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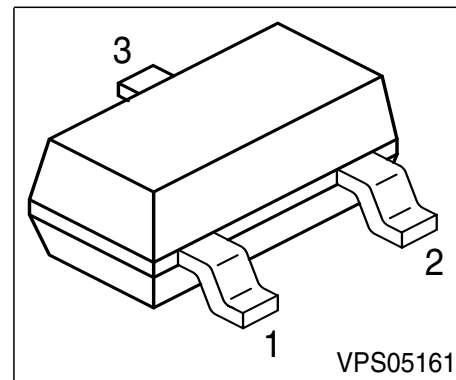
sales@integrated-circuit.com



SMBTA64

PNP Silicon Darlington Transistors

- High collector current
- High DC current gain



| Type | Marking | Pin Configuration | | | Package |
|---------|---------|-------------------|-------|-------|---------|
| SMBTA64 | s2V | 1 = B | 2 = E | 3 = C | SOT23 |

Maximum Ratings

| Parameter | Symbol | Value | Unit |
|-----------------------------------------------|-----------|-------------|------|
| Collector-emitter voltage | V_{CES} | 30 | V |
| Collector-base voltage | V_{CBO} | 30 | |
| Emitter-base voltage | V_{EBO} | 10 | |
| DC collector current | I_C | 500 | mA |
| Peak collector current | I_{CM} | 800 | A |
| Base current | I_B | 100 | mA |
| Peak base current | I_{BM} | 200 | |
| Total power dissipation, $T_S = 81\text{ °C}$ | P_{tot} | 330 | mW |
| Junction temperature | T_j | 150 | °C |
| Storage temperature | T_{stg} | -65 ... 150 | |

Thermal Resistance

| | | | |
|------------------------------------------|------------|------|-----|
| Junction - soldering point ¹⁾ | R_{thJS} | ≤210 | K/W |
|------------------------------------------|------------|------|-----|

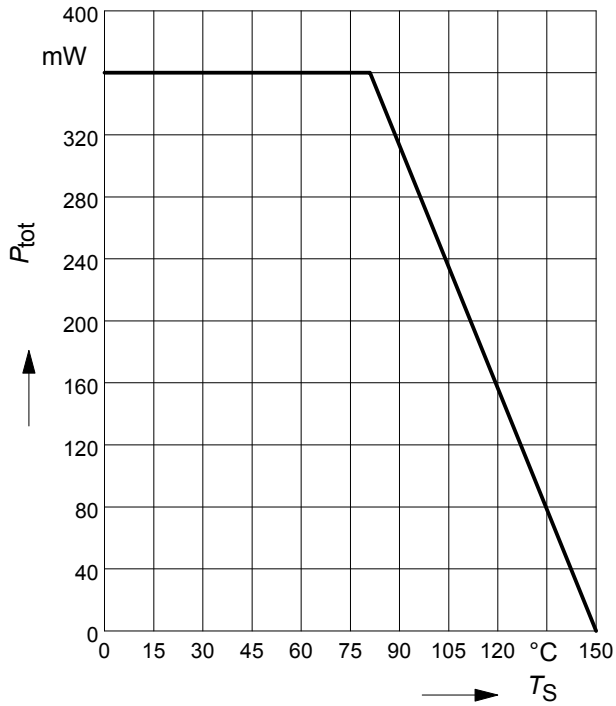
¹⁾For calculation of R_{thJA} please refer to Application Note Thermal Resistance

Electrical Characteristics at $T_A = 25^\circ\text{C}$, unless otherwise specified.

