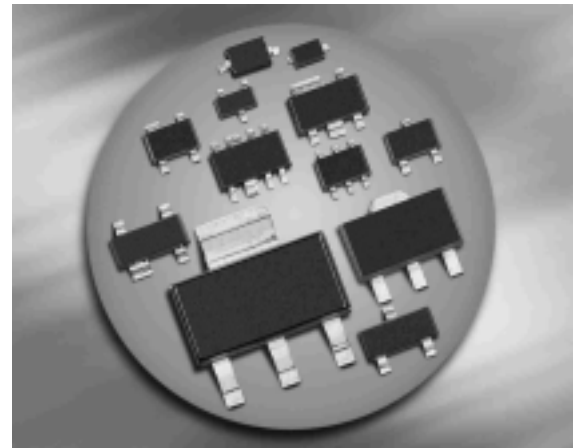




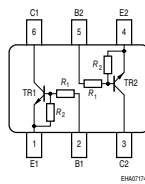
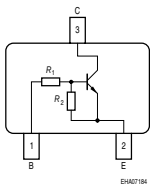
THE DATASHEET OF BCR141T E6327

NPN Silicon Digital Transistor

- Switching circuit, inverter, interface circuit, driver circuit
- Built in bias resistor ($R_1=22k\Omega$, $R_2=22k\Omega$)
- BCR141S / U: Two internally isolated transistors with good matching in one multichip package
- BCR141S / U: For orientation in reel see package information below



BCR141/F/L3 BCR141S/U BCR141T/W



Type	Marking	Pin Configuration						Package
BCR141	WDs	1=B	2=E	3=C	-	-	-	SOT23
BCR141F	WDs	1=B	2=E	3=C	-	-	-	TSFP-3
BCR141L3	WD	1=B	2=E	3=C	-	-	-	TSLP-3-4
BCR141S	WDs	1=E1	2=B1	3=C2	4=E2	5=B2	6=C1	SOT363
BCR141T	WD	1=B	2=E	3=C	-	-	-	SC75
BCR141U	WDs	1=E1	2=B1	3=C2	4=E2	5=B2	6=C1	SC74
BCR141W	WDs	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	$V_{i(fwd)}$	60	
Input reverse voltage	$V_{i(rev)}$	10	
Collector current	I_C	100	mA
Total power dissipation- BCR141, $T_S \leq 102^\circ\text{C}$ BCR141F, $T_S \leq 128^\circ\text{C}$ BCR141L3, $T_S \leq 135^\circ\text{C}$ BCR141S, $T_S \leq 115^\circ\text{C}$ BCR141T, $T_S \leq 109^\circ\text{C}$ BCR141U, $T_S \leq 118^\circ\text{C}$ BCR141W, $T_S \leq 124^\circ\text{C}$	P_{tot}	200 250 250 250 250 250 250	mW
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-65 ... 150	

Thermal Resistance

Parameter	Symbol	Value	Unit
Junction - soldering point ¹⁾	R_{thJS}		K/W
BCR141		≤ 240	
BCR141F		≤ 90	
BCR141L3		≤ 60	
BCR141S		≤ 140	
BCR141T		≤ 165	
BCR141U		≤ 133	
BCR141W		≤ 105	

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

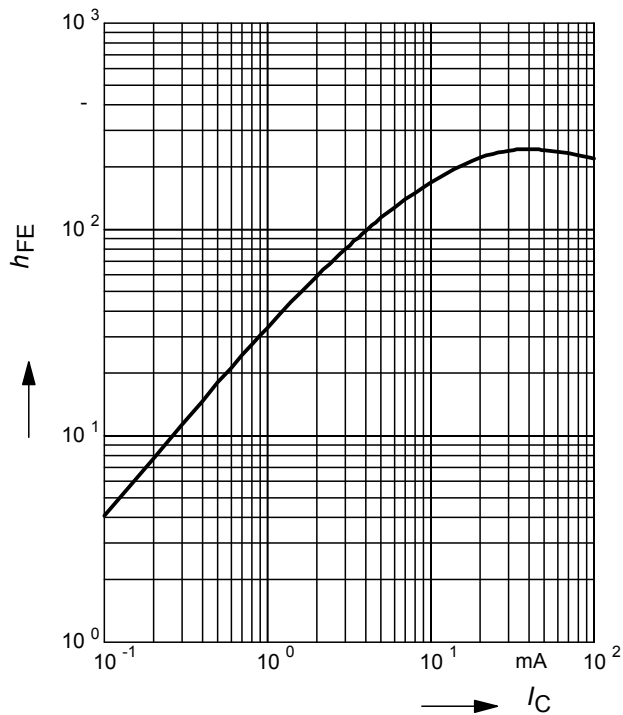
Electrical Characteristics at $T_A = 25^\circ\text{C}$, unless otherwise specified

