NPN Silicon Digital Transistor

- Switching circuit, inverter, interface circuit, driver circuit
- Built in bias resistor (R_1=4.7kΩ, R_2=4.7kΩ)
- Pb-free (RoHS compliant) package
- Qualified according AEC Q101

AEC Qualified **RoHS** ✓

BCR112
BCR112W

EHA07184
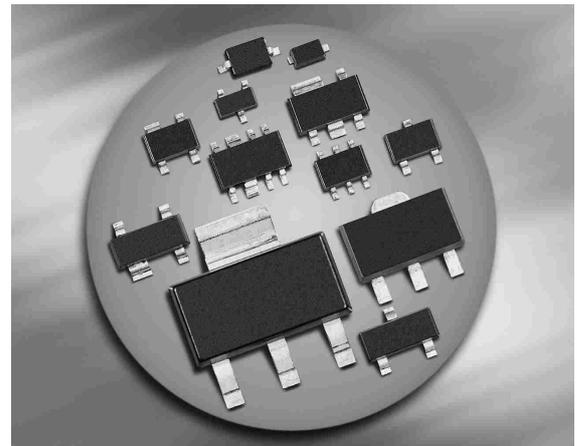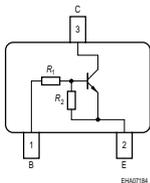
Type	Marking	Pin Configuration						Package
BCR112	WFs	1=B	2=E	3=C	-	-	-	SOT23
BCR112W	WFs	1=B	2=E	3=C	-	-	-	SOT323

Maximum Ratings

Parameter	Symbol	Value	Unit
Collector-emitter voltage	V_{CEO}	50	V
Collector-base voltage	V_{CBO}	50	
Input forward voltage	$V_{i(fwd)}$	30	
Input reverse voltage	$V_{i(rev)}$	10	
Collector current	I_C	100	mA
Total power dissipation- BCR112, $T_S \leq 102°C$ BCR112W, $T_S \leq 124°C$	P_{tot}	 200 250	mW
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	-65 ... 150	

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Thermal Resistance

Parameter	Symbol	Value	Unit
Junction - soldering point[1]	R_{thJS}		K/W
BCR112		≤ 240	
BCR112W		≤ 105	

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

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} = 40 V, I_E = 0	I_{CBO}	-	-	100	nA
Emitter-base cutoff current V_{EB} = 10 V, I_C = 0	I_{EBO}	-	-	1.61	mA
DC current gain[1] I_C = 5 mA, V_{CE} = 5 V	h_{FE}	20	-	-	-
Collector-emitter saturation voltage[1] I_C = 10 mA, I_B = 0.5 mA	V_{CEsat}	-	-	0.3	V
Input off voltage I_C = 100 µA, V_{CE} = 5 V	$V_{i(off)}$	0.8	-	1.5	
Input on voltage I_C = 2 mA, V_{CE} = 0.3 V	$V_{i(on)}$	1	-	2.5	
Input resistor	R_1	3.2	4.7	6.2	kΩ
Resistor ratio	R_1/R_2	0.9	1	1.1	-
AC Characteristics					
Transition frequency I_C = 10 mA, V_{CE} = 5 V, f = 100 MHz	f_T	-	140	-	MHz
Collector-base capacitance V_{CB} = 10 V, f = 1 MHz	C_{cb}	-	3	-	pF

[1]Pulse test: t < 300µs; D < 2%

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

V_{CE} = 5 V (common emitter configuration)
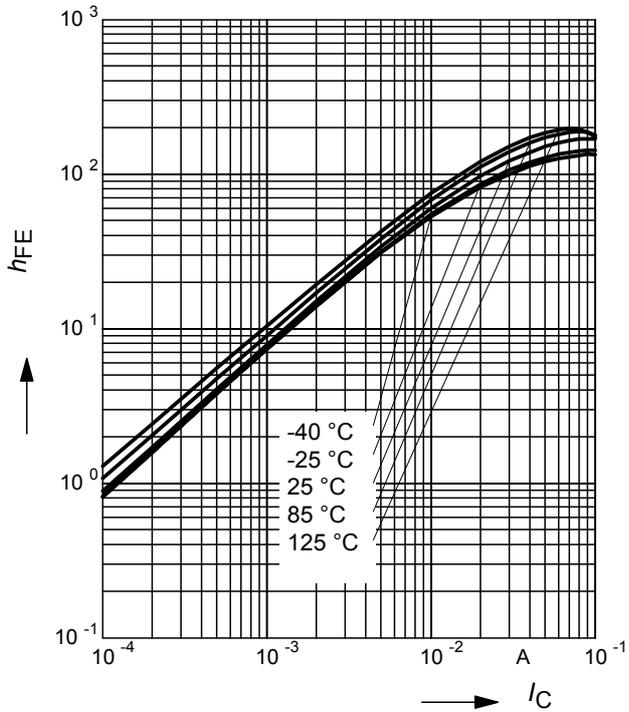
Collector-emitter saturation voltage

