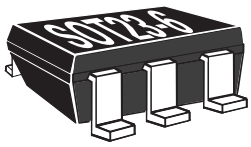
ZLLS2000

40V SILICON HIGH CURRENT LOW LEAKAGE SCHOTTKY DIODE

SUMMARY

Schottky Diode V_R = 40V; I_F = 2.2A; I_R = 40μA



DESCRIPTION

This compact SOT23-6 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:

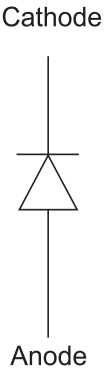
Performance capability equivalent to much larger packages

Improved circuit efficiency & power levels

PCB area savings

FEATURES

- **Low Equivalent On Resistance**
- Extremely Low Leakage (40μA @30V)
- High current capability (I_F = 2.2A)
- Low V_F, Fast switching Schottky
- SOT23-6 Package
- ZLLS2000 complements low temperature equivalent ZHCS2000
- Package thermally rated to 150°C

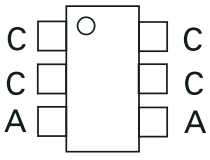


APPLICATIONS

- DC - DC Converters
- Strobes
- Mobile Phones
- Charging Circuits
- Motor control

ORDERING INFORMATION

DEVICE	REEL (inches)	TAPE WIDTH (mm)	QUANTITY PER REEL
ZLLS1000TA	7	8mm embossed	3000 units
ZLLS1000TC	13	8mm embossed	10000 units



Top view

DEVICE MARKING

L10

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ABSOLUTE MAXIMUM RATINGS.

PARAMETER		SYMBOL	VALUE	UNIT
Schottky Diode				
Continuous Reverse Voltage		V_R	40	V
Forward Current		I_F	2.2	A
Peak Repetitive Forward Current Rectangular Pulse Duty Cycle		I_{FPK}	3.55	A
Non Repetitive Forward Current	t=≤100μs	I_{FSM}	36	A
	t=≤10ms		12	A
Package				
Power Dissipation at T_{amb}=25°C single die continuous		P_D	1.1	W
single die measured at t<5 secs			1.71	W
Storage Temperature Range		T_{stg}	-55 to +150	°C
Junction Temperature		T_j	150	°C

THERMAL RESISTANCE

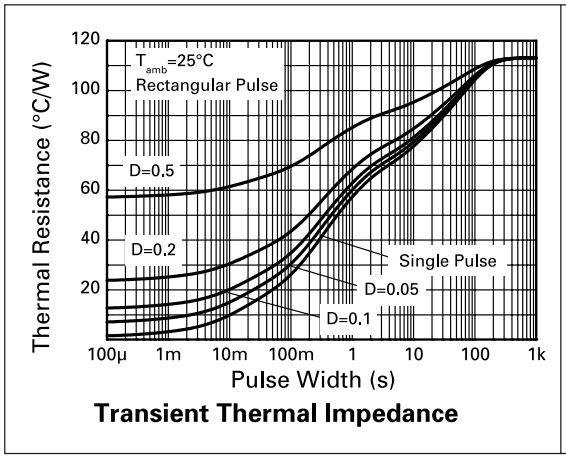
PARAMETER	SYMBOL	VALUE	UNIT
Junction to Ambient (a)	$R_{\theta JA}$	113	°C/W
Junction to Ambient (b)	$R_{\theta JA}$	73	°C/W

Notes

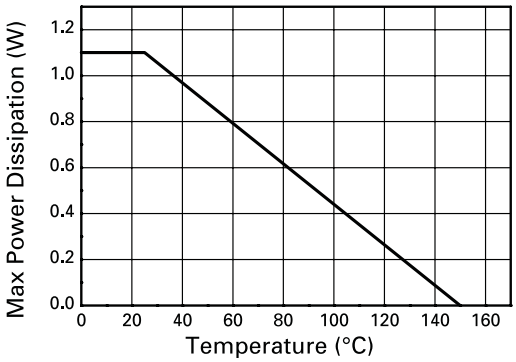
(a) For a device surface mounted on 25mm x 25mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions.

(b) For a device surface mounted on FR4 PCB measured at t<5secs.