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 $V_{\text{EB}} = 10\ \text{V}$, $I_C = 0$	I_{EBO}	-	-	350	μA
DC current gain ¹⁾ $I_C = 5\ \text{mA}$, $V_{\text{CE}} = 5\ \text{V}$	h_{FE}	50	-	-	-
Collector-emitter saturation voltage ¹⁾ $I_C = 10\ \text{mA}$, $I_B = 0.5\ \text{mA}$	V_{CEsat}	-	-	0.3	V
Input off voltage $I_C = 100\ \mu\text{A}$, $V_{\text{CE}} = 5\ \text{V}$	$V_{\text{i(off)}}$	0.8	-	1.5	
Input on voltage $I_C = 2\ \text{mA}$, $V_{\text{CE}} = 0.3\ \text{V}$	$V_{\text{i(on)}}$	1	-	2.5	
Input resistor	R_1	15	22	29	k Ω
Resistor ratio	R_1/R_2	0.9	1	1.1	-
AC Characteristics					
Transition frequency $I_C = 10\ \text{mA}$, $V_{\text{CE}} = 5\ \text{V}$, $f = 100\ \text{MHz}$	f_{T}	-	130	-	MHz
Collector-base capacitance $V_{\text{CB}} = 10\ \text{V}$, $f = 1\ \text{MHz}$	C_{cb}	-	3	-	pF

