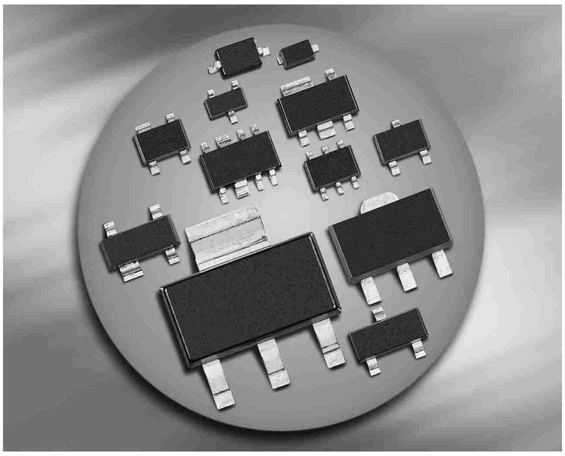
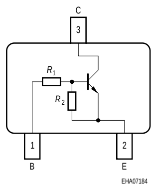
NPN Silicon Digital Transistor



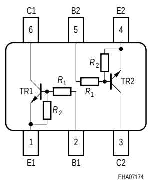
- Switching circuit, inverter, interface circuit, driver circuit
- Built in bias resistor (R_1=2.2 kΩ, R_2=47 kΩ)
- BCR108S: Two internally isolated transistors with good matching in one multichip package
- BCR108S: For orientation in reel see package information below
- Pb-free (RoHS compliant) package
- Qualified according AEC Q101

AEC Qualified RoHS

BCR108
BCR108W



BCR108S



Type	Marking	Pin Configuration						Package
BCR108	WHs	1=B	2=E	3=C	-	-	-	SOT23
BCR108S	WHs	1=E1	2=B1	3=C2	4=E2	5=B2	6=C1	SOT363
BCR108W	WHs	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	$V_{i(fwd)}$	20	
Input reverse voltage	$V_{i(rev)}$	5	
Collector current	I_C	100	mA
Total power dissipation- BCR108, $T_S \leq 102°C$ BCR108S, $T_S \leq 115°C$ BCR108W, $T_S \leq 124°C$	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)] BCR108 BCR108S BCR108W	R_{thJS}	 ≤ 240 ≤ 140 ≤ 105	K/W

[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

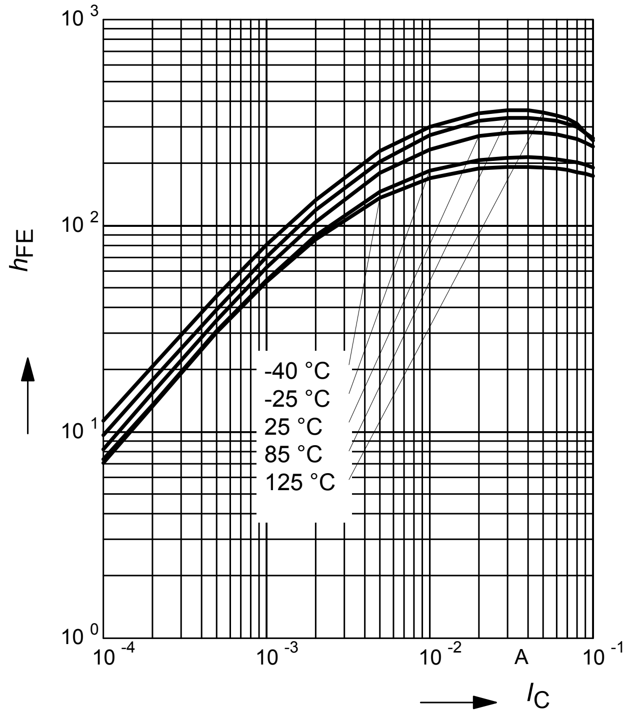
Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC Characteristics					
Collector-emitter breakdown voltage I_C = 100 µA, I_B = 0	$V_{(BR)CEO}$	50	-	-	V
Collector-base breakdown voltage I_C = 10 µA, I_E = 0	$V_{(BR)CBO}$	50	-	-	
Collector-base cutoff current V_{CB} = 40 V, I_E = 0	I_{CBO}	-	-	100	nA
Emitter-base cutoff current V_{EB} = 5 V, I_C = 0	I_{EBO}	-	-	164	µA
DC current gain[1)] I_C = 5 mA, V_{CE} = 5 V	h_{FE}	70	-	-	-
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	$V_{i(off)}$	0.4	-	0.8	
Input on voltage I_C = 2 mA, V_{CE} = 0.3 V	$V_{i(on)}$	0.5	-	1.1	
Input resistor	R_1	1.5	2.2	2.9	kΩ
Resistor ratio	R_1/R_2	0.042	0.047	0.052	-
AC Characteristics					
Transition frequency I_C = 10 mA, V_{CE} = 5 V, f = 1 MHz	f_T	-	170	-	MHz
Collector-base capacitance V_{CB} = 10 V, f = 1 MHz	C_{cb}	-	2	-	pF

