

2.0A SURFACE MOUNT GLASS PASSIVATED RECTIFIER
Product Summary (@T_A = +25°C)

| V _{RRM} (V) | I _o (A) | V _F Max (V) | I _R Max (μA) |
|----------------------|--------------------|------------------------|-------------------------|
| 800 | 2 | 1.1 | 5 |

Description

The S2KDF is a rectifier packaged in the low-profile D-FLAT package. Providing high current capability for standard rectification, this device is ideal for use in general rectification applications.

Applications

- Switching Mode Power Supplies
- Chargers
- LED lightings
- Inverters
- AC-DC Adapters

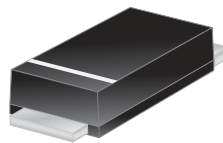
Features and Benefits

- Glass Passivated Die Construction
- Surge Overload Rating to 55A Peak
- High Current Capability
- Low-Profile Design, Package Height Less than 1.1mm
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**
- **An Automotive-Compliant Part is Available Under Separate Datasheet ([S2KDFQ](#))**

Mechanical Data

- Case: D-FLAT
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish – Matte Tin Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 (E3)
- Polarity: Cathode Band
- Weight: 0.036 grams (Approximate)

D-FLAT



Top View

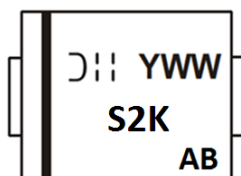
Ordering Information (Note 4)

| Part Number | Compliance | Case | Packaging |
|-------------|------------|--------|--------------------|
| S2KDF-13 | AEC-Q101 | D-FLAT | 10,000/Tape & Reel |

- Notes:
1. EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. All applicable RoHS exemptions applied.
 2. See http://www.diodes.com/quality/lead_free.html for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
 3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
 4. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

Marking Information

D-FLAT



S2K= Product Type Marking Code
 ⌋⌋ = Manufacturers' Code Marking
 YWW = Date Code Marking
 Y = Last Digit of Year (ex: 5 for 2015)
 WW = Week Code (01 to 53)
 AB = Foundry and Assembly Code

Maximum Ratings (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

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

| Characteristic | Symbol | Value | Unit |
|---|---------------------------------|-------|------|
| Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage (Note 5) | V_{RRM} V_{RWM} V_R | 800 | V |
| RMS Reverse Voltage | $V_{R(RMS)}$ | 560 | V |
| Average Rectified Output Current @ $T_A = +25^\circ\text{C}$ | I_O | 2.0 | A |
| Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load | I_{FSM} | 55 | A |