$V_{CEsat} = f(I_C)$, I_C/I_B = 20
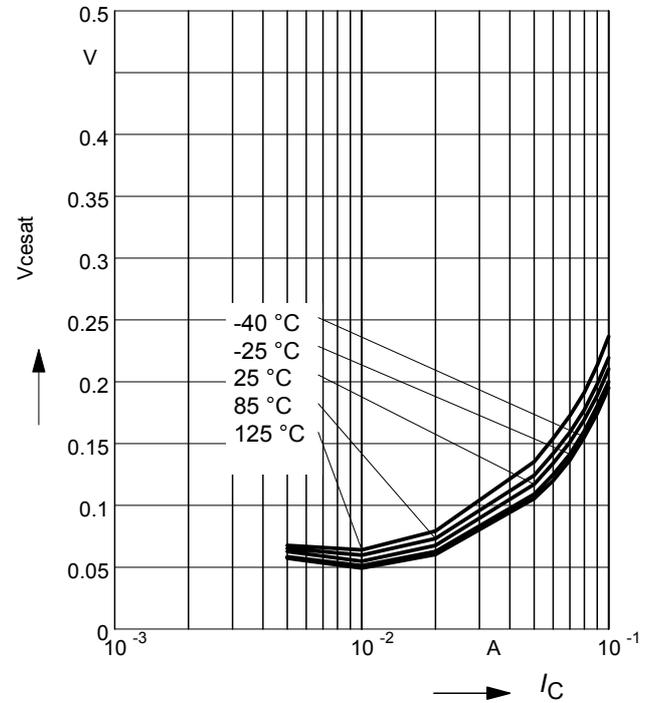
Input on Voltage $V_{i(on)} = f(I_C)$

V_{CE} = 0.3V (common emitter configuration)
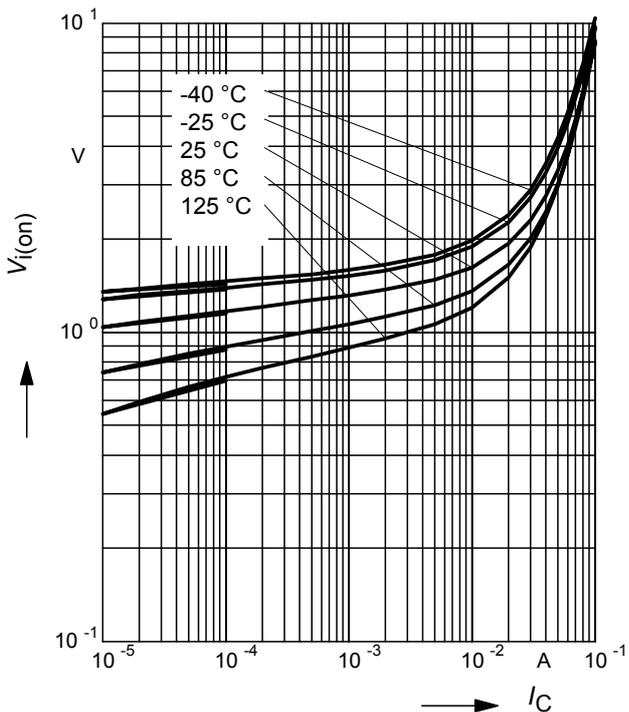
Input off voltage $V_{i(off)} = f(I_C)$

