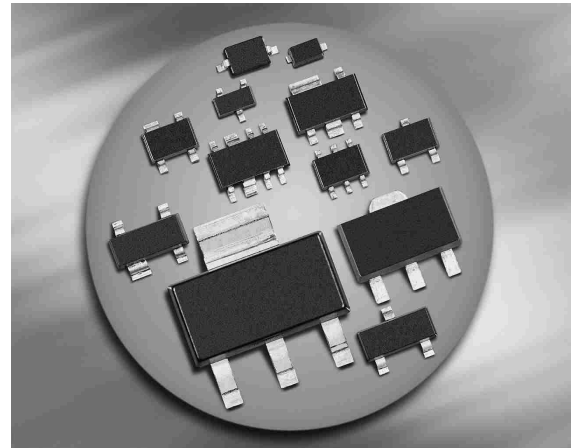




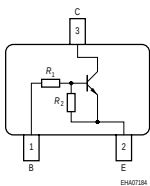
THE DATASHEET OF BCR116SE6327

NPN Silicon Digital Transistor

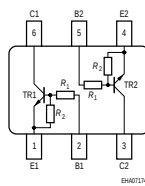
- Switching circuit, inverter, interface circuit, driver circuit
- Built in bias resistor ($R_1=4.7\text{ k}\Omega$, $R_2=47\text{ k}\Omega$)
- BCR116S: Two internally isolated transistors with good matching in one multichip package
- BCR116S: For orientation in reel see package information below
- Pb-free (RoHS compliant) package
- Qualified according AEC Q101



BCR116 BCR116W



BCR116S



Type	Marking	Pin Configuration						Package
BCR116	WG5	1=B	2=E	3=C	-	-	-	SOT23
BCR116S	WG5	1=E1	2=B1	3=C2	4=E2	5=B2	6=C1	SOT363
BCR116W	WG5	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	$V_{i(rev)}$	5	
Collector current	I_C	100	mA
Total power dissipation- BCR116, $T_S \leq 102^\circ\text{C}$ BCR116S, $T_S \leq 115^\circ\text{C}$ BCR116W, $T_S \leq 124^\circ\text{C}$	P_{tot}	200 250 250	mW
Junction temperature	T_j	150	
Storage temperature	T_{stg}	-65 ... 150	

Thermal Resistance

Parameter	Symbol	Value	Unit
Junction - soldering point ¹⁾	R_{thJS}		K/W
BCR116		≤ 240	
BCR116S		≤ 140	
BCR116W		≤ 105	

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

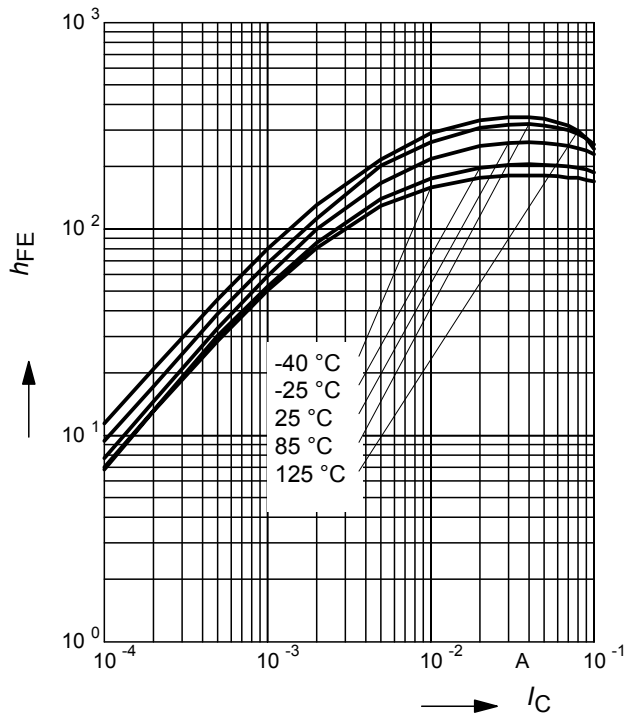
Electrical Characteristics at $T_A = 25^\circ\text{C}$, unless otherwise specified