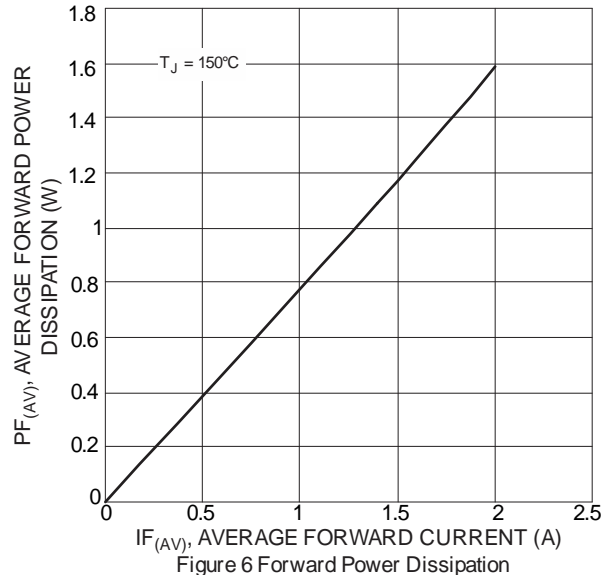
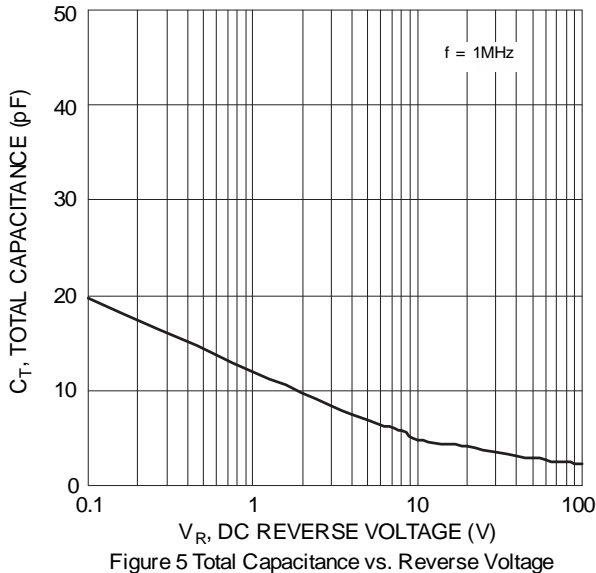
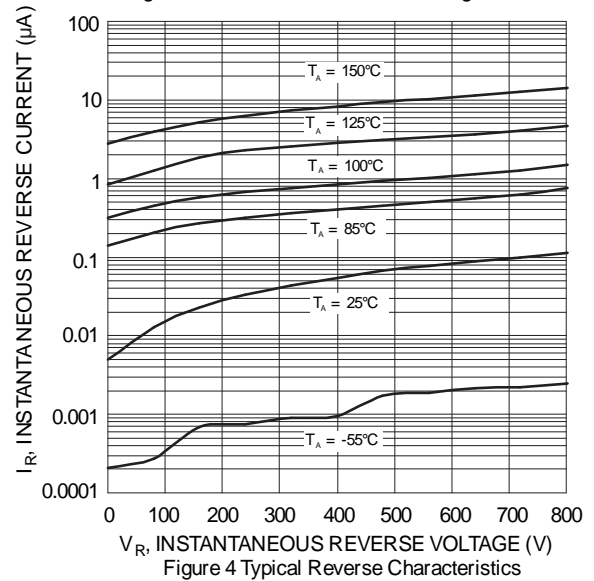
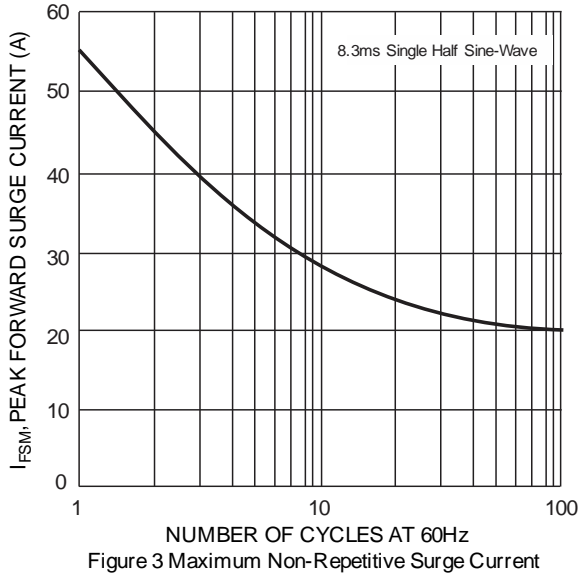
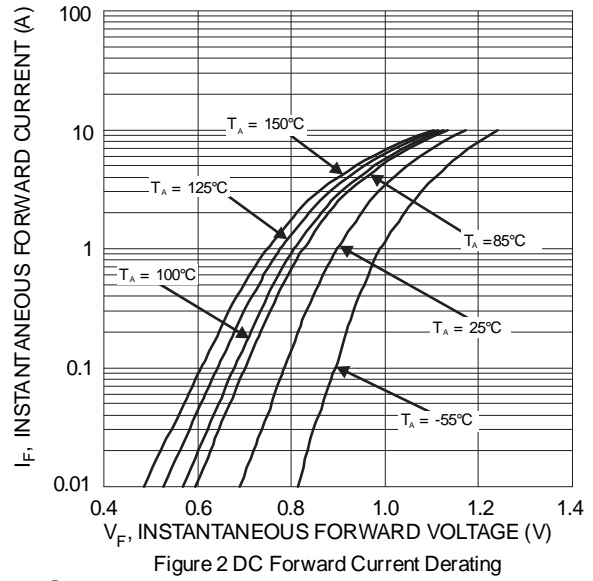
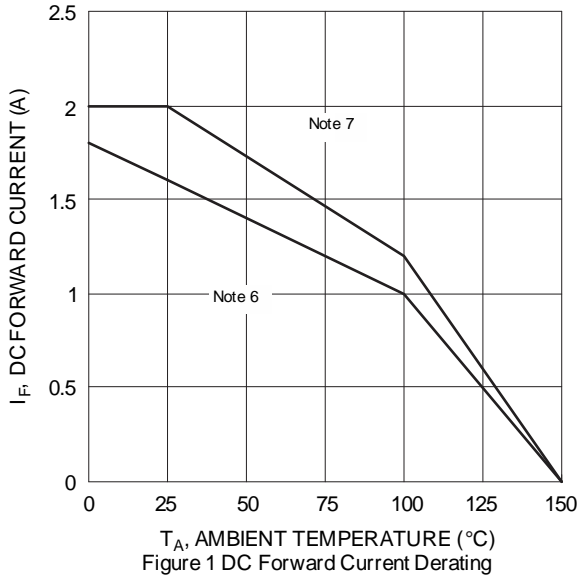
Thermal Characteristics

