
SILICON LOW VOLTAGE HYPERABRUPT VARACTOR DIODES

ZV950V2, ZV952V2, ZV953V2, ZMDC953, FSD273**Device Description**

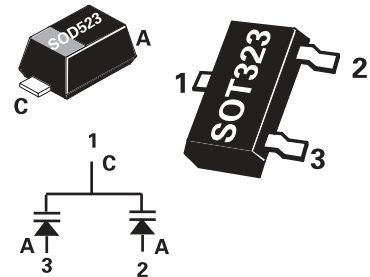
A range of silicon varactor diodes for use in frequency control and filtering. Featuring closely controlled CV characteristics, low voltage operation and high Q. Low reverse current ensures very low phase noise performance. These parts can be used with control voltages from 0.5V to 2.5V, making them ideal for 3 volt systems. Available in miniature surface mount packages.

Features

- Close tolerance C-V characteristics
- Tuning from 0.5 to 2.5 Volts to suit 3 volt systems
- Low I_R (typically 10pA)
- Excellent phase noise performance
- High Q at low voltage
- Miniature surface mount packages
- Band selection for DAB applications - FSD273

Applications

- VCXO and TCXO
- Wireless communications
- Pagers
- Mobile radio
- Digital Radio receivers



950 series

TUNING CHARACTERISTICS at $T_{amb} = 25^{\circ}\text{C}$

| PART | CAPACITANCE pF $V_R=0.5\text{V}, f=1\text{MHz}$ | CAPACITANCE pF $V_R=1.5\text{V}, f=1\text{MHz}$ | | CAPACITANCE RATIO $C_{0.5} / C_{2.5}$ $f=1\text{MHz}$ | Minimum Q $V_R=0.5\text{V}$ $f=50\text{MHz}$ |
|---------------|--|--|------|---|--|
| | Min | Min | Max | Min | |
| ZV950V2 | 9.5 | 6.3 | 7.8 | 2.0 | 250 |
| ZV952V2 | 19 | 12.7 | 15.7 | 2.0 | 250 |
| ZV953V2 | 45 | 30 | 37 | 2.0 | 200 |
| ZMDC953(DUAL) | 45 | 30 | 37 | 2.0 | 250 |

ZMDC953 is available banded to tighter capacitance range. This product has the order code FSD273TA. Measured at $V_R=1.5\text{V}$ the bands are

Band A = 30.0 to 32.5

Band B = 32.3 to 34.7

Band C = 34.5 to 37.0

Product is supplied in reels. A banded reel will only contain a single band. Shipments containing several reels may have reels in different bands. It is not possible to supply a specific band as processing affects which bands are available