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

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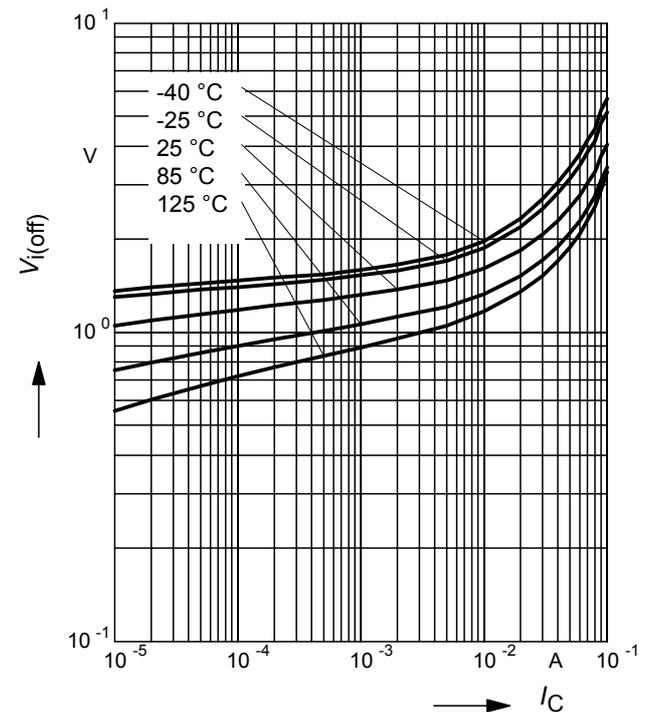
**Total power dissipation** $P_\text{tot} = f(T_S)$
BCR112
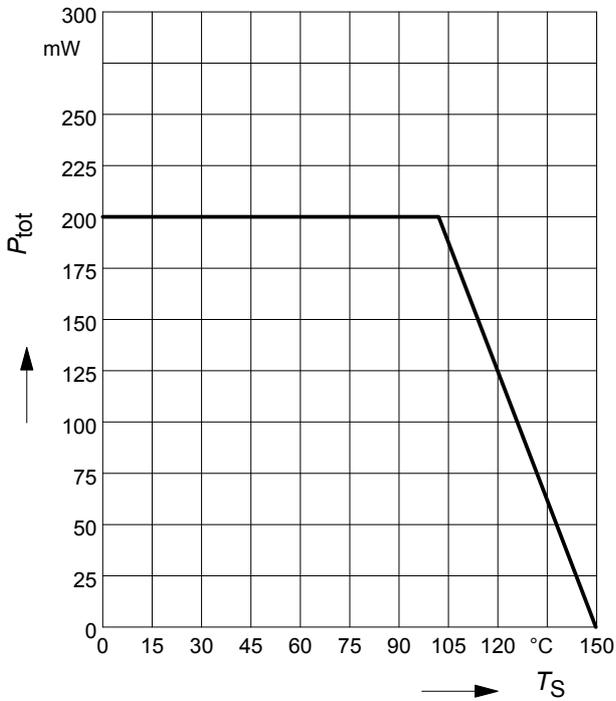
Total power dissipation $P_\text{tot} = f(T_S)$
BCR112W
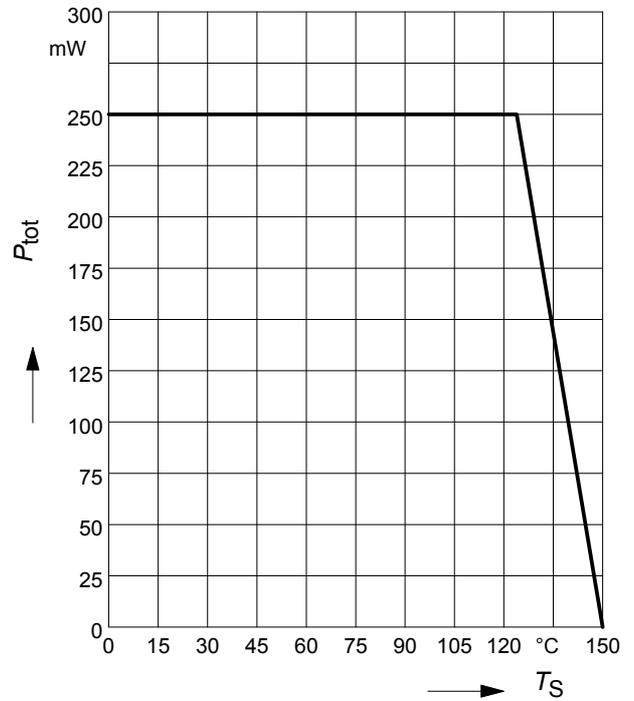
Permissible Pulse Load $R_\text{thJS} = f(t_p)$
BCR112
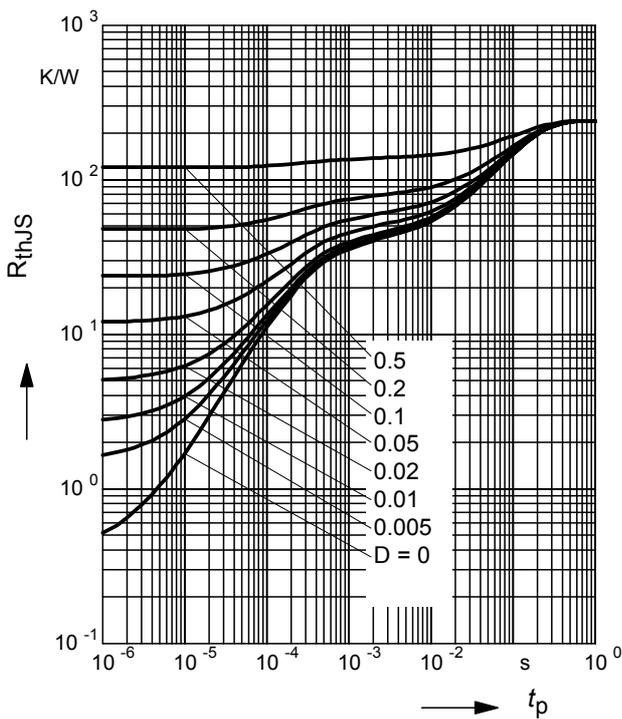
Permissible Pulse Load

