

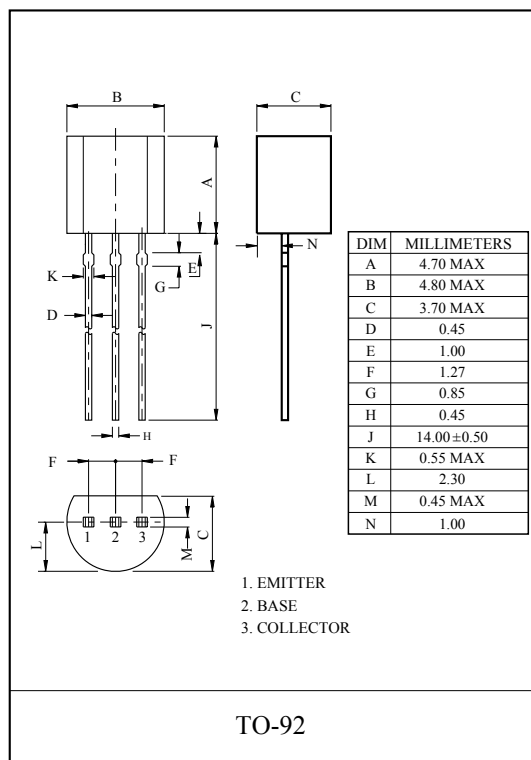
HIGH VOLTAGE APPLICATION.

### FEATURES

- High Breakdown Voltage.
- Collector Power Dissipation :  $P_C=625\text{mW}$ .

### MAXIMUM RATING ( $T_a=25^\circ\text{C}$ )

| CHARACTERISTIC              |        | SYMBOL    | RATING    | UNIT             |
|-----------------------------|--------|-----------|-----------|------------------|
| Collector-Base Voltage      | MPSA44 | $V_{CBO}$ | 500       | V                |
|                             | MPSA45 |           | 400       |                  |
| Collector-Emitter Voltage   | MPSA44 | $V_{CEO}$ | 400       | V                |
|                             | MPSA45 |           | 350       |                  |
| Emitter-Base Voltage        |        | $V_{EBO}$ | 6         | V                |
| Collector Current           |        | $I_C$     | 300       | mA               |
| Collector Power Dissipation |        | $P_C$     | 625       | mW               |
| Junction Temperature        |        | $T_j$     | 150       | $^\circ\text{C}$ |
| Storage Temperature Range   |        | $T_{stg}$ | -55 ~ 150 | $^\circ\text{C}$ |

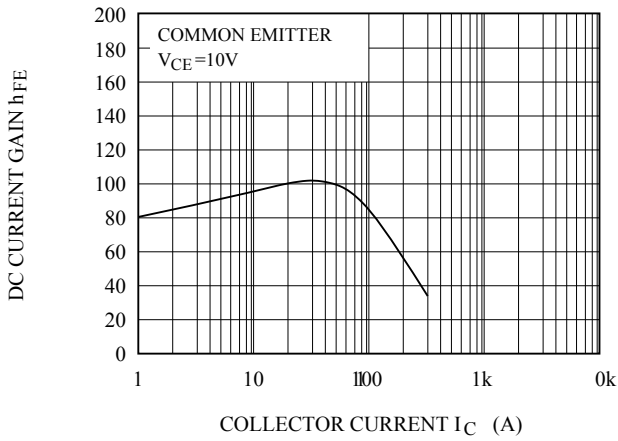


### ELECTRICAL CHARACTERISTICS ( $T_a=25^\circ\text{C}$ )

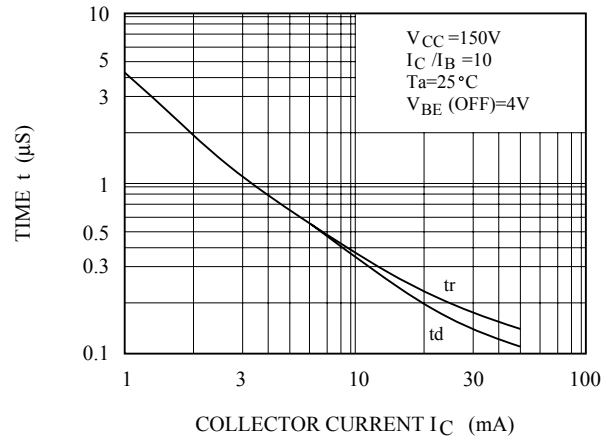
| CHARACTERISTIC                            |        | SYMBOL        | TEST CONDITION          | MIN. | TYP. | MAX. | UNIT |
|-------------------------------------------|--------|---------------|-------------------------|------|------|------|------|
| Collector-Base Breakdown Voltage          | MPSA44 | $V_{(BR)CBO}$ | $I_C=100\mu A, I_E=0$   | 500  | -    | -    | V    |
|                                           | MPSA45 |               |                         | 400  |      |      |      |
| Collector-Emitter Breakdown Voltage (1)   | MPSA44 | $V_{(BR)CEO}$ | $I_C=1mA, I_B=0$        | 400  | -    | -    | V    |
|                                           | MPSA45 |               |                         | 350  |      |      |      |
| Collector-Emitter Breakdown Voltage (2)   |        | $V_{(BR)CES}$ | $I_C=100\mu A, I_B=0$   | 400  | -    | -    | V    |
| Emitter-Base Breakdown Voltage            |        | $V_{(BR)EBO}$ | $I_E=10\mu A, I_C=0$    | 6.0  | -    | -    | V    |
| Collector Cut off Current                 | MPSA44 | $I_{CBO}$     | $V_{CB}=400V, I_E=0$    | -    | -    | 100  | nA   |
|                                           | MPSA45 |               | $V_{CB}=320V, I_E=0$    |      |      | 100  |      |
| Collector Cut off Current                 | MPSA44 | $I_{CES}$     | $V_{CE}=400V, I_B=0$    | -    | -    | 500  | nA   |
|                                           | MPSA45 |               | $V_{CE}=320V, I_B=0$    |      |      | 500  |      |
| Emitter Cutoff Current                    |        | $I_{EBO}$     | $V_{EB}=4V, I_C=0$      | -    | -    | 100  | nA   |
| DC Current Gain    *                      |        | $h_{FE}$      | $V_{CE}=10V, I_C=1mA$   | 40   | -    | -    |      |
|                                           |        |               | $V_{CE}=10V, I_C=10mA$  | 50   | -    | 200  |      |
|                                           |        |               | $V_{CE}=10V, I_C=50mA$  | 45   | -    | -    |      |
|                                           |        |               | $V_{CE}=10V, I_C=100mA$ | 40   | -    | -    |      |
| Collector-Emitter Saturation Voltage    * |        | $V_{CE(sat)}$ | $I_C=10mA, I_B=1mA$     | -    | -    | 0.5  | V    |
| Base-Emitter Saturation Voltage    *      |        | $V_{BE(sat)}$ | $I_C=10mA, I_B=1mA$     | -    | -    | 0.75 | V    |