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC Characteristics					
Collector-emitter breakdown voltage $I_C = 100\ \mu\text{A}$, $I_B = 0$	$V_{(\text{BR})\text{CEO}}$	50	-	-	V
Collector-base breakdown voltage $I_C = 10\ \mu\text{A}$, $I_E = 0$	$V_{(\text{BR})\text{CBO}}$	50	-	-	
Collector-base cutoff current $V_{\text{CB}} = 40\ \text{V}$, $I_E = 0$	I_{CBO}	-	-	100	nA
Emitter-base cutoff current $V_{\text{EB}} = 5\ \text{V}$, $I_C = 0$	I_{EBO}	-	-	155	μA
DC current gain ¹⁾ $I_C = 5\ \text{mA}$, $V_{\text{CE}} = 5\ \text{V}$	h_{FE}	70	-	-	-
Collector-emitter saturation voltage ¹⁾ $I_C = 10\ \text{mA}$, $I_B = 0.5\ \text{mA}$	V_{CEsat}	-	-	0.3	V
Input off voltage $I_C = 100\ \mu\text{A}$, $V_{\text{CE}} = 5\ \text{V}$	$V_{\text{i(off)}}$	0.4	-	0.8	
Input on voltage $I_C = 2\ \text{mA}$, $V_{\text{CE}} = 0.3\ \text{V}$	$V_{\text{i(on)}}$	0.5	-	1.4	
Input resistor	R_1	3.2	4.7	6.2	k Ω
Resistor ratio	R_1/R_2	0.09	0.1	0.11	-
AC Characteristics					
Transition frequency $I_C = 10\ \text{mA}$, $V_{\text{CE}} = 5\ \text{V}$, $f = 100\ \text{MHz}$	f_{T}	-	150	-	MHz
Collector-base capacitance $V_{\text{CB}} = 10\ \text{V}$, $f = 1\ \text{MHz}$	C_{cb}	-	3	-	pF