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

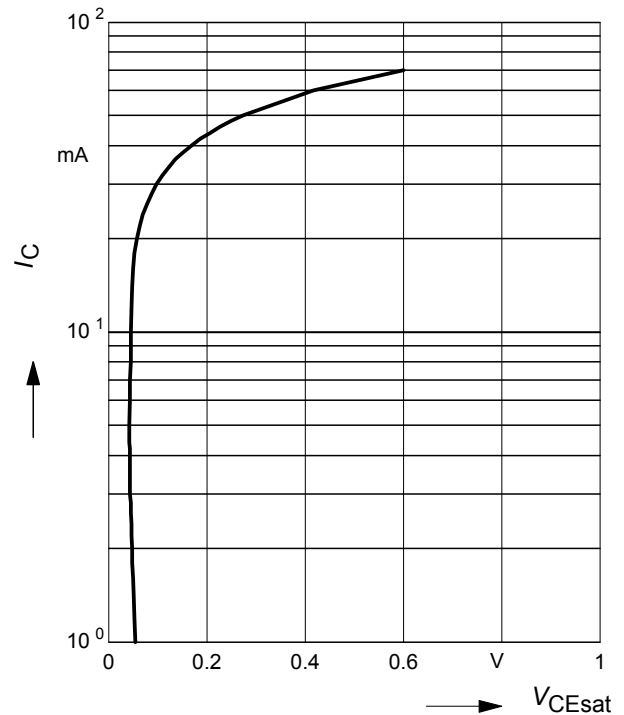
DC current gain $h_{FE} = f(I_C)$

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



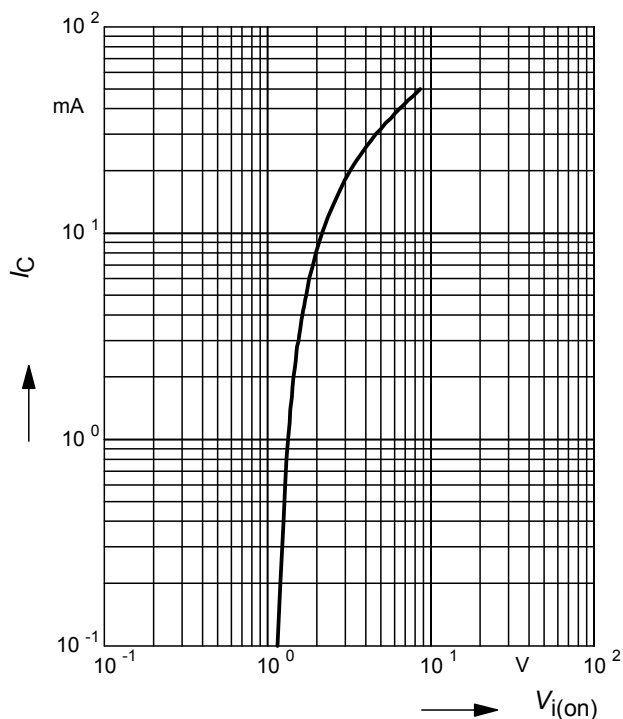
Collector-emitter saturation voltage

$V_{CEsat} = f(I_C), h_{FE} = 20$



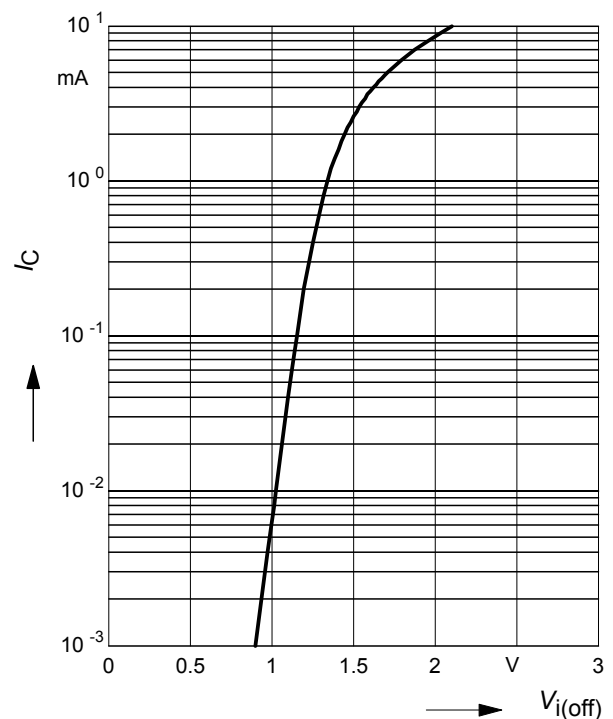
Input on Voltage $V_{i(on)} = f(I_C)$

$V_{CE} = 0.3 \text{ V}$ (common emitter voltage)



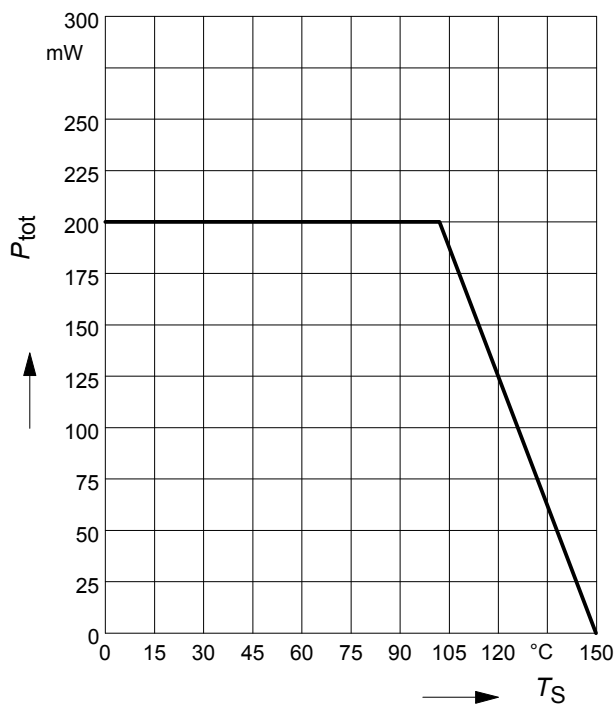
Input off voltage $V_{i(off)} = f(I_C)$

$V_{CE} = 5 \text{ V}$ (common emitter voltage)