\*Pulse Test : Pulse Width  $\leq 300\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$

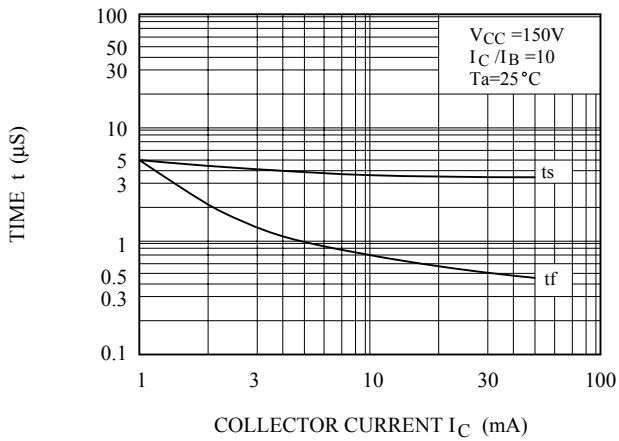
$h_{FE} - I_C$



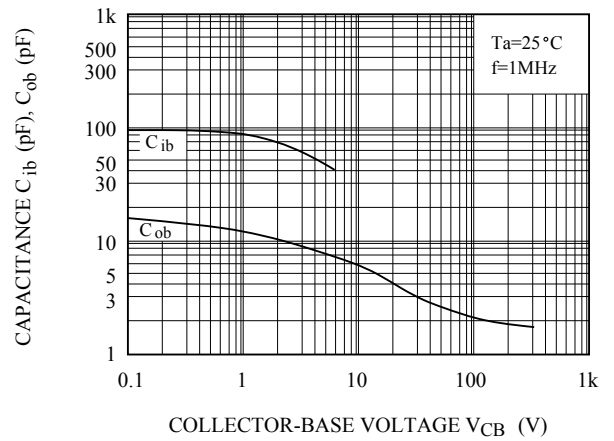
TURN-ON SWITCHING CHARACTERISTICS



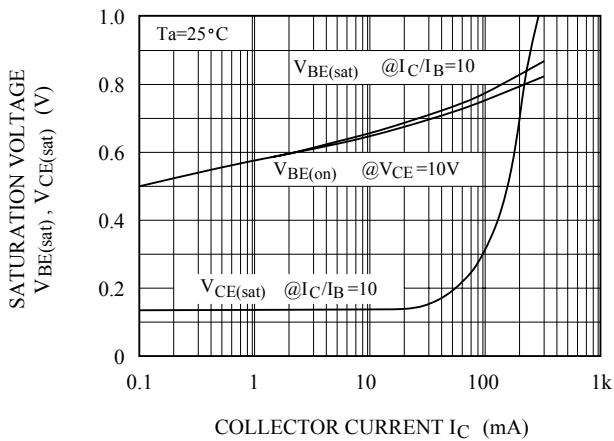
TURN-OFF SWITCHING CHARACTERISTICS



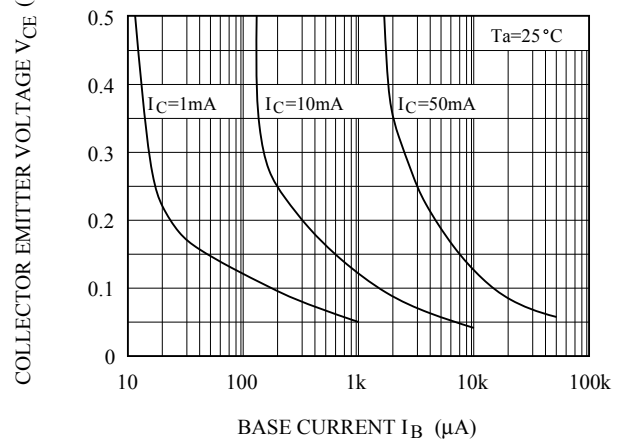
$C_{ib}, C_{ob} - V_{CB}$



$V_{BE(sat)}, V_{CE(sat)} - I_C$



COLLECTOR SATURATION REGION



# MPSA44/45

