

# Isc N-Channel MOSFET Transistor

## IPA60R280P7

### FEATURES

- With TO-220F package
- Low input capacitance and gate charge
- Low gate input resistance
- Reduced switching and conduction losses
- 100% avalanche tested
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

### APPLICATIONS

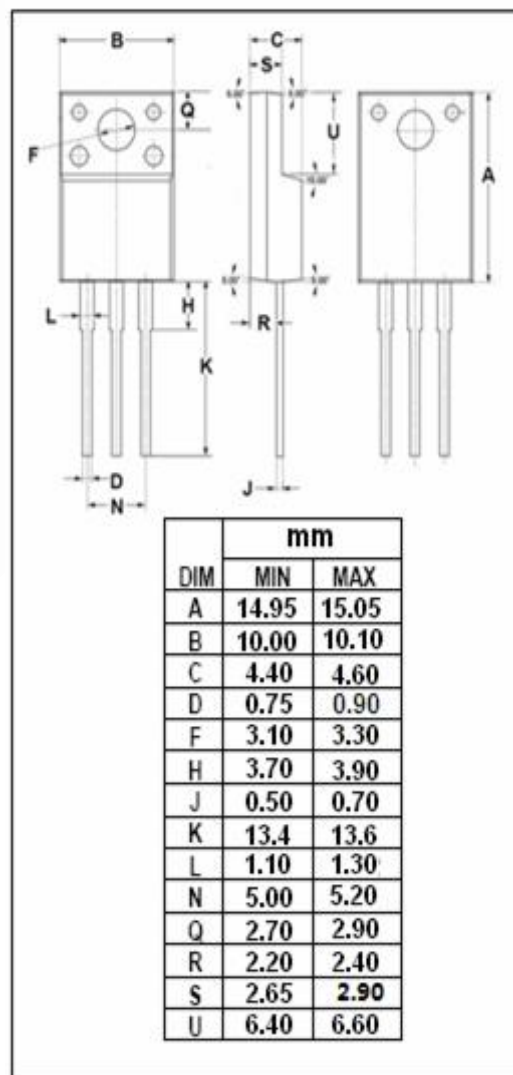
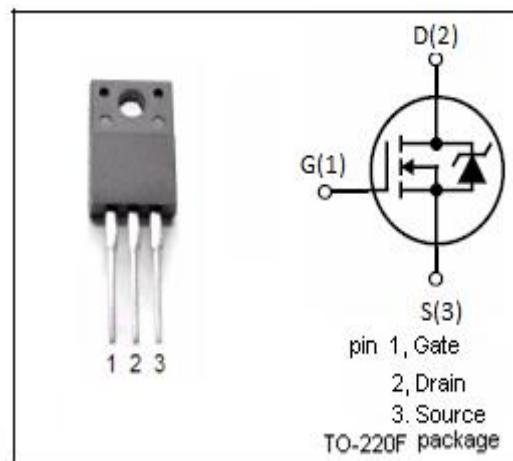
- Switching applications

### ABSOLUTE MAXIMUM RATINGS(T<sub>a</sub>=25°C)

| SYMBOL           | PARAMETER                                                                                        | VALUE   | UNIT |
|------------------|--------------------------------------------------------------------------------------------------|---------|------|
| V <sub>DSS</sub> | Drain-Source Voltage                                                                             | 600     | V    |
| V <sub>GSS</sub> | Gate-Source Voltage                                                                              | ±30     | V    |
| I <sub>D</sub>   | Drain Current-Continuous @T <sub>c</sub> =25°C<br>(V <sub>GS</sub> at 10V) T <sub>c</sub> =100°C | 12<br>8 | A    |
| I <sub>DM</sub>  | Drain Current-Single Pulsed                                                                      | 36      | A    |
| P <sub>D</sub>   | Total Dissipation @T <sub>c</sub> =25°C                                                          | 24      | W    |
| T <sub>j</sub>   | Max. Operating Junction Temperature                                                              | 150     | °C   |
| T <sub>stg</sub> | Storage Temperature                                                                              | -55~150 | °C   |

### THERMAL CHARACTERISTICS

| SYMBOL                | PARAMETER                             | MAX  | UNIT |
|-----------------------|---------------------------------------|------|------|
| R <sub>th(ch-c)</sub> | Channel-to-case thermal resistance    | 5.27 | °C/W |
| R <sub>th(ch-a)</sub> | Channel-to-ambient thermal resistance | 62   | °C/W |



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## ELECTRICAL CHARACTERISTICS

$T_C=25^{\circ}\text{C}$  unless otherwise specified

| SYMBOL       | PARAMETER                      | CONDITIONS                                                                                                | MIN | TYP | MAX      | UNIT      |
|--------------|--------------------------------|-----------------------------------------------------------------------------------------------------------|-----|-----|----------|-----------|
| $BV_{DSS}$   | Drain-Source Breakdown Voltage | $V_{GS}=0V; I_D=1mA$                                                                                      | 600 |     |          | V         |
| $V_{GS(th)}$ | Gate Threshold Voltage         | $V_{DS}=V_{GS}; I_D=0.19mA$                                                                               | 3.0 |     | 4.0      | V         |
| $R_{DS(on)}$ | Drain-Source On-Resistance     | $V_{GS}=10V; I_D=3.8A$                                                                                    |     | 214 | 280      | $m\Omega$ |
| $I_{GSS}$    | Gate-Source Leakage Current    | $V_{GS}= \pm 20V; V_{DS}= 0V$                                                                             |     |     | $\pm 1$  | $\mu A$   |
| $I_{DSS}$    | Drain-Source Leakage Current   | $V_{DS}= 600V; V_{GS}= 0V; T_J=25^{\circ}\text{C}$<br>$V_{DS}= 600V; V_{GS}= 0V; T_J=150^{\circ}\text{C}$ |     |     | 1<br>250 | $\mu A$   |
| $V_{SDF}$    | Diode forward voltage          | $I_{SD}=3.8A, V_{GS}= 0V$                                                                                 |     | 0.9 |          | V         |