

## iscN-Channel MOSFET Transistor

TK3R1P04PL

## • FEATURES

- Low drain-source on-resistance:  
 $R_{DS(ON)} = 3.1\text{m}\Omega$  (MAX) ( $V_{GS} = 10\text{ V}$ )
- Enhancement mode:  
 $V_{th} = 1.4\text{ to }2.4\text{ V}$  ( $V_{DS} = 10\text{ V}$ ,  $I_D = 0.5\text{ mA}$ )
- 100% avalanche tested
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

## • DESCRIPTION

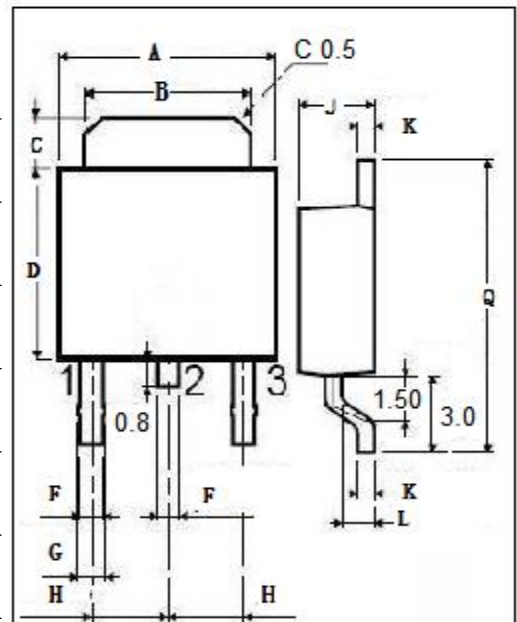
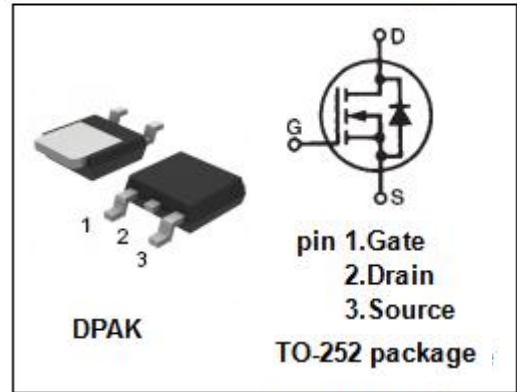
- Switching Voltage Regulators

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

| SYMBOL    | PARAMETER                                    | VALUE    | UNIT             |
|-----------|----------------------------------------------|----------|------------------|
| $V_{DS}$  | Drain-Source Voltage                         | 40       | V                |
| $V_{GS}$  | Gate-Source Voltage                          | $\pm 20$ | V                |
| $I_D$     | Drain Current-Continuous                     | 58       | A                |
| $I_{DM}$  | Drain Current-Single Pulsed                  | 400      | A                |
| $P_D$     | Total Dissipation @ $T_c = 25^\circ\text{C}$ | 87       | W                |
| $T_j$     | Max. Operating Junction Temperature          | 175      | $^\circ\text{C}$ |
| $T_{stg}$ | Storage Temperature                          | -55~175  | $^\circ\text{C}$ |

## • THERMAL CHARACTERISTICS

| SYMBOL         | PARAMETER                          | MAX  | UNIT               |
|----------------|------------------------------------|------|--------------------|
| $R_{th(ch-c)}$ | Channel-to-case thermal resistance | 1.72 | $^\circ\text{C/W}$ |



| DIM | mm   |      |
|-----|------|------|
|     | MIN  | MAX  |
| A   | 6.40 | 6.60 |
| B   | 5.20 | 5.40 |
| C   | 1.15 | 1.35 |
| D   | 5.70 | 6.10 |
| E   | 0.65 |      |
| F   | 0.75 |      |
| G   | 2.10 | 2.50 |
| H   | 2.10 | 2.40 |
| I   | 0.40 | 0.60 |
| J   | 0.90 | 1.10 |
| K   | 9.90 | 10.1 |

**iscN-Channel MOSFET Transistor****TK3R1P04PL****ELECTRICAL CHARACTERISTICS****T<sub>c</sub>=25°C unless otherwise specified**

| SYMBOL              | PARAMETER                      | CONDITIONS                                   | MIN | TYP | MAX  | UNIT |
|---------------------|--------------------------------|----------------------------------------------|-----|-----|------|------|
| BV <sub>DSS</sub>   | Drain-Source Breakdown Voltage | V <sub>GS</sub> =0V; I <sub>D</sub> = 10mA   | 40  |     |      | V    |
| V <sub>GS(th)</sub> | Gate Threshold Voltage         | V <sub>DS</sub> = 10V; I <sub>D</sub> =0.5mA | 1.4 |     | 2.4  | V    |
| R <sub>DS(on)</sub> | Drain-Source On-Resistance     | V <sub>GS</sub> = 10V; I <sub>D</sub> =29A   |     |     | 3.1  | mΩ   |
| I <sub>GSS</sub>    | Gate-Source Leakage Current    | V <sub>GS</sub> = ±20V; V <sub>DS</sub> = 0V |     |     | ±0.1 | μA   |
| I <sub>DSS</sub>    | Drain-Source Leakage Current   | V <sub>DS</sub> = 40V; V <sub>GS</sub> = 0V  |     |     | 10   | μA   |
| V <sub>SDF</sub>    | Diode forward voltage          | I <sub>DR</sub> =58A, V <sub>GS</sub> = 0 V  |     |     | 1.5  | V    |

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