| Parameter | Symbol | Values | | | Unit |
|-------------------------------------------------------------------------------------------------------------------|---------------|----------------|--------|--------|---------------|
| | | min. | typ. | max. | |
| DC Characteristics | | | | | |
| Collector-emitter breakdown voltage $I_C = 10\ \mu\text{A}, V_{BE} = 0$ | $V_{(BR)CES}$ | 30 | - | - | V |
| Collector-base breakdown voltage $I_C = 10\ \mu\text{A}, I_E = 0$ | $V_{(BR)CBO}$ | 30 | - | - | |
| Emitter-base breakdown voltage $I_E = 10\ \mu\text{A}, I_C = 0$ | $V_{(BR)EBO}$ | 10 | - | - | |
| Collector cutoff current $V_{CB} = 30\ \text{V}, I_E = 0$ | I_{CBO} | - | - | 100 | nA |
| Collector cutoff current $V_{CB} = 30\ \text{V}, I_E = 0, T_A = 150\ ^\circ\text{C}$ | I_{CBO} | - | - | 10 | μA |
| Emitter cutoff current $V_{EB} = 10\ \text{V}, I_C = 0$ | I_{EBO} | - | - | 100 | nA |
| DC current gain 1) $I_C = 10\ \text{mA}, V_{CE} = 5\ \text{V}$ $I_C = 100\ \text{mA}, V_{CE} = 5\ \text{V}$ | h_{FE} | 10000 20000 | - - | - - | - |
| Collector-emitter saturation voltage1) $I_C = 100\ \text{mA}, I_B = 0.1\ \text{mA}$ | V_{CEsat} | - | - | 1.5 | V |
| Base-emitter saturation voltage 1) $I_C = 100\ \text{mA}, I_B = 0.1\ \text{mA}$ | V_{BEsat} | - | - | 2 | |
| AC Characteristics | | | | | |
| Transition frequency $I_C = 50\ \text{mA}, V_{CE} = 5\ \text{V}, f = 20\ \text{MHz}$ | f_T | 125 | - | - | MHz |

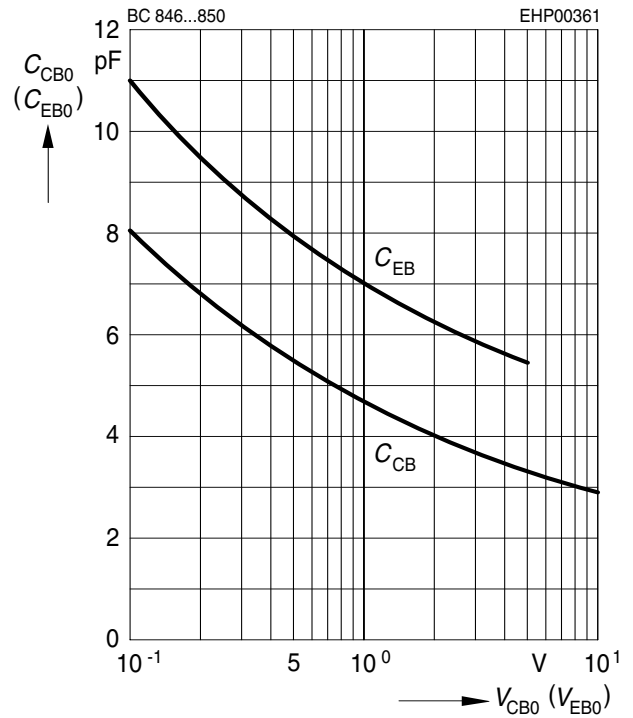
 1) Pulse test: $t \leq 300\ \mu\text{s}$, $D = 2\%$

