



# SBA0520Q SERIES

## EXTREME LOW VF SCHOTTKY RECTIFIER

|                |                |                |              |
|----------------|----------------|----------------|--------------|
| <b>Voltage</b> | <b>20-40 V</b> | <b>Current</b> | <b>0.5 A</b> |
|----------------|----------------|----------------|--------------|

### Features

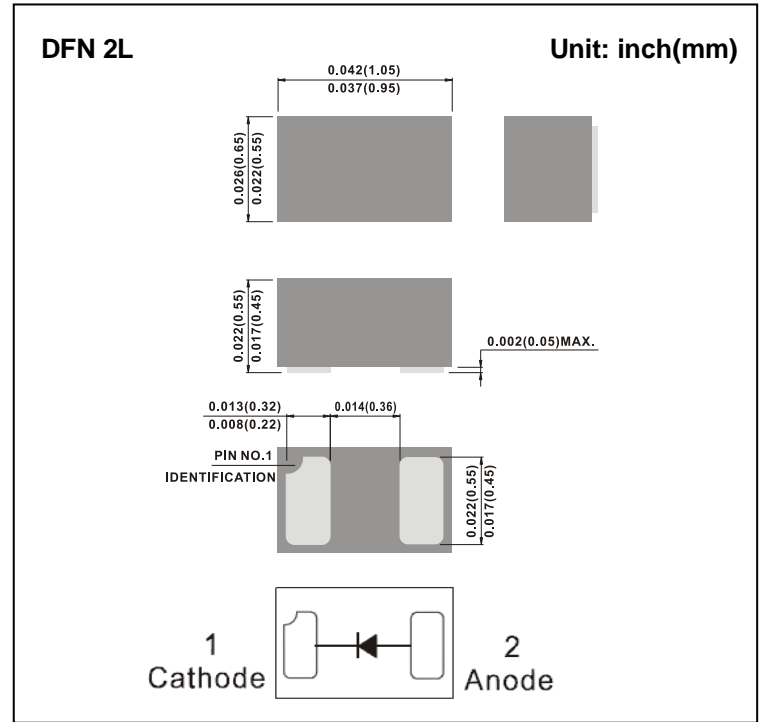
- Ultra low forward voltage, Low Power loss
- Surface mount package
- Ultra thin profile package for space constrained utilization
- Lead free in compliance with EU RoHS2.0 (2011/65/EU & 2015/865/EU directive)
- Green molding compound as per IEC61249 Std. . (Halogen Free)

### Applications

- Low voltage rectification
- Reverse polarity protection
- Low power consumption applications

### Mechanical Data

- Case: DFN 2L, Plastic
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 0.00004 ounces, 0.0011 grams



### Maximum Ratings ( $T_A=25^\circ\text{C}$ unless otherwise noted)

| PARAMETER   | SYMBOL          | SBA0520Q    | SBA0530Q | SBA0540Q | UNIT               |
|---|-----------------|-------------|----------|----------|--------------------|
| Maximum repetitive peak reverse voltage   | $V_{RRM}$       | 20          | 30       | 40       | V                  |
| Maximum rms voltage   | $V_{RMS}$       | 14          | 21       | 28       | V                  |
| Maximum dc blocking voltage   | $V_R$           | 20          | 30       | 40       | V                  |
| Maximum average forward rectified current   | $I_{F(AV)}$     | 0.5         |          |          | A                  |
| Peak forward surge current : 8.3ms single half sine-wave Superimposed on rated load | $I_{FSM}$       | 2           |          |          | A                  |
| Typical thermal resistance (note 1)   | $R_{\theta JA}$ | 430         |          |          | $^\circ\text{C/W}$ |
| Operating junction temperature range  | $T_J$           | -55 to +150 |          |          | $^\circ\text{C}$   |
| Storage temperature range   | $T_{STG}$       | -55 to +150 |          |          | $^\circ\text{C}$   |

