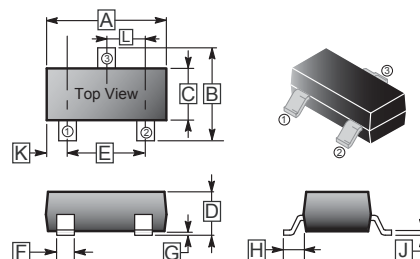


RoHS Compliant Product
A suffix of "-C" specifies halogen & lead-free

FEATURES

- R_{DS(ON)}, V_{GS}@10V, I_{DS}@500mA=3Ω
- R_{DS(ON)}, V_{GS}@4.5V, I_{DS}@200mA=4Ω
- Advanced Trench Process Technology
- High Density Cell Design For Ultra Low On-Resistance
- Very Low Leakage Current In Off Condition
- Specially Designed for Battery Operated Systems, Solid-State Relays Drivers : Relays, Displays, Lamps, Solenoids, Memories, etc.
- ESD Protected 2KV HBM
- In compliance with EU RoHS 2002/95/EC directives

SOT-323



MECHANICAL DATA

- Case: SOT-323 Package
- Terminals: Solderable per MIL-STD-750, Method 2026

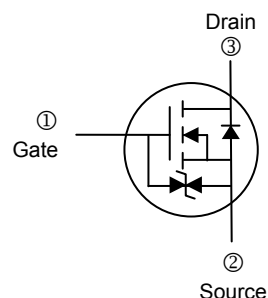
| REF. | Millimeter | | REF. | Millimeter | |
|------|------------|------|------|------------|------|
| | Min. | Max. | | Min. | Max. |
| A | 1.80 | 2.20 | G | 0.100 REF. | |
| B | 1.80 | 2.45 | H | 0.525 REF. | |
| C | 1.15 | 1.35 | J | 0.08 | 0.25 |
| D | 0.80 | 1.10 | K | - | - |
| E | 1.20 | 1.40 | L | 0.650 TYP. | |
| F | 0.20 | 0.40 | | | |

MARKING

K72

PACKAGE INFORMATION

| Package | MPQ | LeaderSize |
|---------|-----|------------|
| SOT-323 | 3K | 7' inch |



ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise specified)

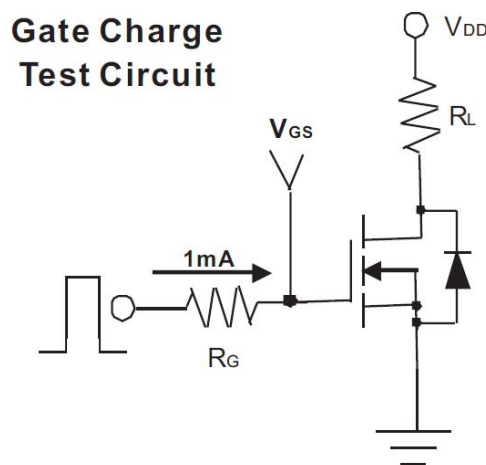
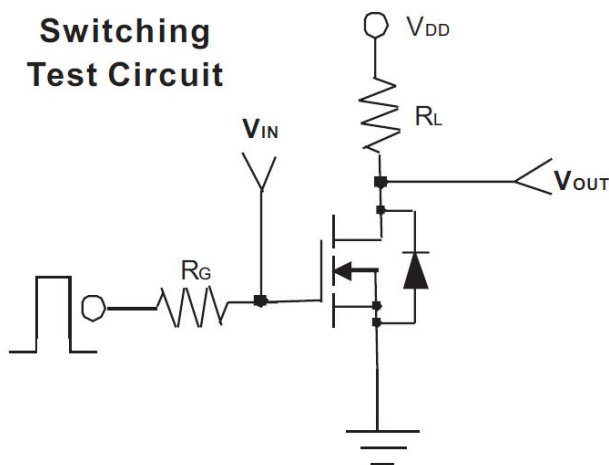
| Parameter | Symbol | Rating | Unit |
|--|-----------------------------------|----------------------|--------|
| Drain-Source Voltage | V _{DS} | 60 | V |
| Gate-Source Voltage | V _{GS} | ±20 | V |
| Continuous Drain Current | I _D | 115 | mA |
| Pulsed Drain Current ¹ | I _{DM} | 800 | mA |
| Maximum Power Dissipation | P _D | T _A =25°C | 200 |
| | | T _A =75°C | 120 |
| Thermal Resistance Junction-Ambient (PCB mounted) ² | R _{θJA} | 625 | °C / W |
| Operating Junction and Storage Temperature | T _J , T _{STG} | -55~150 | °C |

