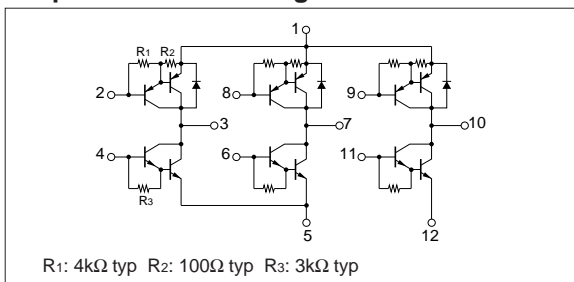


Absolute maximum ratings

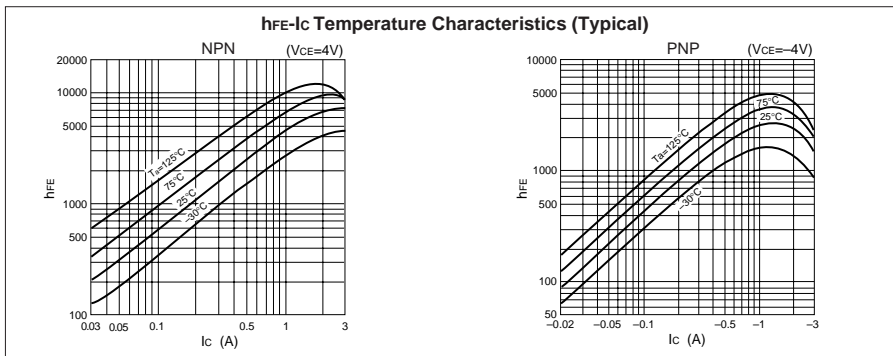
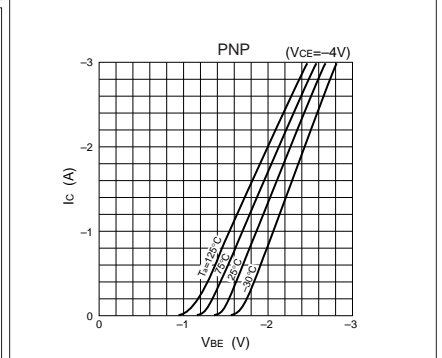
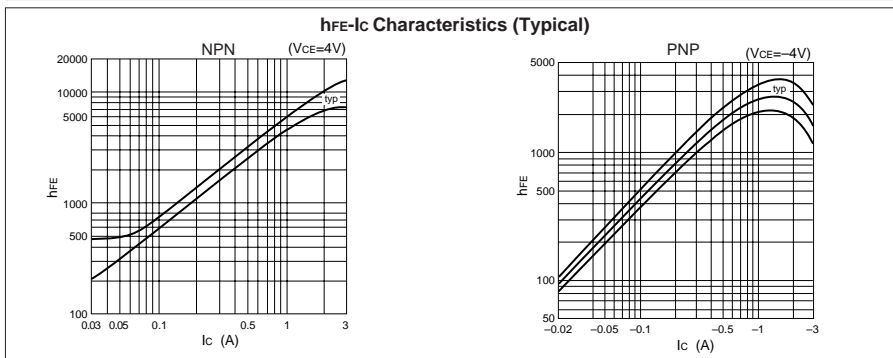
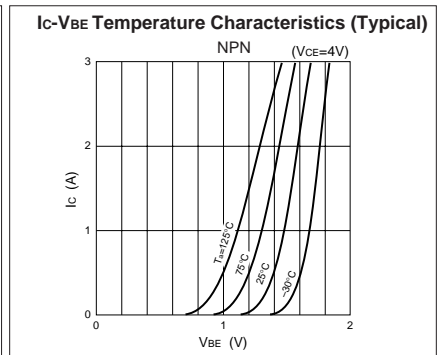
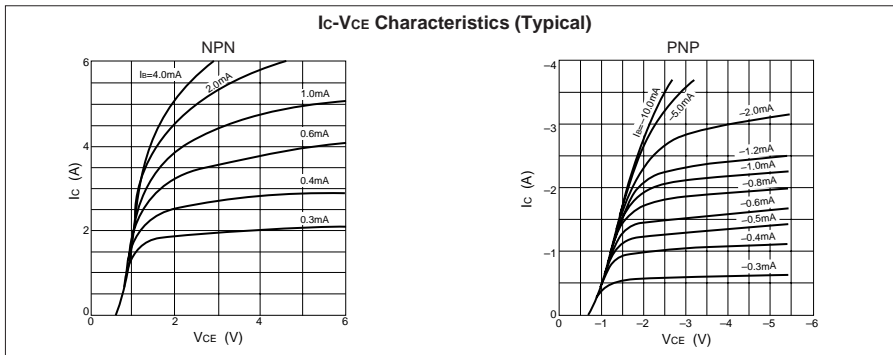
($T_a=25^\circ\text{C}$)

