# MOSPEC

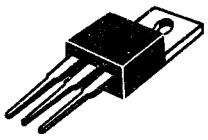
## FAST NPN SWITCHING TRANSISTOR

high speed transistors suited for low voltage application:
* High Frequency and Efficiency Converters
* Switching Regulators
* Motor Control

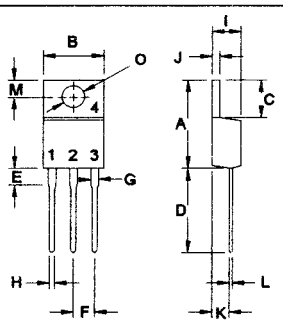
FEATURES
* Low Saturation Voltage
* Fast Turn-on and Turn-off

**NPN**
**BUV28**

10 AMPERE
POWER TRANSISTOR
NPN SILICON
200 VOLTS
70 WATTS



**TO-220**




PIN 1.BASE
2.COLLECTOR
3.EMITTER
4.COLLECTOR(CASE)

| DIM | MILLIMETERS | |
|---|---|---|
| | MIN | MAX |
| A | 14.68 | 15.31 |
| B | 9.78 | 10.42 |
| C | 5.01 | 6.52 |
| D | 13.06 | 14.62 |
| E | 3.57 | 4.07 |
| F | 2.42 | 3.66 |
| G | 1.12 | 1.36 |
| H | 0.72 | 0.96 |
| I | 4.22 | 4.98 |
| J | 1.14 | 1.38 |
| K | 2.20 | 2.97 |
| L | 0.33 | 0.55 |
| M | 2.48 | 2.98 |
| O | 3.70 | 3.90 |

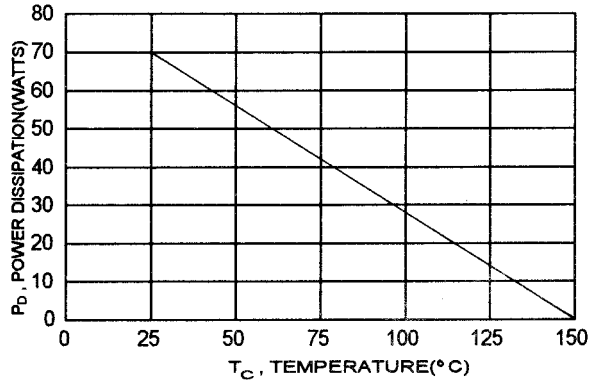
## MAXIMUM RATINGS

| Characteristic | Symbol | Rating | Unit |
|---|---|---|---|
| Collector-Emitter Voltage | $V_{CEO}$ | 200 | V |
| Collector-Base Voltage | $V_{CBO}$ | 400 | V |
| Emitter-Base Voltage | $V_{EBO}$ | 7.0 | V |
| Collector Current - Continuous | $I_C$ | 10 | A |
| Base Current-Continuous | $I_B$ | 2.0 | A |
| Total Power Dissipation @$T_C$ = 25°C<br>Derate above 25 °C | $P_D$ | 70<br>0.56 | W<br>W/°C |
| Operating and Storage Junction Temperature Range | $T_J$, $T_{STG}$ | -65 to +150 | °C |

## THERMAL CHARACTERISTICS

| Characteristic | Symbol | Max | Unit |
|---|---|---|---|
| Thermal Resistance Junction to Case | $R_{\theta jc}$ | 1.785 | °C/W |