[1]Pulse test: t < 300µs; D < 2%

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

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

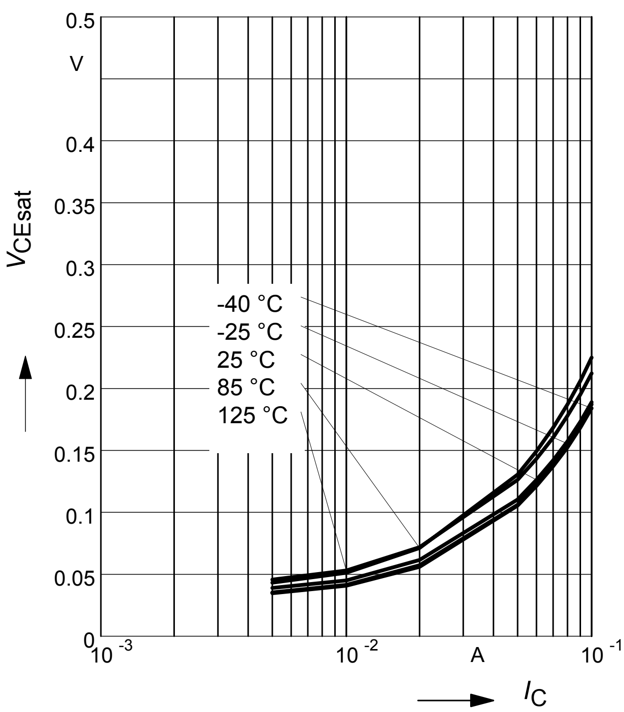
T_A = Parameter



Collector-emitter saturation voltage

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

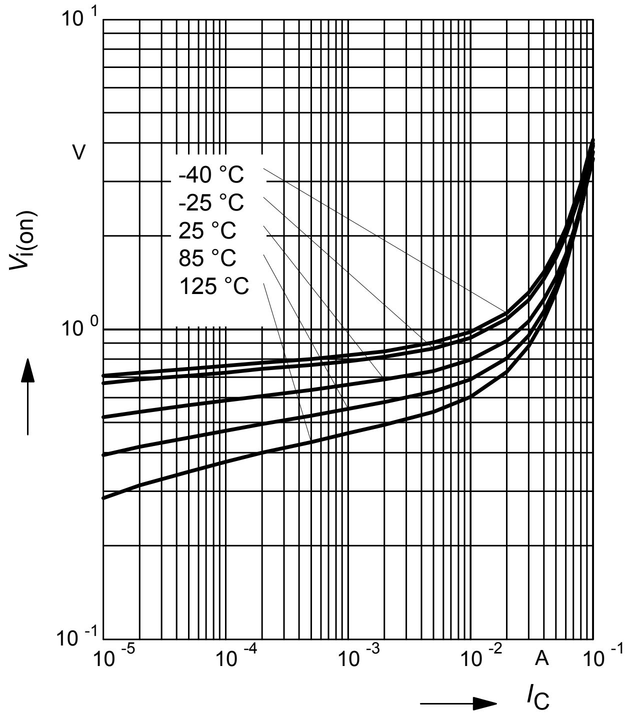
T_A = Parameter



Input on Voltage $Vi_{(on)} = f(I_C)$

V_{CE} = 0.3V (common emitter configuration)