¹⁾Pulse test: $t < 300\ \mu\text{s}$; $D < 2\%$

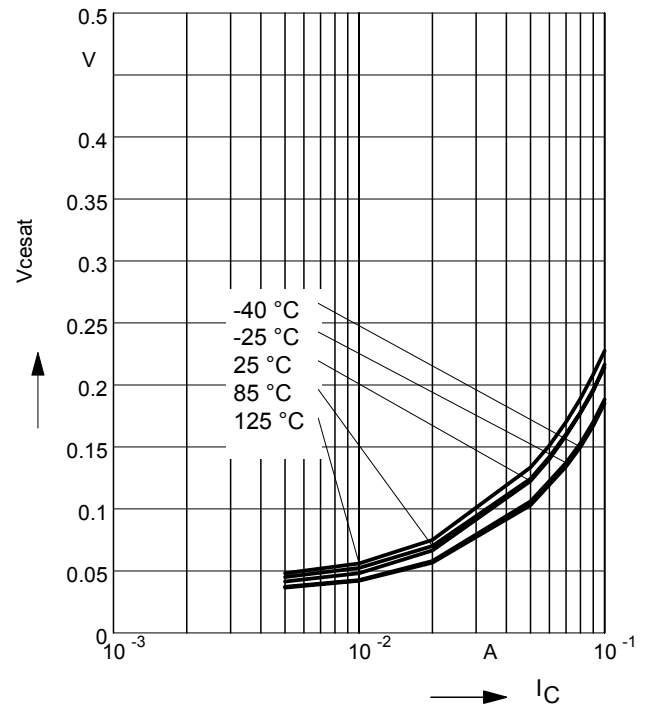
DC current gain $h_{FE} = f(I_C)$

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



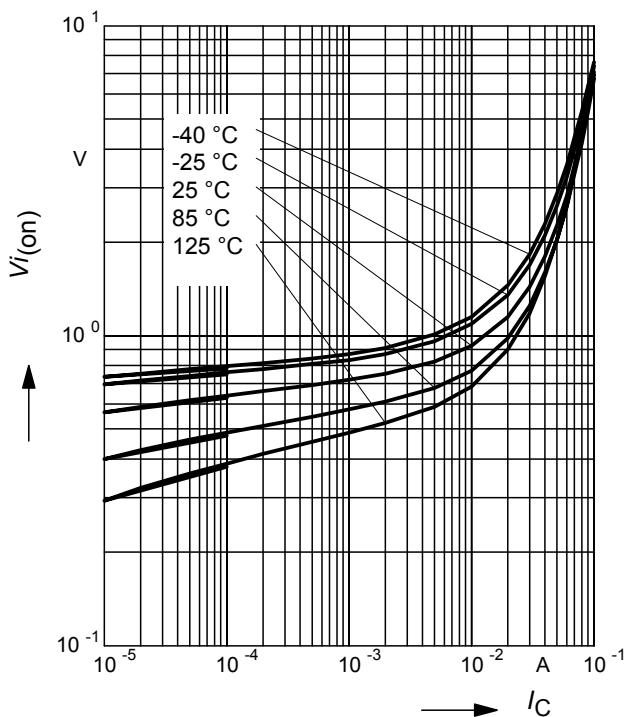
Collector-emitter saturation voltage

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



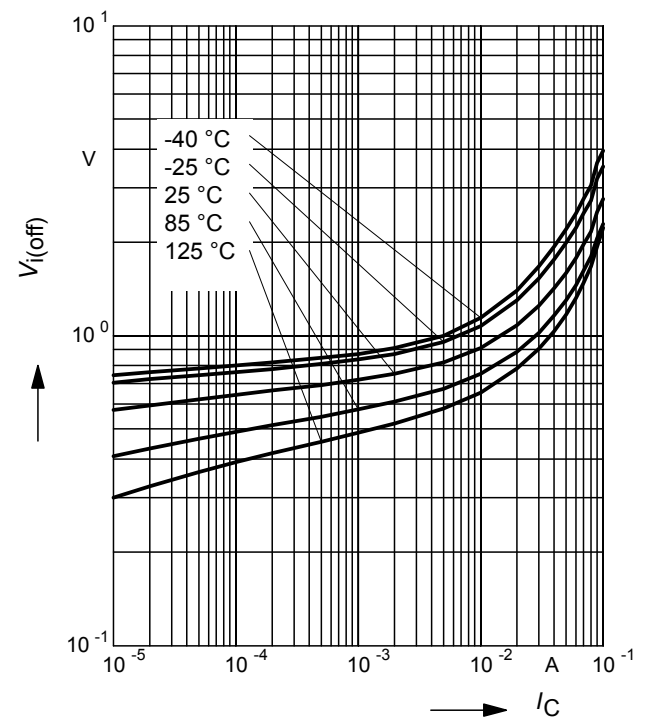
Input on Voltage $V_{i(on)} = f(I_C)$