TYPICAL CHARACTERISTICS



Transient Thermal Impedance



Derating Curve

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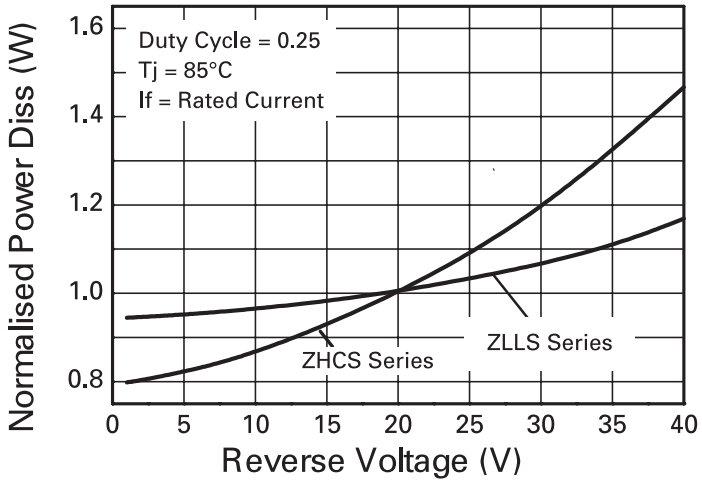
ELECTRICAL CHARACTERISTICS (at Tamb = 25°C unless otherwise stated).

SCHOTTKY DIODE CHARACTERISTICS						
Reverse Breakdown Voltage	$V_{(BR)R}$	40			V	I_R=1mA
Forward Voltage	V_F		260	-	mV	I_F=50 mA*
			290	-	mV	I_F=100 mA*
			322	-	mV	I_F=250mA*
			360	370	mV	I_F=400mA*
			420	430	mV	I_F=750mA*
			470	490	mV	I_F=1000mA*
			520	640	mV	I_F=1500mA*
			610		mV	I_F=1000mA*
			500			I_F=2000mA*,Ta = 100°C
Reverse Current	I_R		11	20	µA	V_R=30V
Diode Capacitance	C_D		31		pF	f=1MHz,VR=30V
Reverse Recovery Time	t_{rr}		2.58		ns	Switched from I_F = 500mA
Reverse Recovery Charge	Q_{rr}		1.45		nC	to V_R = 5V. Measured @ I_R 50mA. di / d t > 1A / ns.
						Rsource = 6 ohm.

*Measured under pulsed conditions.

