

## Product Summary

- $V_R = 40V$
- $I_F = 0.7A$
- $I_R = 10\mu A$

## Description and Applications

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 3.

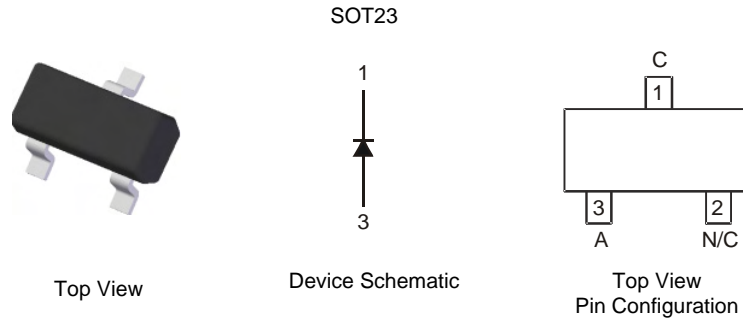
- DC – DC Converters
- Strobes
- Mobile Telecomms
- Charging circuits
- Motor Control

## Features and Benefits

- Extremely low leakage (10 $\mu A$  @30V)
- High current capability ( $I_F = 0.7A$ )
- Low  $V_F$ , fast switching Schottky
- ZLLS500 complements low temperature equivalent ZHCS500
- Package thermally rated to 150°C
- **Qualified to AEC-Q101 Standards for High Reliability**

## Mechanical Data

- Case: SOT23
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish annealed over Alloy 42 leadframe (Lead Free Plating). Solderable per MIL-STD-202, Method 208
- Weight: 0.0089 grams (approximate)

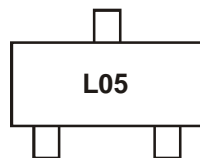


## Ordering Information (Note 1)

Device	Packaging	Shipping
ZLLS500TA	SOT23	3000/Tape & Reel
ZLLS500TC	SOT23	10000/Tape & Reel

Notes: 1. For Packaging Details, go to our website at <http://www.diodes.com>.

## Marking Information



L05 = Product Type Marking Code

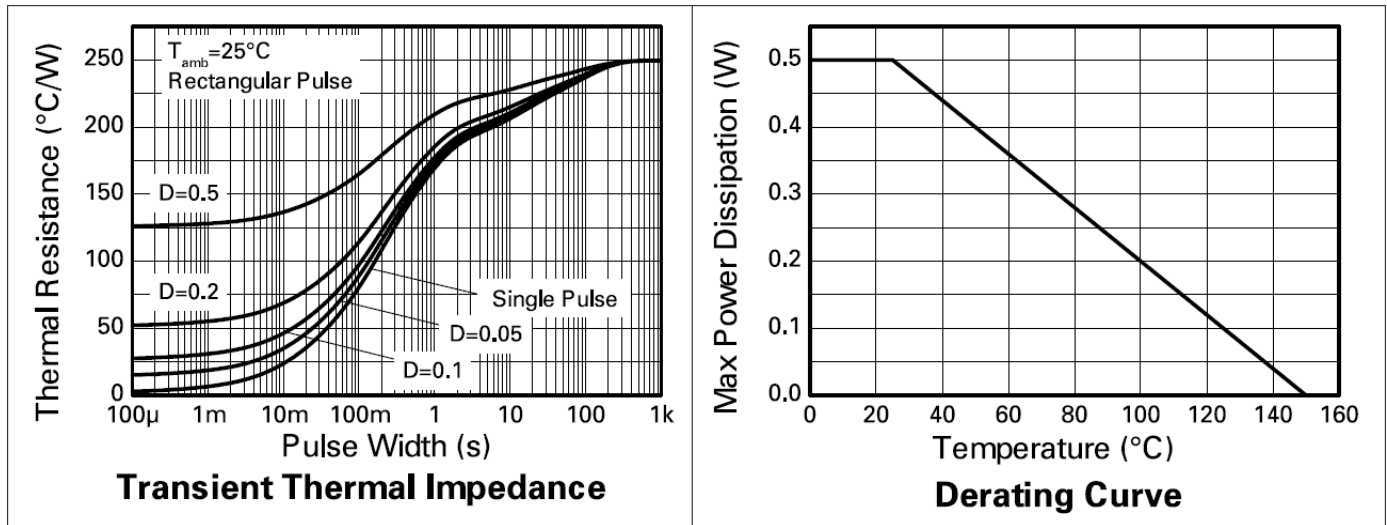
**Maximum Ratings** @T<sub>A</sub> = 25°C unless otherwise specified

Characteristic	Symbol	Value	Units
Continuous Reverse Voltage	V <sub>R</sub>	40	V
Continuous Forward Current	I <sub>F</sub>	0.7	A
Peak Repetitive Forward Current Rectangular Pulse Duty Cycle	I <sub>FPK</sub>	1.14	A
Non Repetitive Forward Current		t ≤ 100μs	13
		t ≤ 10ms	3.2

