

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

FEATURES

- Low Gate Charge for Fast Switching.
- ESD Protected Gate.

APPLICATIONS

- Power Management Load Switch
- ESD Protected: 1500V
- Easily designed drive circuits

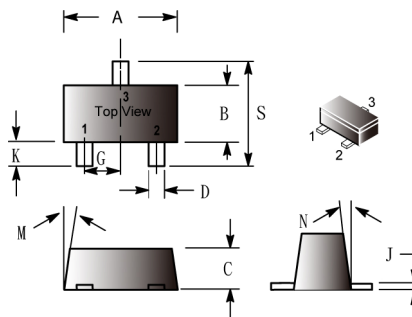
MARKING

RS

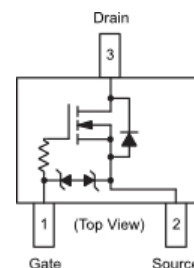
PACKAGE INFORMATION

| Package | MPQ | Leader Size |
|---------|-----|-------------|
| SOT-523 | 3K | 7 inch |

SOT-523



| REF. | Millimeter | | REF. | Millimeter | |
|------|------------|------|------|------------|-----------------|
| | Min. | Max. | | Min. | Max. |
| A | 1.50 | 1.70 | K | 0.30 | 0.50 |
| B | 0.75 | 0.95 | M | --- | 10 ⁰ |
| C | 0.60 | 0.80 | N | --- | 10 ⁰ |
| D | 0.23 | 0.33 | S | 1.50 | 1.70 |
| G | 0.50BSC | | | | |
| J | 0.10 | 0.20 | | | |



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

| Parameter | | Symbol | Rating | Unit |
|-------------------------------------|------------|-------------------------------|---------|------|
| Drain-Source Voltage | | V _{DSS} | 60 | V |
| Gate-Source Voltage(Continuous) | | V _{GSS} | ±20 | V |
| Drain Current | Continuous | I _D | 115 | mA |
| | Pulsed | I _{DP} ¹ | 800 | |
| Reverse drain current | Continuous | I _{Dr} | 115 | mA |
| | Pulsed | I _{DRP} ¹ | 800 | |
| Total Power Dissipation | | P _D ² | 225 | mW |
| Channel temperature | | T _J | 150 | °C |
| Operating Storage Temperature Range | | T _{STG} | -55~150 | °C |

Note

1. P_w ≤ 10 μs, Duty cycle ≤ 1 %
2. When mounted on a 1*0.75*0.062 inch glass epoxy board

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

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Test Conditions |
|--|---------------|------|------|----------|---------------|--|
| Off Characteristics ² | | | | | | |
| Drain-Source Breakdown Voltage | $V_{(BR)DSS}$ | 60 | - | - | V | $V_{GS}=0, I_D=10\mu\text{A}$ |
| Zero Gate Voltage Drain Current | I_{DSS} | - | - | 1 | μA | $V_{DS}=60\text{V}, V_{GS}=0$ |
| Gate-Source Leakage | I_{GSS} | - | - | ± 10 | μA | $V_{GS}=\pm 20\text{V}, V_{DS}=0$ |
| On Characteristics ² | | | | | | |
| Gate Threshold Voltage | $V_{GS(th)}$ | 1 | 1.5 | 2 | V | $V_{DS}=V_{GS}, I_D=250\mu\text{A}$ |
| Static Drain-Source On Resistance | $R_{DS(ON)}$ | - | - | 7.5 | Ω | $V_{GS}=10\text{V}, I_D=0.5\text{A}$ |
| | | - | - | 7.5 | | $V_{GS}=5\text{V}, I_D=0.05\text{A}$ |
| Forward transfer admittance ¹ | g_{fs} | 80 | - | - | mS | $V_{DS}=10\text{V}, I_D=0.2\text{A}$ |
| Dynamic Characteristics | | | | | | |
| Input Capacitance | C_{iss} | - | 25 | 50 | pF | $V_{DS}=25\text{V},$ $V_{GS}=0,$ $f=1\text{MHz}$ |
| Output Capacitance | C_{oss} | - | 10 | 25 | | |
| Reverse Transfer Capacitance | C_{rss} | - | 3 | 5 | | |
| Switching Characteristics | | | | | | |
| Turn-On Delay Time ¹ | $T_{d(ON)}$ | - | 12 | 20 | nS | $V_{DD}=30\text{V},$ $V_{GS}=10\text{V},$ $I_D=0.2\text{A},$ $R_G=10\Omega,$ $R_L=150\Omega$ |
| Turn-Off Delay Time ¹ | $T_{d(OFF)}$ | - | 20 | 30 | | |

Note:

1. Pulse Test : pulse width $\leq 300\mu\text{s}$, Duty cycle $\leq 2\%$
2. When mounted on a 1*0.75*0.062 inch glass epoxy board

CHARACTERISTIC CURVE

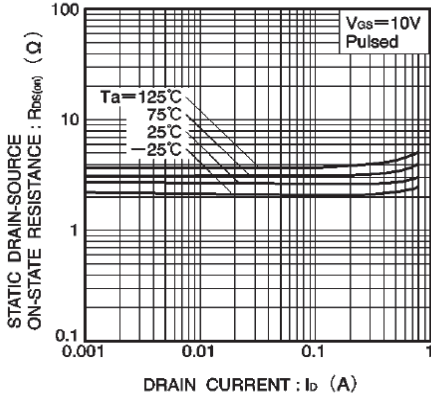


Fig.4 Static drain-source on-state resistance vs. drain current (I)