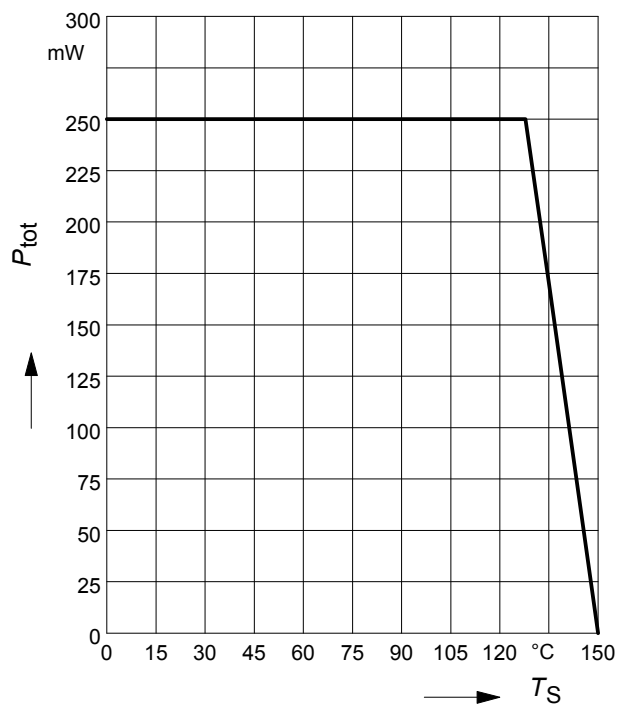
Total power dissipation $P_{\text{tot}} = f(T_S)$

BCR141



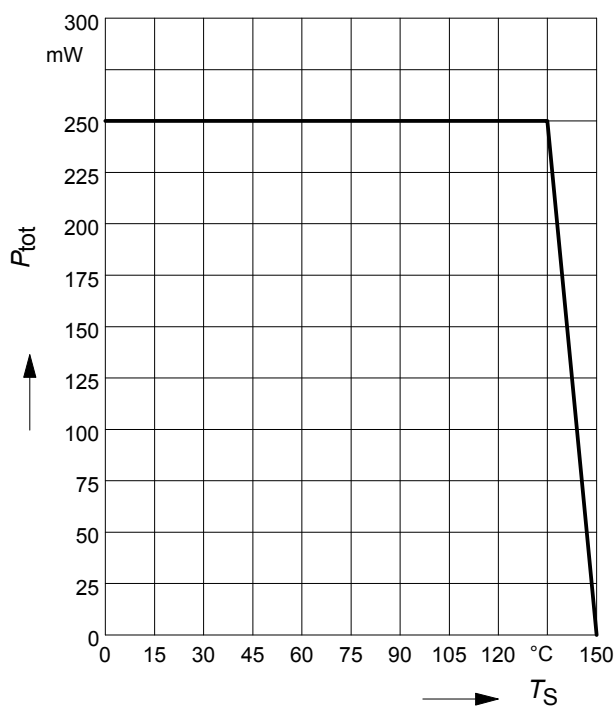
Total power dissipation $P_{\text{tot}} = f(T_S)$

BCR141F



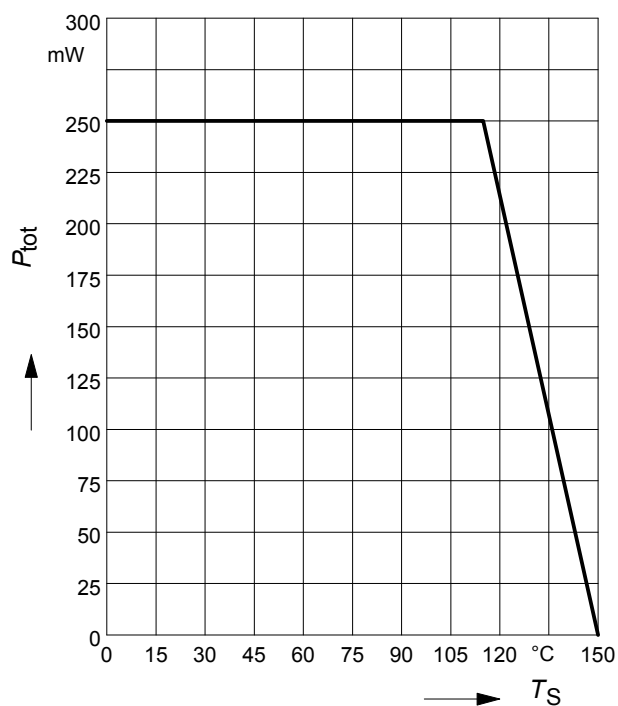
Total power dissipation $P_{\text{tot}} = f(T_S)$

