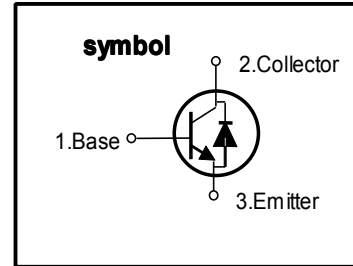


High Voltage Fast -Switching NPN Power Transistor

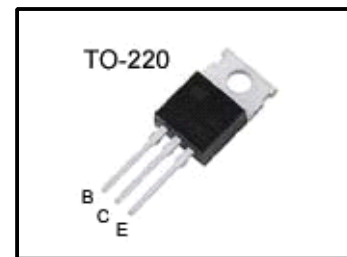
Features

- Very High Switching Speed
- High Voltage Capability
- Wide Reverse Bias SOA
- Built-in free wheeling diode



General Description

This Device is designed for high Voltage ,High speed switching Characteristics required such as lighting system,switching mode power supply.



Absolute Maximum Ratings

| Symbol | Parameter | Test conditions | Value | Units |
|------------------|---|---------------------|---------|-------|
| V _{CES} | Collector-Emitter Voltage | V _{BE} =0 | 700 | V |
| V _{CEO} | Collector-Emitter Voltage | I _B =0 | 400 | V |
| V _{EBO} | Emitter-Base Voltage | I _C =0 | 9.0 | V |
| I _C | Collector Current | | 1.5 | A |
| I _{CP} | Collector pulse Current | | 3.0 | A |
| I _B | Base Current | | 0.75 | A |
| I _{BM} | Base peak Current | t _p =5ms | 1.5 | A |
| P _C | Total Dissipation at T _c *=25℃ | | 40 | W |
| | Total Dissipation at T _a *=25℃ | | 1.2 | |
| T _J | Operation Junction Temperature | | -40~150 | ℃ |
| T _{STG} | Storage Temperature | | -40~150 | ℃ |

T_c :Case temperature (good cooling)

T_a :Ambient temperature (without heat sink)

Thermal characteristics

| Symbol | Parameter | Value | Units |
|------------------|--|-------|-------|
| R _{θJC} | Thermal Resistance Junction to Case | 3.12 | ℃/W |
| R _{θJA} | Thermal Resistance Junction to Ambient | 8.9 | ℃/W |

Electrical Characteristics(Tc=25°C unless otherwise noted)

| Symbol | Parameter | Test Conditions | Value | | | Units |
|-----------------------|---------------------------------------|--|-------|-----|-----|-------|
| | | | Min | Typ | Max | |
| I _{EBO} | Emitter Cut-off Current | V _{BE} =9V | - | - | 20 | μA |
| V _{CEO(SUS)} | Collector-Emitter Sustaining Voltage | I _B =0, I _C =10mA | 400 | - | - | V |
| V _{CE(sat)} | Collector -Emitter Saturation Voltage | I _C =1.0A, I _B =0.2A | - | - | 0.5 | V |
| | | I _C =2.0A, I _B =0.5A | - | - | 0.6 | |
| | | I _C =4.0A, I _B =1.0A | - | - | 1.0 | |
| V _{BE(sat)} | Base -Emitter Saturation Voltage | I _C =1.0A, I _B =0.2A | - | - | 1.2 | V |
| | | I _C =2.0A, I _B =0.5A | - | - | 1.6 | |
| hFE | DC Current Gain | I _C =500A, V _{CE} =5V | 10 | - | 40 | |
| | | I _C =1mA, V _{CE} =5V | 9 | - | - | |
| ts | Storage Time | I _C =0.5A, V _{CC} =5V | - | - | 4 | μs |
| tf | Fall Time | (UI9600A) | - | - | 0.8 | |
| f _T | Current Gain Bandwidth Product | I _C =0.5A, V _{CE} =10V | 4 | - | - | MHz |
| V _F | Diode Forward Voltage | I _F =2A | - | - | 2 | V |
| C _{OB} | Output Capacitance | I _C =0.5A, V _{CB} =10V | - | 21 | - | pF |

