

# isc N-Channel Mosfet Transistor

# 7N90A

**• FEATURES**

- Drain Current  $I_D = 7A @ T_C = 25^\circ C$
- Drain Source Voltage-  
:  $V_{DSS} = 900V(\text{Min})$
- Fast Switching Speed
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

**• APPLICATIONS**

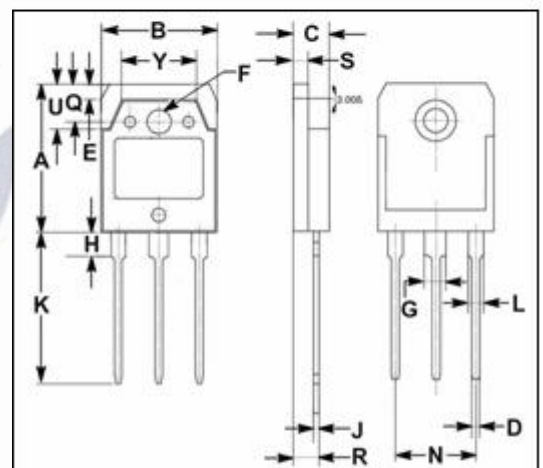
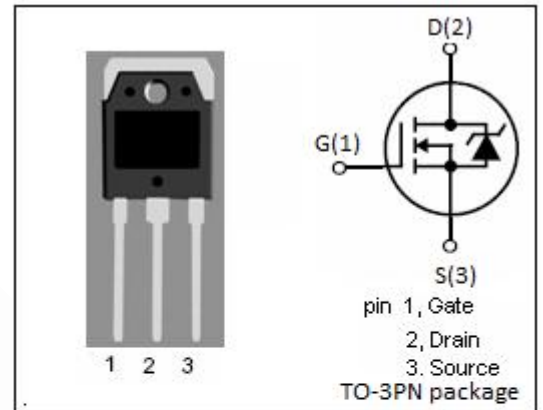
- Switching mode power supplies
- General purpose power amplifier

**• ABSOLUTE MAXIMUM RATINGS( $T_a = 25^\circ C$ )**

| SYMBOL        | PARAMETER                                    | VALUE    | UNIT       |
|---------------|--|----------|------------|
| $V_{DSS}$     | Drain-Source Voltage ( $V_{GS}=0$ )          | 900      | V          |
| $V_{GS}$      | Gate-Source Voltage                          | $\pm 30$ | V          |
| $I_D$         | Drain Current-continuous@ $T_C = 25^\circ C$ | 7        | A          |
| $I_{D(puls)}$ | Pulse Drain Current                          | 28       | A          |
| $P_{tot}$     | Total Dissipation@ $T_C = 25^\circ C$        | 240      | W          |
| $T_j$         | Max. Operating Junction Temperature          | 150      | $^\circ C$ |
| $T_{stg}$     | Storage Temperature Range                    | -55~150  | $^\circ C$ |

**• THERMAL CHARACTERISTICS**

| SYMBOL        | PARAMETER                               | MAX  | UNIT         |
|---------------|---|------|--------------|
| $R_{th\ j-c}$ | Thermal Resistance, Junction to Case    | 0.52 | $^\circ C/W$ |
| $R_{th\ j-a}$ | Thermal Resistance, Junction to Ambient | 40   | $^\circ C/W$ |



| DIM | mm    |       |
|-----|-------|-------|
|     | MIN   | MAX   |
| A   | 19.60 | 20.30 |
| B   | 15.50 | 15.70 |
| C   | 4.70  | 4.90  |
| D   | 0.90  | 1.10  |
| E   | 1.90  | 2.10  |
| F   | 3.40  | 3.60  |
| G   | 2.90  | 3.20  |
| H   | 3.20  | 3.40  |
| J   | 0.595 | 0.605 |
| K   | 19.80 | 20.70 |
| L   | 1.90  | 2.20  |
| N   | 10.89 | 10.91 |
| Q   | 4.90  | 5.10  |
| R   | 3.35  | 3.45  |
| S   | 1.995 | 2.100 |
| U   | 5.90  | 6.20  |
| Y   | 9.90  | 10.10 |

**isc N-Channel Mosfet Transistor****7N90A****ELECTRICAL CHARACTERISTICS** $T_C=25^{\circ}\text{C}$  unless otherwise specified

| SYMBOL        | PARAMETER                       | CONDITIONS  | MIN | TYPE | MAX       | UNIT          |
|---------------|---------------------------------|---|-----|------|-----------|---------------|
| $V_{(BR)DSS}$ | Drain-Source Breakdown Voltage  | $V_{GS}=0; I_D=250\mu\text{A}$  | 900 |      |           | V             |
| $V_{GS(th)}$  | Gate Threshold Voltage          | $V_{DS}=V_{GS}; I_D=250\mu\text{A}$   | 3.0 |      | 5.0       | V             |
| $V_{SD}$      | Diode Forward On-Voltage        | $I_S=7\text{A}; V_{GS}=0$   |     |      | 1.4       | V             |
| $R_{DS(on)}$  | Drain-Source On-Resistance      | $V_{GS}=10\text{V}; I_D=3.5\text{A}$  |     |      | 1.8       | $\Omega$      |
| $I_{GSS}$     | Gate-Body Leakage Current       | $V_{GS}= \pm 30\text{V}; V_{DS}=0$  |     |      | $\pm 100$ | nA            |
| $I_{DSS}$     | Zero Gate Voltage Drain Current | $V_{DS}=900\text{V}; V_{GS}=0$  |     |      | 10        | $\mu\text{A}$ |
| $t_r$         | Rise Time                       | $V_{GS}=10\text{V};$<br>$I_D=7\text{A};$<br>$V_{DD}=450\text{V};$<br>$R_L=25\Omega$ |     |      | 170       | ns            |
| $t_{d(on)}$   | Turn-on Delay Time              |   |     |      | 80        |               |
| $t_f$         | Fall Time                       |   |     |      | 120       |               |
| $t_{d(off)}$  | Turn-off Delay Time             |   |     |      | 200       |               |