

**isc Silicon NPN Power Transistor**
**3DK104C**
**DESCRIPTION**

- With TO-3 packaging
- Large collector current
- Low collector saturation voltage
- High power dissipation
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

**APPLICATIONS**

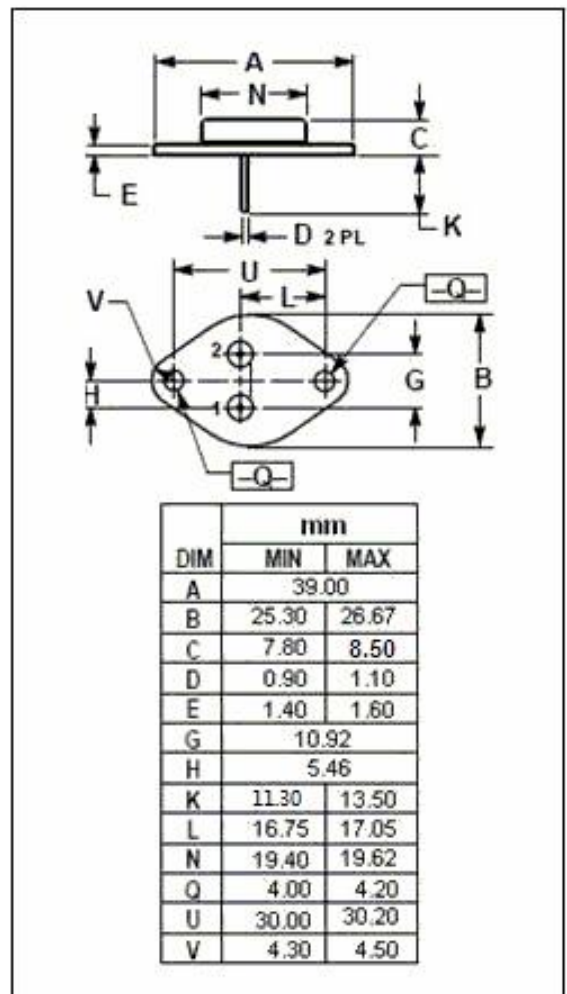
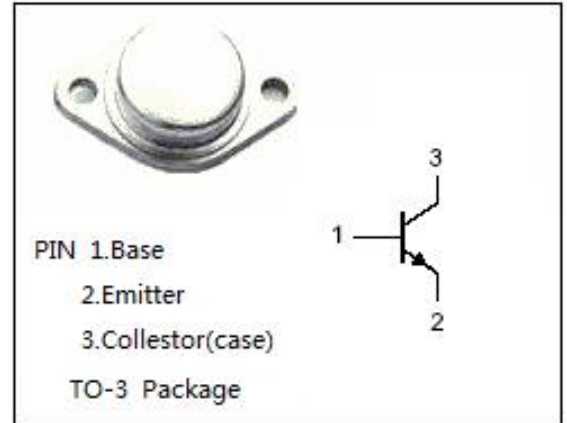
- Designed for use in DC-DC converter
- Driver of solenoid or motor

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

| SYMBOL           | PARAMETER                                    | VALUE   | UNIT |
|------------------|--|---------|------|
| V <sub>CBO</sub> | Collector-Base Voltage                       | 100     | V    |
| V <sub>CEO</sub> | Collector-Emitter Voltage                    | 80      | V    |
| V <sub>EBO</sub> | Emitter-Base Voltage                         | 4       | V    |
| I <sub>C</sub>   | Collector Current-Continuous                 | 3       | A    |
| I <sub>B</sub>   | Base Current-Continuous                      | 0.5     | A    |
| P <sub>D</sub>   | Total Power Dissipation@T <sub>C</sub> =75°C | 10      | W    |
| T <sub>J</sub>   | Max.Junction Temperature                     | 175     | °C   |
| T <sub>stg</sub> | Storage Temperature                          | -55~175 | °C   |

**THERMAL CHARACTERISTICS**

| SYMBOL              | PARAMETER                           | MAX | UNIT |
|---------------------|-------------------------------------|-----|------|
| R <sub>th j-c</sub> | Thermal Resistance,Junction to Case | 10  | °C/W |



**isc Silicon NPN Power Transistor****3DK104C****ELECTRICAL CHARACTERISTICS** $T_C=25^{\circ}\text{C}$  unless otherwise specified

| SYMBOL        | PARAMETER                            | CONDITIONS                            | MIN | MAX  | UNIT |
|---------------|--------------------------------------|---------------------------------------|-----|------|------|
| $BV_{CBO}$    | Collector-Base Sustaining Voltage    | $I_C=2\text{mA}; I_E=0$               | 100 |      | V    |
| $BV_{CEO}$    | Collector-Emitter Sustaining Voltage | $I_C=2\text{mA}; I_B=0$               | 80  |      | V    |
| $BV_{EBO}$    | Emitter-Base Sustaining Voltage      | $I_E=4\text{mA}; I_C=0$               | 4   |      | V    |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | $I_C=0.75\text{A}; I_B=0.075\text{A}$ |     | 0.25 | V    |
| $V_{BE(sat)}$ | Base-Emitter Saturation Voltage      | $I_C=0.75\text{A}; I_B=0.075\text{A}$ |     | 1.0  | V    |
| $I_{CEO}$     | Collector Cutoff Current             | $V_{CE}=20\text{V}; I_B=0$            |     | 0.5  | mA   |
| $h_{FE}$      | DC Current Gain                      | $I_C=0.75\text{A}; V_{CE}=3\text{V}$  | 20  |      |      |

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