BCR141L3



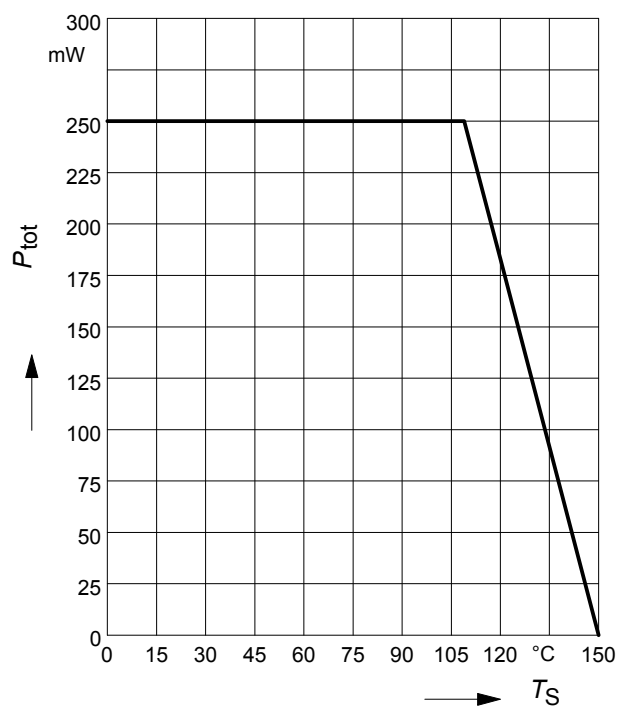
Total power dissipation $P_{\text{tot}} = f(T_S)$

BCR141S



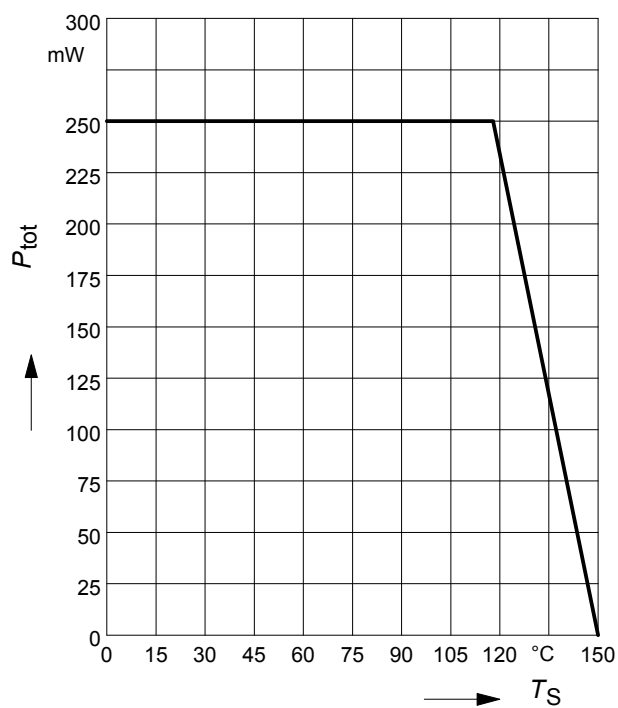
Total power dissipation $P_{\text{tot}} = f(T_S)$