| Symbol | Ratings | | Unit |
|----------------|--|---|--------------------|
| | NPN | PNP | |
| V_{CBO} | 60 | -60 | V |
| V_{CEO} | 60 | -60 | V |
| V_{EBO} | 6 | -6 | V |
| I_c | 2 | -2 | A |
| I_{cP} | 3 ($PW \leq 1\text{ms}$, $D_u \leq 50\%$) | -3 ($PW \leq 1\text{ms}$, $D_u \leq 50\%$) | A |
| I_B | 0.5 | -0.5 | A |
| P_T | 4 ($T_a=25^\circ\text{C}$) | | W |
| | 20 ($T_c=25^\circ\text{C}$) | | |
| T_j | 150 | | $^\circ\text{C}$ |
| T_{stg} | -40 to +150 | | $^\circ\text{C}$ |
| θ_{j-c} | 6.25 | | $^\circ\text{C/W}$ |

Equivalent circuit diagram



Characteristic curves



Electrical characteristics

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

| Symbol | NPN | | | | | PNP | | | | |
|---------------|---------------|------|-------|---------------|---|---------------|------|-------|---------------|--|
| | Specification | | | Unit | Conditions | Specification | | | Unit | Conditions |
| | min | typ | max | | | min | typ | max | | |
| I_{CBO} | | | 10 | μA | $V_{CB}=60\text{V}$ | | | -10 | μA | $V_{CB}=-60\text{V}$ |
| I_{EBO} | | | 10 | μA | $V_{EB}=6\text{V}$ | | | -5 | mA | $V_{EB}=-6\text{V}$ |
| V_{CEO} | 60 | | | V | $I_C=10\text{mA}$ | -60 | | | V | $I_C=-10\text{mA}$ |
| h_{FE} | 1500 | 4000 | 10000 | | $V_{CE}=4\text{V}, I_C=1\text{A}$ | 2000 | 4000 | 10000 | | $V_{CE}=-4\text{V}, I_C=-1\text{A}$ |
| $V_{CE(sat)}$ | | | 1.5 | V | $I_C=1\text{A}, I_B=2\text{mA}$ | | | -1.5 | V | $I_C=-1\text{A}, I_B=-2\text{mA}$ |
| $V_{BE(sat)}$ | | | 2.2 | V | | | | -2.2 | V | |
| V_{FEC} | | — | | V | | | | -1.8 | V | $I_{FEC}=-1\text{A}$ |
| t_{rr} | | — | | μs | | | 3.0 | | μs | $I_{FEC}=\pm 100\text{mA}$ |
| t_{on} | | 0.7 | | μs | $V_{CC}=30\text{V},$ $I_C=1\text{A},$ $I_{B1}=-I_{B2}=2\text{mA}$ | | 0.4 | | μs | $V_{CC}=-30\text{V},$ $I_C=-1\text{A},$ $I_{B1}=-I_{B2}=-2\text{mA}$ |
| t_{stg} | | 5.0 | | μs | | | 1.0 | | μs | |
| t_f | | 3.0 | | μs | | | 0.4 | | μs | |
| f_T | | 20 | | MHz | | | 100 | | MHz | |
| C_{ob} | | 45 | | pF | $V_{CB}=10\text{V}, f=1\text{MHz}$ | | 30 | | pF | $V_{CB}=-10\text{V}, f=1\text{MHz}$ |

Characteristic curves

