

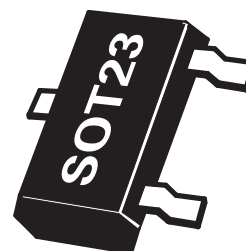
40V SILICON HIGH CURRENT LOW LEAKAGE SCHOTTKY DIODE

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 ($20\mu A$ @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
- Strokes
- 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

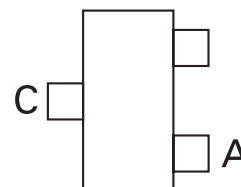
DEVICE MARKING

L10

Cathode



Anode



Top view

ZLLS1000

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	I _{FPK}	1.88	A
Rectangular pulse duty cycle			
Non repetitive forward current t=≤100μs	I _{FSM}	22	A
t=≤10ms		6.4	A
Package			
Power dissipation at T _{amb} =25°C single die continuous	P _D	625	mW
single die measured at t<5 secs		840	mW
Storage temperature range	T _{stg}	-55 to +150	°C
Junction temperature	T _i	150	°C

THERMAL RESISTANCE

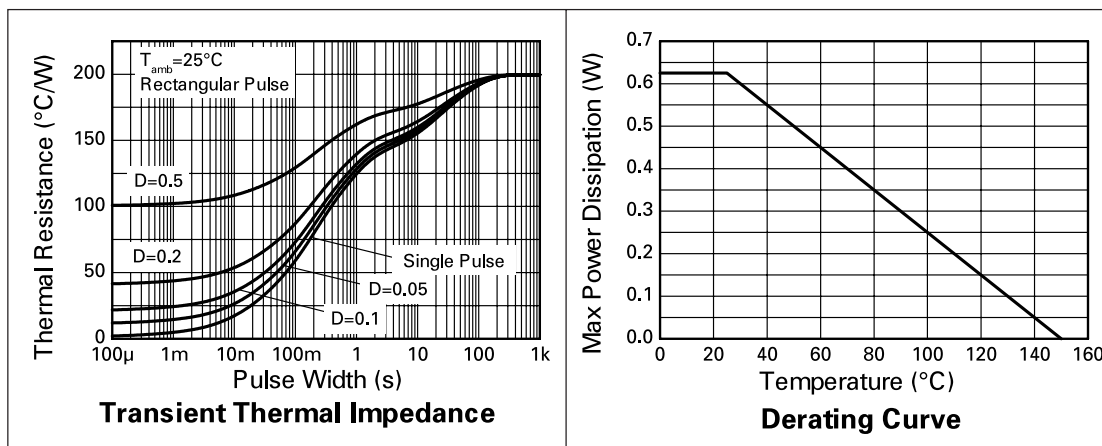
PARAMETER	SYMBOL	VALUE	UNIT
Junction to ambient (a)	$R_{\theta JA}$	200	°C/W
Junction to ambient (b)	$R_{\theta JA}$	149	°C/W

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.

ZLLS1000

TYPICAL CHARACTERISTICS



ZLLS1000

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

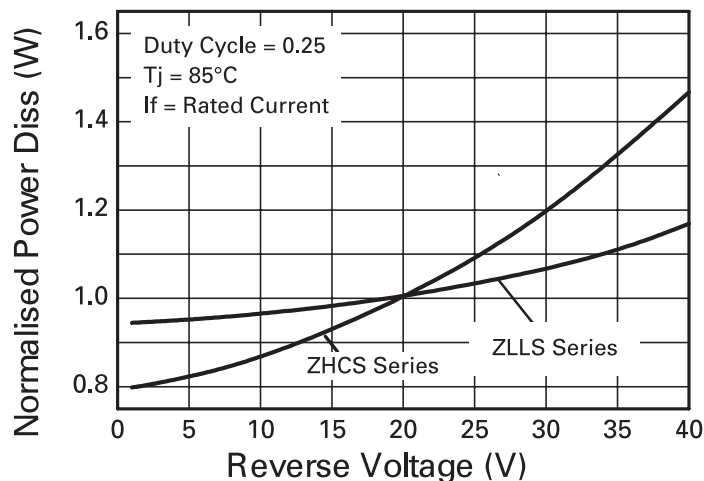
SCHOTTKY DIODE CHARACTERISTICS						
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS
Reverse breakdown voltage	$V_{(BR)R}$	40			V	$I_R=500\mu A$
Forward voltage	V_F		280	310	mV	$I_F=50\text{ mA}^*$
			310	340	mV	$I_F=100\text{ mA}^*$
			355	390	mV	$I_F=250\text{mA}^*$
			405	460	mV	$I_F=500\text{mA}^*$
			450	510	mV	$I_F=750\text{mA}^*$
			490	560	mV	$I_F=1\text{A}^*$
			570	660	mV	$I_F=1.5\text{A}^*$
			475		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		26		pF	$f=1\text{MHz}, V_R=30\text{V}$
Reverse recovery time	t_{rr}		4		ns	Switched from $I_F = 500\text{mA}$ to $V_R = 5.5\text{V}$
Reverse recovery charge	Q_{rr}		335		nC	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 low V_F ZHCS

