

## iscN-Channel MOSFET Transistor

## TK13A65D, ITK13A65D

## • FEATURES

- Low drain-source on-resistance:  
 $R_{DS(on)} = 0.4\Omega$  (typ.)
- Enhancement mode:  
 $V_{th} = 2.0$  to  $4.0V$  ( $V_{DS} = 10V$ ,  $I_D = 1.0mA$ )
- 100% avalanche tested
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

## • DESCRIPTION

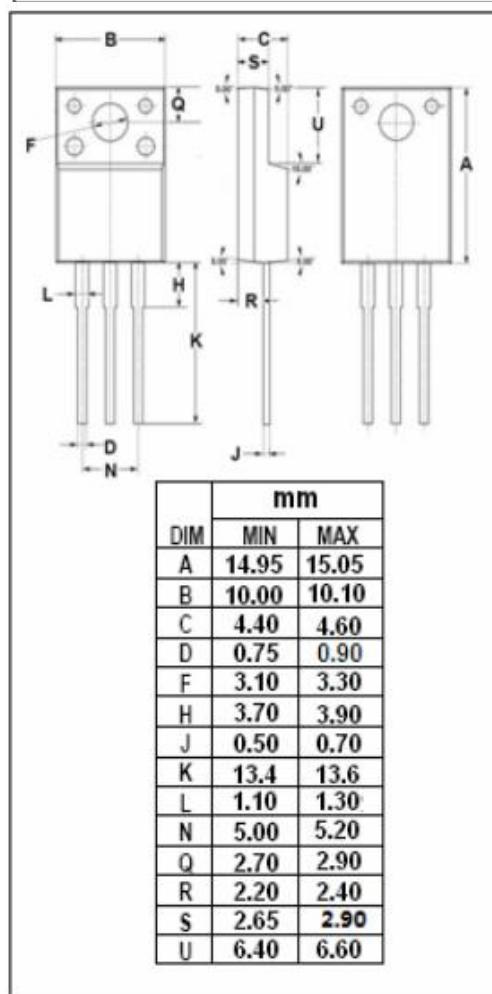
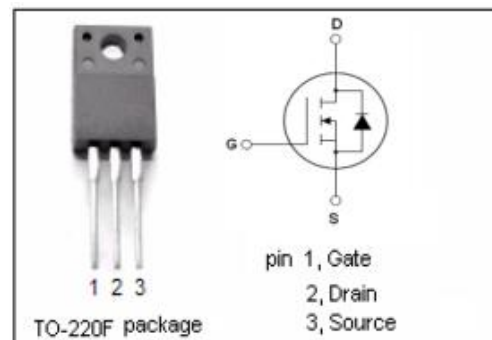
- Switching Voltage Regulators

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

| SYMBOL    | PARAMETER                              | VALUE    | UNIT       |
|-----------|----------------------------------------|----------|------------|
| $V_{DS}$  | Drain-Source Voltage                   | 650      | V          |
| $V_{GS}$  | Gate-Source Voltage                    | $\pm 30$ | V          |
| $I_D$     | Drain Current-Continuous               | 13       | A          |
| $I_{DM}$  | Drain Current-Single Pulsed            | 52       | A          |
| $P_D$     | Total Dissipation @ $T_c = 25^\circ C$ | 50       | W          |
| $T_j$     | Max. Operating Junction Temperature    | 150      | $^\circ C$ |
| $T_{stg}$ | Storage Temperature                    | -55~150  | $^\circ C$ |

## • THERMAL CHARACTERISTICS

| SYMBOL         | PARAMETER                             | MAX  | UNIT         |
|----------------|---------------------------------------|------|--------------|
| $R_{th(ch-c)}$ | Channel-to-case thermal resistance    | 2.5  | $^\circ C/W$ |
| $R_{th(ch-a)}$ | Channel-to-ambient thermal resistance | 62.5 | $^\circ C/W$ |



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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 | $V_{GS}=0V; I_D=10mA$       | 650 |     |         | V         |
| $V_{GS(th)}$ | Gate Threshold Voltage         | $V_{DS}=10V; I_D=1.0mA$     | 2.0 |     | 4.0     | V         |
| $R_{DS(on)}$ | Drain-Source On-Resistance     | $V_{GS}=10V; I_D=6.5A$      |     | 400 | 470     | $m\Omega$ |
| $I_{GSS}$    | Gate-Source Leakage Current    | $V_{GS}=\pm 30V; V_{DS}=0V$ |     |     | $\pm 1$ | $\mu A$   |
| $I_{DSS}$    | Drain-Source Leakage Current   | $V_{DS}=650V; V_{GS}=0V$    |     |     | 10      | $\mu A$   |
| $V_{SDF}$    | Diode forward voltage          | $I_{DR}=13A, V_{GS}=0V$     |     |     | 1.7     | V         |

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