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



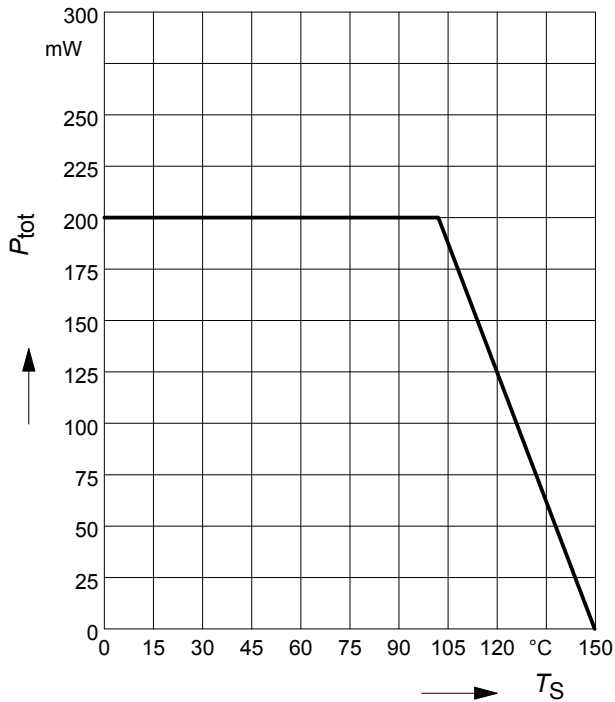
Input off voltage $V_{i(off)} = f(I_C)$

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



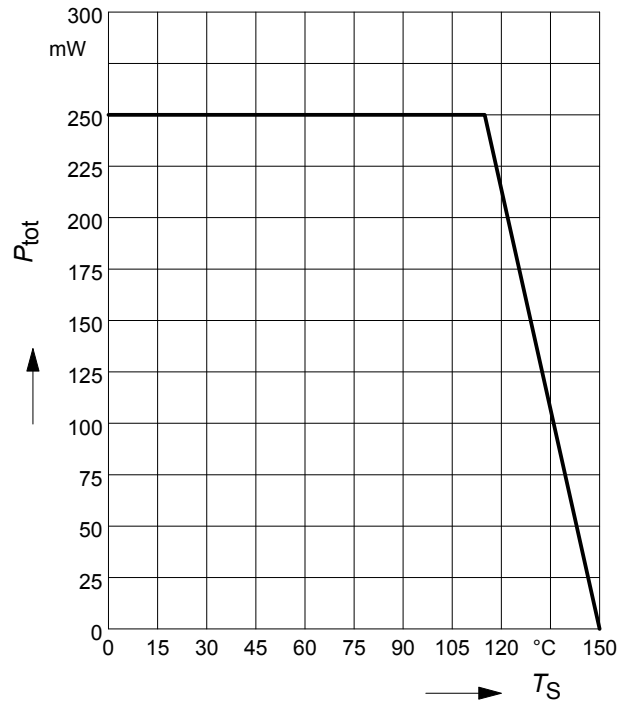
Total power dissipation $P_{\text{tot}} = f(T_S)$

BCR116



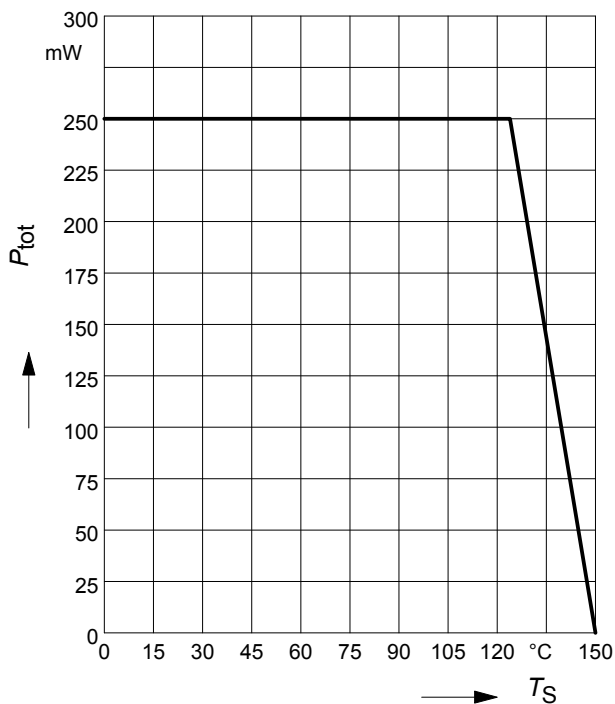
Total power dissipation $P_{\text{tot}} = f(T_S)$

