

### Product Summary

- $V_R > 10V$
- $I_F = 750mA$
- $I_R = 1\mu A$

### Description and Applications

This compact SOD323 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.

- Low power DC-DC conversion
- Level shifting
- Reverse blocking

### Features and Benefits

- Extremely low leakage
- High current capability
- Low  $V_F$ , fast switching Schottky
- SOD323 package
- Package thermally rated to 150°C
- **Lead, Halogen, and Antimony Free/RoHS Compliant (Note 1)**
- **“Green” Device (Note 2)**

### Mechanical Data

- Case: SOD323
- Case material: Molded Plastic. “Green” Molding Compound.
- UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish
- Weight: 0.0049 grams (Approximate)



SOD323



Device symbol



Partmark as example only for orientation

Top View Pin Configuration

### Ordering Information (Note 3)

| Device    | Packaging | Shipping           |
|-----------|-----------|--------------------|
| ZLLS410TA | SOD323    | 3,000/Tape & Reel  |
| ZLLS410TC | SOD323    | 10,000/Tape & Reel |

- Notes:
1. No purposefully added lead. Halogen and Antimony Free.
  2. Diodes Inc's "Green" Policy can be found on our website at <http://www.diodes.com>
  3. For Packaging Details, go to our website at <http://www.diodes.com>.

### Marking Information



41 = Product Type Marking Code

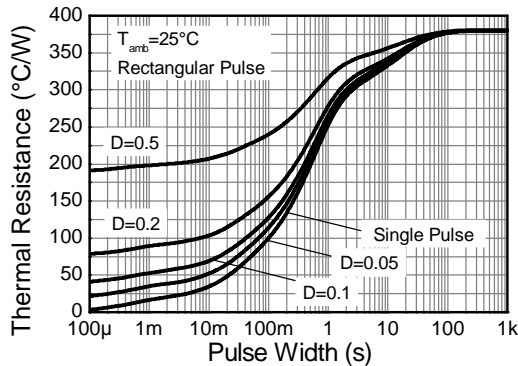
**Maximum Ratings** @T<sub>A</sub> = 25°C unless otherwise specified

| Characteristic                  | Symbol           | Value | Unit |
|---------------------------------|------------------|-------|------|
| Continuous Reverse Voltage      | V <sub>R</sub>   | 10    | V    |
| Continuous Forward Current      | I <sub>F</sub>   | 750   | mA   |
| Peak Repetitive Forward Current | I <sub>FPK</sub> | 1.35  | A    |
| Rectangular Pulse Duty Cycle    |                  |       |      |
| Non Repetitive Forward Current  | I <sub>FSM</sub> | 17    | A    |
|                                 |                  | 4     | A    |

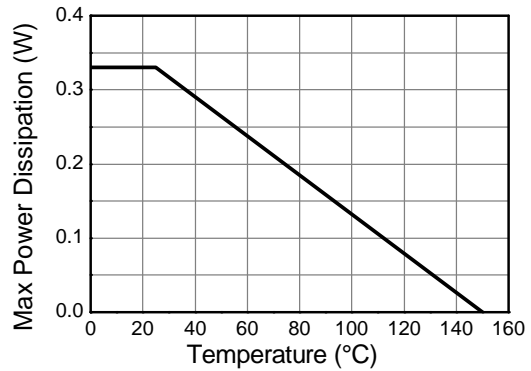
**Thermal Characteristics**

| Characteristic                             | Symbol           | Value       | Unit |
|--|------------------|-------------|------|
| Power Dissipation, T <sub>A</sub> = 25°C   |                  |             |      |
| Single Die Continuous (Note 4)             | P <sub>D</sub>   | 0.33        | W    |
| Single Die Measured at t < 5 secs (Note 5) |                  | 0.39        | W    |
| Junction to Ambient (Note 4)               | R <sub>θJA</sub> | 379         | °C/W |
| Junction to Ambient (Note 5)               | R <sub>θJA</sub> | 317         | °C/W |
| Storage Temperature Range                  | T <sub>STG</sub> | -55 to +150 | °C   |

Notes: 4. For a device surface mounted on 25mm x 25mm x 1.6mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions.  
5. For a device surface mounted on FRB PCB measured at t < 5secs.