### Electrical Characteristics

| PARAMETER                | SYMBOL | TEST CONDITION            | SBA0520Q |      | SBA0530Q |      | SBA0540Q |      | UNIT          |
|--------------------------|--------|---------------------------|----------|------|----------|------|----------|------|---------------|
|                          |        |                           | TYP.     | MAX. | TYP.     | MAX. | TYP.     | MAX. |               |
| Forward voltage          | $V_F$  | $I_F = 10\text{mA}$       | 0.24     | -    | 0.25     | -    | 0.26     | -    | V             |
|                          |        | $I_F = 100\text{mA}$      | 0.32     | -    | 0.33     | -    | 0.35     | -    |               |
|                          |        | $I_F = 500\text{mA}$      | -        | 0.48 | -        | 0.52 | -        | 0.6  |               |
|                          |        | $T_J = 125^\circ\text{C}$ | 0.13     | -    | 0.13     | -    | 0.15     | -    | V             |
| Reverse current (Note 2) | $I_R$  | $V_R = 10\text{V}$        | 4.6      | -    | 4        | -    | 1.3      | -    | $\mu\text{A}$ |
|                          |        | $V_R = 20\text{V}$        | -        | 100  | 9        | -    | 1.9      | -    |               |
|                          |        | $V_R = 30\text{V}$        | -        | -    | -        | 100  | 3.1      | -    |               |
|                          |        | $V_R = 40\text{V}$        | -        | -    | -        | -    | -        | 50   |               |
|                          |        | $T_J = 125^\circ\text{C}$ | 1.7      | -    | 1.4      | -    | 0.5      | -    | mA            |
|                          |        | $V_R = 30\text{V}$        | -        | -    | 3.5      | -    | 0.8      | -    |               |
|                          |        | $V_R = 40\text{V}$        | -        | -    | -        | -    | 1.3      | -    |               |

Note : 1. Mounted on a FR4 PCB, single-sided copper, mini pad.

2. Short duration pulse test used to minimize self-heating effect.



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## TYPICAL CHARACTERISTIC CURVES

