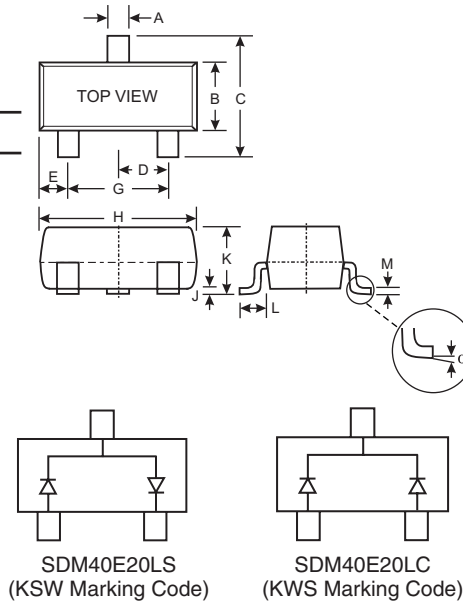


Features

- Very Low Forward Voltage Drop
- Guard Ring Construction for Transient Protection
- High Conductance
- **Lead Free By Design/RoHS Compliant (Note 4)**
- **"Green Device" (Note 5)**

Mechanical Data

- Case: SOT-23
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Polarity: See Diagram
- Leads: Solderable per MIL-STD-202, Method 208
- Terminals: SDM40E20LS Finish — Matte Tin Finish annealed over Alloy 42 leadframe.
SDM40E20LC Finish — Matte Tin Finish annealed over CDA194 leadframe. Solderable per MIL-STD-202, Method 208
- Marking: Date Code and Type Code
- Type Code: KSW, KWS
- Ordering Information: See Page 3
- Weight: 0.008 grams (approximate)



| SOT-23 | | |
|----------------------|-------|-------|
| Dim | Min | Max |
| A | 0.37 | 0.51 |
| B | 1.20 | 1.40 |
| C | 2.30 | 2.50 |
| D | 0.89 | 1.03 |
| E | 0.45 | 0.60 |
| G | 1.78 | 2.05 |
| H | 2.80 | 3.00 |
| J | 0.013 | 0.10 |
| K | 0.903 | 1.10 |
| L | 0.45 | 0.61 |
| M | 0.085 | 0.180 |
| α | 0° | 8° |
| All Dimensions in mm | | |

Maximum Ratings @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Single phase, half wave, 60Hz, resistive or inductive load.
For capacitive load, derate current by 20%.

| Characteristic | Symbol | Value | Unit |
|---|---------------------------------|-------------|--------------------|
| Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage | V_{RRM} V_{RWM} V_R | 20 | V |
| RMS Reverse Voltage | $V_{R(RMS)}$ | 14 | V |
| Forward Continuous Current (Note 1) | I_{FM} | 0.4 | A |
| Non-Repetitive Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load | I_{FSM} | 2 | A |
| Power Dissipation (Note 1) (Note 2) | P_d | 225 300 | mW |
| Typical Thermal Resistance Junction to Ambient (Note 1) (Note 2) | $R_{\theta JA}$ | 444 333 | $^\circ\text{C/W}$ |
| Operating and Storage Temperature Range | T_j, T_{STG} | -65 to +125 | $^\circ\text{C}$ |

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

| Characteristic | Symbol | Min | Typ | Max | Unit | Test Conditions |
|------------------------------------|-------------|-----|-----|----------------|---------------|--|
| Reverse Breakdown Voltage (Note 3) | $V_{(BR)R}$ | 20 | — | — | V | $I_R = 0.5\text{mA}$ |
| Forward Voltage Drop | V_F | — | — | 0.310 0.430 | V | $I_F = 0.1\text{A}$ $I_F = 0.5\text{A}$ |
| Leakage Current (Note 3) | I_R | — | — | 100 250 | μA | $V_R = 10\text{V}$ $V_R = 20\text{V}$ |
| Total Capacitance | C_T | — | 120 | — | pF | $f = 1\text{MHz}, V_R = 0\text{VDC}$ |

- Notes:
1. Device mounted on FR-5 1.0 x 0.75 x 0.062 inch PCB pad layout.
 2. Device mounted on Alumina PCB, 0.4 inch x 0.3 inch x 0.024 inch pad layout.
 3. Short duration test pulse used to minimize self-heating effect.
 4. No purposefully added lead.
 5. Diodes Inc.'s "Green" policy can be found on our website at http://www.diodes.com/products/lead_free/index.php.