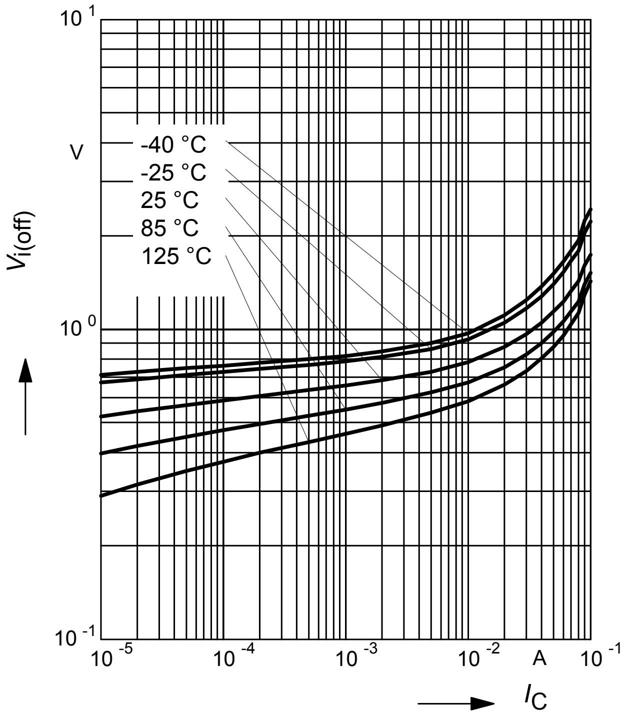
T_A = Parameter



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

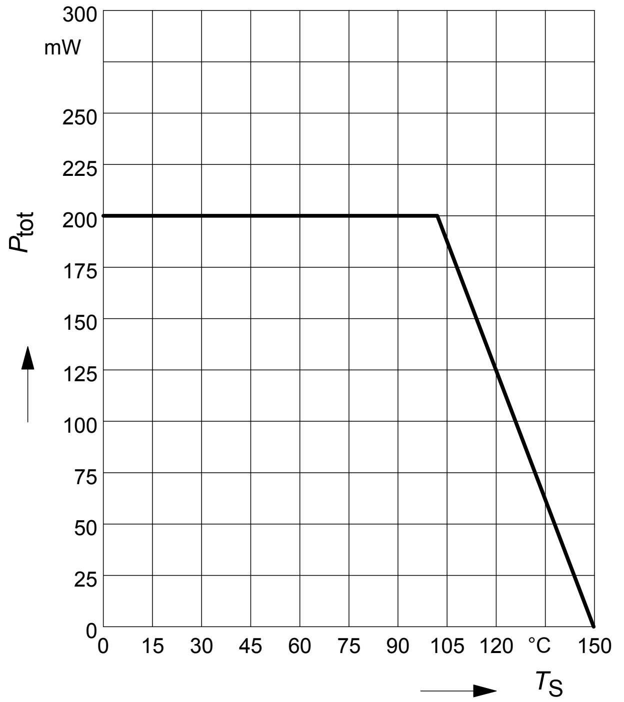
V_{CE} = 5V (common emitter configuration)

T_A = Parameter



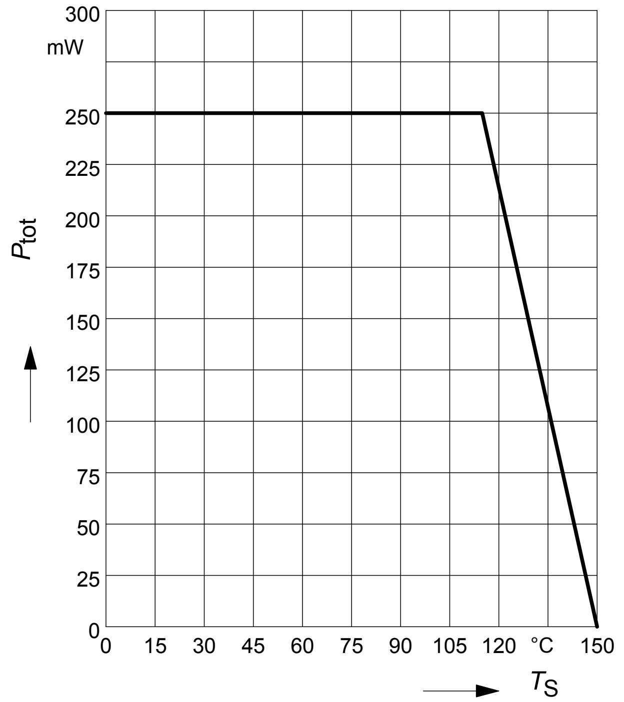
Total power dissipation $P_{tot} = f(T_S)$