Notes:

1. Maximum DC current limited by the package.
2. Surface mounted on FR4 board, t < 5sec.

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

| Parameter | Symbol | Min. | Typ. ² | Max. | Unit | Test Conditions |
|----------------------------------|--------------|------|-------------------|----------|---------------|--|
| Static | | | | | | |
| Drain-Source Breakdown Voltage | BV_{DSS} | 60 | - | - | V | $V_{GS}=0, I_D=10\mu\text{A}$ |
| Gate-Threshold Voltage | $V_{GS(th)}$ | 1 | - | 2.5 | V | $V_{DS}=V_{GS}, I_D=250\mu\text{A}$ |
| Drain-Source On-Resistance | $R_{DS(ON)}$ | - | - | 4 | Ω | $V_{GS}=4.5\text{V}, I_D=200\text{mA}$ |
| | | - | - | 3 | | $V_{GS}=10\text{V}, I_D=500\text{mA}$ |
| Zero Gate Voltage Drain Current | I_{DSS} | - | - | 1 | μA | $V_{DS}=60\text{V}, V_{GS}=0$ |
| Gate-Body Leakage Current | I_{GSS} | - | - | ± 10 | μA | $V_{DS}=0, V_{GS}= \pm 20\text{V}$ |
| Forward Transconductance | g_{fs} | 100 | - | - | mS | $V_{DS}=15\text{V}, I_D=250\text{mA}$ |
| Dynamic | | | | | | |
| Total Gate Charge | Q_g | - | - | 0.8 | nC | $V_{DS}=15\text{V}, V_{GS}=4.5\text{V}, I_D=200\text{mA}$ |
| Turn-On Time | $t_{(on)}$ | - | - | 20 | nS | $V_{DD}=30\text{V}, R_L=150\Omega,$ $I_D=200\text{mA}, V_{GEN}=10\text{V},$ $R_G=10\Omega$ |
| Turn-Off Time | $t_{(off)}$ | - | - | 40 | | |
| Input Capacitance | C_{iss} | - | - | 35 | pF | $V_{DS}=25\text{V}, V_{GS}=0\text{V}, f=1\text{MHz}$ |
| Output Capacitance | C_{oss} | - | - | 10 | | |
| Reverse Transfer Capacitance | C_{rss} | - | - | 5 | | |
| Source-Drain Diode | | | | | | |
| Diode Forward Voltage | V_{SD} | - | 0.82 | 1.3 | V | $I_S=200\text{mA}, V_{GS}=0\text{V}$ |
| Continuous Diode Forward Current | I_S | - | - | 115 | mA | |
| Pulse Diode Forward Current | I_{SM} | - | - | 800 | mA | |



