



## Silicon Carbide Schottky Diode

### ➤ Features

| VR   | IF | VF    |
|------|----|-------|
| 650V | 6A | 1.45V |

### ➤ Description

- 650V Schottky Rectifier
- High Frequency Operation
- Extremely Fast Switching
- Positive Temperature Coefficient on  $V_F$

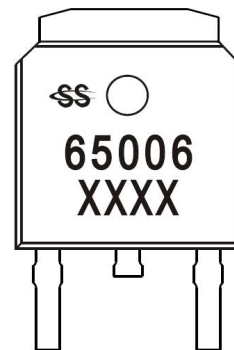
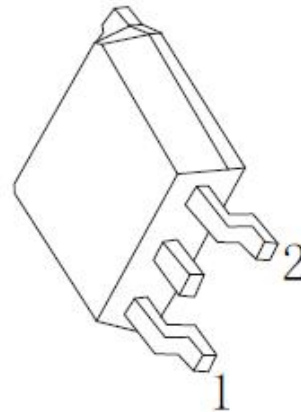
### ➤ Applications

- Power Supplies
- Power Factor Correction
- Motor Drives

### ➤ Ordering Information

| Device      | Package  | Shipping  |
|-------------|----------|-----------|
| SSC65006AT8 | TO252-2L | 2.5K/Reel |

### ➤ Pin Configuration



Marking

(XXXX: Year/Week)

### ➤ Absolute Maximum Ratings (TA=25°C unless otherwise noted)



| Symbol             | Parameter                                              |                           | Ratings  | Unit               |
|--------------------|--------------------------------------------------------|---------------------------|----------|--------------------|
| $V_{RRM}$          | Repetitive Peak Reverse Voltage                        |                           | 650      | V                  |
| $V_{RSM}$          | Surge Peak Reverse Voltage                             |                           | 650      | V                  |
| $V_{DS}$           | DC Blocking Voltage                                    |                           | 650      | V                  |
| $I_F$              | Continuous Forward Current                             | $T_C=150^{\circ}\text{C}$ | 6        | A                  |
| $I_{FRM}$          | Repetitive Peak Forward Surge Current <sup>A</sup>     |                           | 28       | A                  |
| $I_{FSM}$          | Non-Repetitive Peak Forward Surge Current <sup>A</sup> |                           | 63       | A                  |
| $I_{F\text{ MAX}}$ | Non-Repetitive Peak Forward Surge Current <sup>B</sup> |                           | 540      | A                  |
| $P_{TOT}$          | Power Dissipation                                      | $T_C=25^{\circ}\text{C}$  | 100      | W                  |
| $T_J\ T_{STG}$     | Operating Junction and Storage Temperature             |                           | -55~+175 | $^{\circ}\text{C}$ |

➤ **Thermal Resistance Ratings**( $T_A=25^{\circ}\text{C}$  unless otherwise noted)

| Symbol          | Parameter                           | Ratings | Unit                        |
|-----------------|-------------------------------------|---------|-----------------------------|
| $R_{\theta JC}$ | Thermal Resistance Junction-to-Case | 1.5     | $^{\circ}\text{C}/\text{W}$ |

Note:

A.  $T_C=25^{\circ}\text{C}$ ,  $t=10\text{ms}$ , Half Sine Wave;

B.  $T_C=25^{\circ}\text{C}$ ,  $t=10\mu\text{s}$ , Pulse;



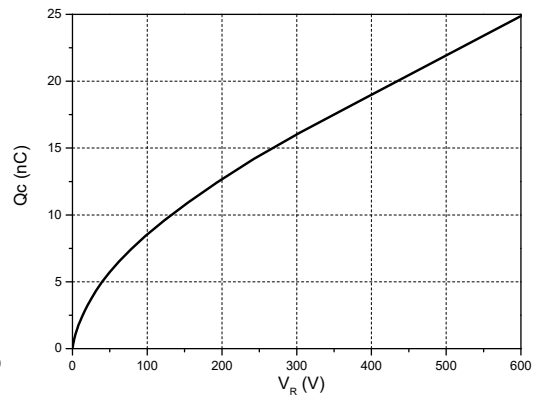
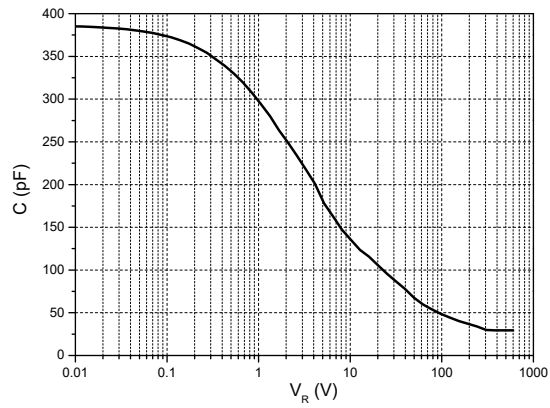
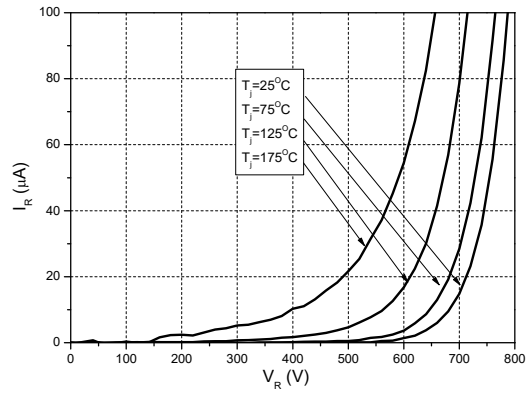
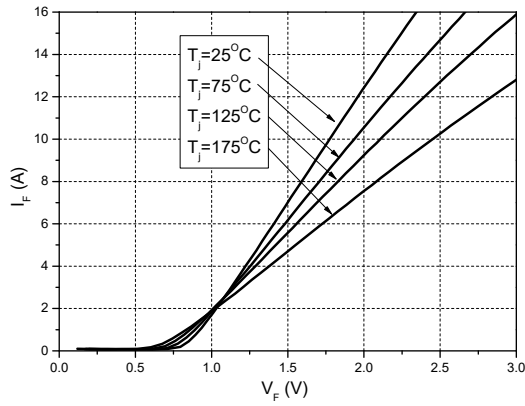
## SSC65006AT8

➤ **Electronics Characteristics**(TA=25°C unless otherwise noted)

| Symbol         | Parameter                    | Test Conditions        | Typ. | Max. | Unit |
|----------------|------------------------------|------------------------|------|------|------|
| V <sub>F</sub> | Forward Voltage              | IF=6A TJ=25°C          | 1.45 | 1.7  | V    |
|                |                              | IF=6A TJ=175°C         | 1.7  | 2    |      |
| I <sub>R</sub> | Reverse Current              | VR=650V TJ=25°C        | 2    | 20   | uA   |
|                |                              | VR=650V TJ=175°C       | 40   | 200  |      |
| Q <sub>C</sub> | Total Charge                 | VR=400V IF=6A TJ=25°C  | 19   |      | nC   |
| C              | Total Capacitive             | VR=0V TJ=25°C f=1MHz   | 386  |      | pF   |
|                |                              | VR=200V TJ=25°C f=1MHz | 37   |      |      |
|                |                              | VR=400V TJ=25°C f=1MHz | 29   |      |      |
| E <sub>C</sub> | Capacitance<br>Stored Energy | VR=400V                | 5    |      | uJ   |