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Power Dissipation, T <sub>A</sub> = 25°C Single Die Continuous Single Die Measured at t < 5 secs	P <sub>D</sub>	500 630	mW
Thermal Resistance, Junction to Ambient	R <sub>θJA</sub>	250 198	
Junction Temperature	T <sub>J</sub>	150	°C
Storage Temperature Range	T <sub>STG</sub>	-55 to +150	°C

Notes: 2. For a device surface mounted on 25mm x 25mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions.  
3. For a device surface mounted on FR4 PCB measured at t < 5 secs.

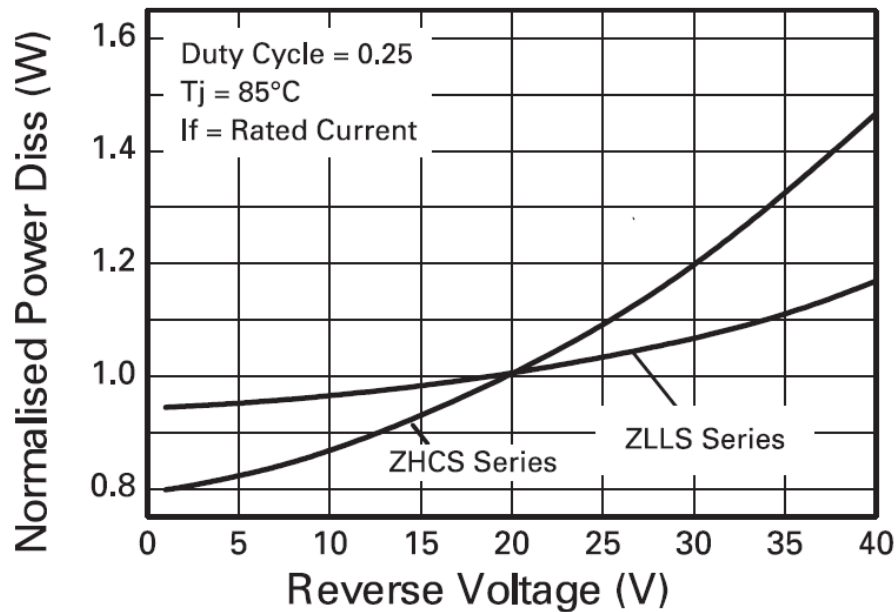


## Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage	$V_{(BR)R}$	40	-	-	V	$I_R = 200\mu\text{A}$
Forward Voltage (Note 4)	$V_F$	-	305	360	mV	$I_F = 50\text{mA}$
		-	335	390		$I_F = 100\text{mA}$
		-	395	450		$I_F = 250\text{mA}$
		-	465	530		$I_F = 500\text{mA}$
		-	550	630		$I_F = 750\text{mA}$
		-	620	710		$I_F = 1\text{A}$
		-	710	800		$I_F = 1.5\text{A}$
		-	415	-		$I_F = 500\text{mA}, T_A = 100^\circ\text{C}$
Reverse Current	$I_R$	-	6	10	$\mu\text{A}$	$V_R = 30\text{V}$
		-	370	-		$V_R = 30\text{V}, T_A = 85^\circ\text{C}$
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 $V_R = 5.5\text{V}$ Measured @ $I_R = 50\text{mA}$
Reverse Recovery Charge	$Q_{rr}$	-	210	-	pC	$di/dt = 500\text{mA/ns}$ . $R_{source} = 6\Omega; R_{load} = 10\Omega$