ABSOLUTE MAXIMUM RATINGS

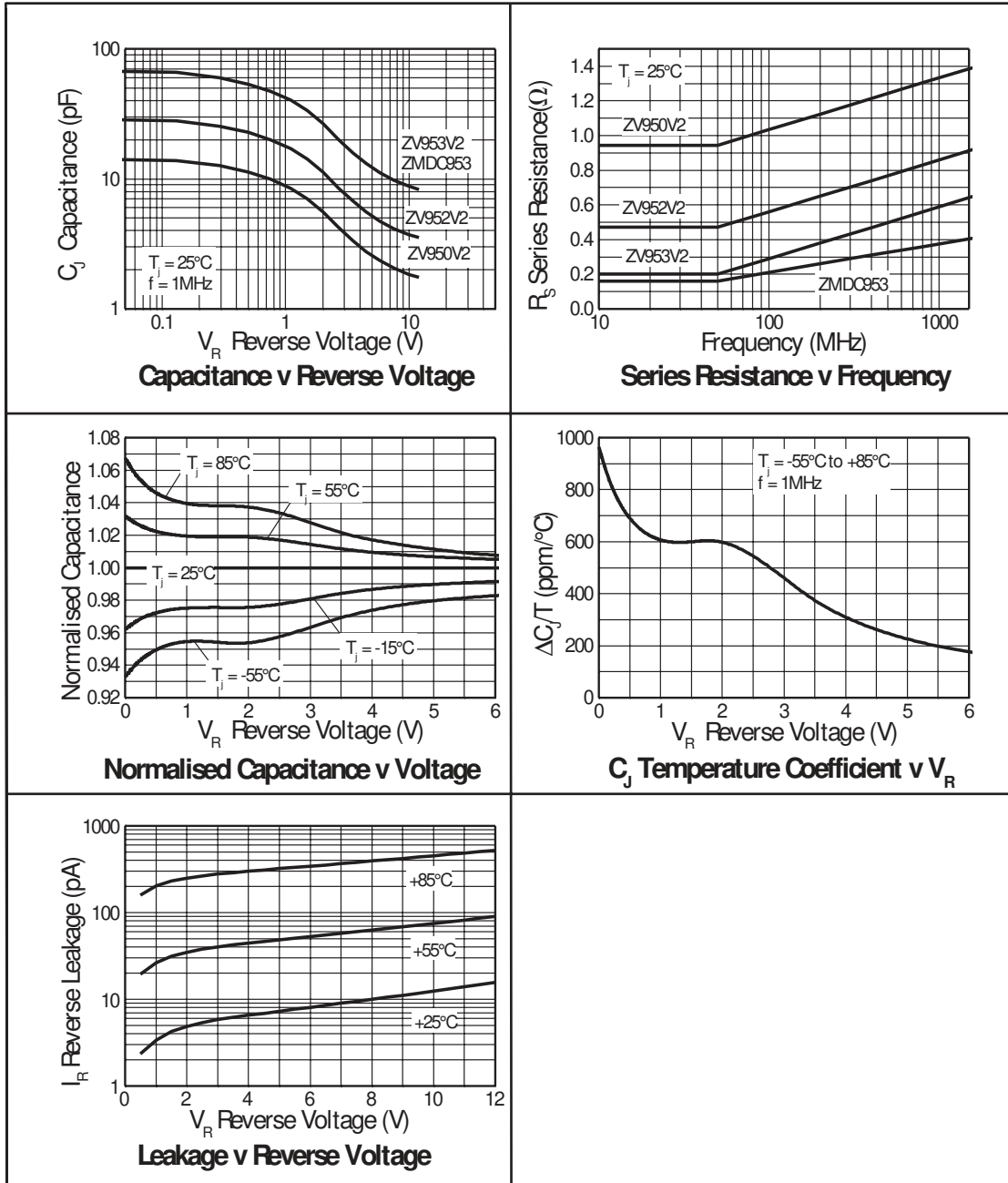
| PARAMETER | SYMBOL | MAX | UNIT |
|--|-----------|-----|------|
| Reverse voltage | V_R | 12 | V |
| Forward current | I_F | 100 | mA |
| Power dissipation at $T_{amb} = 25^{\circ}\text{C}$ SOD523 | P_{tot} | 250 | mW |
| Power dissipation at $T_{amb} = 25^{\circ}\text{C}$ SOT323 | P_{tot} | 300 | mW |

ELECTRICAL CHARACTERISTICS at $T_{amb} = 25^{\circ}\text{C}$

| PARAMETER | CONDITIONS | MIN. | TYP. | MAX. | UNIT |
|---------------------------|-----------------------|------|-------|------|------|
| Reverse breakdown voltage | $I_R = 10\mu\text{A}$ | 12 | | | V |
| Reverse voltage leakage | $V_R = 8\text{V}$ | | 0.010 | 20 | nA |


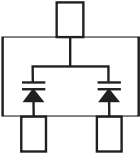
950 series

TYPICAL CHARACTERISTICS



950 series

ORDER CODES AND PART MARKING

| SOD523 | | SOT323 | | |
|---|-----------|---|-----------|--------|
|  | |  | | |
| ORDER CODE | PART MARK | ORDER CODE | PART MARK | |
| ZV950V2TA | 50 | | | |
| ZV952V2TA | 52 | | | |
| ZV953V2TA | 53 | ZMDC953TA | 54 | |
| | | FSD273TA | 55 | Band A |
| | | FSD273TA | 56 | Band B |
| | | FSD273TA | 57 | Band C |

