NPN Silicon Digital Transistor

- Switching circuit, inverter, interface circuit, driver circuit

- Built in bias resistor (R_1=4.7kΩ, R_2=4.7kΩ)

- BCR112U: Two internally isolated transistors with good matching in one multichip package

- BCR112U: For orientation in reel see package information below

- Pb-free (RoHS compliant) package[1]

- Qualified according AEC Q101

BCR112/F
BCR112W

EHA07184
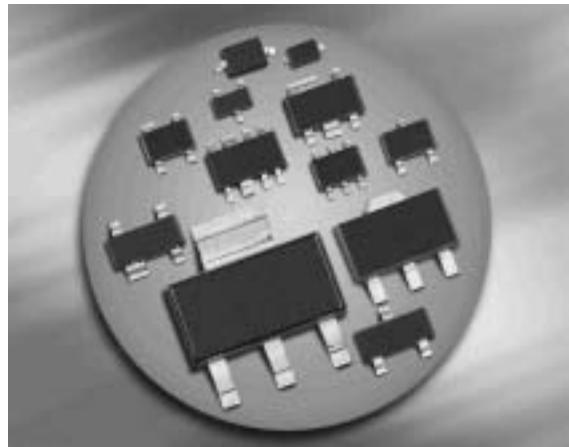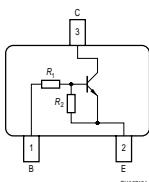
Type	Marking	Pin Configuration						Package
BCR112	WFs	1=B	2=E	3=C	-	-	-	SOT23
BCR112F	WFs	1=B	2=E	3=C	-	-	-	TSFP-3
BCR112W	WFs	1=B	2=E	3=C	-	-	-	SOT323

[1]Pb-containing package may be available upon special request

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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, $T_S \leq 102°C$ BCR112F, $T_S \leq 128°C$ BCR112W, $T_S \leq 124°C$	P_{tot}	 200 250 250	mW
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	-65 ... 150	

Thermal Resistance

Parameter	Symbol	Value	Unit
Junction - soldering point[1)] BCR112 BCR112F BCR112W	R_{thJS}	 ≤ 240 ≤ 90 ≤ 105 -	K/W

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

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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%

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

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

Collector-emitter saturation voltage
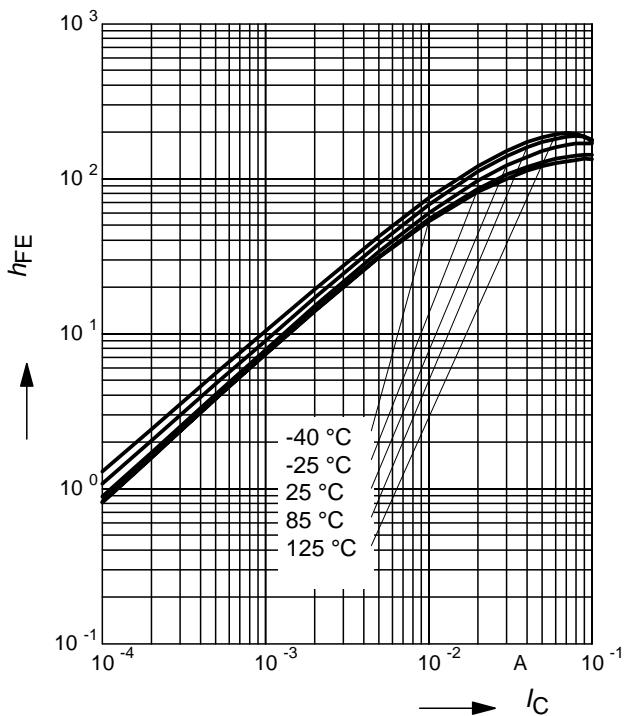
$V_{CEsat} = f(I_C)$, $I_C/I_B = 20$