BCR108



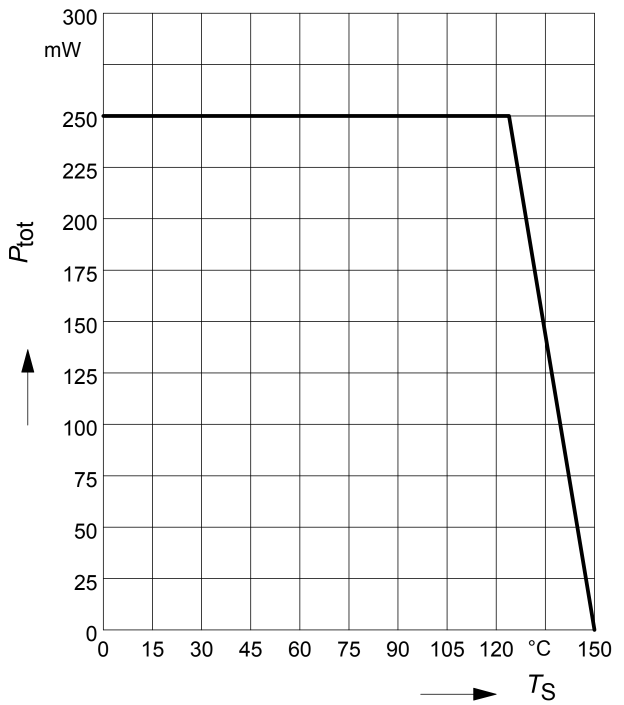
Total power dissipation $P_{tot} = f(T_S)$

BCR108S



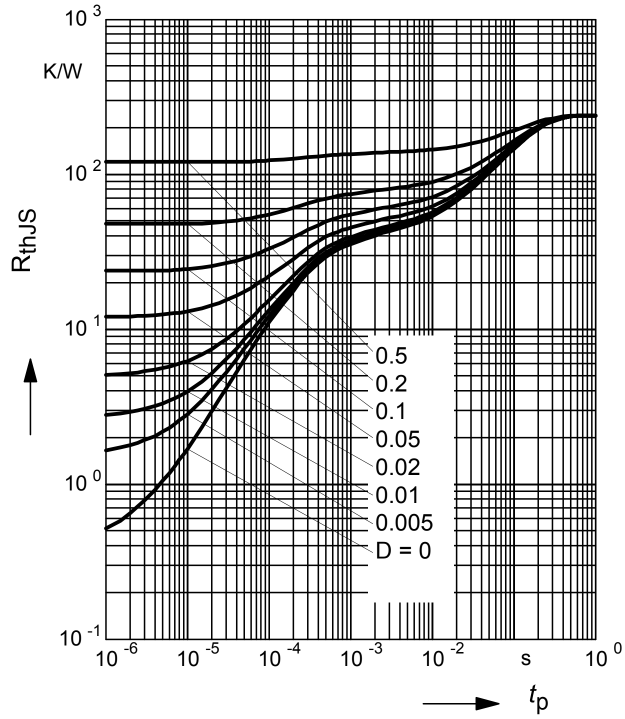
Total power dissipation $P_{tot} = f(T_S)$