BCR116S



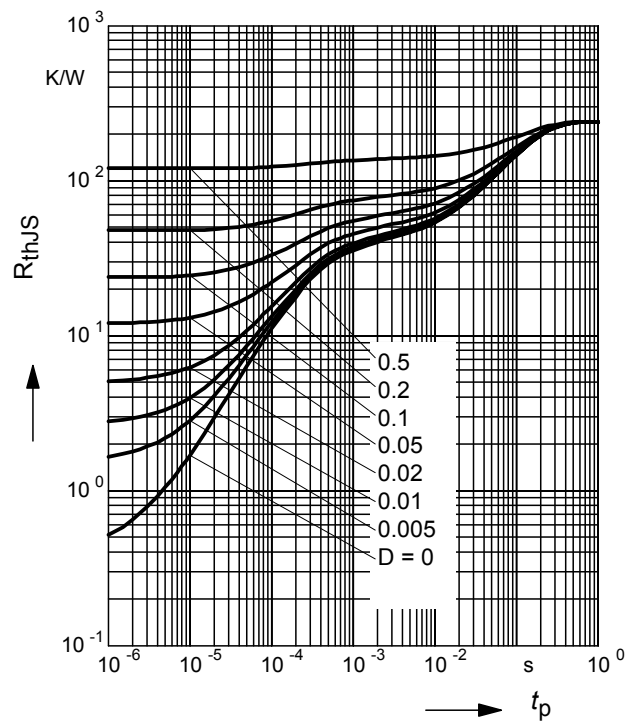
Total power dissipation $P_{\text{tot}} = f(T_S)$

BCR116W



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

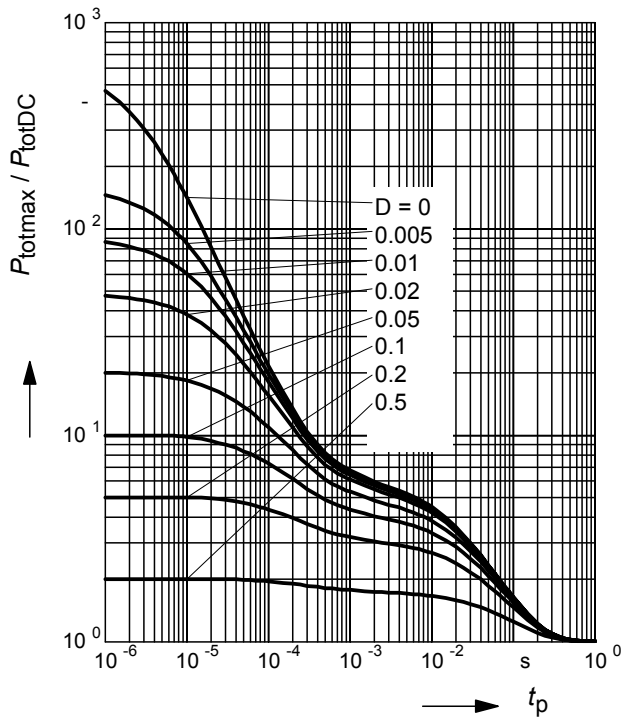
BCR116



Permissible Pulse Load

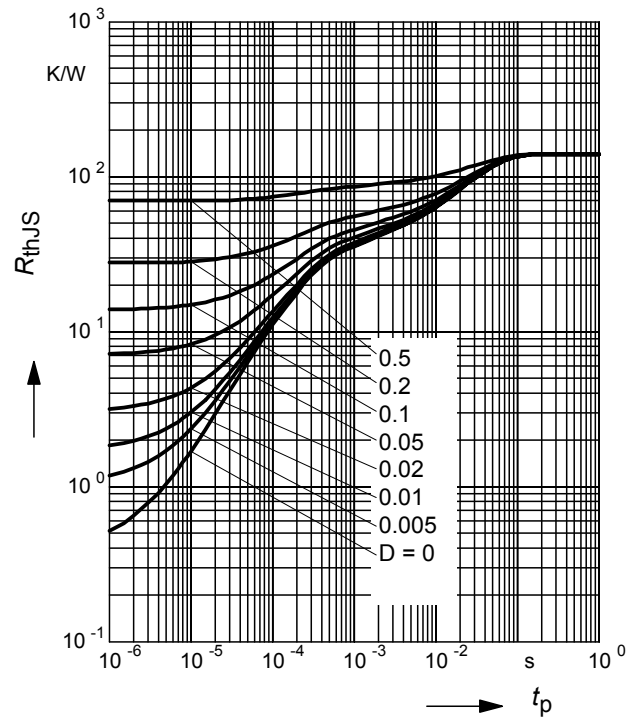
$$P_{\text{totmax}}/P_{\text{totDC}} = f(t_p)$$