Input on Voltage $V_{i(on)} = f(I_C)$

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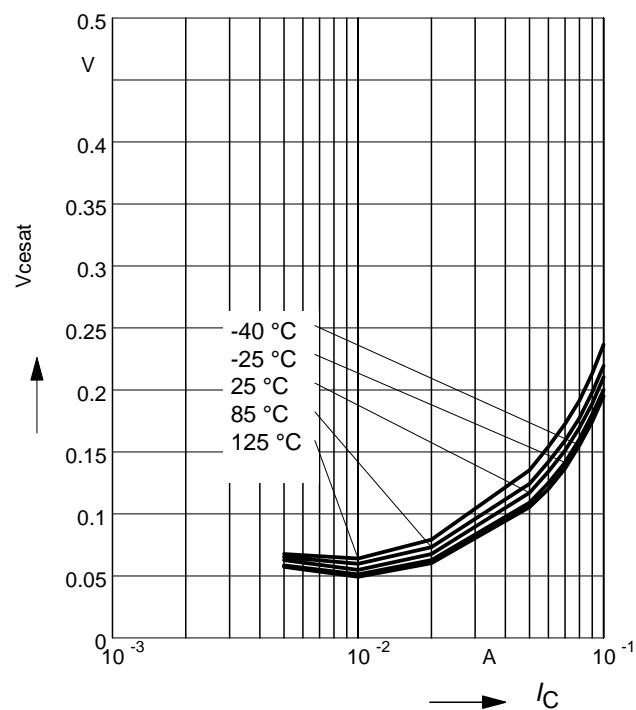
Input off voltage $V_{i(off)} = f(I_C)$

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

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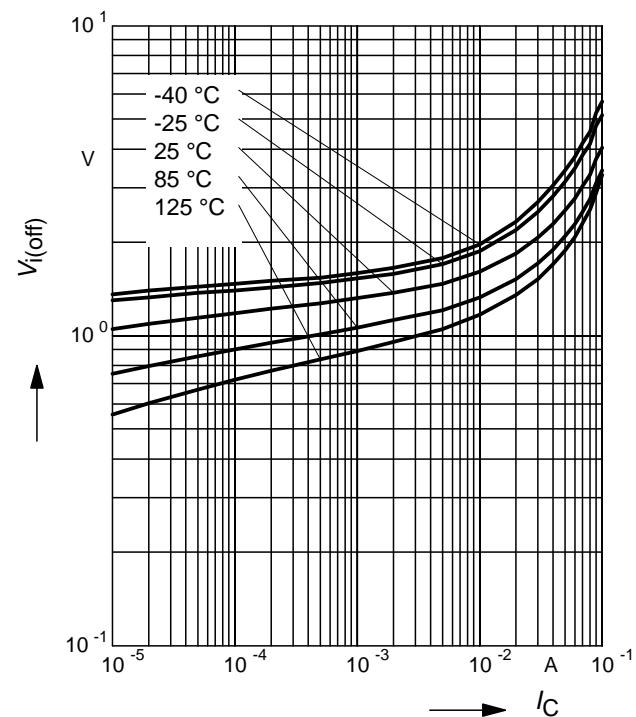
**Total power dissipation** $P_{tot} = f(T_S)$
BCR112
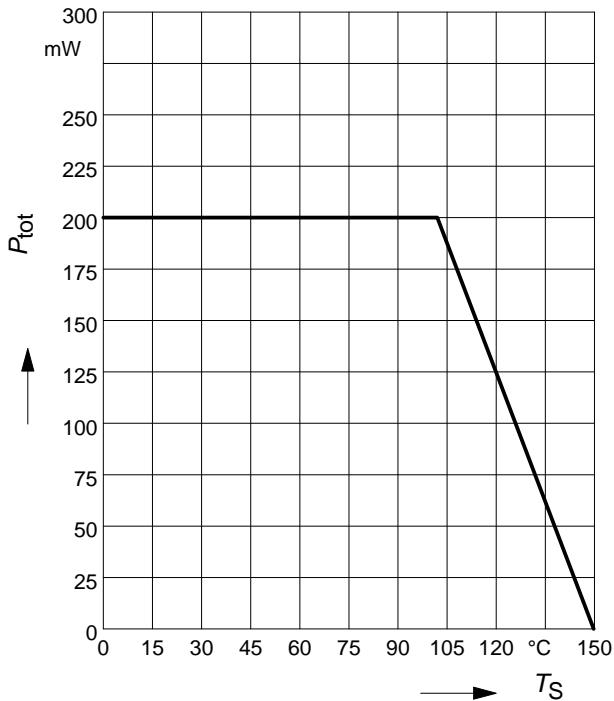
Total power dissipation $P_{tot} = f(T_S)$
BCR112F
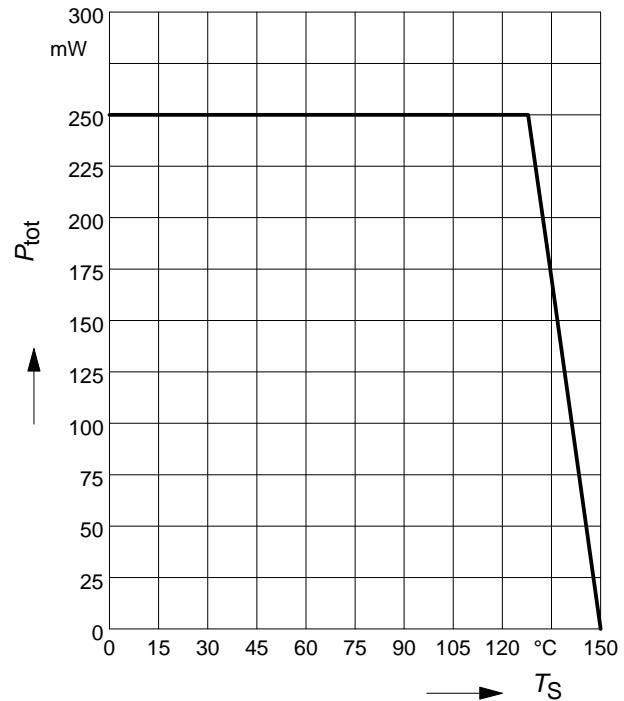
Total power dissipation $P_{tot} = f(T_S)$
BCR112W
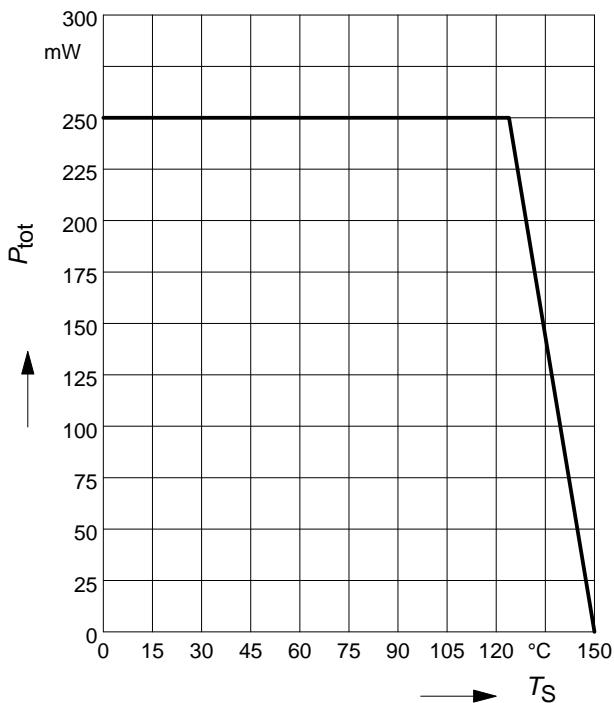
**Permissible Pulse Load** $R_{thJS} = f(t_p)$
BCR112