BCR108W



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

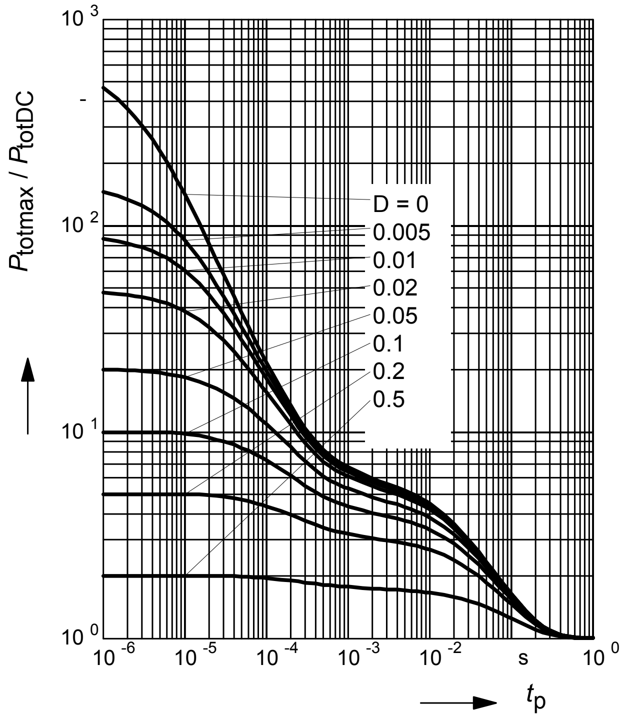
BCR108



Permissible Pulse Load

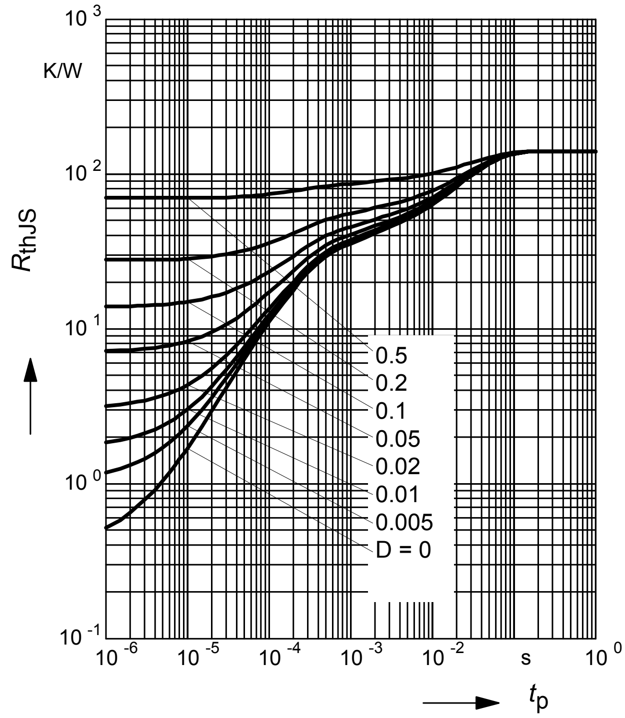
$P_{totmax}/P_{totDC} = f(t_p)$

BCR108



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

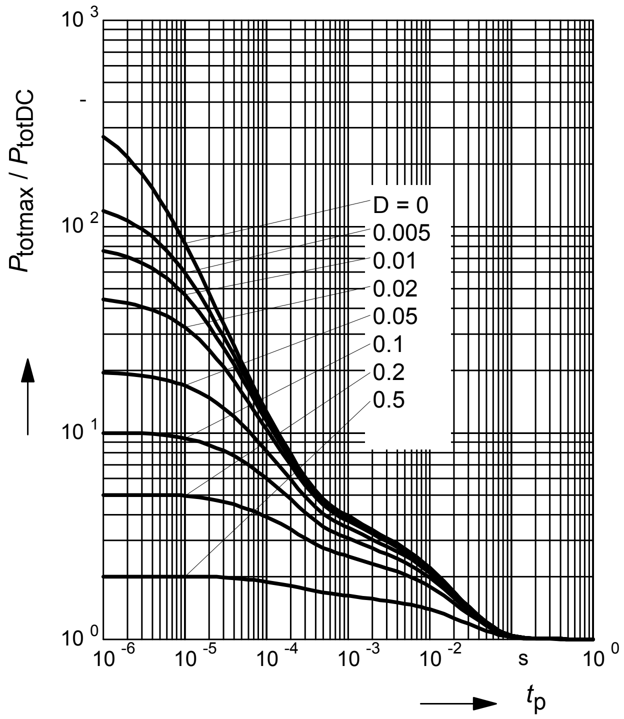
BCR108S



Permissible Pulse Load

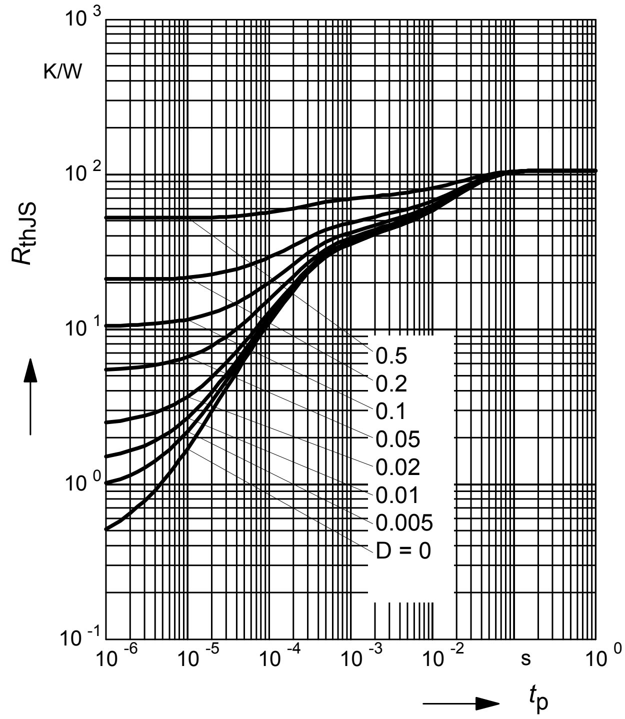
$P_{totmax}/P_{totDC} = f(t_p)$

BCR108S



