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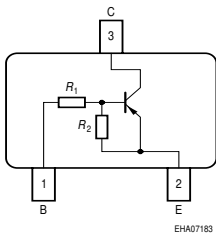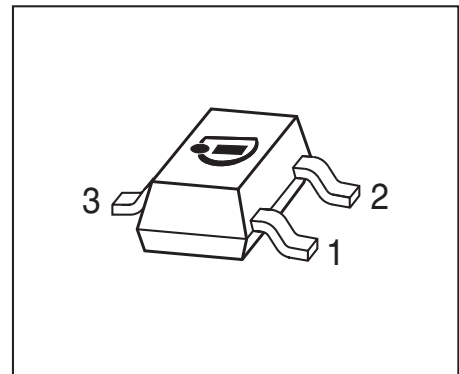## Contact us

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## PNP Silicon Digital Transistor

- Built in bias resistor ($R_1$= 2.2 kΩ, $R_2$= 2.2 kΩ)
- Pb-free (RoHS compliant) package
- Qualified according AEC Q101



| Type | Marking | Pin Configuration | | | Package |
|------|---------|-----|-----|-----|---------|
| BCR553 | XBs | 1=B | 2=E | 3=C | SOT23 |

### Maximum Ratings

| Parameter | Symbol | Value | Unit |
|-----------|--------|-------|------|
| Collector-emitter voltage | $V_{CEO}$ | 50 | V |
| Collector-base voltage | $V_{CBO}$ | 50 | |
| Input forward voltage | $V_{i(fwd)}$ | 20 | |
| Input reverse voltage | $V_{i(rev)}$ | 10 | |
| Collector current | $I_C$ | 500 | mA |
| Total power dissipation- $T_S \leq 79\ °C$ | $P_{tot}$ | 330 | mW |
| Junction temperature | $T_j$ | 150 | °C |
| Storage temperature | $T_{stg}$ | -65 ... 150 | |

### Thermal Resistance

| Parameter | Symbol | Value | Unit |
|-----------|--------|-------|------|
| Junction - soldering point[1] | $R_{thJS}$ | ≤ 215 | K/W |

[1]For calculation of $R_{thJA}$ please refer to Application Note AN077 (Thermal Resistance Calculation)

2011-07-28

**Electrical Characteristics** at $T_A$ = 25°C, unless otherwise specified

| Parameter | Symbol | Values | | | Unit |
|---|---|---|---|---|---|
| | | min. | typ. | max. | |
| **DC Characteristics** | | | | | |
| Collector-emitter breakdown voltage $I_C$ = 100 µA, $I_B$ = 0 | $V_{(BR)CEO}$ | 50 | - | - | V |
| Collector-base breakdown voltage $I_C$ = 10 µA, $I_E$ = 0 | $V_{(BR)CBO}$ | 50 | - | - | |
| Collector-base cutoff current $V_{CB}$ = 50 V, $I_E$ = 0 | $I_{CBO}$ | - | - | 100 | nA |
| Emitter-base cutoff current $V_{EB}$ = 10 V, $I_C$ = 0 | $I_{EBO}$ | - | - | 3.5 | mA |
| DC current gain- $I_C$ = 50 mA, $V_{CE}$ = 5 V | $h_{FE}$ | 40 | - | - | - |
| Collector-emitter saturation voltage[1] $I_C$ = 50 mA, $I_B$ = 2.5 mA | $V_{CEsat}$ | - | - | 0.3 | V |
| Input off voltage $I_C$ = 100 µA, $V_{CE}$ = 5 V | $V_{i(off)}$ | 0.6 | - | 1.5 | |
| Input on voltage $I_C$ = 10 mA, $V_{CE}$ = 0.3 V | $V_{i(on)}$ | 1 | - | 1.8 | |
| Input resistor | $R_1$ | 1.5 | 2.2 | 2.9 | kΩ |
| Resistor ratio | $R_1/R_2$ | 0.9 | 1 | 1.1 | - |
| **AC Characteristics** | | | | | |
| Transition frequency $I_C$ = 50 mA, $V_{CE}$ = 5 V, $f$ = 100 MHz | $f_T$ | - | 150 | - | MHz |