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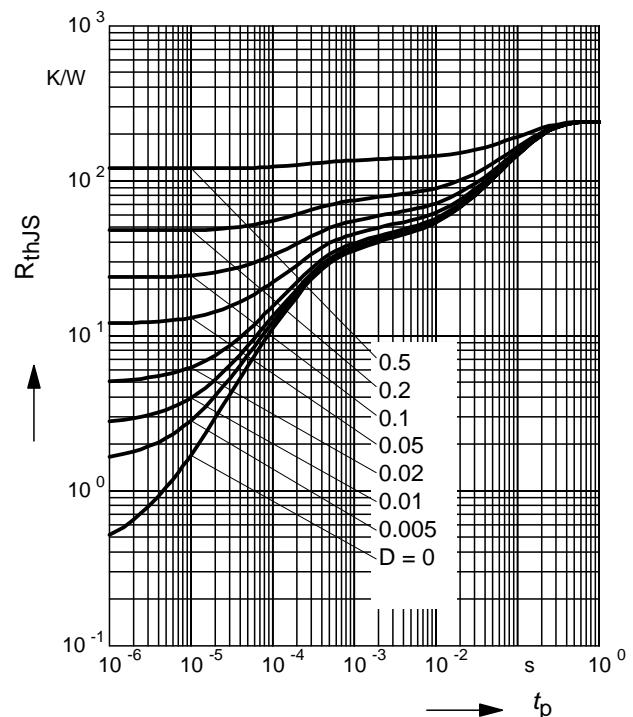
Permissible Pulse Load