Note:

Pulse Test :Pulse width 300, Duty cycle 2%

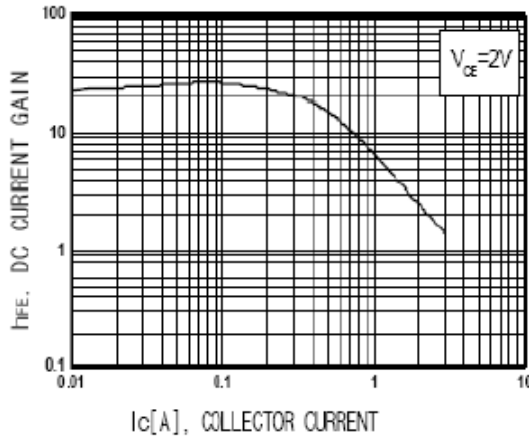


Fig.1 DC Current Gain

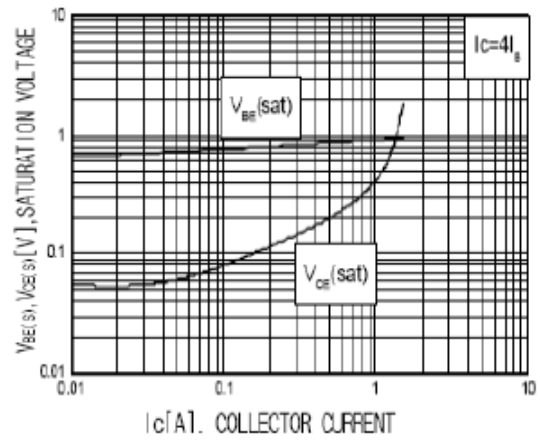


Fig.2 Saturation Voltage

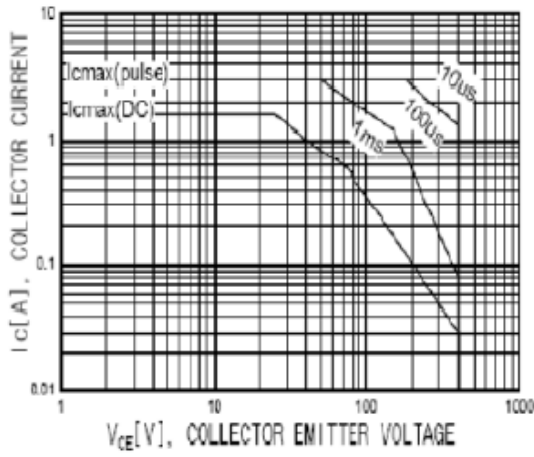


Fig.3 Safe Operation

