

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

FEATURES

- Epoxy Meets UL 94 V-0 Flammability Rating
- Moisture Sensitivity Level 1
- High Density Cell Design for Low $R_{DS(ON)}$
- Voltage Controlled Small Signal Switch
- Rugged and Reliable
- ESD Protected up to 2.5KV(HBM)

MARKING

72K

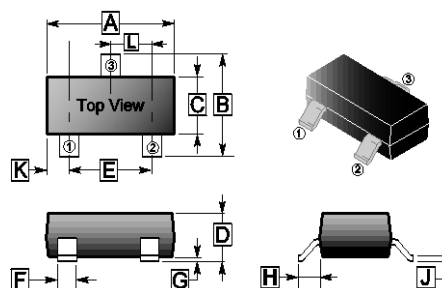
PACKAGE INFORMATION

| Package | MPQ | Leader Size |
|---------|-----|-------------|
| SOT-23 | 3K | 7 inch |

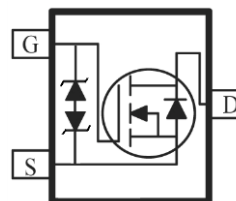
ORDER INFORMATION

| Part Number | Type |
|-------------|---------------------------------|
| SMS7002K-C | Lead (Pb)-free and Halogen-free |

SOT-23



| REF. | Millimeter | | REF. | Millimeter | |
|------|------------|------|------|------------|------|
| | Min. | Max. | | Min. | Max. |
| A | 2.65 | 3.10 | G | 0 | 0.18 |
| B | 2.10 | 3.00 | H | 0.55 | REF. |
| C | 1.10 | 1.80 | J | 0.05 | 0.26 |
| D | 0.89 | 1.40 | K | 0.60 | REF. |
| E | 1.70 | 2.30 | L | 0.95 | TYP. |
| F | 0.28 | 0.55 | | | |



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

| Parameter | Symbol | Ratings | Unit |
|---|-----------------|----------|--------------------|
| Drain-Source Voltage | V_{DS} | 60 | V |
| Gate-Source Voltage | V_{GS} | ± 20 | V |
| Drain Current | I_D | 340 | mA |
| Total Power Dissipation | P_D | 350 | mW |
| Thermal Resistance from Junction-Ambient ¹ | $R_{\theta JA}$ | 357 | $^\circ\text{C/W}$ |
| Operating Junction & Storage Temperature Range | T_J, T_{STG} | -55~150 | $^\circ\text{C}$ |