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

BCR112
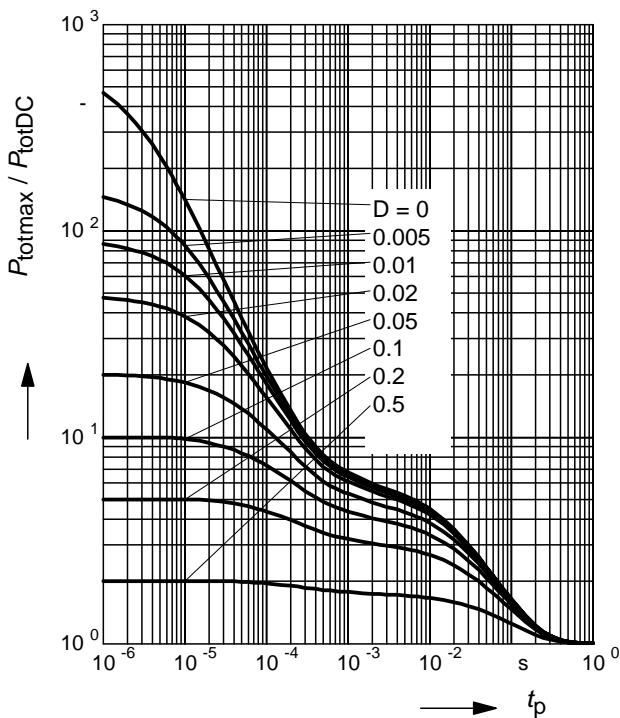
**Permissible Puls Load** $R_{\text{thJS}} = f(t_p)$

BCR112F
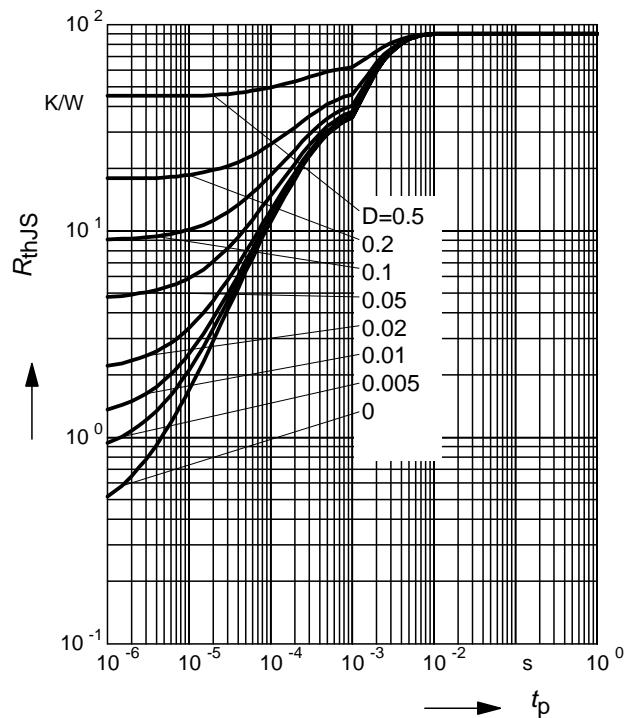
Permissible Pulse Load

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

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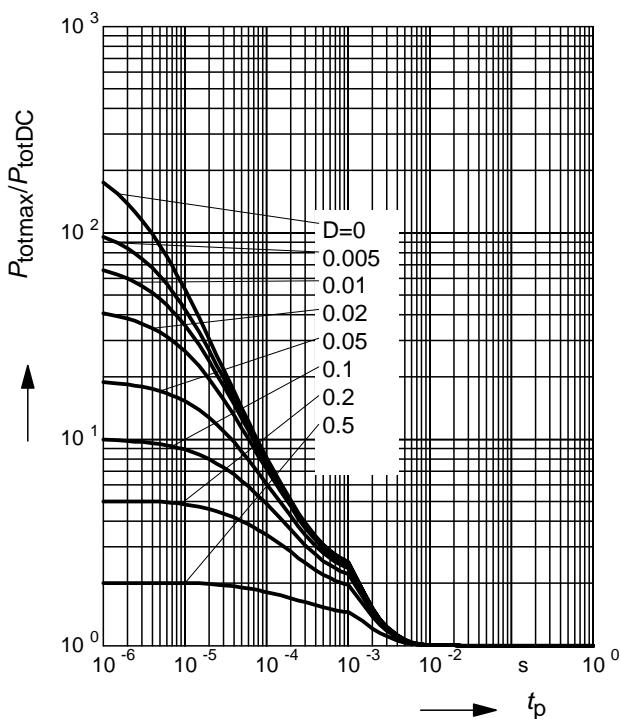