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

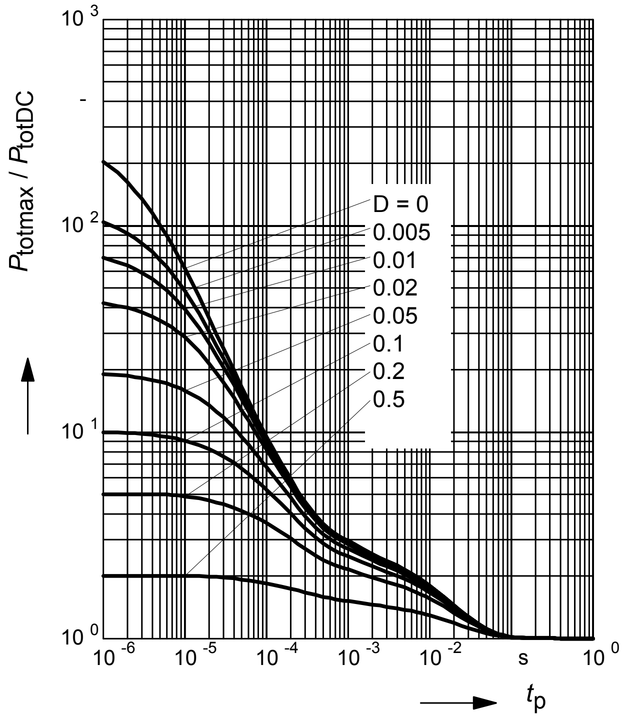
BCR108W



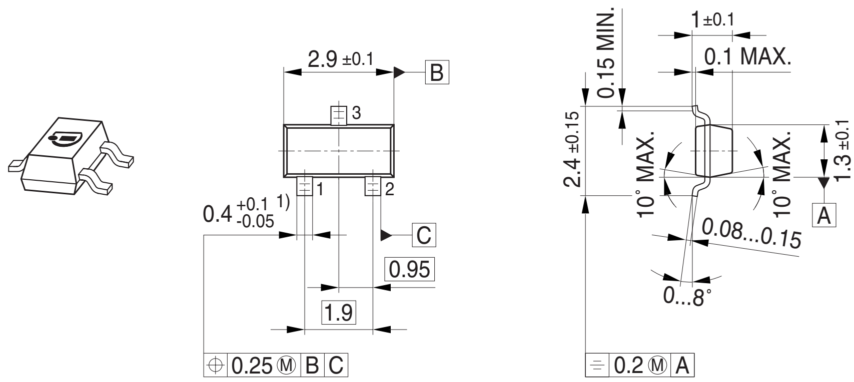
Permissible Pulse Load

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

BCR108W

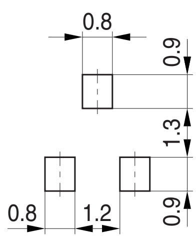


Package Outline

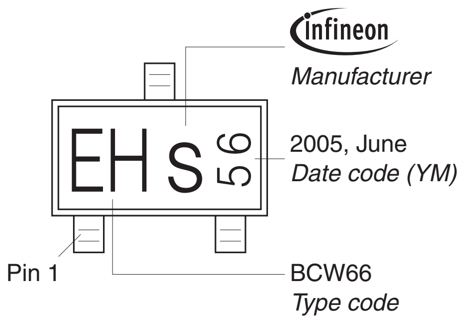


1) Lead width can be 0.6 max. in dambar area

Foot Print

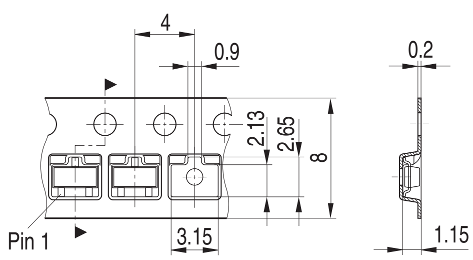


Marking Layout (Example)