CHARACTERISTIC CURVE

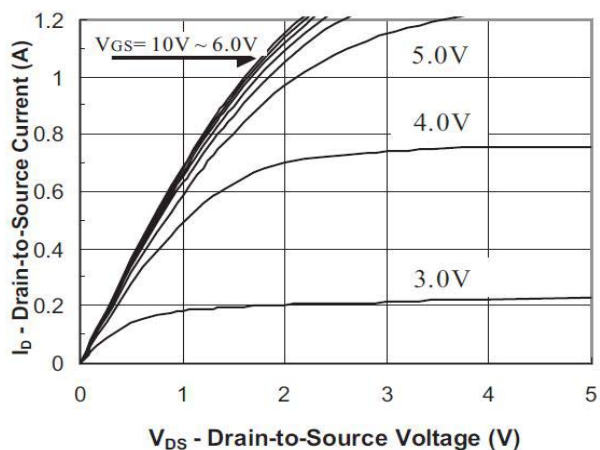


FIG.1-Output Characteristic

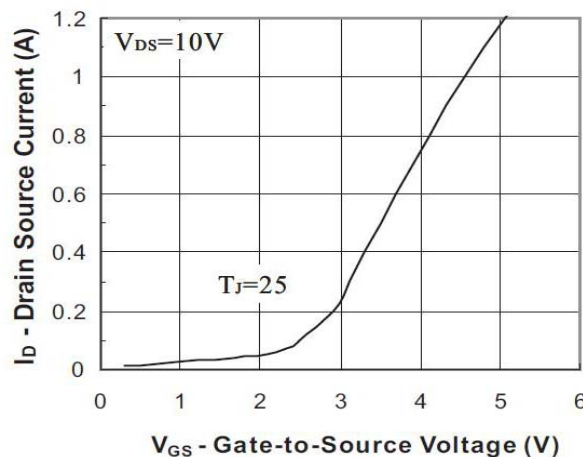


FIG.2-Transfer Characteristic

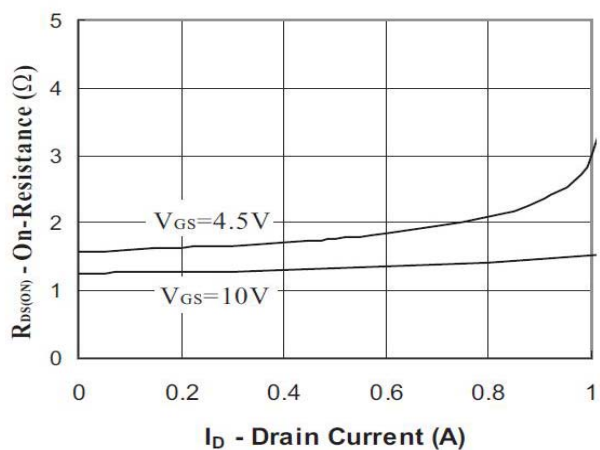


FIG.3-On Resistance vs Drain Current

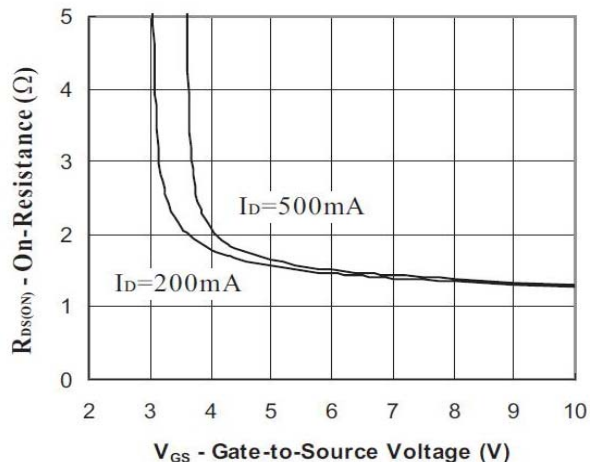


FIG.4- On Resistance vs Gate to Source Voltage

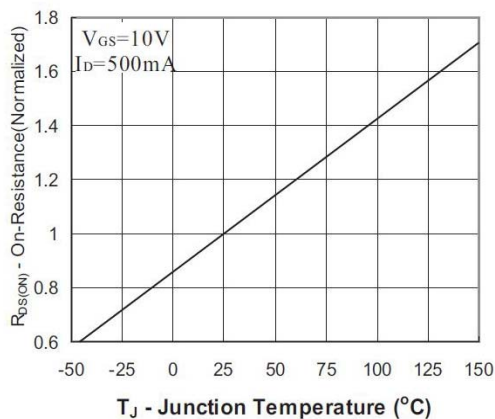


FIG.5-On Resistance vs Junction Temperature