**Permissible Puls Load** $R_{\text{thJS}} = f(t_p)$

BCR112W

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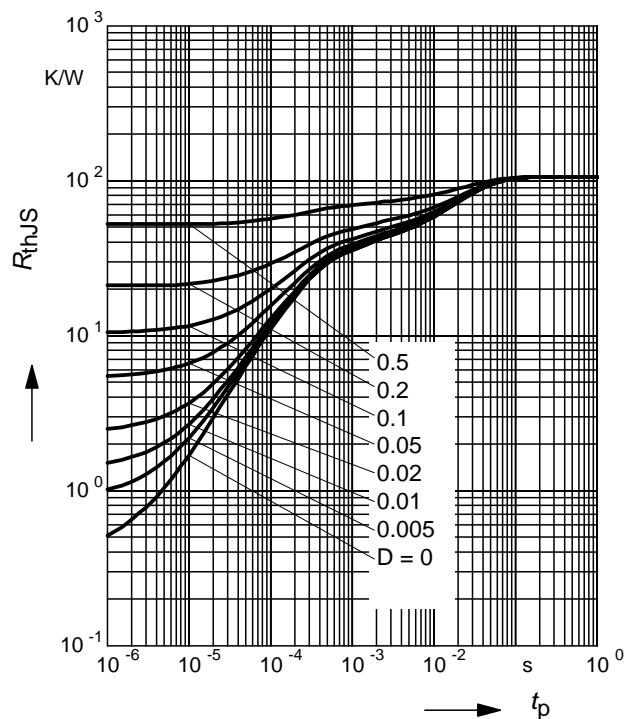
Permissible Pulse Load

$P_\text{totmax}/P_\text{totDC} = f(t_\text{p})$

BCR112W

2007-09-17
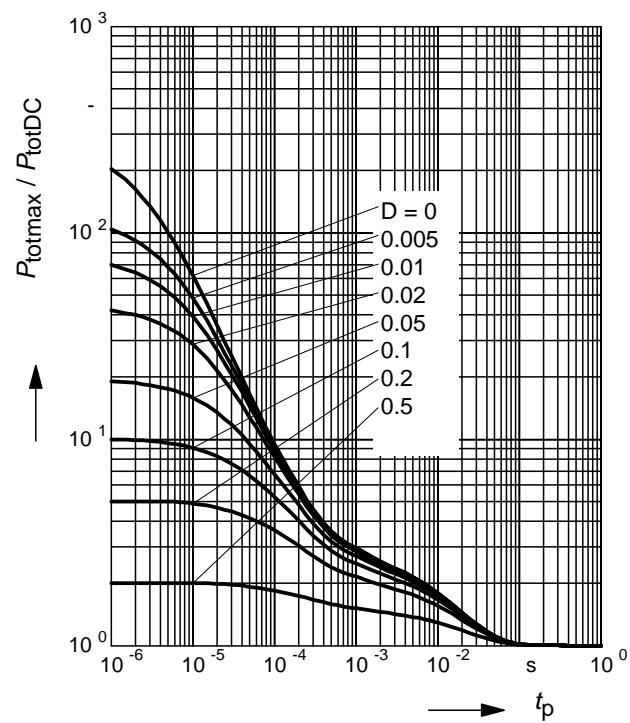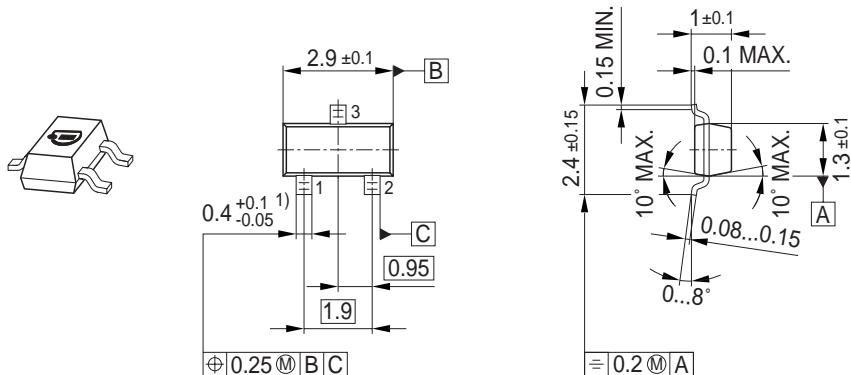
Package Outline

