15.5		pF	$f=1\text{ MHz}, V_R=30V$
Reverse Recovery Time	$t_{rr}$		2.46		ns	Switched from $I_F = 500\text{ mA}$
Reverse Recovery Charge	$Q_{rr}$		1.38		nC	to $V_R = 5V$ . Measured @ $I_R 50\text{ mA}$ . $di / dt > 1A / ns$ . $R_{source} = 6\text{ ohm}$ .

\*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.



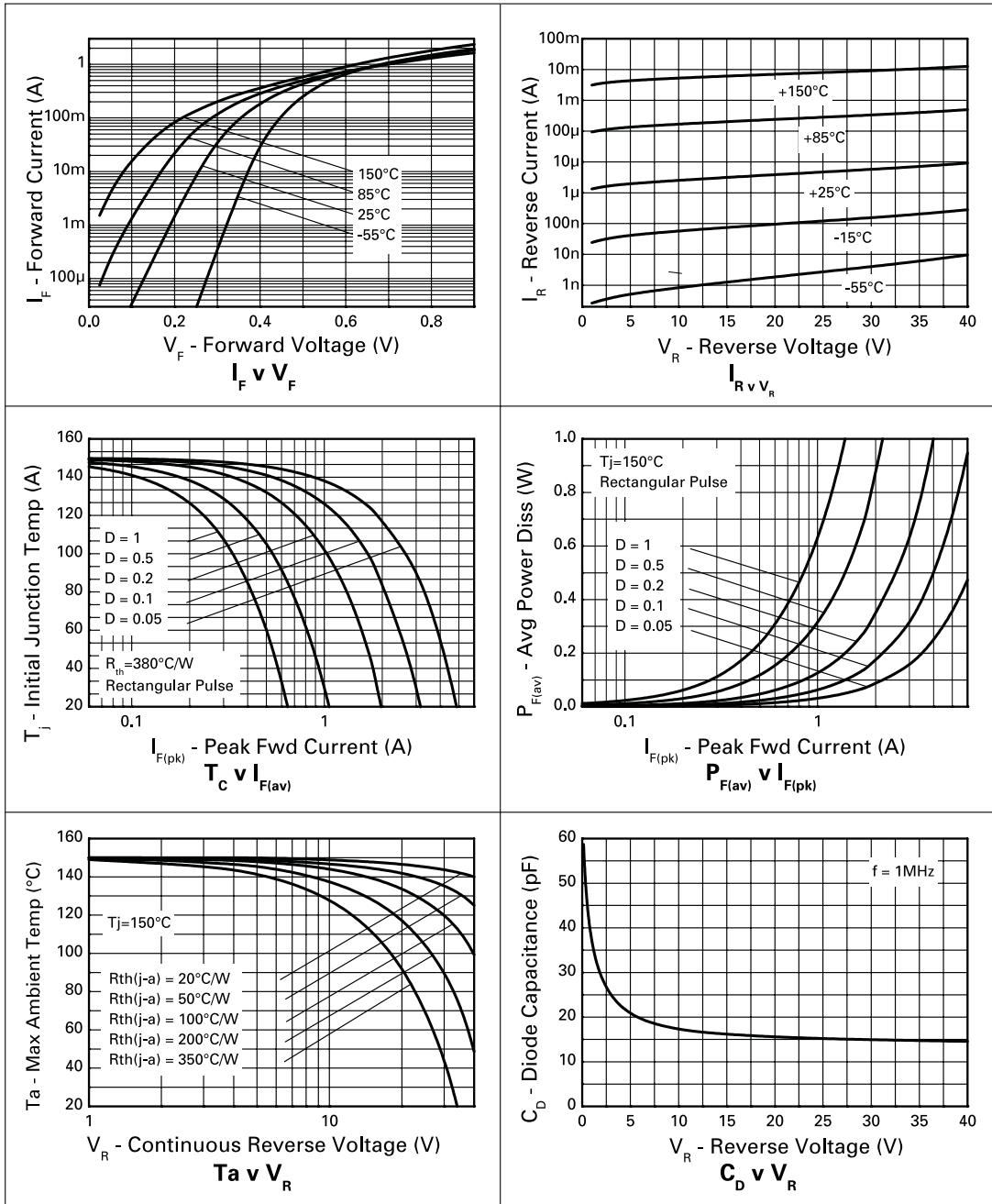
### Operational Efficiency Example



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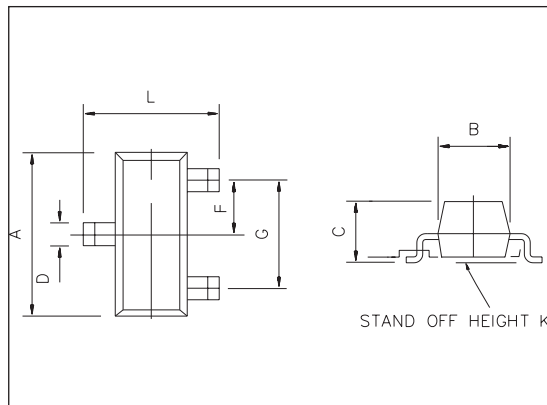
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## TYPICAL CHARACTERISTICS

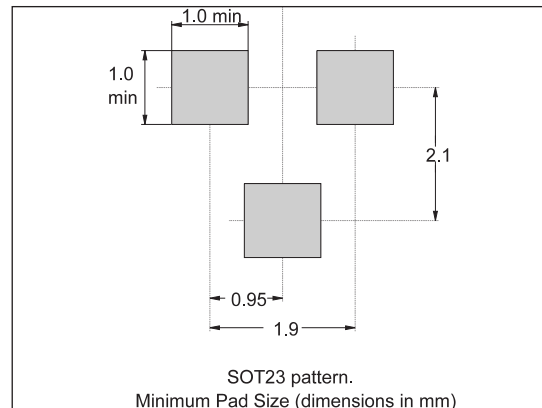


# ZLLS500

## 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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