

RoHS Compliant Product
A suffix of "-C" specifies halogen free

DESCRIPTION

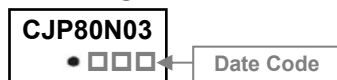
The SSE80N03J uses advanced trench technology and design to provide excellent $R_{DS(ON)}$ with low gate charge. It can be used in a wide variety of applications.

The SSE80N03J meet the RoHS and Green Product requirement with full function reliability approved.

FEATURES

- High density cell design for ultra low $R_{DS(ON)}$
- Fully characterized avalanche voltage and current
- Good stability and uniformity with high E_{AS}
- Excellent package for good heat dissipation
- Special processing technology for high ESD capability

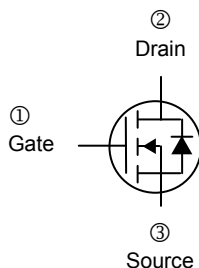
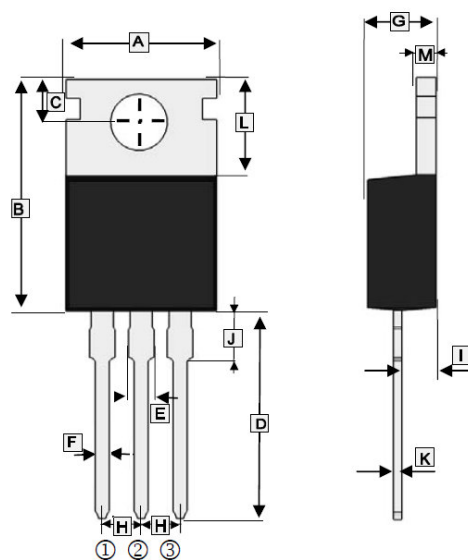
MARKING



ORDER INFORMATION

| Part Number | Type |
|-------------|---------------------------------|
| SSE80N03J | Lead (Pb)-free |
| SSE80N03J-C | Lead (Pb)-free and Halogen-free |

TO-220



| REF. | Millimeter | | REF. | Millimeter | |
|------|------------|-------|------|------------|------|
| | Min. | Max. | | Min. | Max. |
| A | 9.70 | 10.60 | H | 2.54 TYP. | |
| B | 14.22 | 16.5 | I | 2.03 | 2.92 |
| C | 2.54 | 3.40 | J | 2.70 | 3.30 |
| D | 12.7 | 14.7 | K | 0.33 | 0.65 |
| E | 1.17 | 1.78 | L | 5.5 | 7 |
| F | 0.4 | 1.00 | M | 1.20 | 1.40 |
| G | 3.60 | 4.82 | | | |

ABSOLUTE MAXIMUM RATINGS ($T_A=25^\circ\text{C}$ unless otherwise specified)

| Parameter | Symbol | Ratings | Unit |
|--|-----------------|----------|--------------------|
| Drain-Source Voltage | V_{DS} | 30 | V |
| Gate-Source Voltage | V_{GS} | ± 20 | V |
| Continuous Drain Current | I_D | 80 | A |
| Pulsed Drain Current | I_{DM} | 320 | A |
| Single Pulse Avalanche Energy ¹ | E_{AS} | 306 | mJ |
| Power Dissipation | P_D | 1.25 | W |
| Lead Temperature for Soldering Purposes @1/8" from case for 10s | T_L | 260 | $^\circ\text{C}$ |
| Operating Junction and Storage Temperature Range | T_J, T_{STG} | -55~150 | $^\circ\text{C}$ |
| Thermal Resistance Ratings | | | |
| Thermal Resistance Junction-Ambient | $R_{\theta JA}$ | 100 | $^\circ\text{C/W}$ |

ELECTRICAL CHARACTERISTICS ($T_J=25^\circ\text{C}$ unless otherwise specified)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Test Conditions |
|--|---------------|------|------|-----------|------------|--|
| Drain-Source Breakdown Voltage | $V_{(BR)DSS}$ | 30 | - | - | V | $V_{GS}=0V, I_D=250\mu A$ |
| Gate Threshold Voltage ² | $V_{GS(th)}$ | 1 | - | 3 | V | $V_{DS}=V_{GS}, I_D=250\mu A$ |
| Forward Transconductance ² | g_{fs} | 20 | - | - | S | $V_{DS}=5V, I_D=24A$ |
| Gate-Source Leakage Current | I_{GSS} | - | - | ± 100 | nA | $V_{GS}=\pm 20V$ |
| Drain-Source Leakage Current | I_{DSS} | - | - | 1 | μA | $V_{DS}=24V, V_{GS}=0V$ |
| Static Drain-Source On-Resistance ² | $R_{DS(ON)}$ | - | 5.1 | 6.5 | m Ω | $V_{GS}=10V, I_D=30A$ |
| | | - | 7.1 | 10 | | $V_{GS}=5V, I_D=24A$ |
| Total Gate Charge | Q_g | - | 51 | - | nC | $I_D=30A$ $V_{DS}=10V$ $V_{GS}=10V$ |
| Gate-Source Charge | Q_{gs} | - | 14 | - | | |
| Gate-Drain Change | Q_{gd} | - | 11 | - | | |
| Turn-on Delay Time | $T_{d(on)}$ | - | 20 | - | nS | $V_{DD}=15V$ $I_D=30A$ $V_{GS}=10V$ $R_G=2.7\Omega$ |
| Rise Time | T_r | - | 15 | - | | |
| Turn-off Delay Time | $T_{d(off)}$ | - | 60 | - | | |
| Fall Time | T_f | - | 10 | - | | |
| Input Capacitance | C_{iss} | - | 2330 | - | pF | $V_{GS}=0V$ $V_{DS}=15V$ $f=1MHz$ |
| Output Capacitance | C_{oss} | - | 460 | - | | |
| Reverse Transfer Capacitance | C_{rss} | - | 230 | - | | |
| Source-Drain Diode | | | | | | |
| Diode Forward Voltage ² | V_{SD} | - | - | 1.2 | V | $I_S=24A, V_{GS}=0V$ |
| Continuous Source Current | I_S | - | - | 80 | A | |
| Pulsed Source Current | I_{SM} | - | - | 320 | A | |

Notes:

1. E_{AS} condition: $V_{DD}=20V, L=0.5mH, R_G=25\Omega$, Starting $T_J=25^\circ\text{C}$.
2. Pulse Test: Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.

TYPICAL CHARACTERISTIC