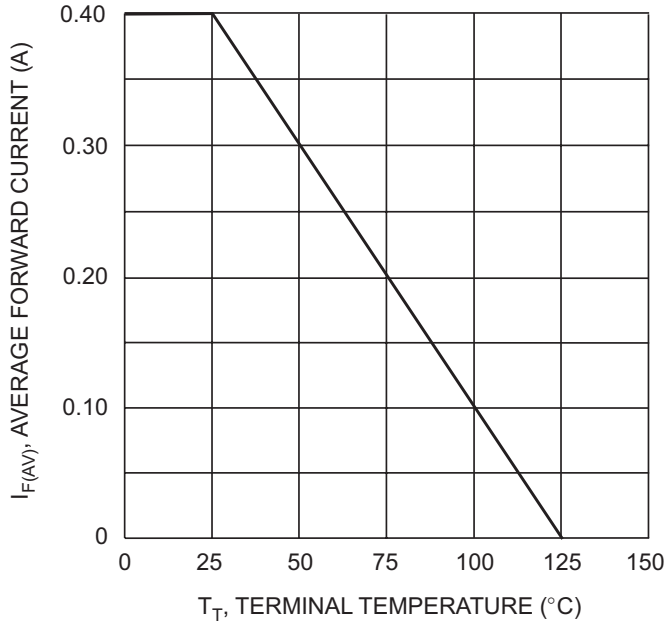


Fig. 1 Forward Current Derating Curve, Per Element

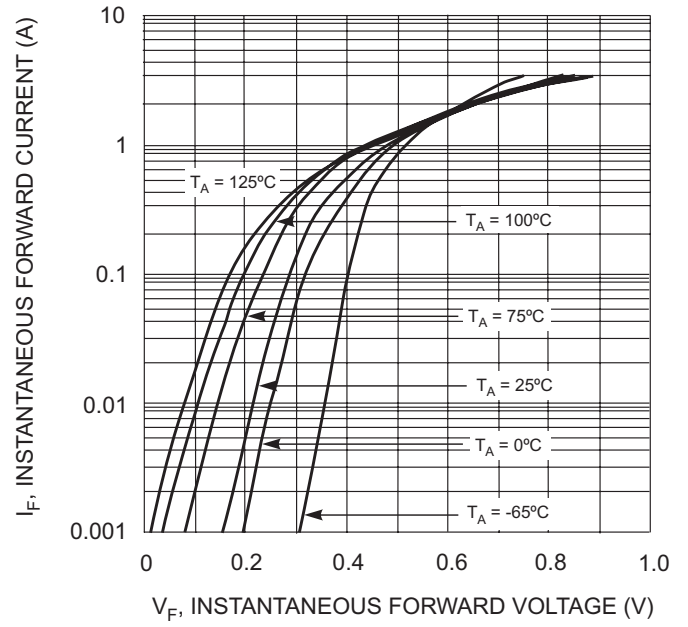


Fig. 2 Typical Forward Characteristics, Per Element

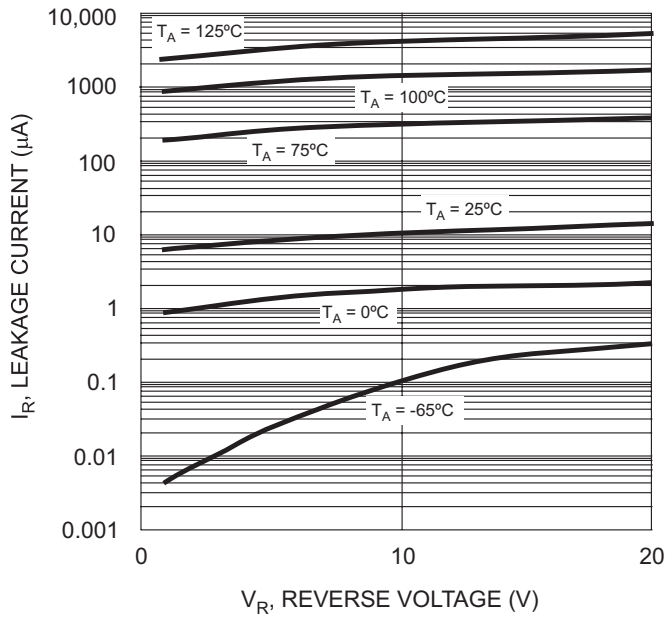


Fig. 3 Typical Reverse Characteristics, Per Element

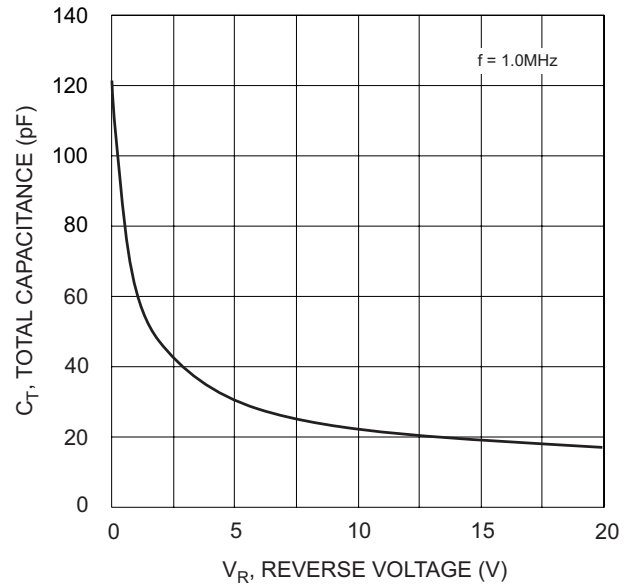


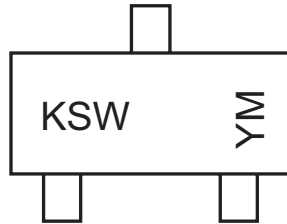
Fig. 4 Typ. Total Capacitance vs Reverse Voltage, Per Element

Ordering Information (Note 6)

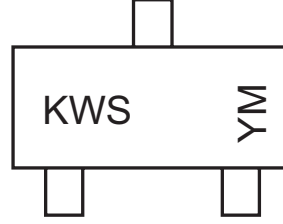
| Device | Packaging | Shipping |
|--------------|-----------|------------------|
| SDM40E20LS-7 | SOT-23 | 3000/Tape & Reel |
| SDM40E20LC-7 | SOT-23 | 3000/Tape & Reel |

Notes: 6. For Packaging Details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

Marking Information



KSW = SDM40E20LS Product Type
Marking Code
YM = Date Code Marking
Y = Year ex: T = 2006
M = Month ex: 9 = September



KWS = SDM40E20LC Product Type
Marking Code
YM = Date Code Marking
Y = Year ex: T = 2006
M = Month ex: 9 = September

Date Code Key

| Year | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
|------|------|------|------|------|------|------|------|------|
| Code | S | T | U | V | W | X | Y | Z |

| Month | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Code | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | O | N | D |

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