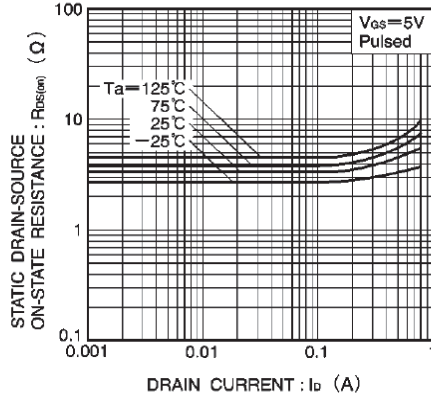


Fig.5 Static drain-source on-state resistance vs. drain current (II)

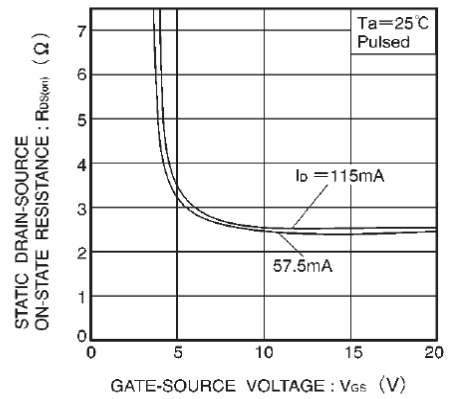


Fig.6 Static drain-source on-state resistance vs. gate-source voltage

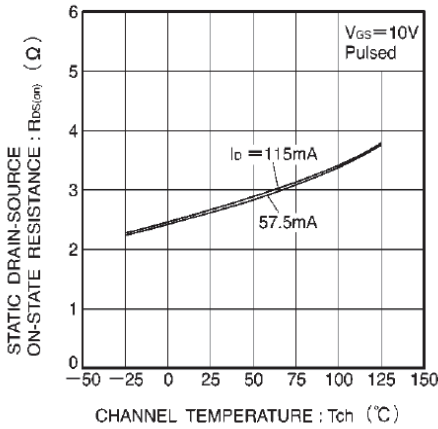


Fig.7 Static drain-source on-state resistance vs. channel temperature

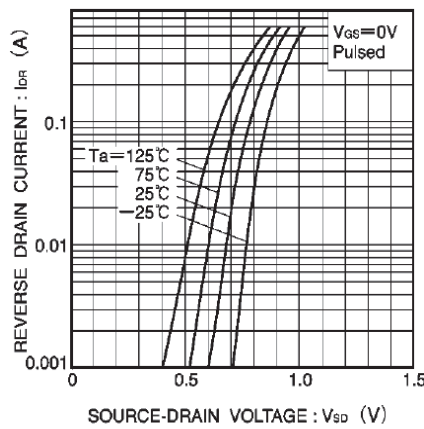


Fig.8 Reverse drain current vs. source-drain voltage (I)

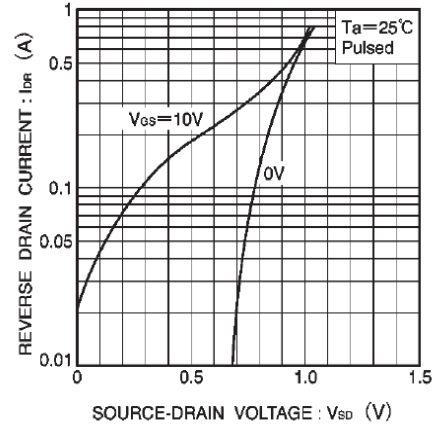


Fig.9 Reverse drain current vs. source-drain voltage (II)

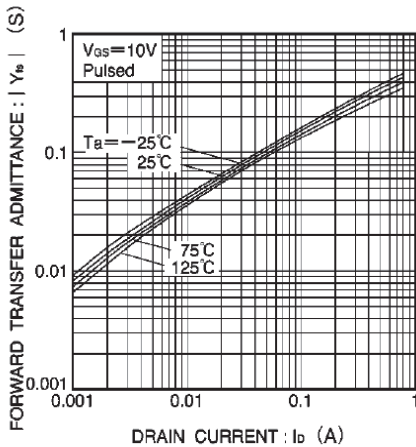


Fig.10 Forward transfer admittance vs. drain current

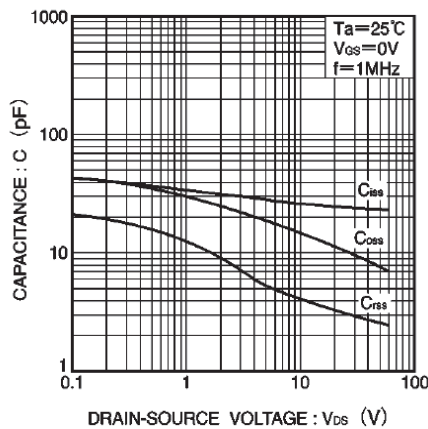


Fig.11 Typical capacitance vs. drain-source voltage

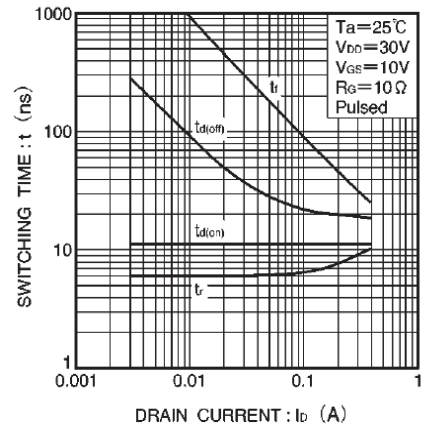


Fig.12 Switching characteristics (See Figures 13 and 14 for the measurement circuit and resultant waveforms)