

isc Silicon NPN Power Transistor

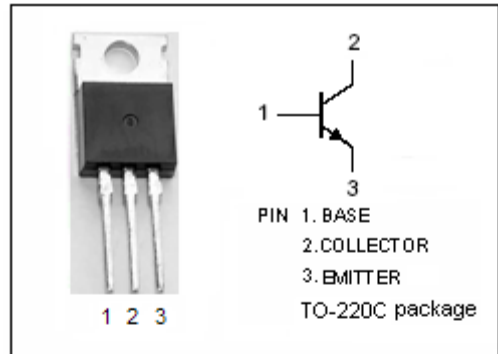
BUL216

DESCRIPTION

- Collector–Emitter Sustaining Voltage
: $V_{CEO(SUS)} = 800V(\text{Min.})$
- High Switching Speed

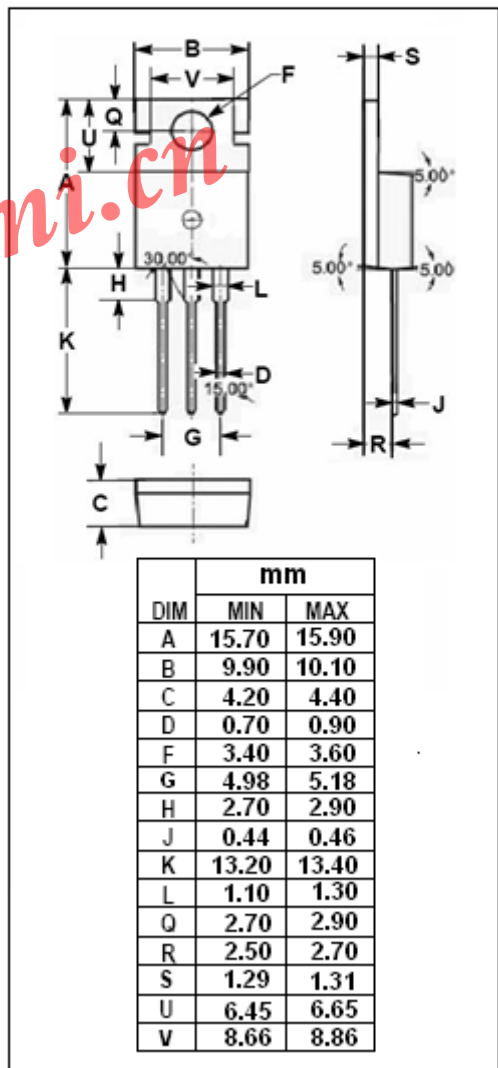
APPLICATIONS

- Designed for use in lighting applications and low cost switch-mode power supplies.



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

| SYMBOL | PARAMETER | VALUE | UNIT |
|-----------|---|---------|------------------|
| V_{CES} | Collector-Emitter Voltage | 1600 | V |
| V_{CEO} | Collector-Emitter Voltage | 800 | V |
| V_{EBO} | Emitter-Base Voltage | 9 | V |
| I_C | Collector Current-Continuous | 4 | A |
| I_{CM} | Collector Current-peak $t_p < 5\text{ms}$ | 6 | A |
| I_B | Base Current-Continuous | 2 | A |
| I_{BM} | Base Current-peak $t_p < 5\text{ms}$ | 4 | A |
| P_C | Collector Power Dissipation $T_C=25^\circ\text{C}$ | 90 | W |
| T_j | Junction Temperature | 150 | $^\circ\text{C}$ |
| T_{stg} | Storage Temperature Range | -65~150 | $^\circ\text{C}$ |



THERMAL CHARACTERISTICS

| SYMBOL | PARAMETER | MAX | UNIT |
|---------------|---|------|--------------------|
| $R_{th\ j-c}$ | Thermal Resistance, Junction to Case | 1.39 | $^\circ\text{C/W}$ |
| $R_{th\ j-a}$ | Thermal Resistance, Junction to Ambient | 62.5 | $^\circ\text{C/W}$ |

isc Silicon NPN Power Transistor

BUL216

ELECTRICAL CHARACTERISTICS

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

| SYMBOL | PARAMETER | CONDITIONS | MIN | TYP. | MAX | UNIT |
|---------------------------------|--------------------------------------|---|-----|------|------------|---------------|
| $V_{CEO(SUS)}$ | Collector-Emitter Sustaining Voltage | $I_C = 100\text{mA}$; $L = 25\text{mH}$ | 800 | | | V |
| $V_{(BR)EBO}$ | Emitter-Base Breakdown Voltage | $I_E = 10\text{mA}$; $I_C = 0$ | 9 | | | V |
| $V_{CE(sat)-1}$ | Collector-Emitter Saturation Voltage | $I_C = 1\text{A}$; $I_B = 0.2\text{A}$ | | | 1.0 | V |
| $V_{CE(sat)-2}$ | Collector-Emitter Saturation Voltage | $I_C = 2\text{A}$; $I_B = 0.66\text{A}$ | | | 3.0 | V |
| $V_{BE(sat)-1}$ | Base-Emitter Saturation Voltage | $I_C = 1\text{A}$; $I_B = 0.2\text{A}$ | | | 1.2 | V |
| $V_{BE(sat)-2}$ | Base-Emitter Saturation Voltage | $I_C = 2\text{A}$; $I_B = 0.66\text{A}$ | | | 1.2 | V |
| I_{CES} | Collector Cutoff Current | $V_{CE} = 1600\text{V}$; $V_{BE} = 0$ $V_{CE} = 1600\text{V}$; $V_{BE} = 0$, $T_C = 125^\circ\text{C}$ | | | 0.1 0.5 | mA |
| I_{CEO} | Collector Cutoff Current | $V_{CE} = 800\text{V}$; $I_B = 0$ | | | 0.25 | mA |
| h_{FE-1} | DC Current Gain | $I_C = 0.4\text{A}$; $V_{CE} = 5\text{V}$ | 12 | | 40 | |
| h_{FE-2} | DC Current Gain | $I_C = 10\text{mA}$; $V_{CE} = 5\text{V}$ | 10 | | | |
| Switching Times, Inductive Load | | | | | | |
| t_s | Storage Time | $I_C = 1.5\text{A}$; $V_{CL} = 250\text{V}$; $L = 200\ \mu\text{H}$; $I_{B1} = 0.5\text{A}$; $V_{BE(off)} = -5\text{V}$; $R_{BB} = 0\ \Omega$ | | | 3.3 | μs |
| t_f | Fall Time | | | | 0.72 | μs |