[1]Pulse test: t < 300µs; D < 2%

2011-07-28

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

$V_{CE}$ = 5 V (common emitter configuration)
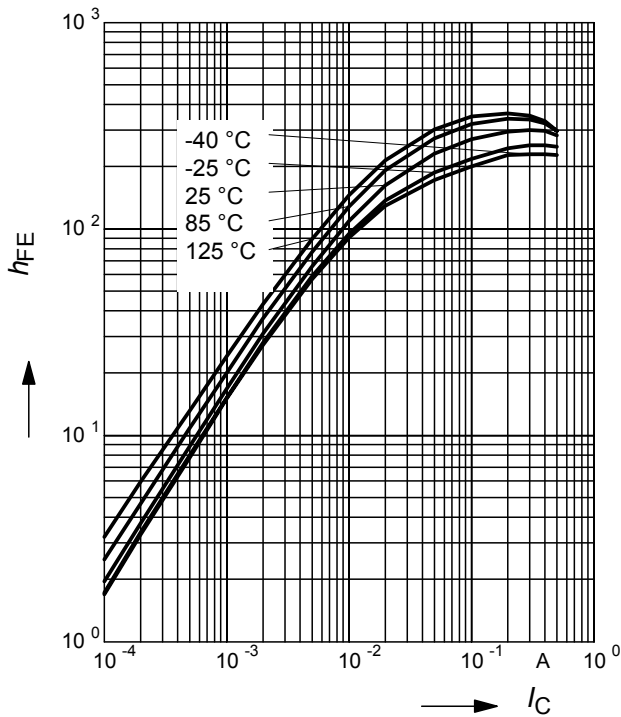


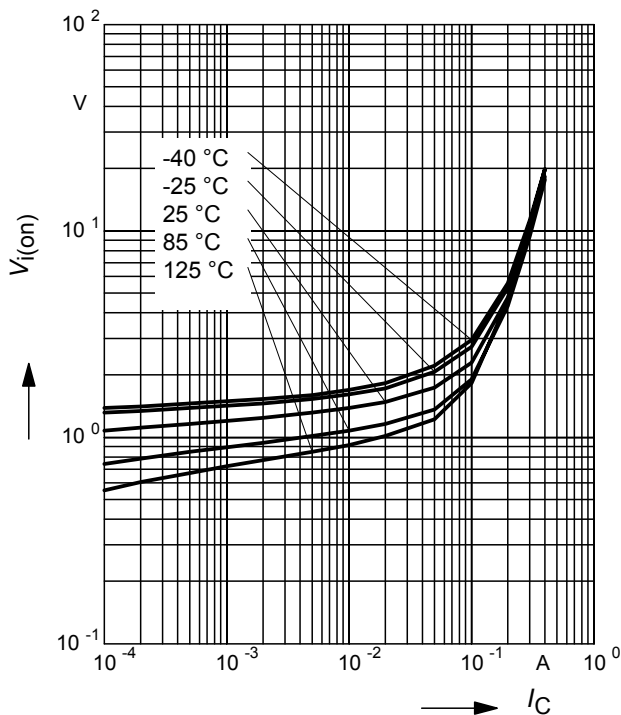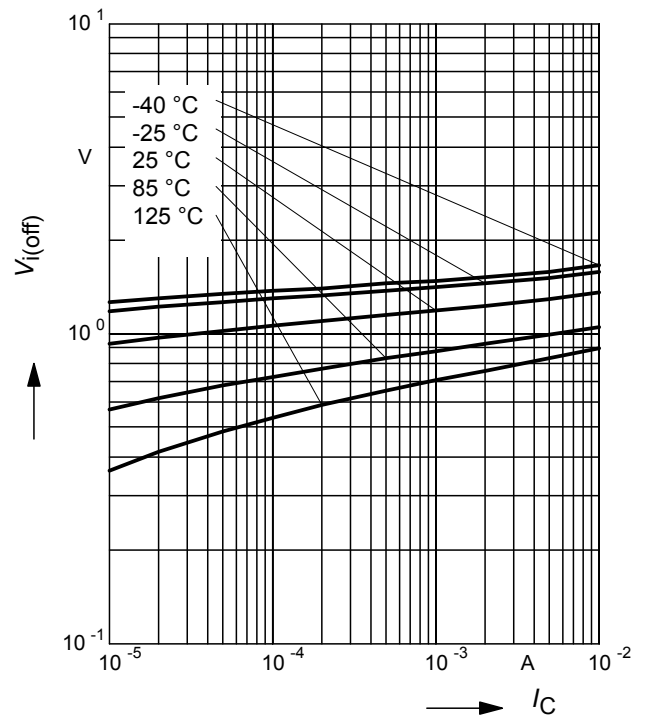**Collector-emitter saturation voltage**