| Characteristic | Symbol | Value | Unit |
|---|-----------------|-------------|--------------------|
| Typical Thermal Resistance, Junction to Terminal (Note 7) | $R_{\theta JT}$ | 23 | $^\circ\text{C/W}$ |
| Typical Thermal Resistance, Junction to Air (Note 7) | $R_{\theta JA}$ | 82 | $^\circ\text{C/W}$ |
| Operating and Storage Temperature Range | T_J, T_{STG} | -55 to +150 | $^\circ\text{C}$ |

Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

| Characteristic | Symbol | Min | Typ | Max | Unit | Test Condition |
|------------------------------------|-------------|-----|------------------------------|----------------------|---------------------|--|
| Reverse Breakdown Voltage (Note 5) | $V_{(BR)R}$ | 800 | — | — | V | $I_R = 10\mu\text{A}$ |
| Forward Voltage | V_F | — | 0.90 0.78 0.95 0.84 | 1.0 — 1.1 — | V | $I_F = 1\text{A}, T_J = +25^\circ\text{C}$ $I_F = 1\text{A}, T_J = +125^\circ\text{C}$ $I_F = 2\text{A}, T_J = +25^\circ\text{C}$ $I_F = 2\text{A}, T_J = +125^\circ\text{C}$ |
| Reverse Leakage Current (Note 5) | I_R | — | 0.12 0.005 | 5 — | μA mA | $V_R = 800\text{V}, T_J = +25^\circ\text{C}$ $V_R = 800\text{V}, T_J = +125^\circ\text{C}$ |
| Total Capacitance | C_T | — | 8 | — | pf | $V_R = 4V_{DC}, f = 1\text{MHz}$ |

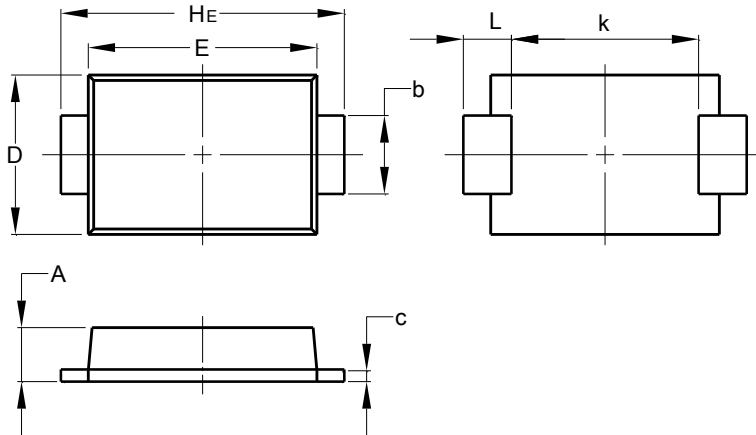
- Notes:
5. Short duration pulse test used to minimize self-heating effect.
 6. Device mounted on FR-4 substrate, 1" x 1", 2oz, single-sided, PC boards with 0.1" x 0.15" copper pads.
 7. Device mounted on FR-4 substrate, 0.4" x 0.5", 2oz, single-sided, PC boards with 0.2" x 0.25" copper pads.



Package Outline Dimensions

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

D-FLAT

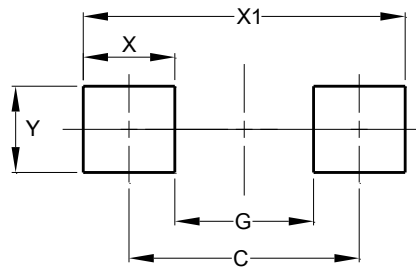


| D-FLAT | | |
|----------------------|------|------|
| Dim | Min | Max |
| A | 0.90 | 1.10 |
| b | 1.25 | 1.65 |
| c | 0.10 | 0.40 |
| D | 2.25 | 2.95 |
| E | 3.95 | 4.60 |
| k | 2.80 | – |
| H_E | 5.00 | 5.60 |
| L | 0.50 | 1.30 |
| All Dimensions in mm | | |

Suggested Pad Layout

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

D-FLAT



| Dimensions | Value (in mm) |
|------------|---------------|
| C | 4.65 |
| G | 2.80 |
| X | 1.85 |
| X_1 | 6.50 |
| Y | 1.70 |

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