$P_\text{totmax}/P_\text{totDC} = f(t_p)$
BCR112

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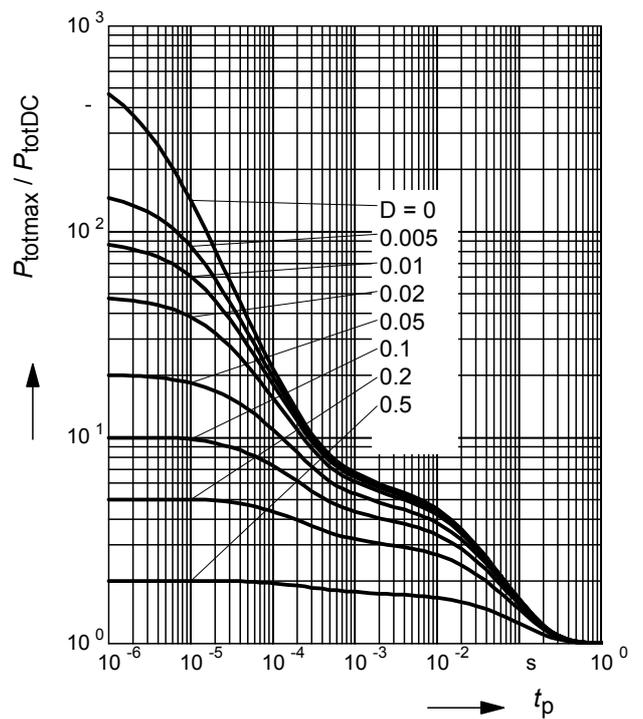
Permissible Puls Load $R_{thJS} = f(t_p)$