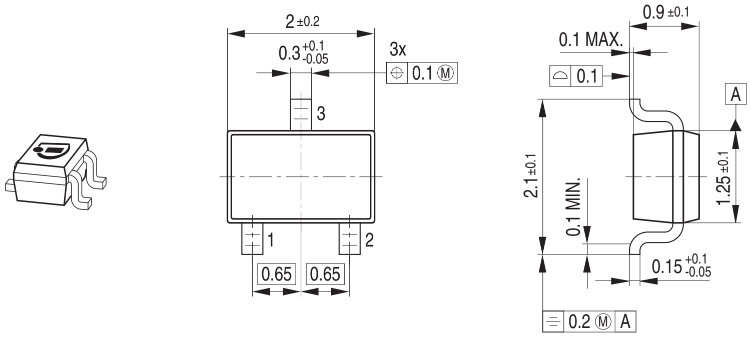


Standard Packing

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



Package Outline



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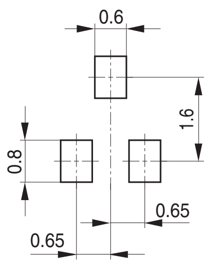
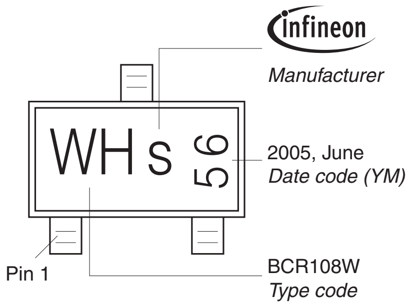
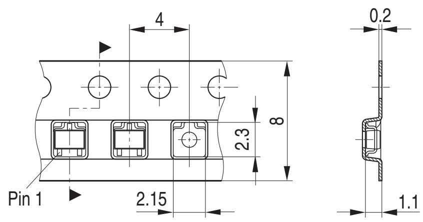


Marking Layout (Example)

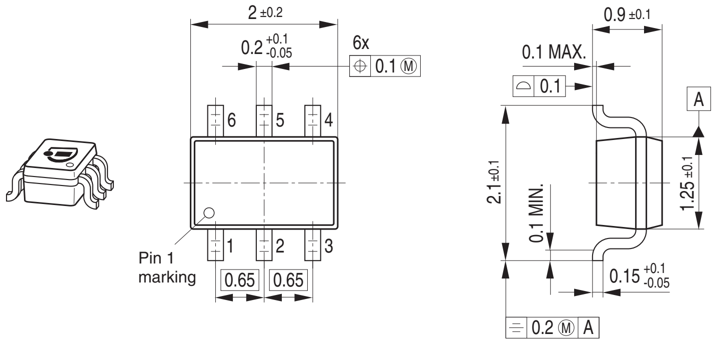


Standard Packing

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



Package Outline



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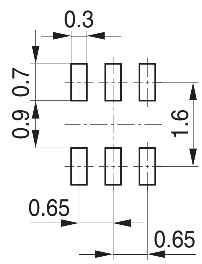
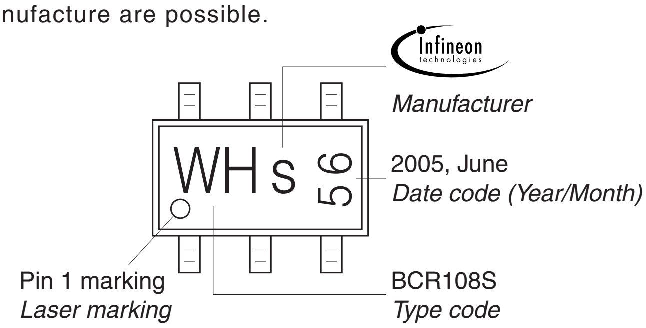


Marking Layout (Example)

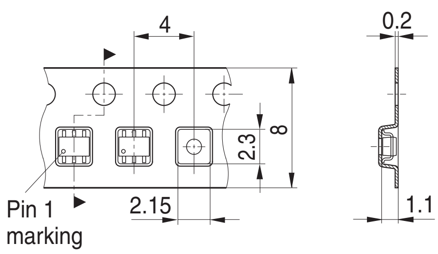
Small variations in positioning of
Date code, Type code and Manufacture are possible.



Standard Packing

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

For symmetric types no defined Pin 1 orientation in reel.



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