Total power dissipation $P_{tot} = f(T_S)$



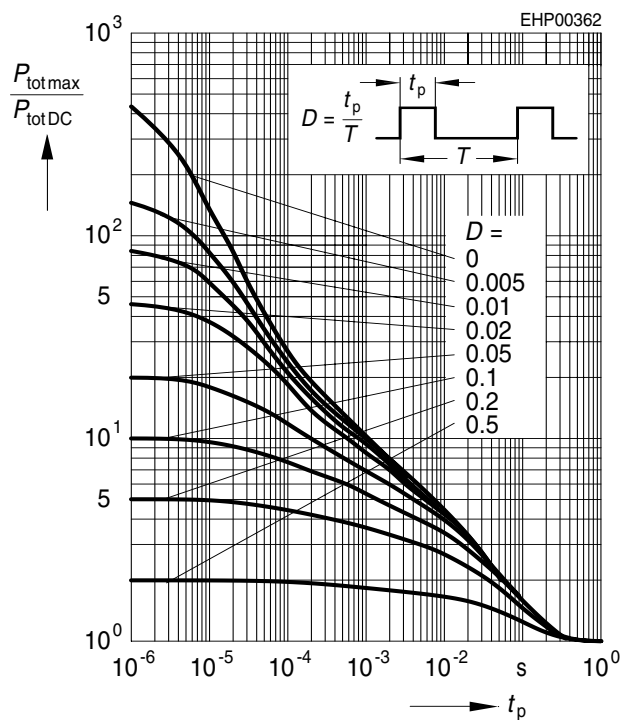
Collector-base capacitance $C_{CB} = f(V_{CB0})$

