

# Isc N-Channel MOSFET Transistor

## STP10NK60ZFP

### • 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

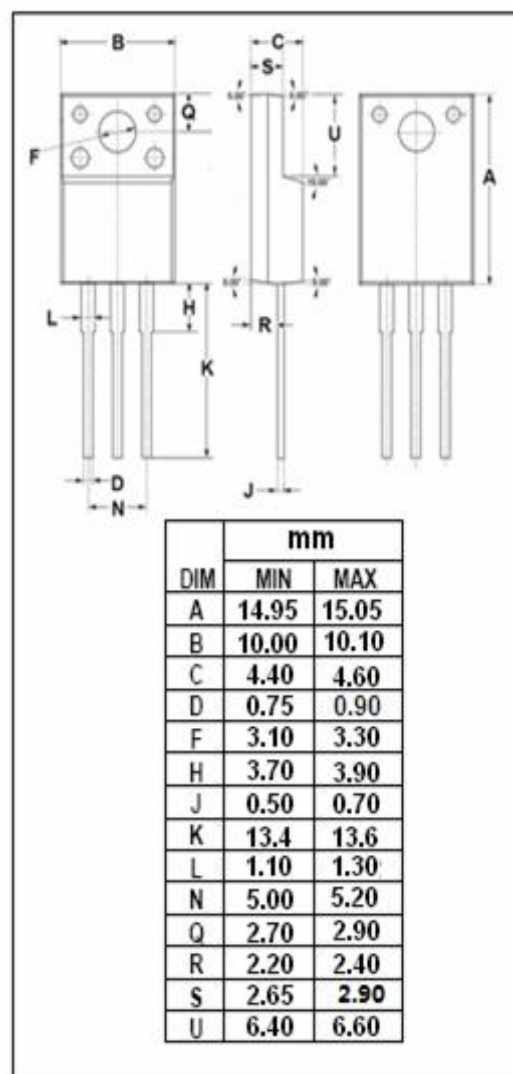
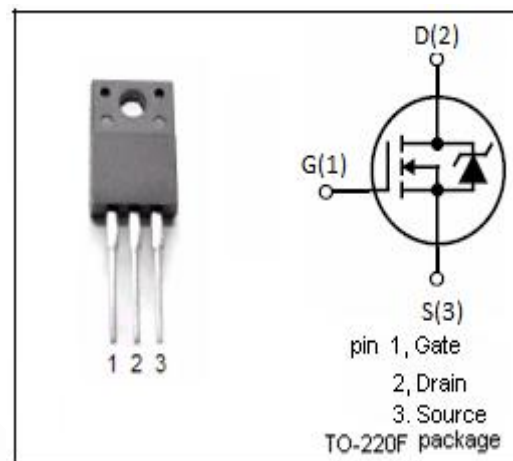
- Switching applications

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

| SYMBOL    | PARAMETER                                                                                           | VALUE     | UNIT               |
|-----------|-----------------------------------------------------------------------------------------------------|-----------|--------------------|
| $V_{DS}$  | Drain-Source Voltage                                                                                | 600       | V                  |
| $V_{GS}$  | Gate-Source Voltage                                                                                 | $\pm 30$  | V                  |
| $I_D$     | Drain Current-Continuous @ $T_c=25^{\circ}\text{C}$<br>( $V_{GS}$ at 10V) $T_c=100^{\circ}\text{C}$ | 10<br>5.7 | A                  |
| $I_{DM}$  | Drain Current-Single Pulsed                                                                         | 36        | A                  |
| $P_D$     | Total Dissipation @ $T_c=25^{\circ}\text{C}$                                                        | 35        | W                  |
| $T_j$     | Max. Operating Junction Temperature                                                                 | 150       | $^{\circ}\text{C}$ |
| $T_{stg}$ | Storage Temperature                                                                                 | -55~150   | $^{\circ}\text{C}$ |

### • THERMAL CHARACTERISTICS

| SYMBOL         | PARAMETER                             | MAX  | UNIT                 |
|----------------|---------------------------------------|------|----------------------|
| $R_{th(ch-c)}$ | Channel-to-case thermal resistance    | 3.6  | $^{\circ}\text{C/W}$ |
| $R_{th(ch-a)}$ | Channel-to-ambient thermal resistance | 62.5 | $^{\circ}\text{C/W}$ |



# Isc N-Channel MOSFET Transistor

# STP10NK60ZFP

## ELECTRICAL CHARACTERISTICS

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

| SYMBOL       | PARAMETER                      | CONDITIONS                                                                                                | MIN | TYP | MAX      | UNIT      |
|--------------|--------------------------------|-----------------------------------------------------------------------------------------------------------|-----|-----|----------|-----------|
| $BV_{DS}$    | Drain-Source Breakdown Voltage | $V_{GS}=0V; I_D=0.25mA$                                                                                   | 600 |     |          | V         |
| $V_{GS(th)}$ | Gate Threshold Voltage         | $V_{DS}=V_{GS}; I_D=0.25mA$                                                                               | 3.0 |     | 4.5      | V         |
| $R_{DS(on)}$ | Drain-Source On-Resistance     | $V_{GS}=10V; I_D=20A$                                                                                     |     | 650 | 750      | $m\Omega$ |
| $I_{GSS}$    | Gate-Source Leakage Current    | $V_{GS}= \pm 15V; V_{DS}= 0V$                                                                             |     |     | $\pm 10$ | $\mu A$   |
| $I_{DSS}$    | Drain-Source Leakage Current   | $V_{DS}= 600V; V_{GS}= 0V; T_j=25^{\circ}\text{C}$<br>$V_{DS}= 600V; V_{GS}= 0V; T_j=125^{\circ}\text{C}$ |     |     | 1<br>50  | $\mu A$   |
| $V_{SDF}$    | Diode forward voltage          | $I_{SD}=20A, V_{GS}= 0V$                                                                                  |     |     | 1.5      | V         |