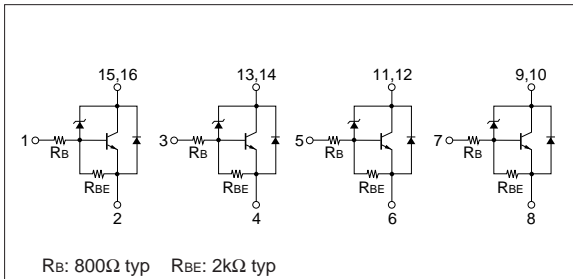


## Absolute maximum ratings

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

| Symbol         | Ratings                          | Unit                      |
|----------------|----------------------------------|---------------------------|
| $V_{CBO}$      | 30 to 45                         | V                         |
| $V_{CEO}$      | 30 to 45                         | V                         |
| $V_{EBO}$      | 6                                | V                         |
| $I_c$          | 2                                | A                         |
| $I_{cP}$       | 3 (PW $\leq$ 1ms, Du $\leq$ 10%) | A                         |
| $I_B$          | 30                               | mA                        |
| $P_T$          | 3 ( $T_a=25^\circ\text{C}$ )     | W                         |
| $T_j$          | 150                              | $^\circ\text{C}$          |
| $T_{stg}$      | -40 to +150                      | $^\circ\text{C}$          |
| $\theta_{j-a}$ | 41.6                             | $^\circ\text{C}/\text{W}$ |

## Equivalent circuit diagram



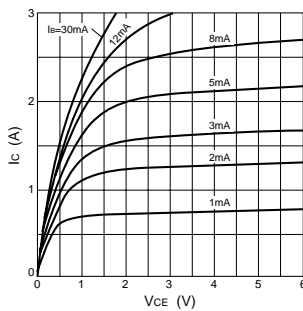
## Electrical characteristics

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

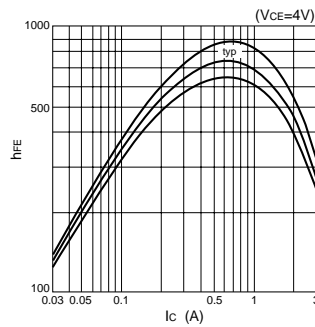
| Symbol        | Specification |      |      | Unit          | Conditions  |
|---------------|---------------|------|------|---------------|---|
|               | min           | typ  | max  |               |   |
| $I_{CBO}$     |               |      | 10   | $\mu\text{A}$ | $V_{CB}=30\text{V}$   |
| $I_{EBO}$     | 1.2           |      | 2.8  | mA            | $V_{EB}=6\text{V}$  |
| $V_{CEO}$     | 30            |      | 45   | V             | $I_c=10\text{mA}$   |
| $h_{FE}$      | 400           | 700  | 2000 |               | $V_{CE}=4\text{V}, I_c=0.5\text{A}$                         |
| $V_{CE(sat)}$ |               |      | 0.2  | V             | $I_c=0.5\text{A}, I_B=5\text{mA}$                           |
|               |               |      | 0.6  | V             | $I_c=1\text{A}, I_B=5\text{mA}$                             |
| $V_{FEC}$     |               |      | 2.0  | V             | $I_{FEC}=1\text{A}$   |
| $t_{on}$      |               | 1.2  |      | $\mu\text{s}$ | $V_{CC} \doteq 10\text{V}, I_c=0.5\text{A}, I_B=5\text{mA}$ |
| $t_{stg}$     |               | 18.0 |      | $\mu\text{s}$ | $I_c=0.5\text{A}, I_B=5\text{mA}$                           |
| $t_f$         |               | 3.6  |      | $\mu\text{s}$ | $I_{B1}=5\text{mA}, I_{B2}=0\text{A}$                       |
| $f_T$         |               | 20   |      | MHz           | $V_{CE}=12\text{V}, I_E=-0.2\text{A}$                       |
| $C_{ob}$      |               | 50   |      | pF            | $V_{CB}=10\text{V}, f=1\text{MHz}$                          |
| $E_S/B$       | 40            |      |      | mJ            | $L=10\text{mH}, \text{Single pulse}$                        |

## Characteristic curves

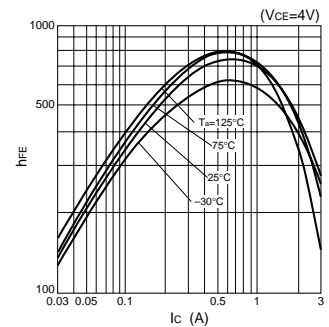
$I_c$ - $V_{CE}$  Characteristics (Typical)



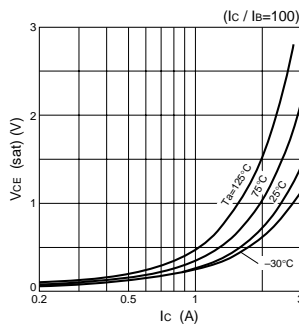
$h_{FE}$ - $I_c$  Characteristics (Typical)



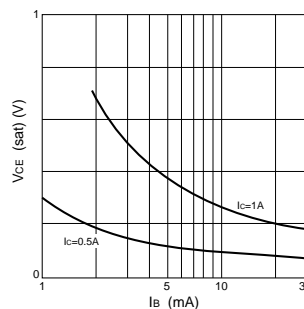
$h_{FE}$ - $I_c$  Temperature Characteristics (Typical)



$V_{CE(sat)}$ - $I_c$  Temperature Characteristics (Typical)

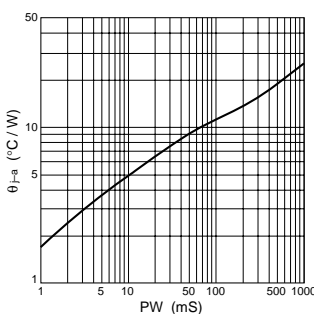


$V_{CE(sat)}$ - $I_B$  Characteristics (Typical)

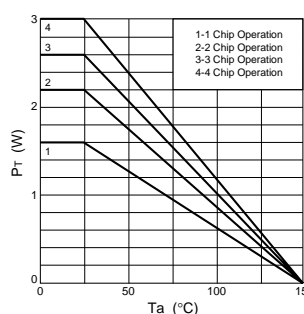


$I_c$ - $V_{BE}$  Temperature Characteristics (Typical)

$\theta_{j-a}$ -PW Characteristics



$P_T$ - $T_a$  Characteristics



Safe Operating Area (SOA)