**Transient Thermal Impedance**

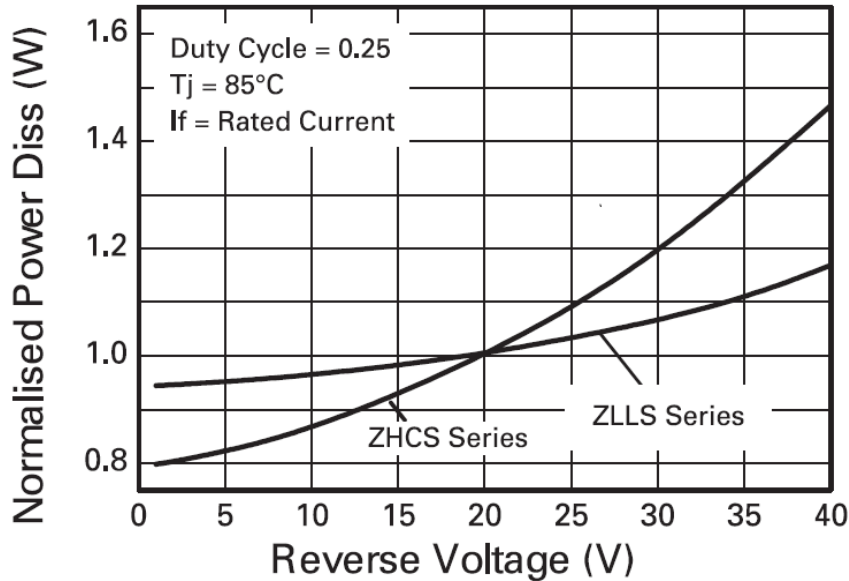


**Derating Curve**

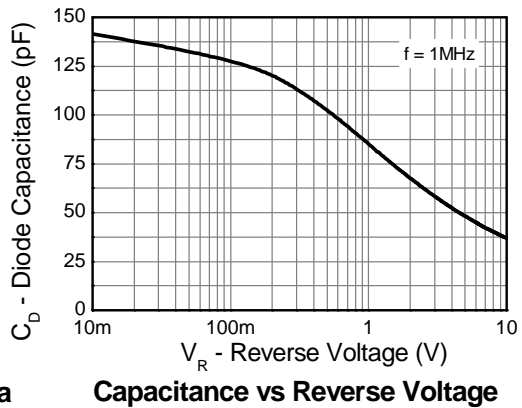
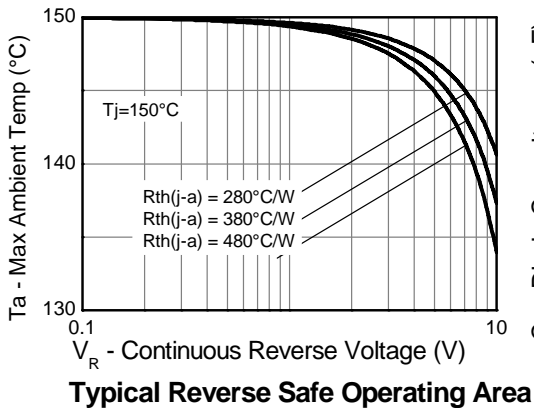
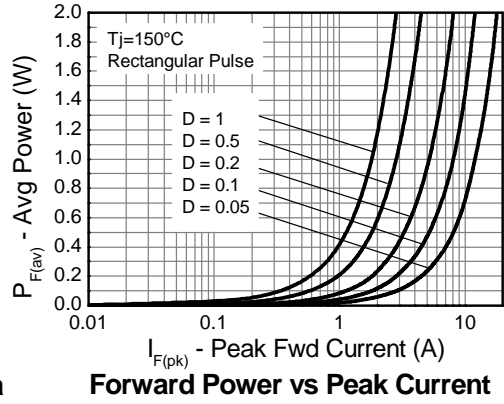
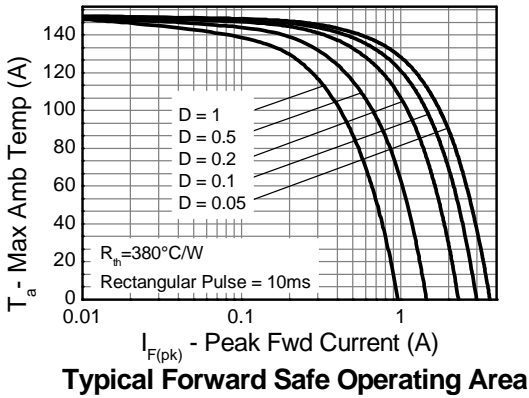
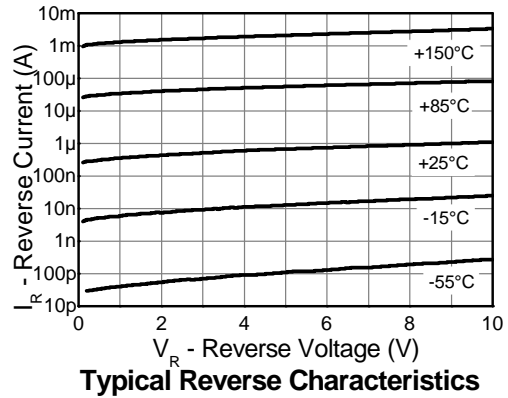
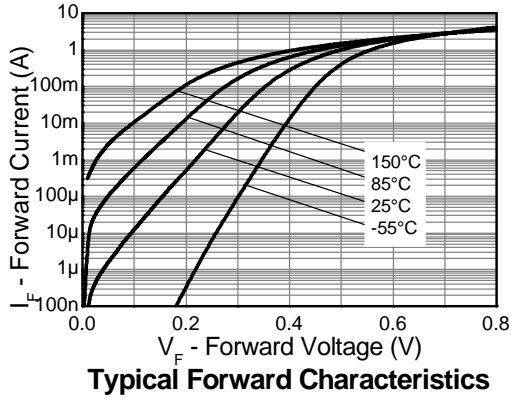
**Electrical Characteristics** @T<sub>A</sub> = 25°C unless otherwise specified