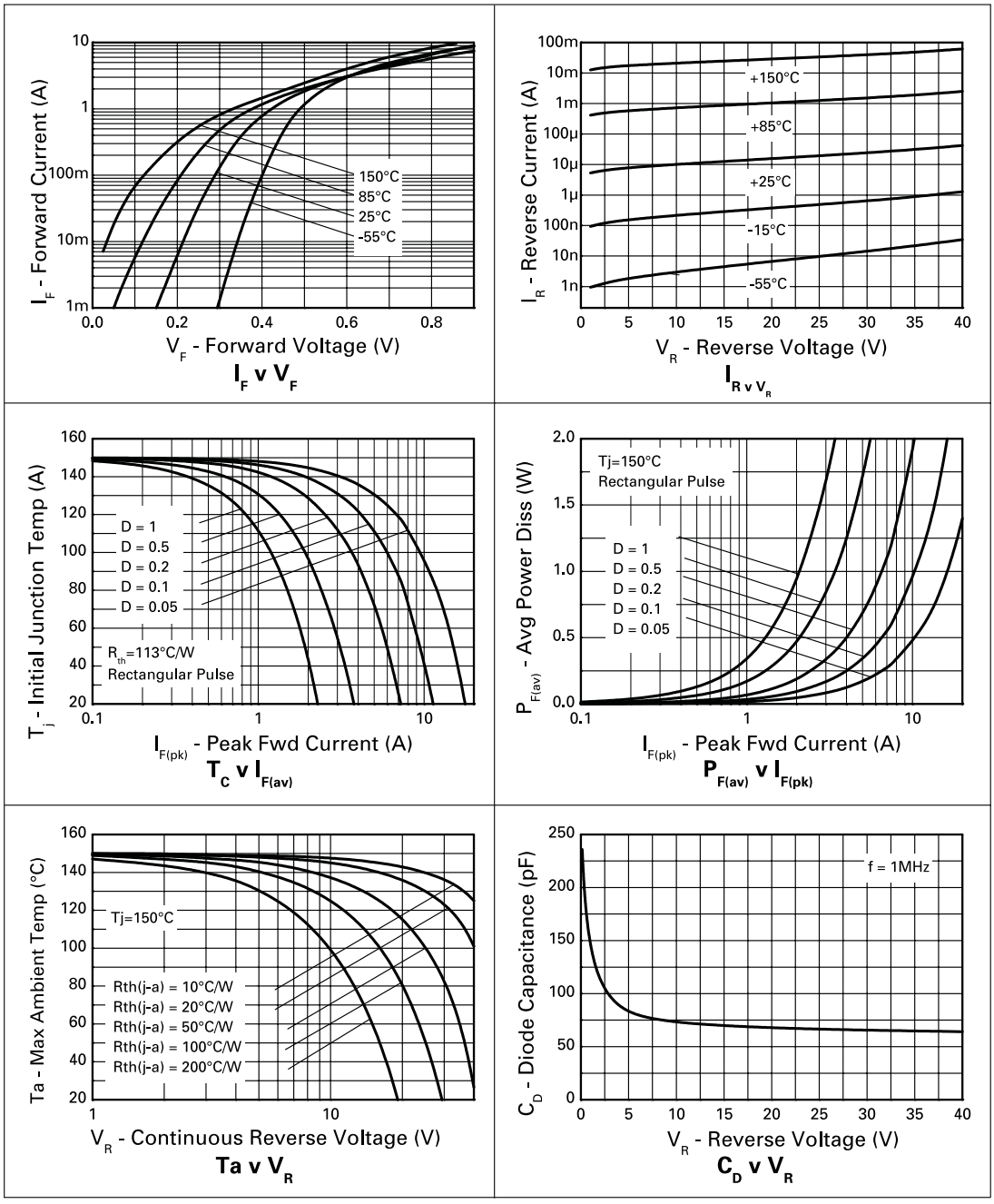
Operational Efficiency chart

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

TYPICAL CHARACTERISTICS



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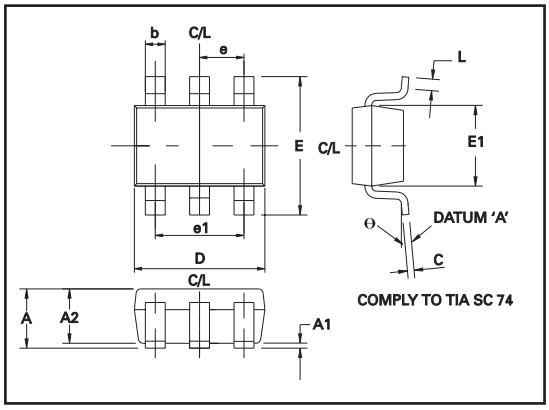
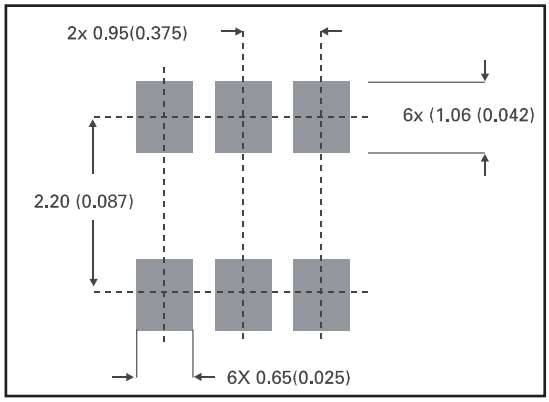
PACKAGE DIMENSIONS



PAD LAYOUT DETAILS



DIM	Millimetres	
	Min	Max
A	0.90	1.45
A1	0.00	0.15
A2	0.90	1.30
b	0.20	0.50
C	0.09	0.26
D	2.70	3.10
E	2.20	3.20
E1	1.30	1.80
L	0.10	0.60
e	0.95 REF	
e1	1.90 REF	
θ	0°	30°

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