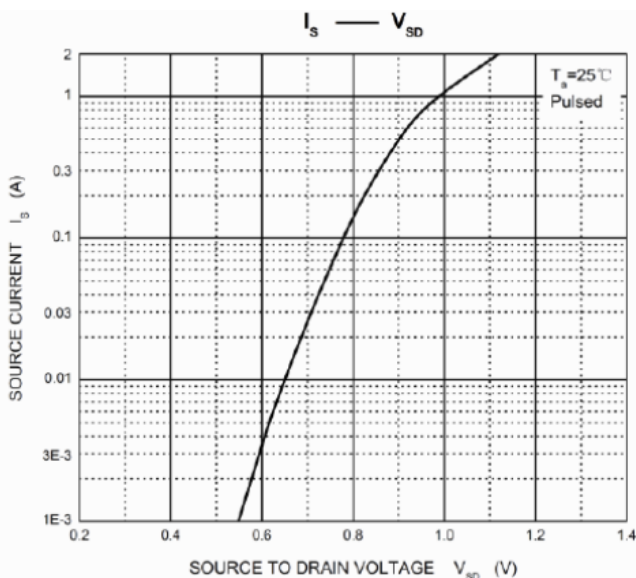
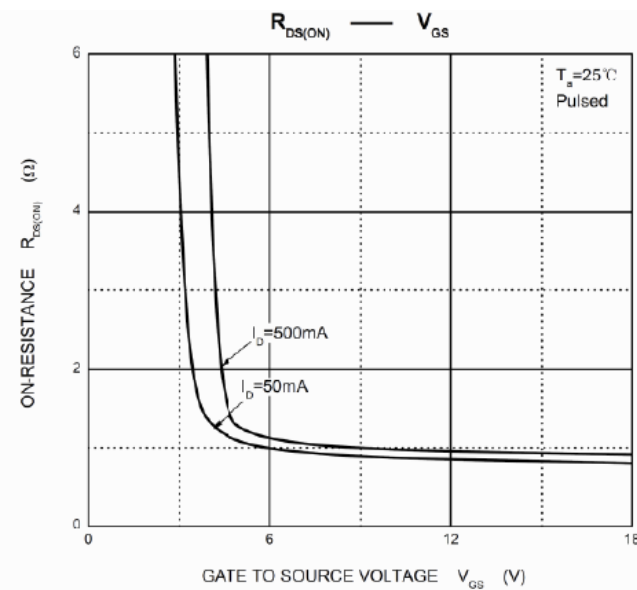
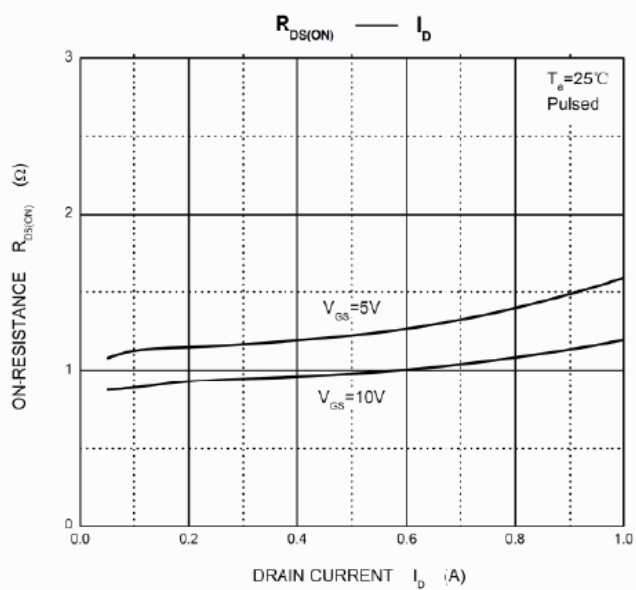
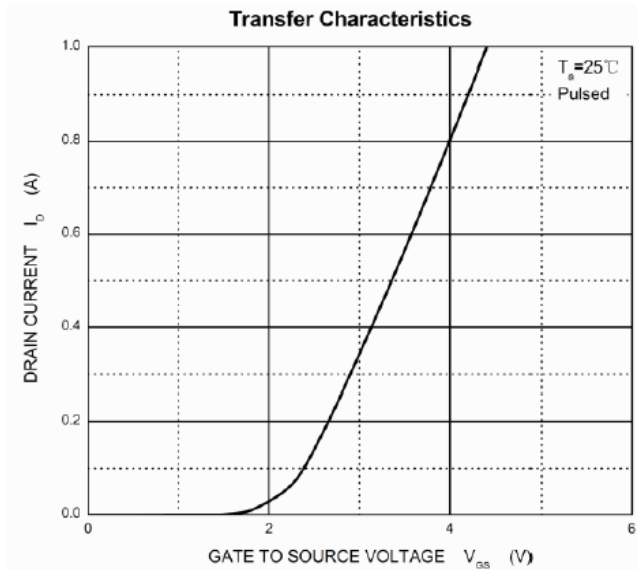
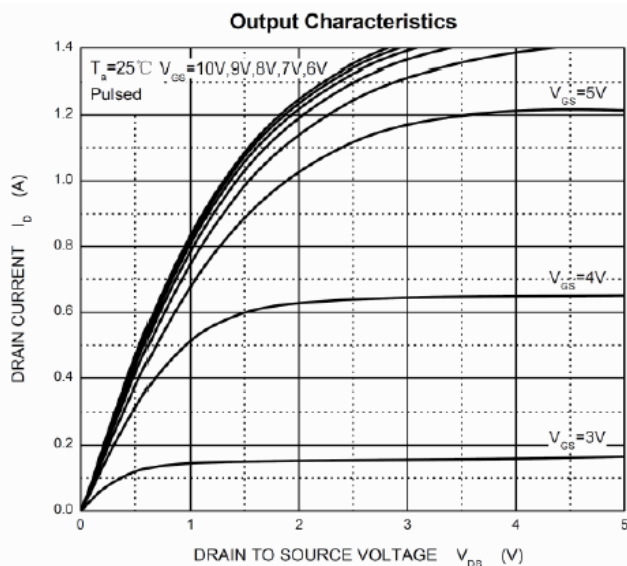
ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$ unless otherwise specified)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Test Conditions |
|---|---------------|------|------|-----------|---------------|--|
| Drain-Source Breakdown Voltage | $V_{(BR)DSS}$ | 60 | - | - | V | $V_{GS}=0, I_D=250\mu\text{A}$ |
| Zero Gate Voltage Drain Current | I_{DSS} | - | - | 1 | μA | $V_{DS}=48\text{V}, V_{GS}=0$ |
| Gate-Body Leakage Current | I_{GSS} | - | - | ± 10 | μA | $V_{GS}=\pm 20\text{V}, V_{DS}=0$ |
| | | | | ± 200 | nA | $V_{GS}=\pm 10\text{V}, V_{DS}=0$ |
| | | | | ± 100 | nA | $V_{GS}=\pm 5\text{V}, V_{DS}=0$ |
| Gate Threshold Voltage ² | $V_{GS(th)}$ | 1 | 1.4 | 2.5 | V | $V_{DS}=V_{GS}, I_D=250\mu\text{A}$ |
| Drain-Source On-Resistance ² | $R_{DS(ON)}$ | - | - | 5 | Ω | $V_{GS}=10\text{V}, I_D=500\text{mA}$ |
| | | - | - | 5.3 | | $V_{GS}=4.5\text{V}, I_D=200\text{mA}$ |
| Recovered Charge | Q_r | - | 30 | - | nC | $V_{GS}=0, I_D=300\text{mA}, V_R=25\text{V}$ $di/dt = -100\text{A}/\mu\text{s}$ |
| Turn-on Time | $t_{(on)}$ | - | 10 | - | nS | $V_{GS}=10\text{V}, V_{DD}=50\text{V}, R_G=50\Omega$ $R_{GS}=50\Omega, R_L=250\Omega$ |
| Turn-off Time | $t_{(off)}$ | - | 15 | - | | |
| Reverse Recovery Time | t_{rr} | - | 30 | - | | |
| Input Capacitance | C_{iss} | - | 40 | - | pF | $V_{DS}=10\text{V}$ $V_{GS}=0$ $f=1\text{MHz}$ |
| Output Capacitance | C_{oss} | - | 30 | - | | |
| Reverse Transfer Capacitance | C_{rss} | - | 10 | - | | |
| Source-Drain Diode | | | | | | |
| Diode Forward Voltage | V_{SD} | - | - | 1.5 | V | $V_{GS}=0, I_S=300\text{mA}$ |

Notes:

1. Surface mounted on min. copper pad.
2. Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2\%$.

TYPICAL CHARACTERISTICS



Mounting Pad Layout