| Characteristic            | Symbol             | Min | Typ | Max | Unit | Test Condition  |
|---------------------------|--------------------|-----|-----|-----|------|---|
| Reverse Breakdown Voltage | V <sub>(BR)R</sub> | 10  | –   | –   | V    | I <sub>R</sub> = 200μA  |
| Forward Voltage (Note 6)  | V <sub>F</sub>     | –   | 285 | 300 | mV   | I <sub>F</sub> = 10mA   |
|                           |                    | –   | 350 | 380 | mV   | I <sub>F</sub> = 100mA  |
|                           |                    | –   | 500 | 580 | mV   | I <sub>F</sub> = 1A   |
| Reverse Current           | I <sub>R</sub>     | –   | 0.5 | 4   | μA   | V <sub>R</sub> = 5V   |
|                           |                    | –   | 0.7 | 5   | μA   | V <sub>R</sub> = 8V   |
|                           |                    | –   | 1   | 6   | μA   | V <sub>R</sub> = 10V  |
|                           |                    | –   | –   | 200 | μA   | V <sub>R</sub> = 8V, T <sub>A</sub> = 85°C  |
| Diode Capacitance         | C <sub>D</sub>     | –   | 37  | –   | pF   | f = 1MHz, V <sub>R</sub> = 10V  |
| Reverse Recovery Time     | t <sub>rr</sub>    | –   | 3   | –   | ns   | Switched from I <sub>F</sub> = 500mA to V <sub>R</sub> = 5.5V   |
| Reverse Recovery Charge   | Q <sub>rr</sub>    | –   | 210 | –   | pC   | Measured @ I <sub>R</sub> = 50mA.<br>di/dt = 500mA/ns,<br>R <sub>source</sub> = 6Ω; R <sub>load</sub> = 10Ω |

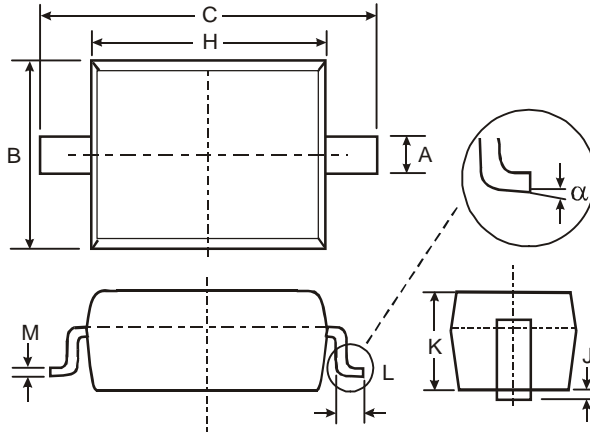
Notes: 6. Measured under pulsed conditions. Pulse width ≤ 300μs. Duty cycle < 2%

**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<sub>F</sub> ZHCS series diodes.

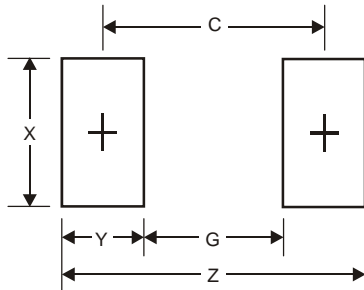


**Package Outline Dimensions**



| SOD323               |      |      |
|----------------------|------|------|
| Dim                  | Min  | Max  |
| A                    | 0.25 | 0.35 |
| B                    | 1.20 | 1.40 |
| C                    | 2.30 | 2.70 |
| H                    | 1.60 | 1.80 |
| J                    | 0.00 | 0.10 |
| K                    | 1.0  | 1.1  |
| L                    | 0.20 | 0.40 |
| M                    | 0.10 | 0.15 |
| $\alpha$             | 0°   | 8°   |
| All Dimensions in mm |      |      |

**Suggested Pad Layout**



| Dimensions | Value (in mm) |
|------------|---------------|
| Z          | 3.75          |
| G          | 1.05          |
| X          | 0.65          |
| Y          | 1.35          |
| C          | 2.40          |

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