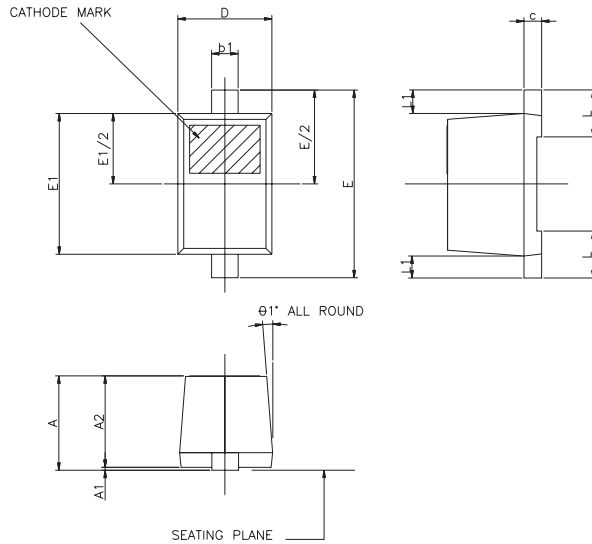
FSD273 is a band selected version of the ZMDC953. Product is supplied in reels containing a single capacitance band. Shipments of several reels may contain reels of different bands. It is not possible for customers to specify a particular band, because availability is process dependent.

TAPE AND REEL INFORMATION

| REEL CODE | REEL SIZE | TAPE WIDTH | QUANTITY PER REEL |
|-----------|----------------|------------|-------------------|
| TA | 7 inch (180mm) | 8mm | 3000 |

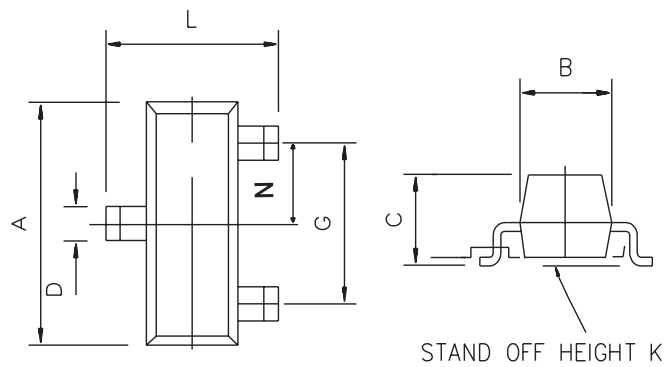
950 series

SOD523 PACKAGE DIMENSIONS



| | MILLIMETRES | |
|-----|-------------|-------|
| | MIN. | MAX |
| A | — | 0.800 |
| A1 | 0.000 | 0.100 |
| A2 | 0.600 | 0.800 |
| b1 | 0.160 | 0.300 |
| c | 0.080 | 0.220 |
| D | 0.700 | 0.900 |
| E | 1.500 | 1.700 |
| E1 | 1.100 | 1.300 |
| L | 0.200 | 0.400 |
| L1 | 0.170 | 0.230 |
| θ1° | 4° | 10° |

SOT323 PACKAGE DIMENSIONS



| DIM | Millimetres | | Inches | |
|-----|-------------|------|--------|-------|
| | MIN | MAX | MIN | MAX |
| A | 1.8 | 2.2 | 0.071 | 0.087 |
| B | 1.15 | 1.35 | 0.045 | 0.053 |
| C | 0.8 | 1.0 | 0.031 | 0.039 |
| D | 0.2 | 0.4 | 0.008 | 0.016 |
| F | 0.1 | 0.25 | 0.004 | 0.01 |
| G | 1.2 | 1.4 | 0.047 | 0.055 |
| K | - | 0.1 | - | 0.004 |
| L | 2.0 | 2.2 | 0.079 | 0.087 |
| N | 0.60 | 0.70 | 0.023 | 0.028 |

950 series

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