BCR116



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

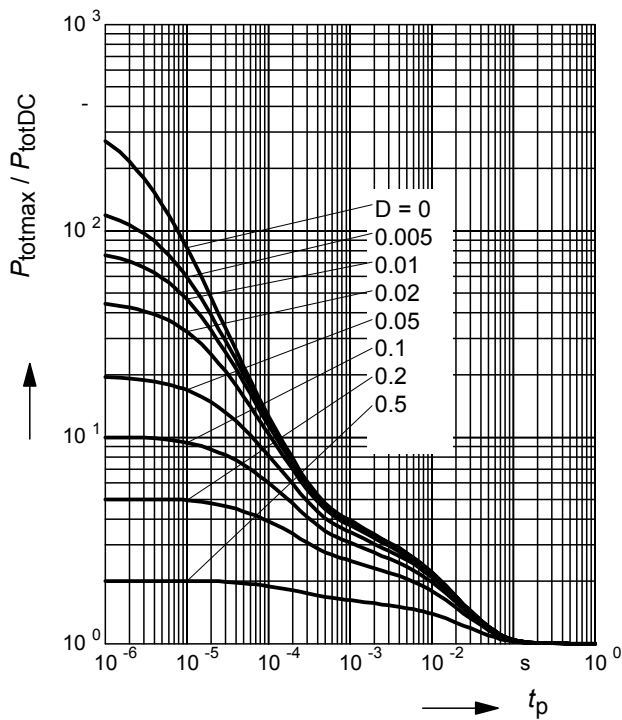
BCR116S



Permissible Pulse Load

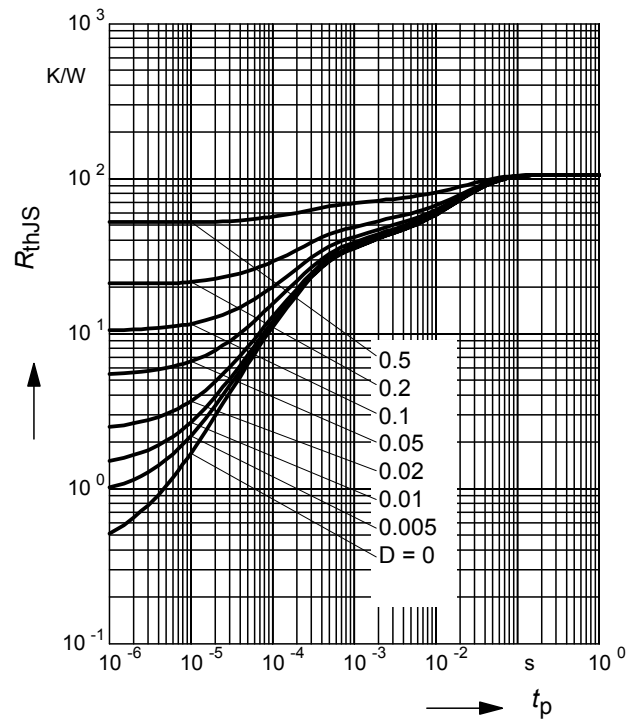
$$P_{\text{totmax}}/P_{\text{totDC}} = f(t_p)$$