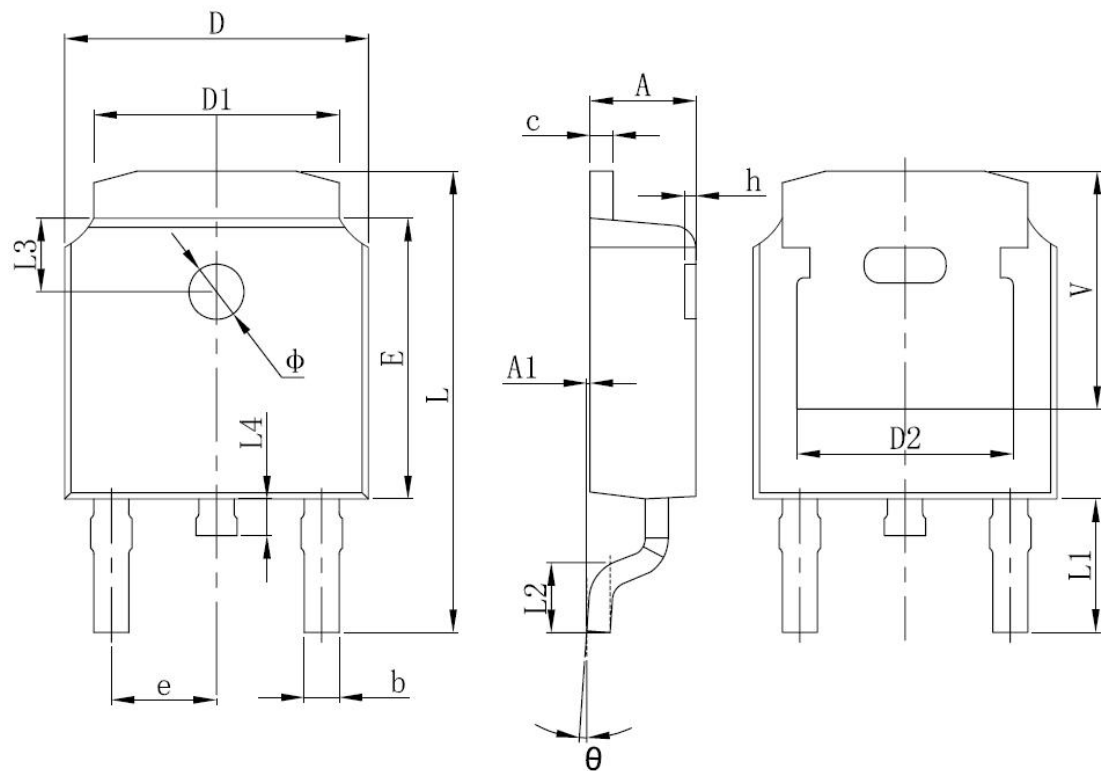


➤ **Typical Characteristics**(TA=25°C unless otherwise noted)





➤ Package Information



| Symbol | Dimensions In Millimeters |        | Dimensions In Inches |       |
|--------|---------------------------|--------|----------------------|-------|
|        | Min.                      | Max.   | Min.                 | Max.  |
| A      | 2.200                     | 2.400  | 0.087                | 0.094 |
| A1     | 0.000                     | 0.127  | 0.000                | 0.005 |
| b      | 0.635                     | 0.770  | 0.025                | 0.030 |
| c      | 0.460                     | 0.580  | 0.018                | 0.023 |
| D      | 6.500                     | 6.700  | 0.256                | 0.264 |
| D1     | 5.100                     | 5.460  | 0.201                | 0.215 |
| D2     | 4.830 REF.                |        | 0.190 REF.           |       |
| E      | 6.000                     | 6.200  | 0.236                | 0.244 |
| e      | 2.186                     | 2.386  | 0.086                | 0.094 |
| L      | 9.712                     | 10.312 | 0.382                | 0.406 |
| L1     | 2.900 REF.                |        | 0.114 REF.           |       |
| L2     | 1.400                     | 1.700  | 0.055                | 0.067 |
| L3     | 1.600 REF.                |        | 0.063 REF.           |       |
| L4     | 0.600                     | 1.000  | 0.024                | 0.039 |
| Φ      | 1.100                     | 1.300  | 0.043                | 0.051 |
| θ      | 0°                        | 8°     | 0°                   | 8°    |
| h      | 0.000                     | 0.300  | 0.000                | 0.012 |
| V      | 5.250 REF.                |        | 0.207 REF.           |       |



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