

### Absolute maximum ratings

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

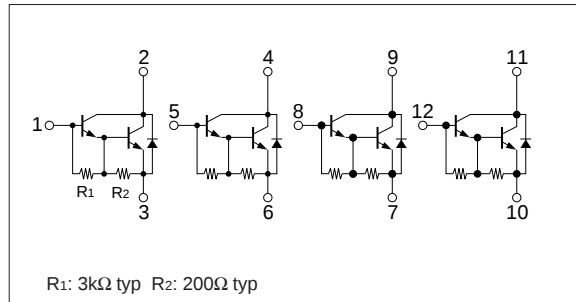
| Symbol    | Ratings                                                       | Unit             |
|-----------|---------------------------------------------------------------|------------------|
| $V_{CB0}$ | 120                                                           | V                |
| $V_{CEO}$ | 100                                                           | V                |
| $V_{EBO}$ | 6                                                             | V                |
| $I_C$     | 3                                                             | A                |
| $I_{CP}$  | 5 (PW $\leq$ 1ms, $D_u\leq$ 50%)                              | A                |
| $I_B$     | 0.2                                                           | A                |
| $P_T$     | 4 ( $T_a=25^\circ\text{C}$ )<br>20 ( $T_c=25^\circ\text{C}$ ) | W                |
| $T_j$     | 150                                                           | $^\circ\text{C}$ |
| $T_{stg}$ | -40 to +150                                                   | $^\circ\text{C}$ |

### Electrical characteristics

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

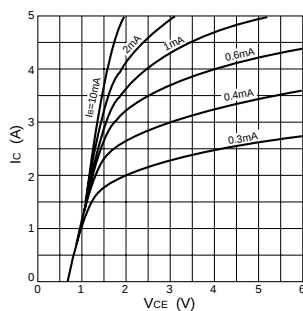
| Symbol        | Specification |      |       | Unit          | Conditions                                      |
|---------------|---------------|------|-------|---------------|-------------------------------------------------|
|               | min           | typ  | max   |               |                                                 |
| $I_{CBO}$     |               |      | 10    | $\mu\text{A}$ | $V_{CB}=120\text{V}$                            |
| $I_{EBO}$     |               |      | 10    | mA            | $V_{EB}=6\text{V}$                              |
| $V_{CEO}$     | 100           |      |       | V             | $I_C=25\text{mA}$                               |
| $h_{FE}$      | 2000          | 6000 | 15000 |               | $V_{CE}=4\text{V}$ , $I_C=1.5\text{A}$          |
| $V_{CE(sat)}$ |               | 1.1  | 1.5   | V             | $I_C=1.5\text{A}$ , $I_B=3\text{mA}$            |
| $V_{BE(sat)}$ |               | 1.7  | 2.0   | V             |                                                 |
| $t_{on}$      |               | 0.5  |       | $\mu\text{s}$ | $V_{CC}\approx 30\text{V}$<br>$I_C=1.5\text{A}$ |
| $t_{stg}$     |               | 2.2  |       | $\mu\text{s}$ |                                                 |
| $t_f$         |               | 0.9  |       | $\mu\text{s}$ | $I_{B1}=-I_{B2}=3\text{mA}$                     |
| $f_T$         |               | 40   |       | MHz           | $V_{CE}=12\text{V}$ , $I_E=-0.5\text{A}$        |
| $C_{ob}$      |               | 30   |       | pF            | $V_{CB}=10\text{V}$ , $f=1\text{MHz}$           |

### Equivalent circuit diagram

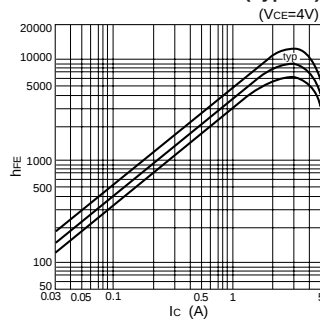


### Characteristic curves

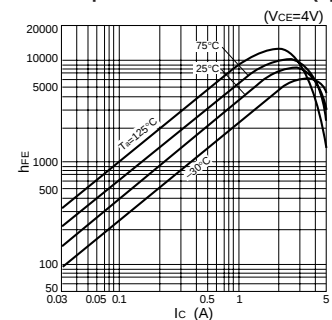
$I_C$ - $V_{CE}$  Characteristics (Typical)



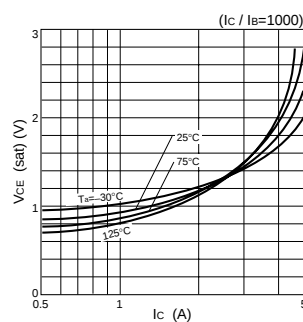
$h_{FE}$ - $I_C$  Characteristics (Typical)



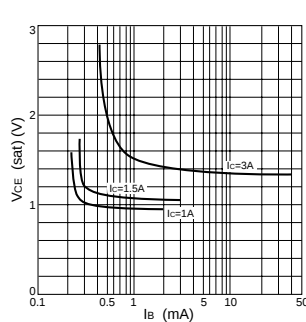
$h_{FE}$ - $I_C$  Temperature Characteristics (Typical)



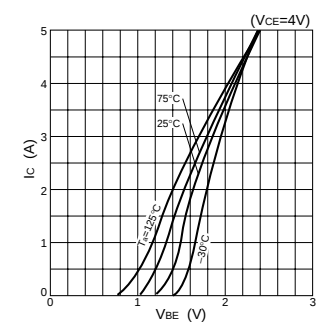
$V_{CE(sat)}$ - $I_C$  Temperature Characteristics (Typical)



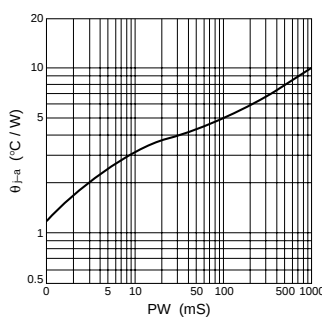
$V_{CE(sat)}$ - $I_B$  Characteristics (Typical)



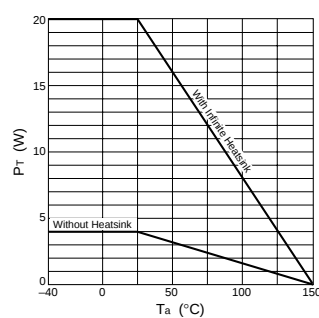
$I_C$ - $V_{BE}$  Temperature Characteristics (Typical)



$\theta_{JA}$ -PW Characteristics



$P_T$ - $T_a$  Characteristics



Safe Operating Area (SOA)