BCR116S



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

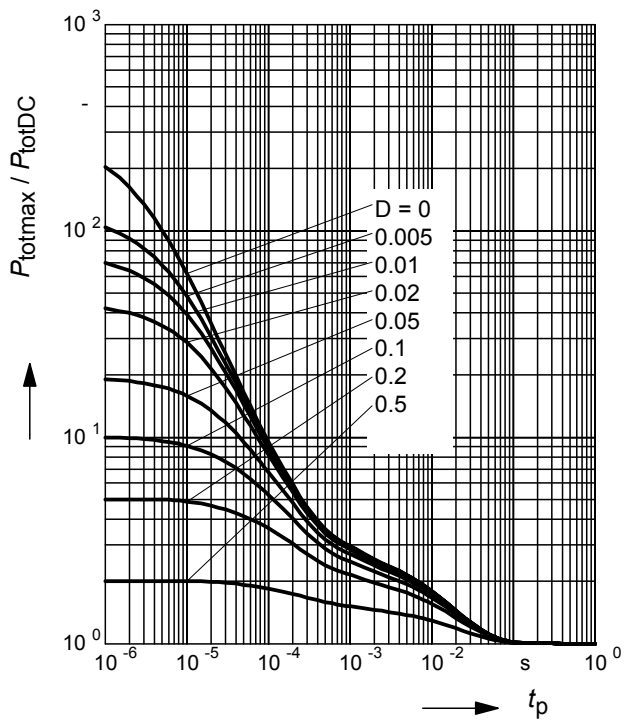
BCR116W

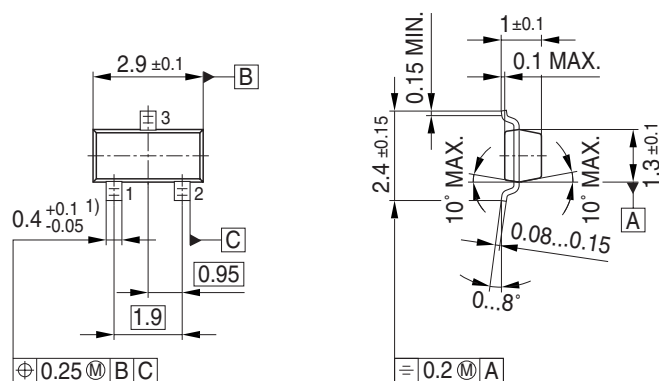


Permissible Pulse Load

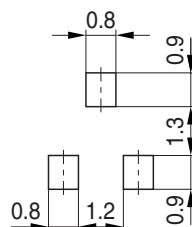
$$P_{\text{totmax}}/P_{\text{totDC}} = f(t_p)$$

BCR116W





Foot Print



The diagram shows a top-down view of a BCW66 LED package. It is a rectangular component with four pins. The top pin is labeled 'Pin 1'. The package has a central rectangular area containing the text 'EHS' and '2005, June'. To the right of this area, the text 'Date code (YM)' is shown. Below the package, the text 'BCW66' and 'Type code' are shown. The Infineon logo is at the top right.

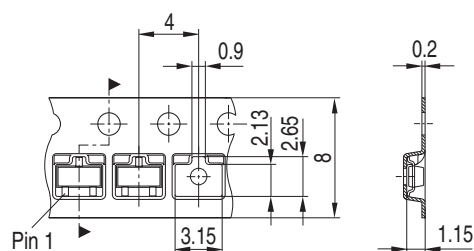
Infineon
Manufacturer

2005, June
Date code (YM)

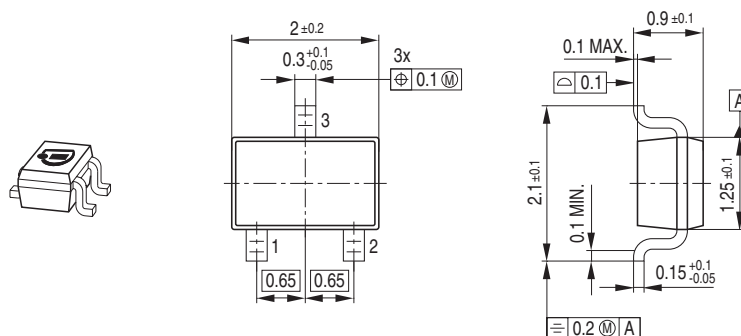
Pin 1

BCW66
Type code

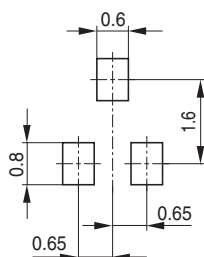
Reel ø180 mm = 3.000 Pieces/Reel
Reel ø330 mm = 10.000 Pieces/Reel