BCR112W

Permissible Pulse Load

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

BCR112W

2011-09-15

Package Outline

2.9 ±0.1 B
3
1
2
0.4 +0.1 -0.05 1)
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
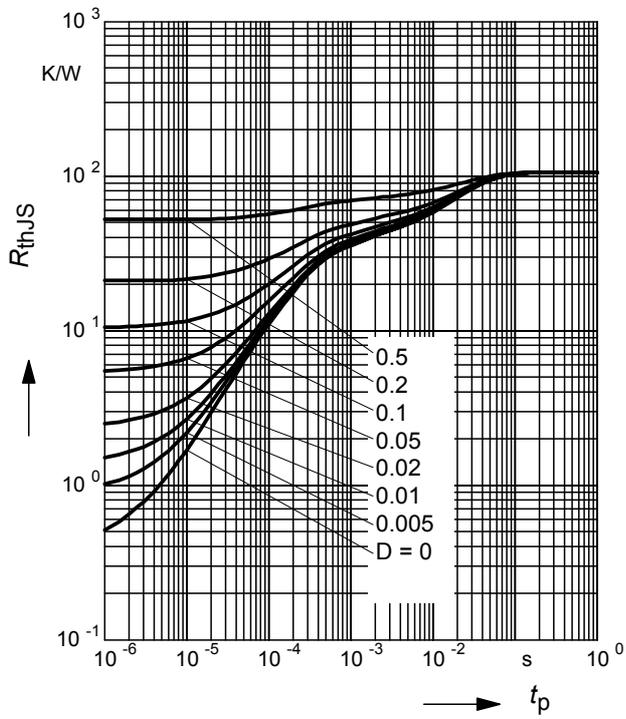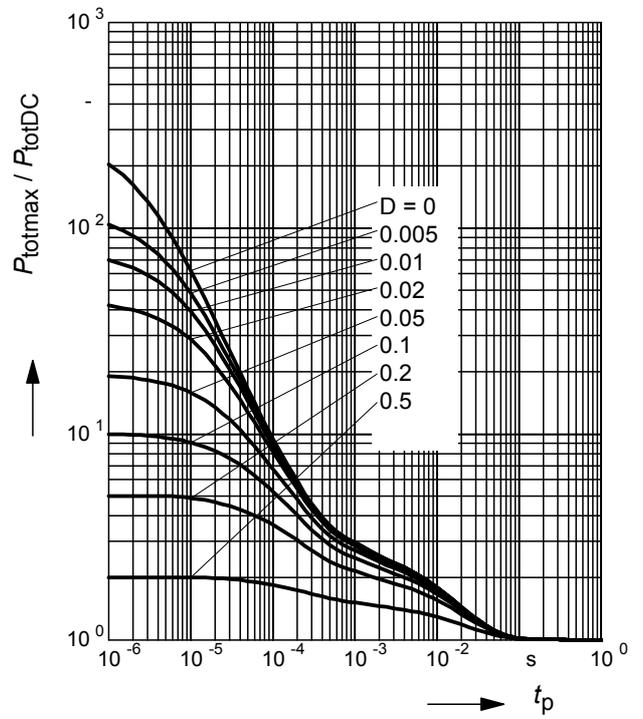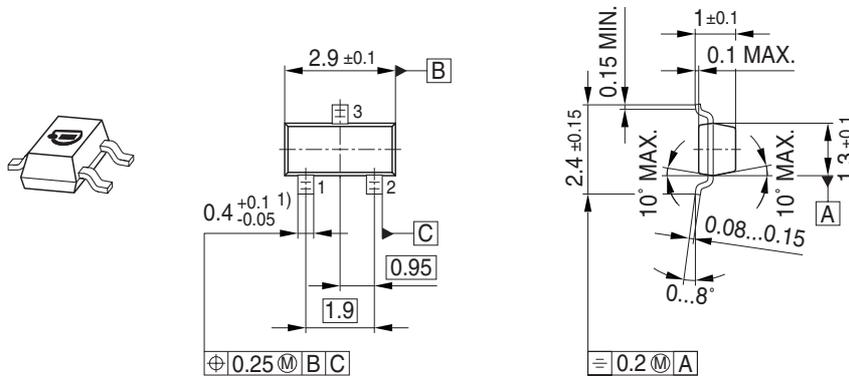
1) Lead width can be 0.6 max. in dambar area

Foot Print
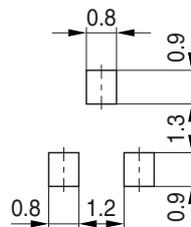
0.8
0.9
1.3
0.8   1.2
0.9

Marking Layout (Example)

Infineon
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

Package Outline

Foot Print
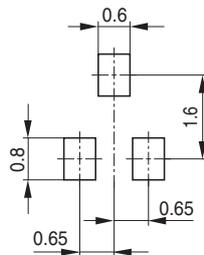
Marking Layout (Example)
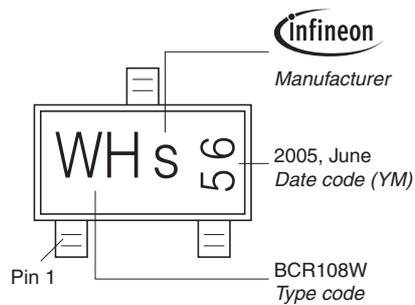
Manufacturer

WH s 5 6

2005, June
Date code (YM)

Pin 1

BCR108W
Type code

Standard Packing

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

Pin 1
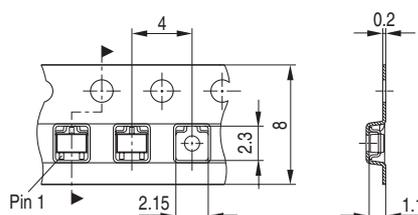
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