Emitter-base capacitance $C_{EB} = f(V_{EB0})$



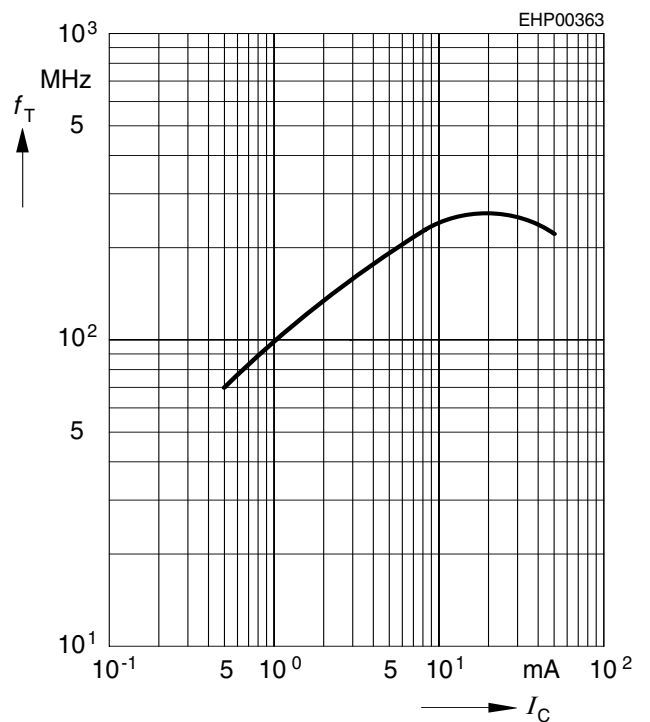
Permissible pulse load

$P_{totmax} / P_{totDC} = f(t_p)$



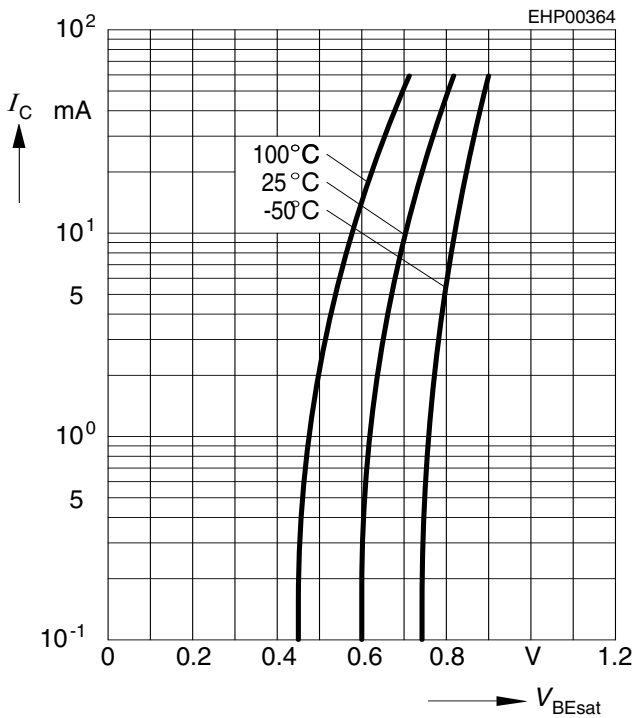
Transition frequency $f_T = f(I_C)$

$V_{CE} = 5V$



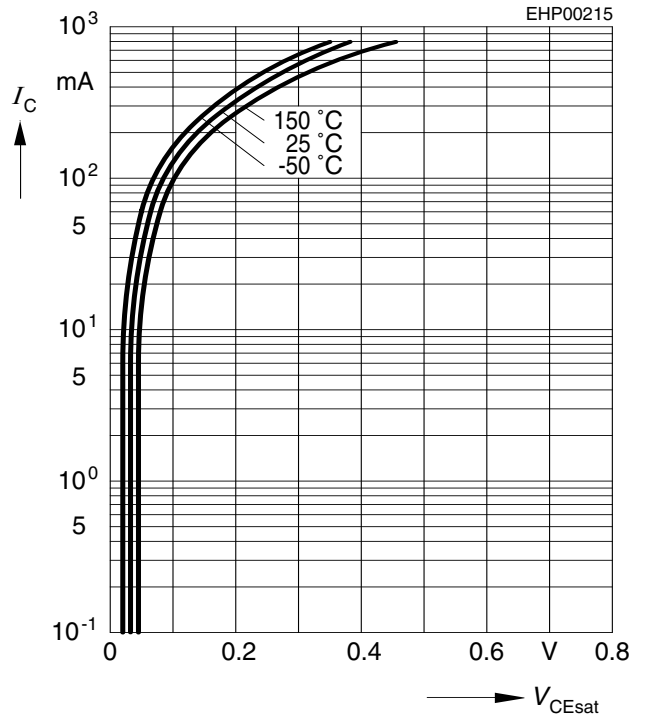
Base-emitter saturation voltage

$I_C = f(V_{BEsat}), h_{FE} = 20$



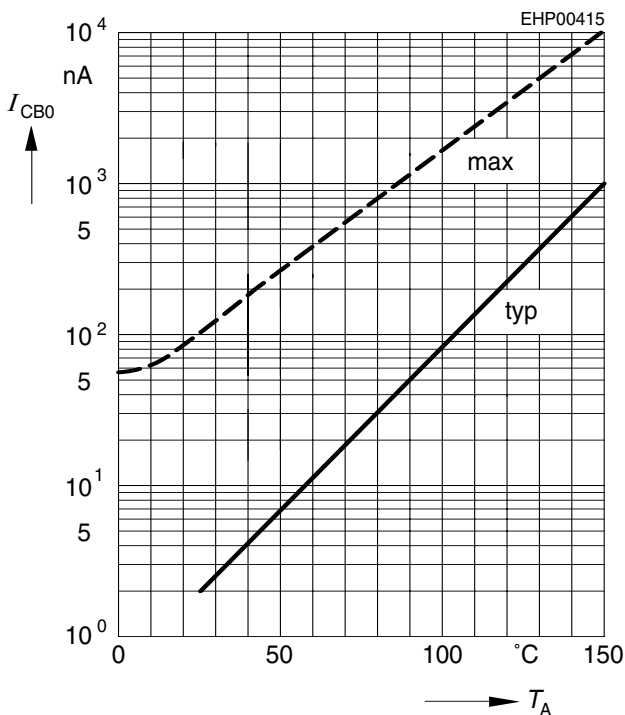
Collector-emitter saturation voltage

$I_C = f(V_{CEsat}), h_{FE} = 20$



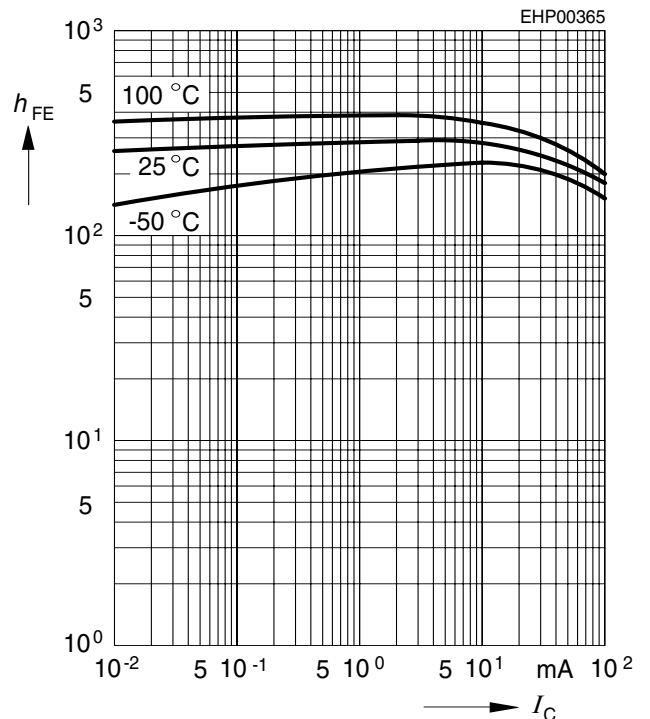
