

# isc N-Channel MOSFET Transistor

## STP20NK50Z

### FEATURES

- Drain Current  $-I_D = 17A @ T_C = 25^\circ C$
- Drain Source Voltage-  
:  $V_{DS} = 500V (Min)$
- Static Drain-Source On-Resistance  
:  $R_{DS(on)} = 0.27 \Omega (Max)$
- 100% avalanche tested
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

### DESCRIPTION

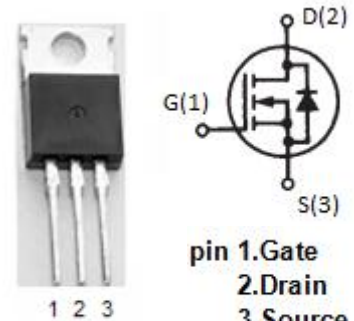
- High current ,high speed switching

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

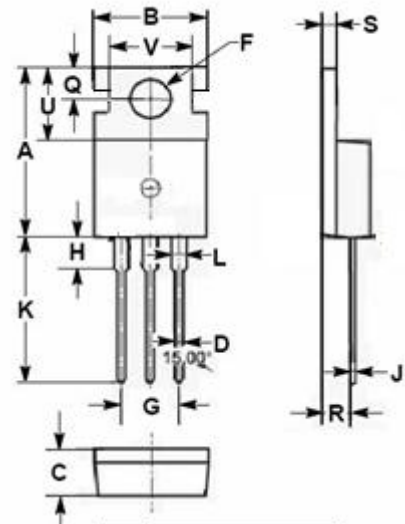
| SYMBOL    | PARAMETER                              | VALUE    | UNIT       |
|-----------|----------------------------------------|----------|------------|
| $V_{DS}$  | Drain-Source Voltage                   | 500      | V          |
| $V_{GS}$  | Gate-Source Voltage-Continuous         | $\pm 30$ | V          |
| $I_D$     | Drain Current-Continuous               | 17       | A          |
| $I_{DM}$  | Drain Current-Single Pluse             | 68       | A          |
| $P_D$     | Total Dissipation @ $T_C = 25^\circ C$ | 190      | 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 | 0.66 | $^\circ C/W$ |



pin 1.Gate  
2.Drain  
3.Source  
TO-220 package



| DIM | mm    |       |
|-----|-------|-------|
|     | MIN   | MAX   |
| A   | 15.50 | 15.90 |
| B   | 9.80  | 10.20 |
| C   | 4.20  | 4.50  |
| D   | 0.70  | 0.90  |
| F   | 3.40  | 3.70  |
| G   | 4.98  | 5.18  |
| H   | 2.68  | 2.90  |
| J   | 0.44  | 0.60  |
| K   | 12.80 | 13.40 |
| L   | 1.20  | 1.45  |
| Q   | 2.70  | 2.90  |
| R   | 2.30  | 2.70  |
| S   | 1.29  | 1.35  |
| U   | 6.45  | 6.65  |
| V   | 8.66  | 8.86  |

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## ELECTRICAL CHARACTERISTICS

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

| SYMBOL        | PARAMETER                       | CONDITIONS                               | MIN | MAX      | UNIT          |
|---------------|---------------------------------|------------------------------------------|-----|----------|---------------|
| $V_{(BR)DSS}$ | Drain-Source Breakdown Voltage  | $V_{GS}=0$ ; $I_D=1.0\text{mA}$          | 500 | --       | V             |
| $V_{GS(th)}$  | Gate Threshold Voltage          | $V_{DS}=10\text{V}$ ; $I_D=0.1\text{mA}$ | 3.0 | 4.5      | V             |
| $R_{DS(on)}$  | Drain-Source On-Resistance      | $V_{GS}=10\text{V}$ ; $I_D=8.5\text{A}$  | --  | 0.27     | $\Omega$      |
| $I_{GSS}$     | Gate-Body Leakage Current       | $V_{GS}=\pm 20\text{V}$ ; $V_{DS}=0$     | --  | $\pm 10$ | $\mu\text{A}$ |
| $I_{DSS}$     | Zero Gate Voltage Drain Current | $V_{DS}=500\text{V}$ ; $V_{GS}=0$        | --  | 1.0      | $\mu\text{A}$ |
| $V_{SD}$      | Forward On-Voltage              | $I_S=17\text{A}$ ; $V_{GS}=0$            | --  | 1.6      | V             |

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