$V_{CEsat} = f(I_C)$, $I_C/I_B$ = 20
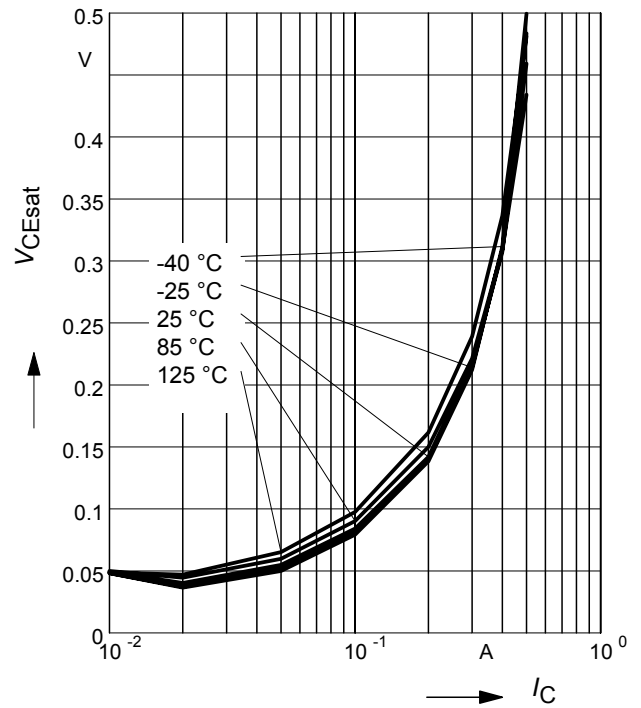


**Input on Voltage** $V_{i(on)} = f(I_C)$
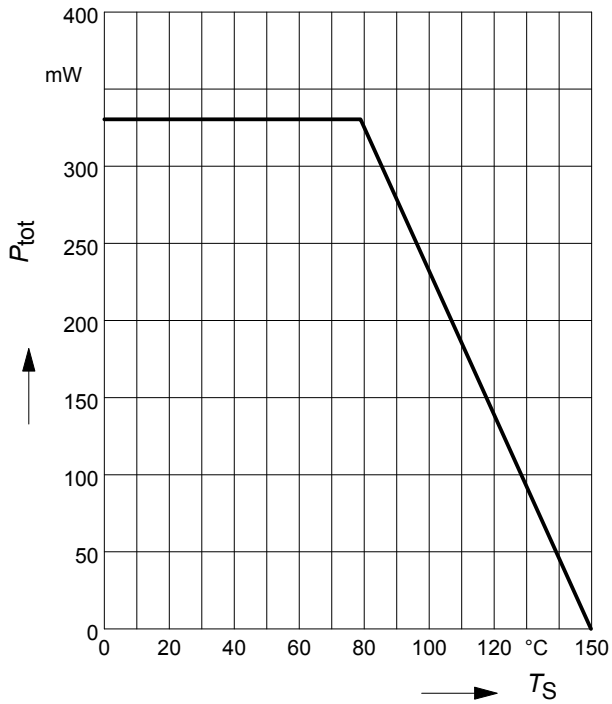
$V_{CE}$ = 0.3V (common emitter configuration)
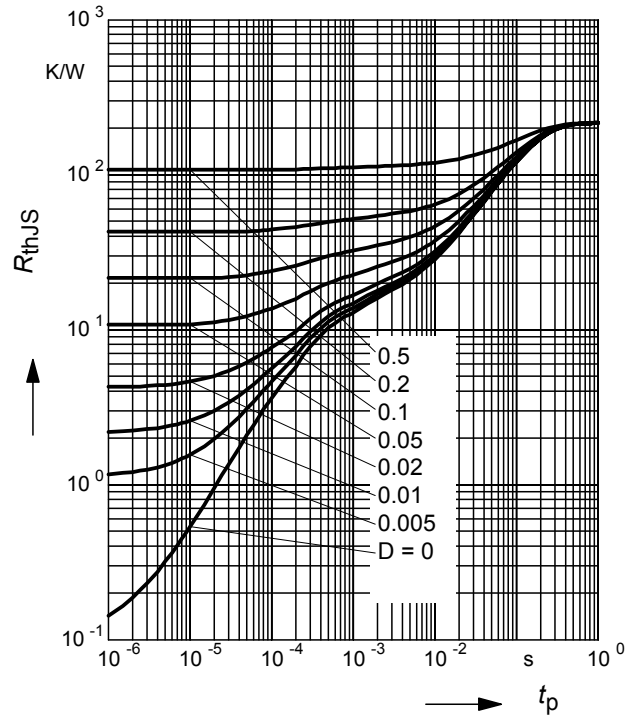


**Input off voltage** $V_{i(off)} = f(I_C)$

$V_{CE}$ = 5V (common emitter configuration)