FIGURE -1 POWER DERATING

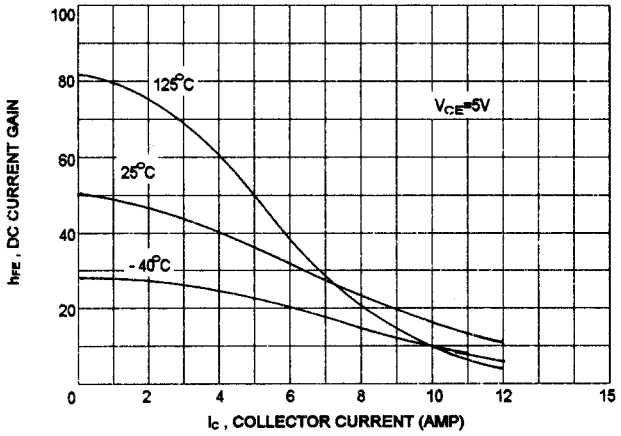


## ELECTRICAL CHARACTERISTICS ( $T_C$ = 25°C unless otherwise noted )

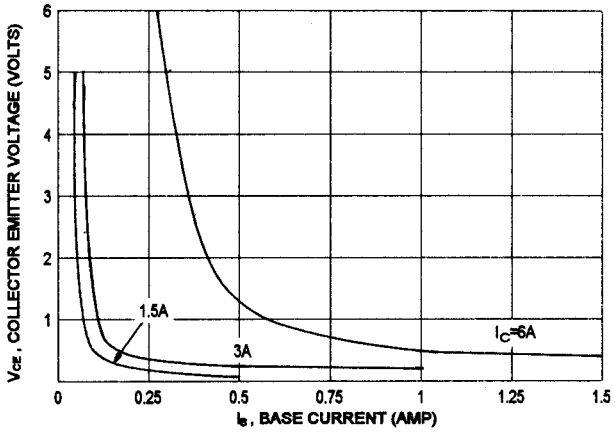
| Characteristic | Symbol | Min | Max | Unit |
|---|---|---|---|---|
| **OFF CHARACTERISTICS** | | | | |
| Collector-Emitter Breakdown Voltage ( $I_C$= 30 mA , $I_B$=0 ) | $V_{(BR)CEO}$ | 200 | | V |
| Collector Cutoff Current ($V_{CB}$= 300 V , $I_E$= 0 ) | $I_{CBO}$ | | 1.0 | mA |
| Emitter Cutoff Current ($V_{EB}$= 5.0 V, $I_C$= 0 ) | $I_{EBO}$ | | 1.0 | mA |
| **ON CHARACTERISTICS** (1) | | | | |
| Collector-Emitter Saturation Voltage ( $I_C$= 3.0 A, $I_B$= 300 mA ) ( $I_C$= 6.0 A, $I_B$= 600 mA ) | $V_{CE(sat)}$ | | 0.7<br>1.5 | V |
| Base-Emitter Saturation Voltage ( $I_C$= 6.0 A, $I_B$= 600 mA ) | $V_{BE(sat)}$ | | 2.0 | V |
| **SWITCHING CHARACTERISTICS** | | | | |
| Turn-On Time | $V_{CC}$=150V, $I_C$= 5.0A | $t_{on}$ | | 1.0 us |
| Storage Time | $I_{B1}$=-$I_{B2}$= 0.5A | $t_s$ | | 1.5 us |
| Fall Time | | $t_f$ | | 0.3 us |

(1) Pulse Test: Pulse width ≦ 300 us , Duty Cycle ≦ 2.0%

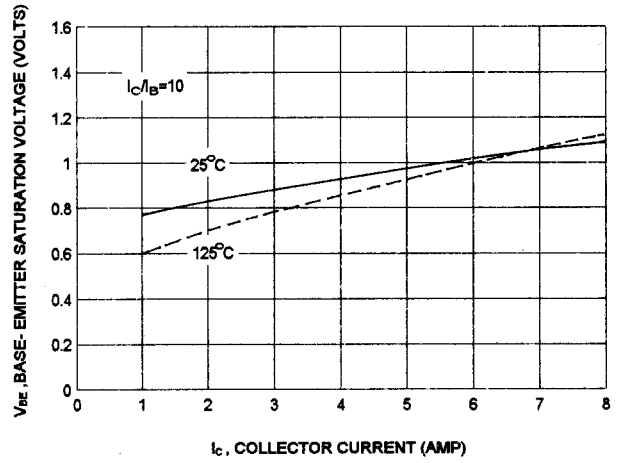
DC CURRENT GAIN



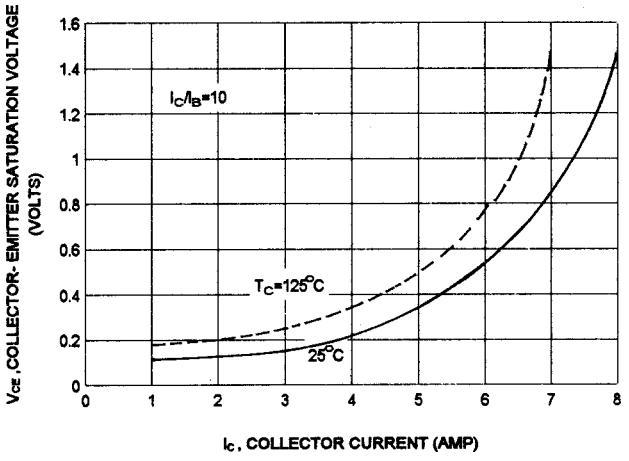

COLLECTOR SATURATION REGION



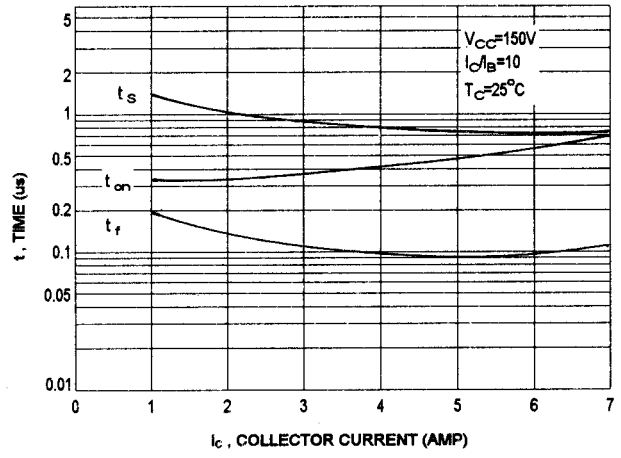

BASE-EMITTER SATURATION VOLTAGE




COLLECTOR-EMITTER SATURATION VOLTAGE




SWITCHING TIME




ACTIVE-REGION SAFE OPERATING AREA