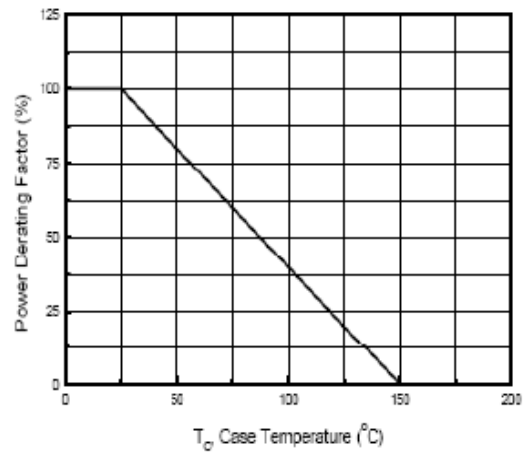
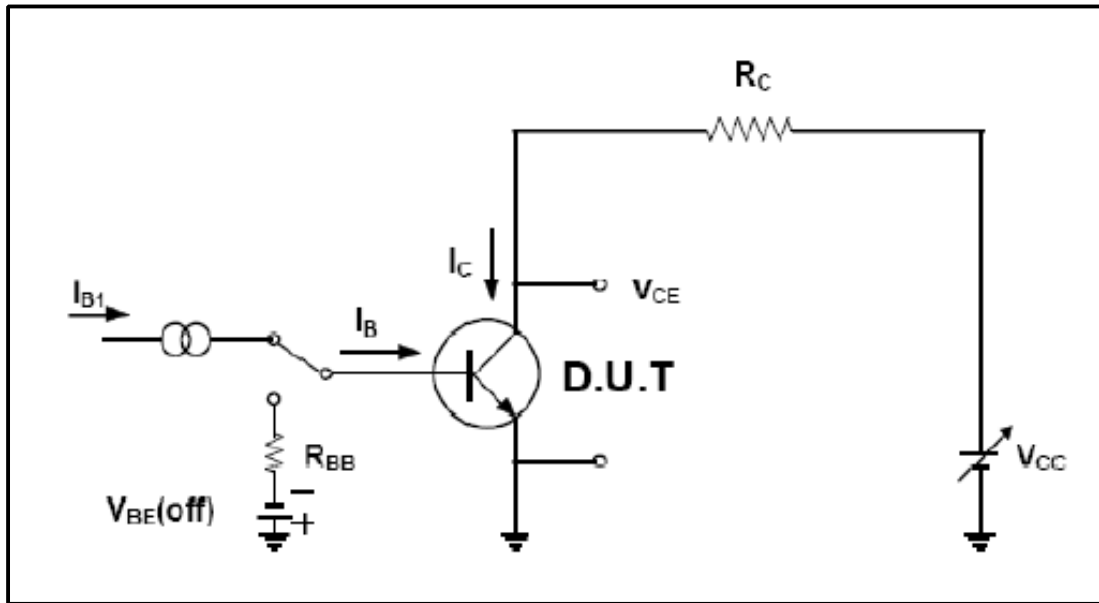
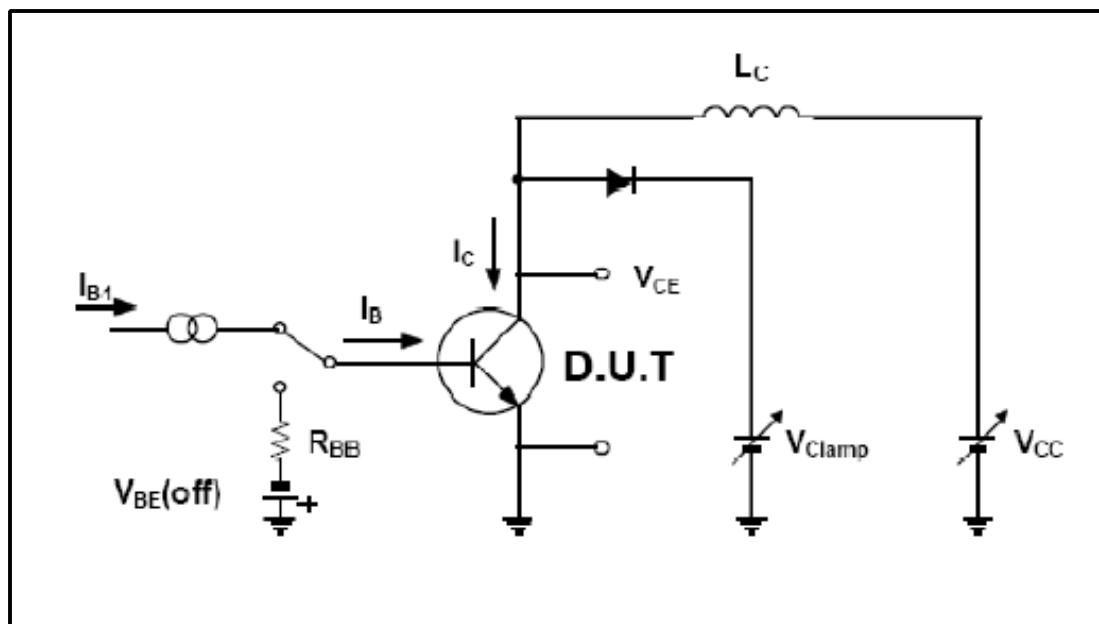


Fig.4 Power Derating



Resistive Load Switching Test Circuit



Inductive Load Switching & RBSOA Test Circuit

TO-220 Package Dimension