2011-07-28

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



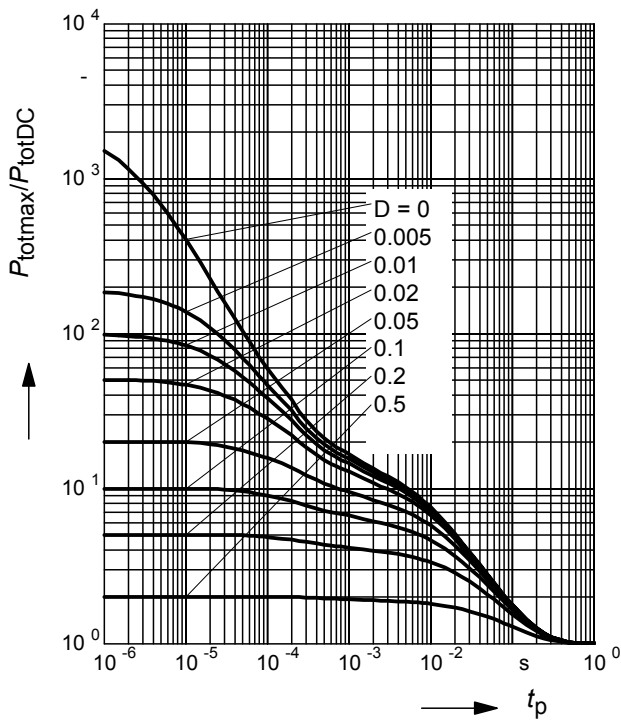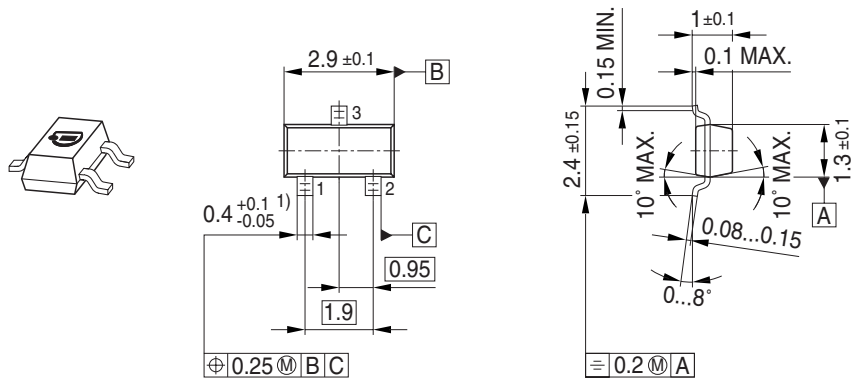**Permissible Pulse Load** $R_{thJS} = f(t_p)$



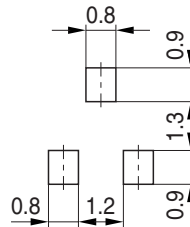**Permissible Pulse Load**

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

2011-07-28

## Package Outline

2.9 ±0.1  B

3

1

2

0.4 +0.1 1)
   -0.05

C

0.95

1.9

⊕ 0.25 Ⓜ B C

1 ±0.1

0.1 MAX.

0.15 MIN.

2.4 ±0.15

10° MAX.

10° MAX.

1.3 ±0.1

A

0.08...0.15

0...8°

▤ 0.2 Ⓜ A

1) Lead width can be 0.6 max. in dambar area

## Foot Print

0.8

0.9

1.3

0.8    1.2

0.9

## Marking Layout (Example)

*Manufacturer*

EH S 56

2005, June
*Date code (YM)*

Pin 1

BCW66
*Type code*
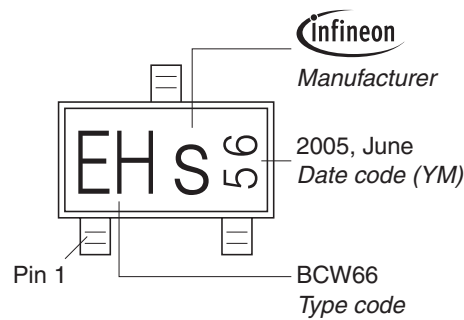
## Standard Packing

Reel ø180 mm = 3.000 Pieces/Reel
Reel ø330 mm = 10.000 Pieces/Reel

4

0.9

0.2

2.13

2.65

8

Pin 1

3.15

1.15
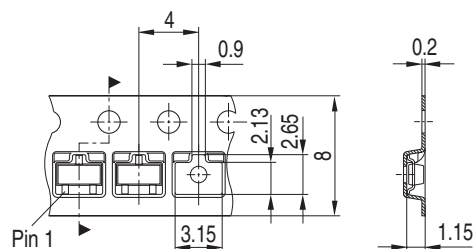
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