Collector cutoff current $I_{CBO} = f(T_A)$

$V_{CB} = 30V$

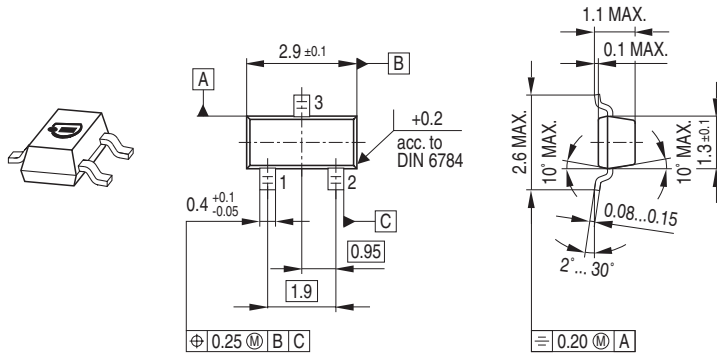


DC current gain $h_{FE} = f(I_C)$

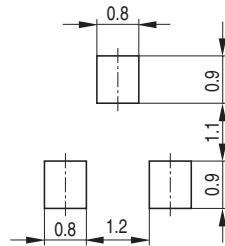
$V_{CE} = 5V$



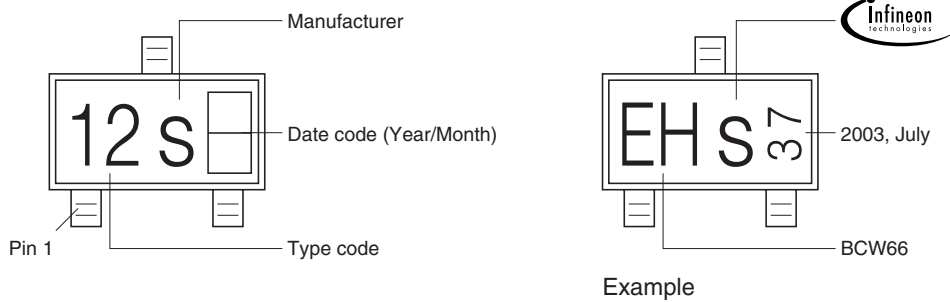
Package Outline



Foot Print

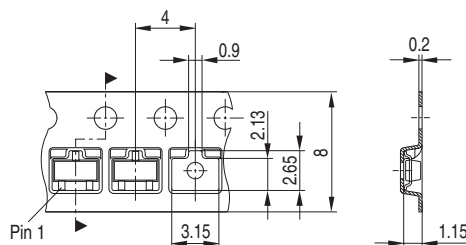


Marking Layout



Packing

Code E6327: Reel \varnothing 180 mm = 3.000 Pieces/Reel
 Code E6433: Reel \varnothing 330 mm = 10.000 Pieces/Reel





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