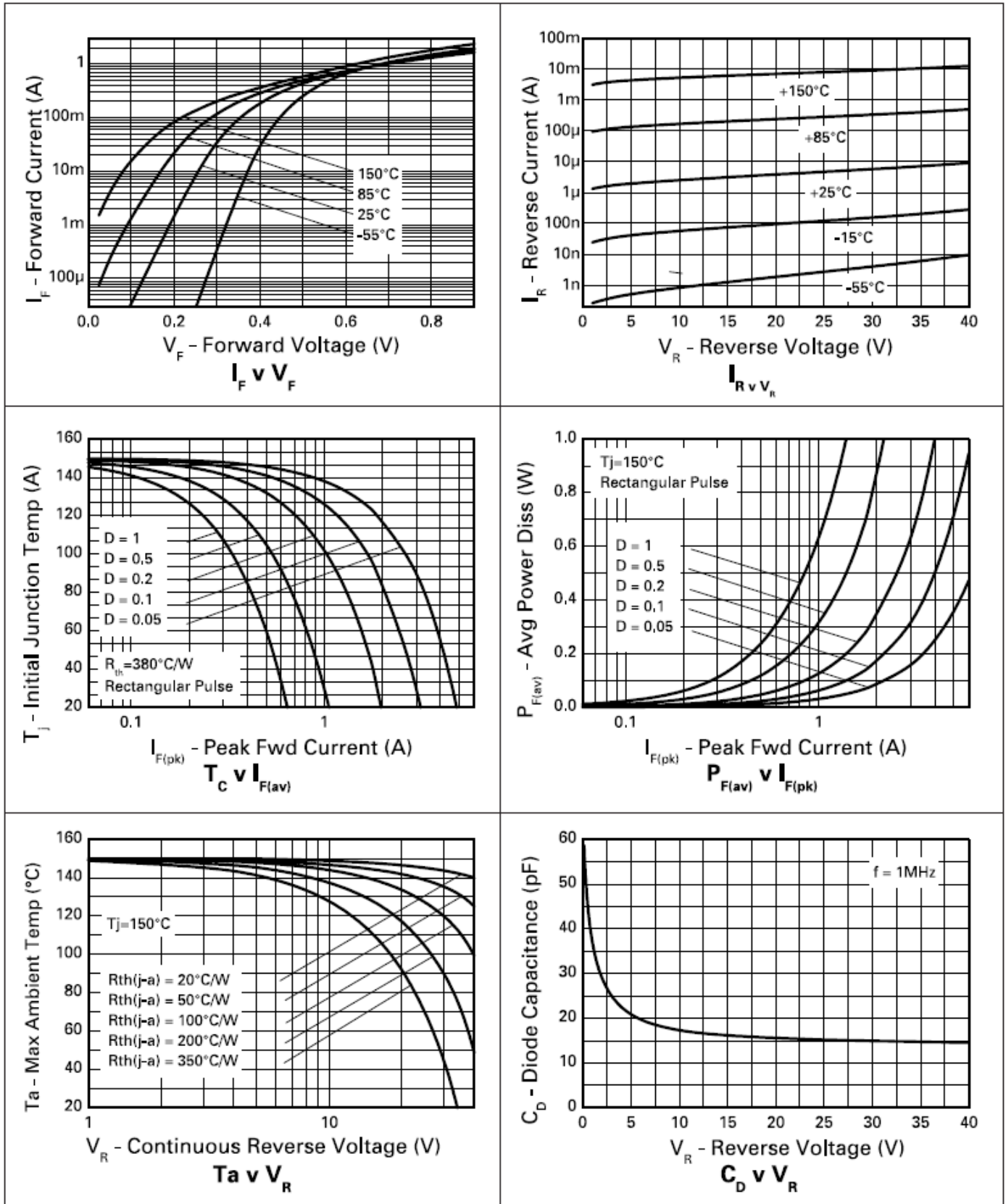
Notes: 4. Measured under pulsed conditions. Pulse width = 300 $\mu\text{s}$ . Duty cycle  $\leq 2\%$ .

## Operational efficiency chart

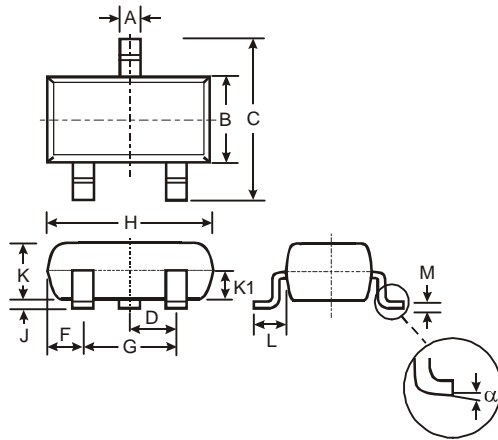


## Operational Efficiency Example

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.

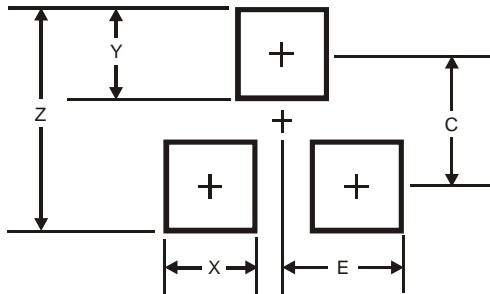


**Package Outline Dimensions**



SOT23			
Dim	Min	Max	Typ
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	2.30	2.50	2.40
D	0.89	1.03	0.915
F	0.45	0.60	0.535
G	1.78	2.05	1.83
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.903	1.10	1.00
K1	-	-	0.400
L	0.45	0.61	0.55
M	0.085	0.18	0.11
α	0°	8°	-
All Dimensions in mm			

**Suggested Pad Layout**



Dimensions	Value (in mm)
Z	2.9
X	0.8
Y	0.9
C	2.0
E	1.35

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