# STA473A

**NPN Darlington**
**General purpose**

External dimensions Ⓓ···STA (10-pin)

## Absolute maximum ratings

(Ta=25°C)

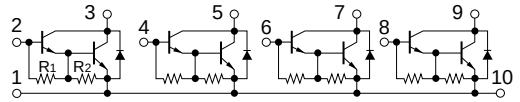
| Symbol | Ratings | Unit |
|---|---|---|
| $V_{CBO}$ | 120 | V |
| $V_{CEO}$ | 100 | V |
| $V_{EBO}$ | 6 | V |
| $I_C$ | 2 | A |
| $I_{CP}$ | 4 (PW≤1ms, Du≤25%) | A |
| $I_B$ | 0.5 | A |
| $P_T$ | 4 (Ta=25°C) | W |
| | 20 (Tc=25°C) | |
| $T_j$ | 150 | °C |
| $T_{stg}$ | –40 to +150 | °C |

## Electrical characteristics

(Ta=25°C)

| Symbol | Specification min | typ | max | Unit | Conditions |
|---|---|---|---|---|---|
| $I_{CBO}$ | | | 10 | μA | $V_{CB}$=120V |
| $I_{EBO}$ | | | 5 | mA | $V_{EB}$=6V |
| $V_{CEO}$ | 100 | | | V | $I_C$=10mA |
| $h_{FE}$ | 2000 | 5000 | 12000 | | $V_{CE}$=4V, $I_C$=1A |
| $V_{CE}$(sat) | | 1.1 | 1.5 | V | $I_C$=1A, $I_B$=2mA |
| $V_{BE}$(sat) | | 1.8 | 2.2 | V | |
| $V_{FEC}$ | | 1.3 | 1.8 | V | $I_{FEC}$=1A |
| ton | | 0.5 | | μs | $V_{CC}$≒30V, |
| tstg | | 4.5 | | μs | $I_C$=1A, |
| tf | | 1.2 | | μs | $I_{B1}$=–$I_{B2}$=2mA |
| $f_T$ | | 50 | | MHz | $V_{CE}$=12V, $I_E$=–0.1A |
| Cob | | 20 | | pF | $V_{CB}$=10V, f=1MHz |

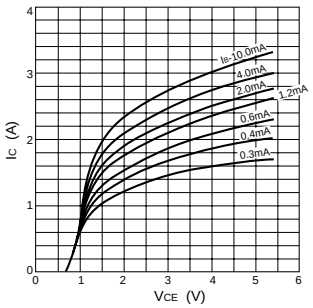
## ■Equivalent circuit diagram



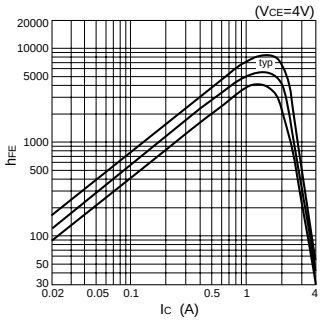

R1: 4kΩ Typ R2: 150Ω Typ

## Characteristic curves

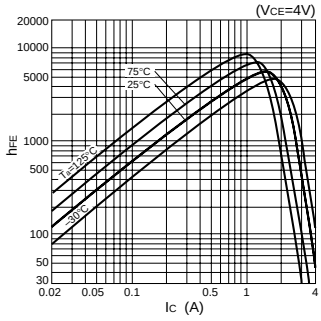
**IC-VCE Characteristics (Typical)**



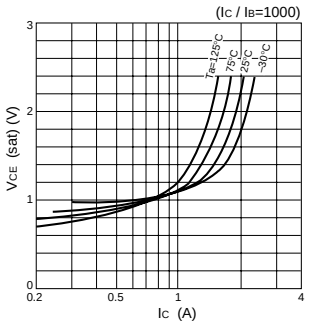

**hFE-IC Characteristics (Typical)**



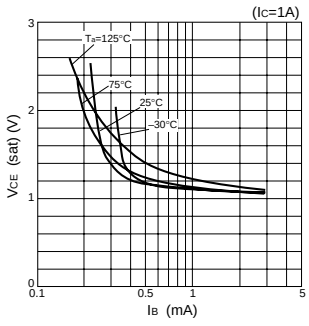

**hFE-IC Temperature Characteristics (Typical)**



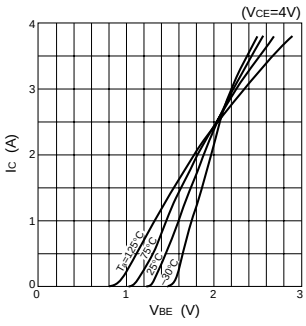

**VCE(sat)-IC Temperature Characteristics (Typical)**



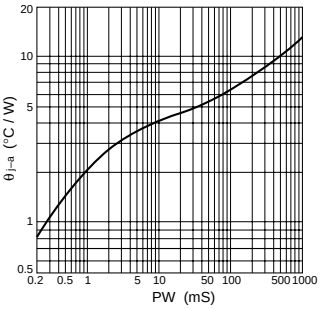

**VCE(sat)-IB Temperature Characteristics (Typical)**



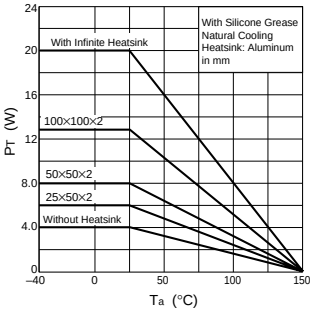

**IC-VBE Temperature Characteristics (Typical)**




**θj-a-PW Characteristics**




**PT-Ta Characteristics**




**Safe Operating Area (SOA)**

