

## isc N-Channel MOSFET Transistor

## FS50SM-06

## FEATURES

- Drain Current  $-I_D=50A@T_C=25^{\circ}C$
- Drain Source Voltage  $-V_{DSS}=60V(\text{Min})$
- Static Drain-Source On-Resistance  
 $-R_{DS(on)}=22m\Omega(\text{Max})$

## DESCRIPTION

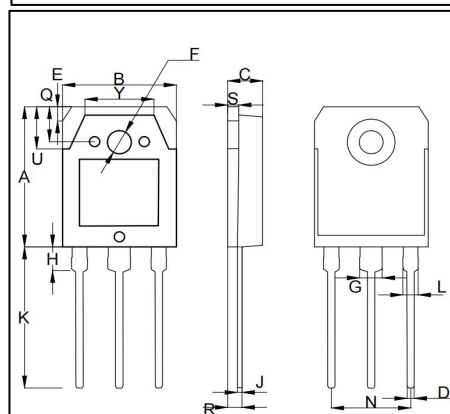
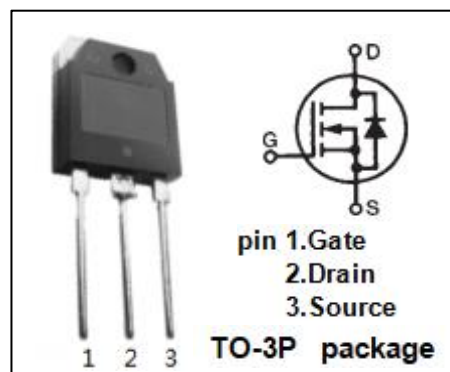
- Motor drive, DC-DC converter, power switch and solenoid drive.

ABSOLUTE MAXIMUM RATINGS( $T_a=25^{\circ}C$ )

| SYMBOL    | PARAMETER                             | VALUE    | UNIT        |
|-----------|---------------------------------------|----------|-------------|
| $V_{DSS}$ | Drain-Source Voltage                  | 60       | V           |
| $V_{GS}$  | Gate-Source Voltage-Continuous        | $\pm 20$ | V           |
| $I_D$     | Drain Current-Continuous              | 50       | A           |
| $I_{DM}$  | Drain Current-Single Pluse            | 200      | A           |
| $P_D$     | Total Dissipation @ $T_C=25^{\circ}C$ | 70       | W           |
| $T_J$     | Max. Operating Junction Temperature   | 150      | $^{\circ}C$ |
| $T_{stg}$ | Storage Temperature                   | -55~150  | $^{\circ}C$ |

## THERMAL CHARACTERISTICS

| SYMBOL        | PARAMETER                            | MAX  | UNIT          |
|---------------|--------------------------------------|------|---------------|
| $R_{th\ j-c}$ | Thermal Resistance, Junction to Case | 1.78 | $^{\circ}C/W$ |



| DIM | mm    |       |       |
|-----|-------|-------|-------|
|     | MIN   | TYP.  | MAX   |
| A   | 19.70 | 19.95 | 20.20 |
| B   | 15.45 | 15.60 | 15.75 |
| C   | 4.70  | 4.80  | 4.90  |
| D   | 0.90  | 1.00  | 1.10  |
| E   | 1.80  | 2.00  | 2.20  |
| F   | 3.40  | 3.50  | 3.60  |
| G   | 2.95  | 3.10  | 3.25  |
| H   | 3.10  | 3.25  | 3.40  |
| J   | 0.50  | 0.60  | 0.70  |
| K   | 19.80 | 20.00 | 20.20 |
| L   | 2.00  | 2.10  | 2.20  |
| M   | 13.30 | 13.60 | 13.90 |
| N   | 10.80 | 10.90 | 11.00 |
| Q   | 4.25  | 4.68  | 5.10  |
| R   | 1.75  | 2.03  | 2.30  |
| S   | 1.40  | 1.50  | 1.60  |
| U   | 5.90  | 6.05  | 6.20  |
| Y   | 9.45  | 9.60  | 9.75  |

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

| SYMBOL        | PARAMETER                       | CONDITIONS                          | MIN | TYP. | MAX       | UNIT             |
|---------------|---------------------------------|-------------------------------------|-----|------|-----------|------------------|
| $V_{(BR)DSS}$ | Drain-Source Breakdown Voltage  | $V_{GS}=0; I_D=1\text{mA}$          | 60  | --   | --        | V                |
| $V_{GS(th)}$  | Gate Threshold Voltage          | $V_{DS}=V_{GS}; I_D=1\text{mA}$     | 2.0 | 3.0  | 4.0       | V                |
| $R_{DS(on)}$  | Drain-Source On-Resistance      | $V_{GS}=10\text{V}; I_D=25\text{A}$ | --  | 17   | 22        | $\text{m}\Omega$ |
| $I_{GSS}$     | Gate-Body Leakage Current       | $V_{GS}=\pm 20\text{V}; V_{DS}=0$   | --  | --   | $\pm 0.1$ | $\mu\text{A}$    |
| $I_{DSS}$     | Zero Gate Voltage Drain Current | $V_{DS}=60\text{V}; V_{GS}=0$       | --  | --   | 0.1       | mA               |
| $V_{SD}$      | Forward On-Voltage              | $I_S=25\text{A}; V_{GS}=0$          | --  | 1.0  | 1.5       | V                |

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