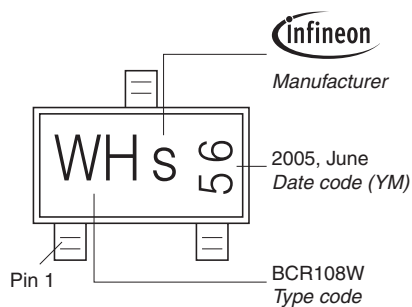
Package Outline



Foot Print

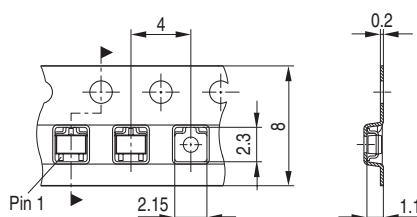


Marking Layout (Example)

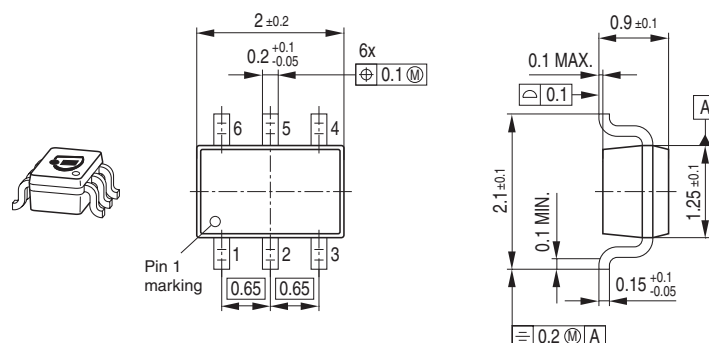


Standard Packing

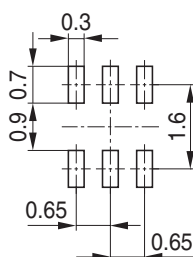
Reel ø180 mm = 3.000 Pieces/Reel
 Reel ø330 mm = 10.000 Pieces/Reel



Package Outline

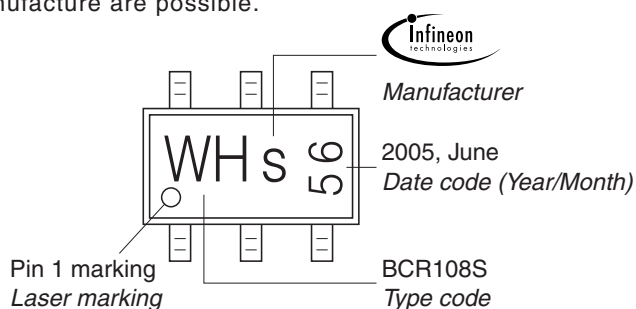


Foot Print



Marking Layout (Example)

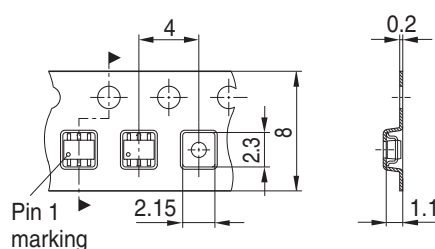
Small variations in positioning of Date code, Type code and Manufacturer are possible.



Standard Packing

Reel $\varnothing 180$ mm = 3.000 Pieces/Reel
Reel $\varnothing 330$ mm = 10.000 Pieces/Reel

For symmetric types no defined Pin 1 orientation in reel.



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