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

Foot Print
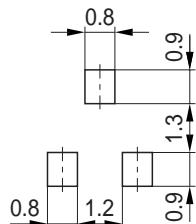
Marking Layout (Example)
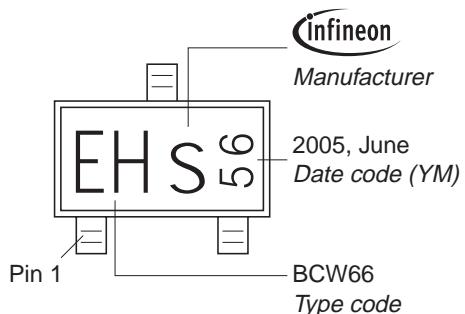
Infineon
Manufacturer

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

Pin 1
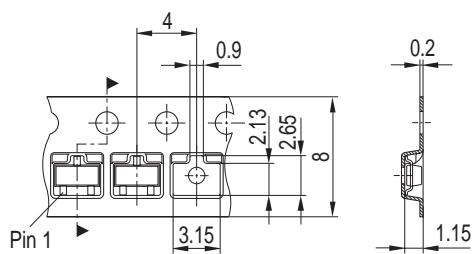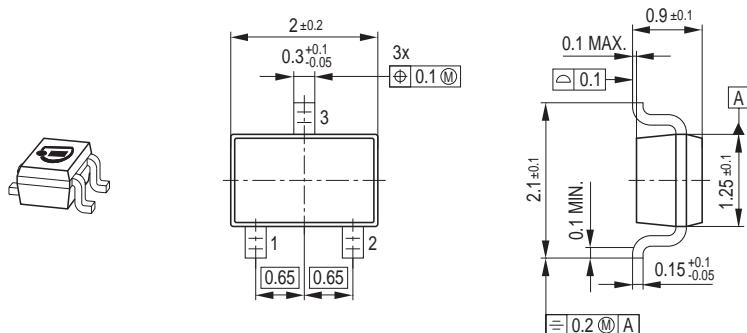
Package Outline

Foot Print
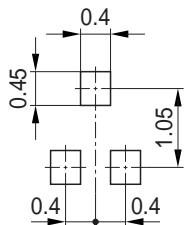
Marking Layout (Example)
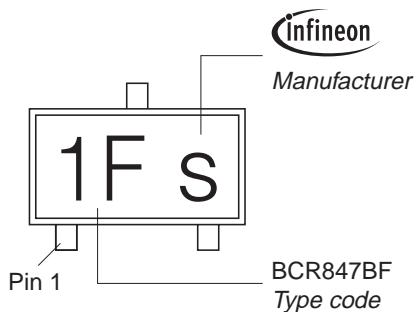
Manufacturer

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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Package Outline

1.2 ±0.05
0.2 ±0.05
0.55 ±0.04
0.8 ±0.05
1.2 ±0.05
0.2 ±0.05
10° MAX.
0.15 ±0.05
0.2 ±0.05
0.4 ±0.05
0.4 ±0.05

Foot Print

0.4
0.45
1.05
0.4
0.4

Marking Layout (Example)

Manufacturer

1F s

Pin 1

BCR847BF
Type code

Standard Packing

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

4
0.3
0.2
1.2
1.5
8
Pin 1
1.35
0.7
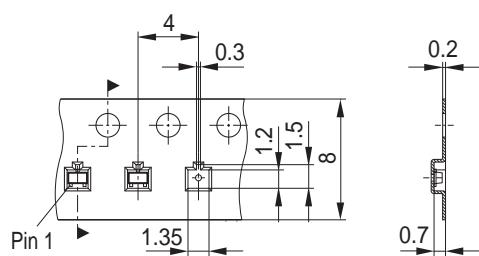
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