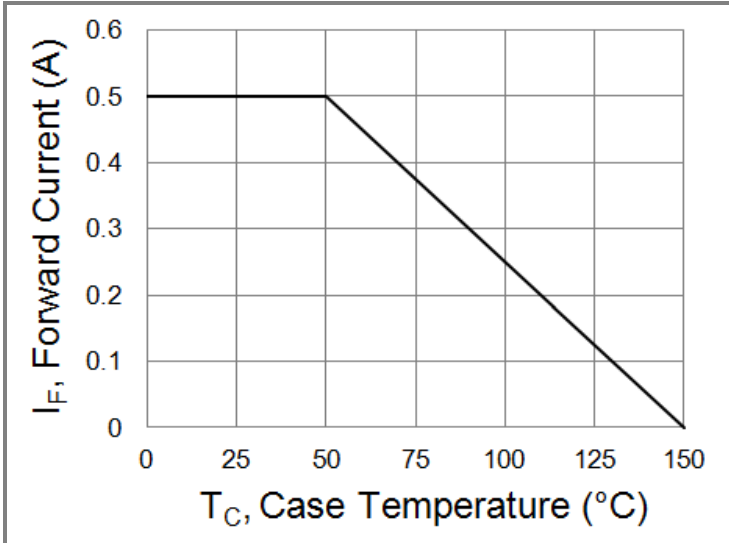


Fig.1 Forward Current Derating Curve

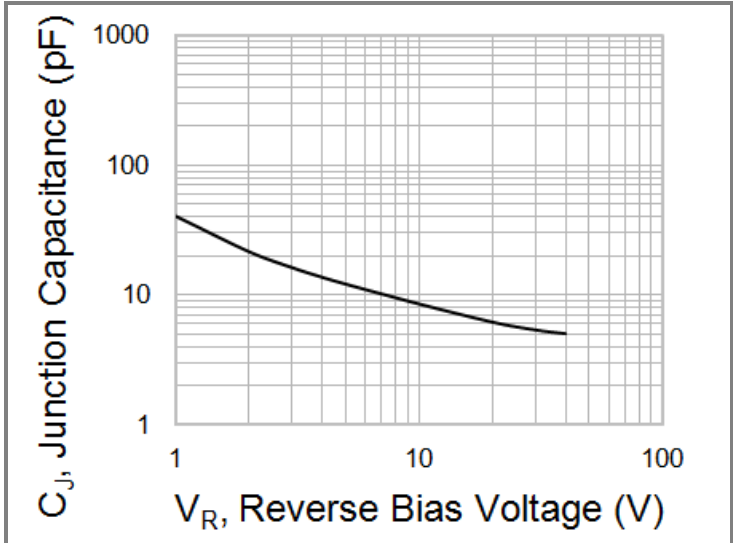


Fig. 2 Typical Junction Capacitance

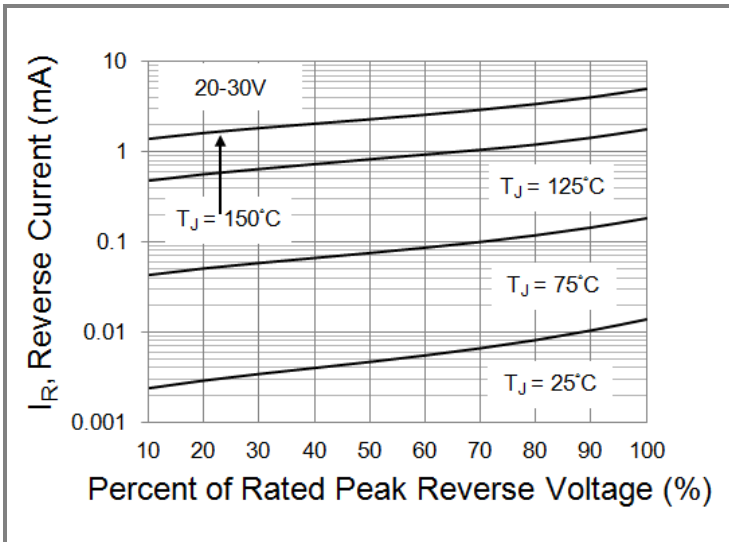


Fig.3 Typical Reverse Characteristics

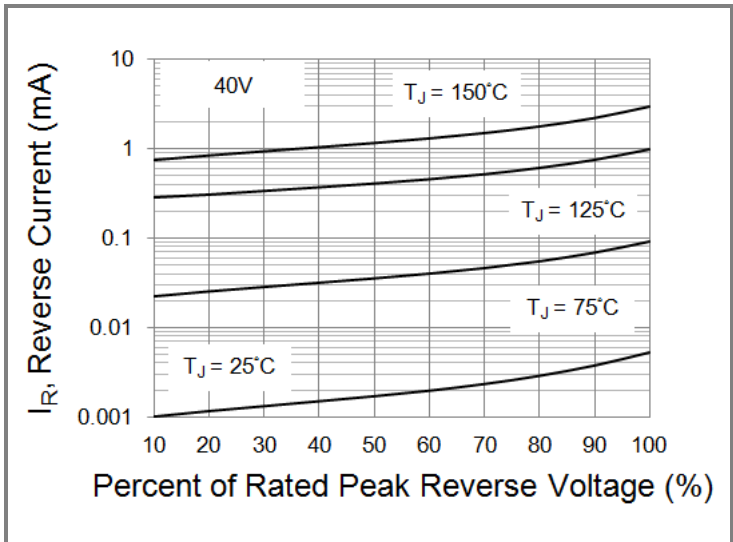


Fig.4 Typical Reverse Characteristics

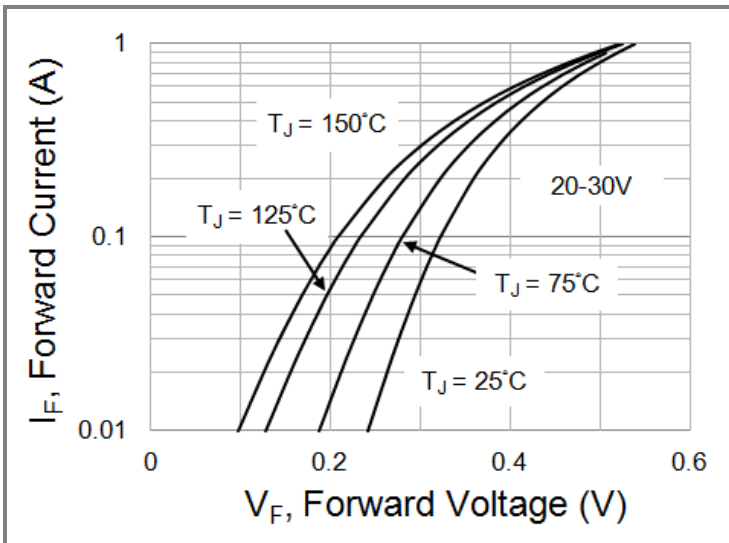


Fig.5 Typical Forward Characteristics

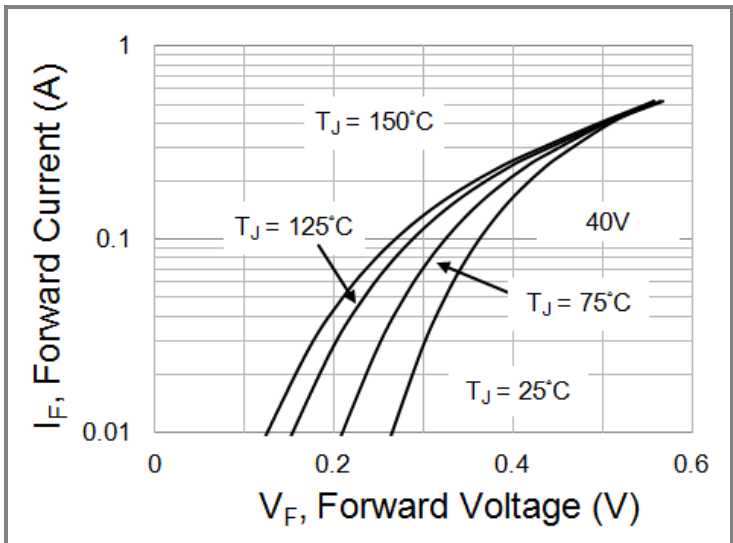
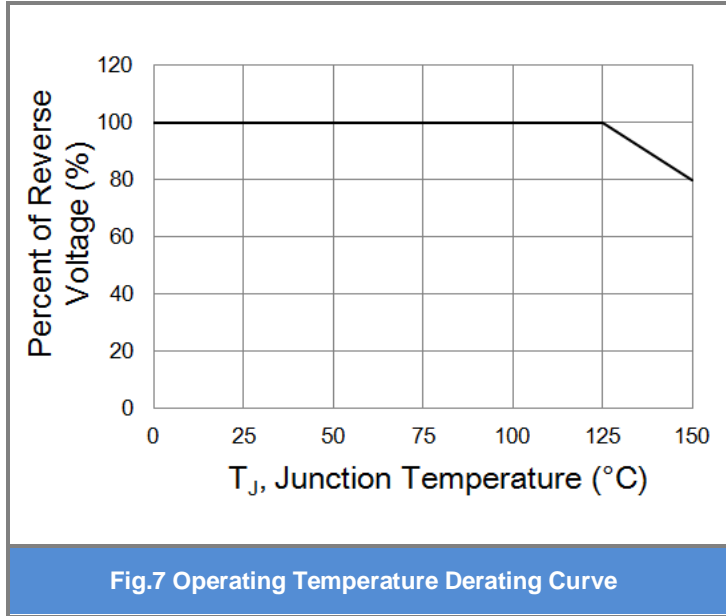


Fig.6 Typical Forward Characteristics



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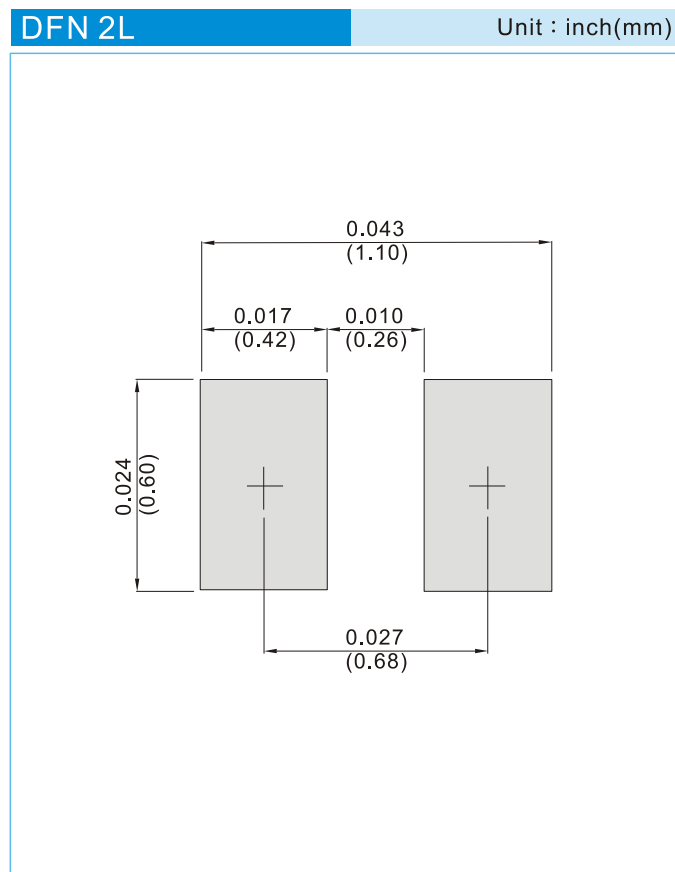


# SBA0520Q SERIES

## Part No Packing Code Version

| Part No Packing Code | Package Type | Packing Type | Marking | Version      |
|----------------------|--------------|--------------|---------|--------------|
| SBA0520Q_R1_00001    | DFN 2L       | 8K / 7" Reel | A7      | Halogen free |
| SBA0530Q_R1_00001    | DFN 2L       | 8K / 7" Reel | E7      | Halogen free |
| SBA0540Q_R1_00001    | DFN 2L       | 8K / 7" Reel | C7      | Halogen free |

## Mounting Pad Layout





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