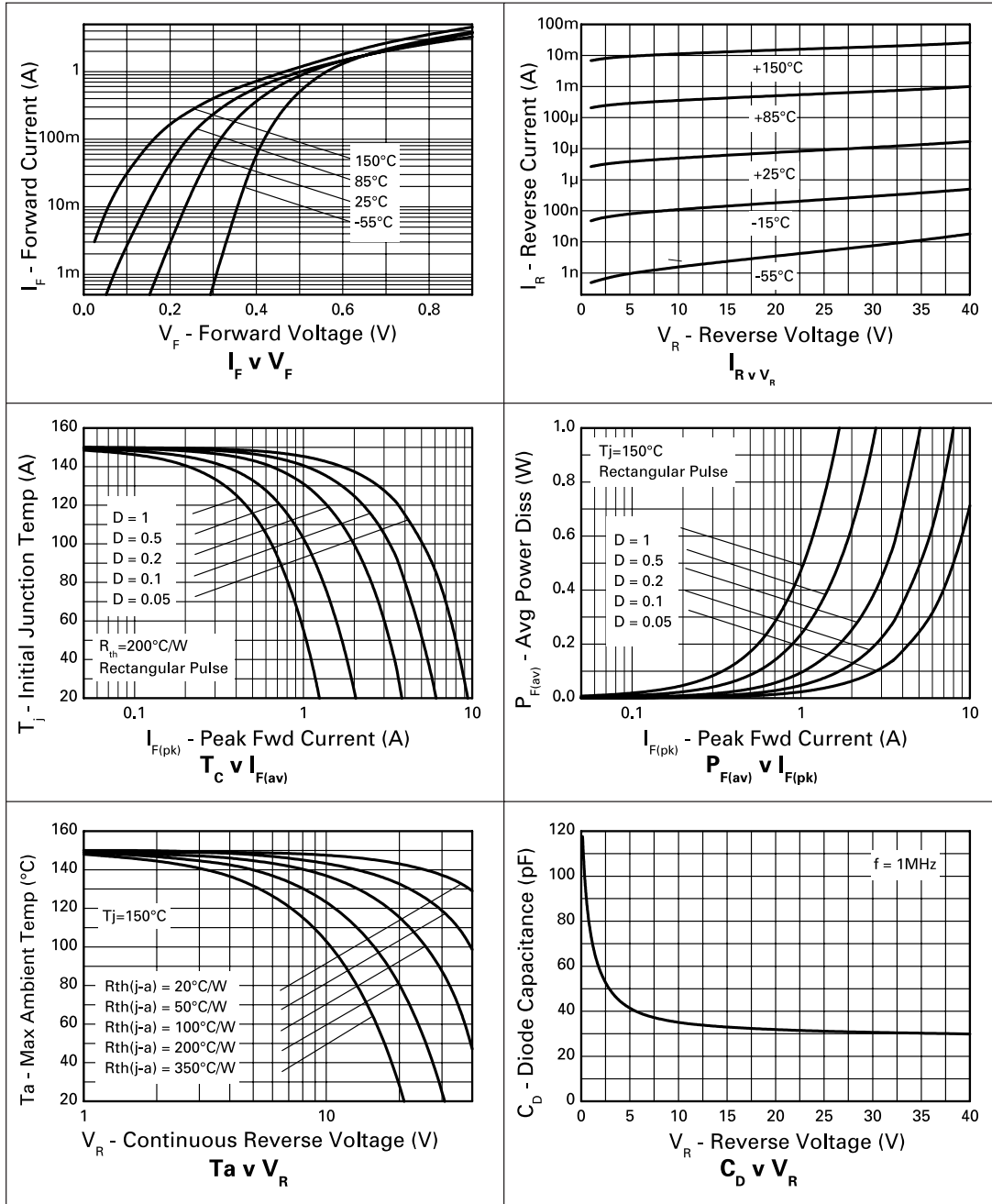
using Zetex Series diodes.



Operational Efficiency Example

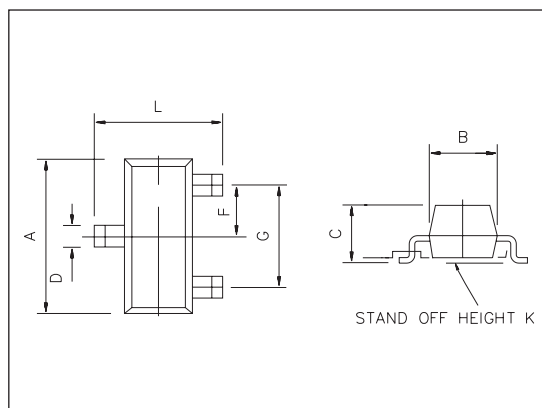
ZLLS1000

TYPICAL CHARACTERISTICS

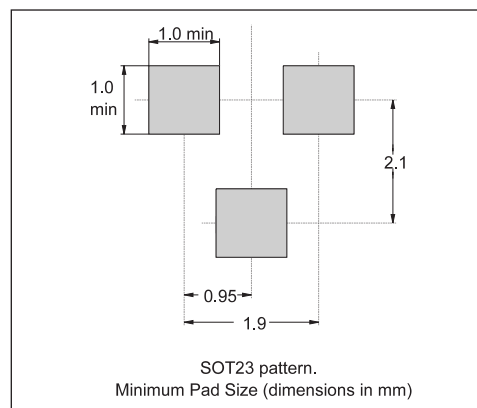


ZLLS1000

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

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