CHARACTERISTIC CURVE

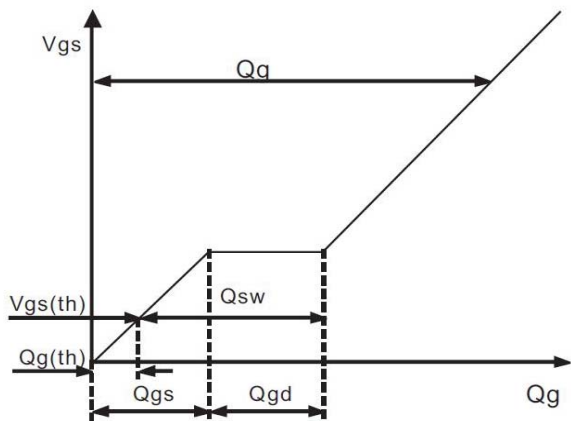


FIG.6-Gate Charge Waveform

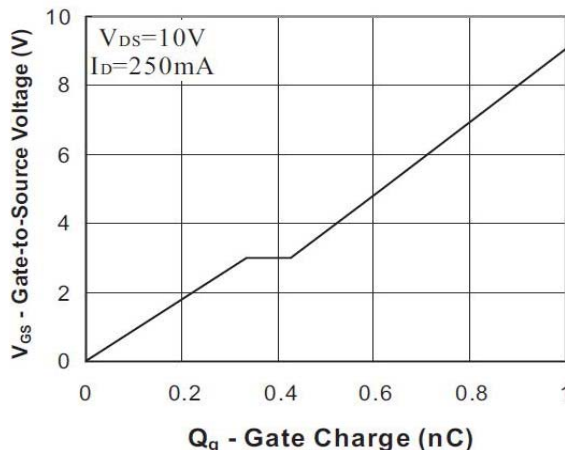


FIG.7-Gate Charge

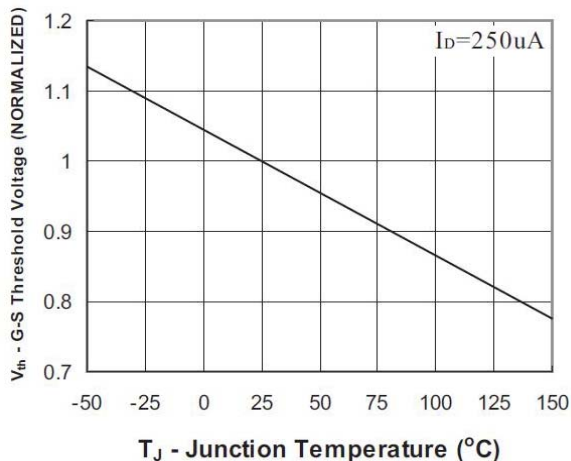


FIG.8-Threshold Voltage vs Temperature

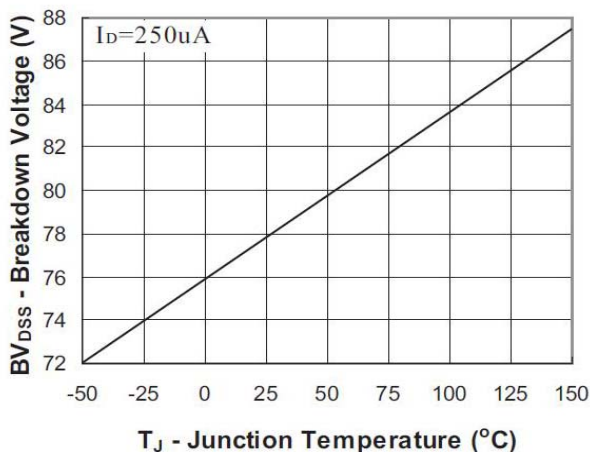


FIG.9-Breakdown Voltage vs Junction Temperature

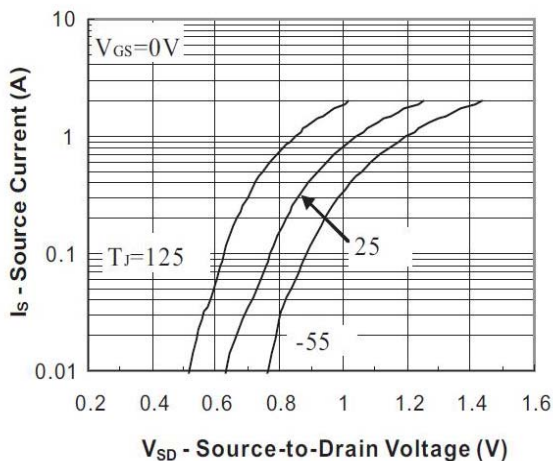


FIG.10-Source-Drain Diode Forward Voltage