BCR141T



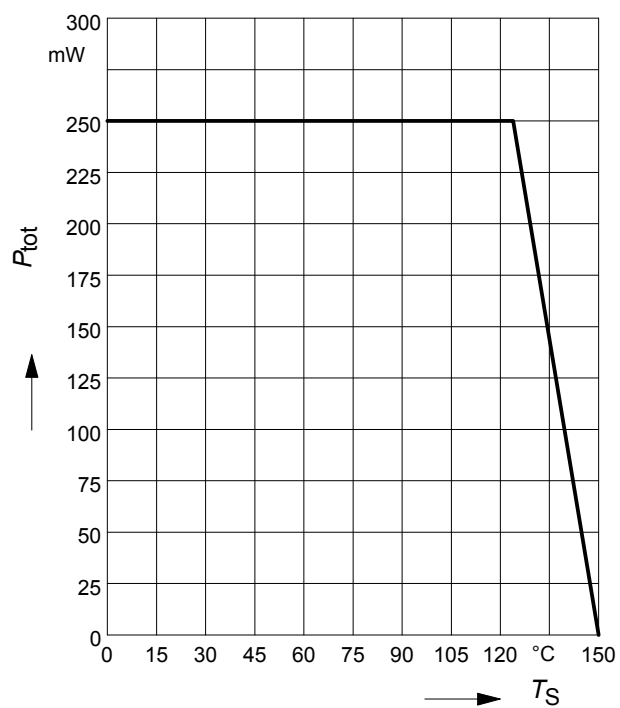
Total power dissipation $P_{\text{tot}} = f(T_S)$

BCR141U



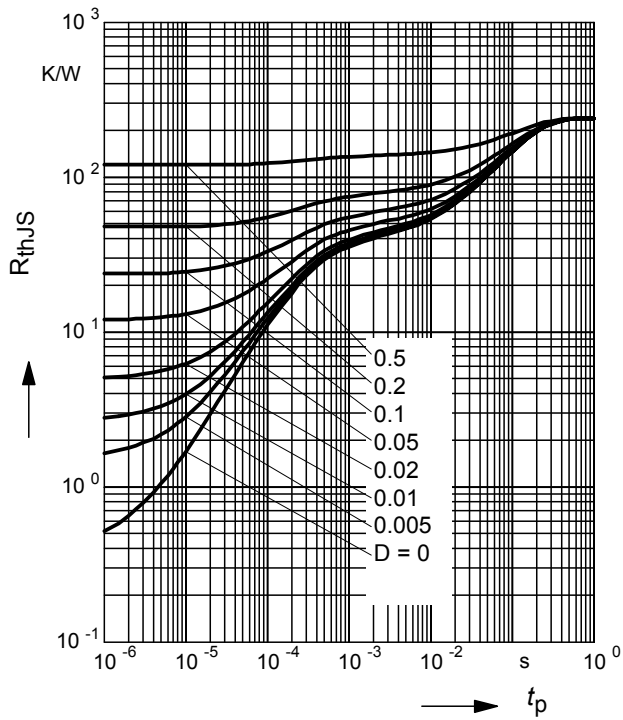
Total power dissipation $P_{\text{tot}} = f(T_S)$

BCR141W



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

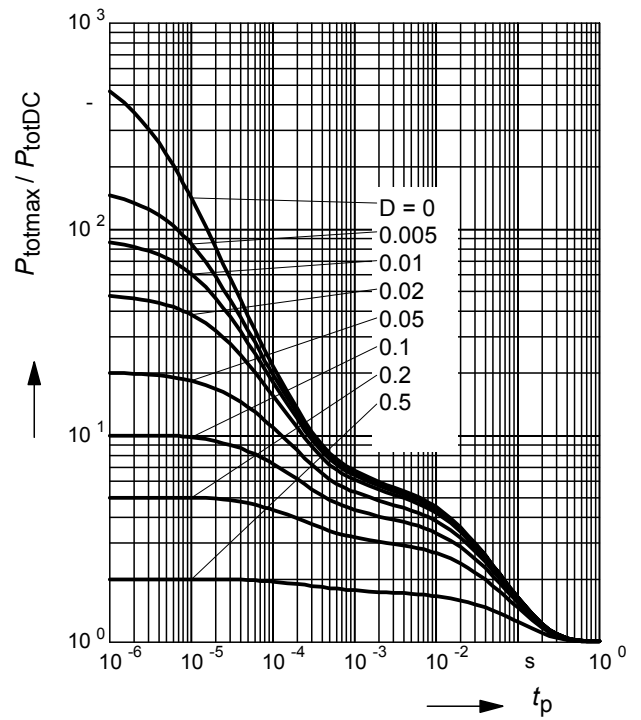
BCR141



Permissible Pulse Load

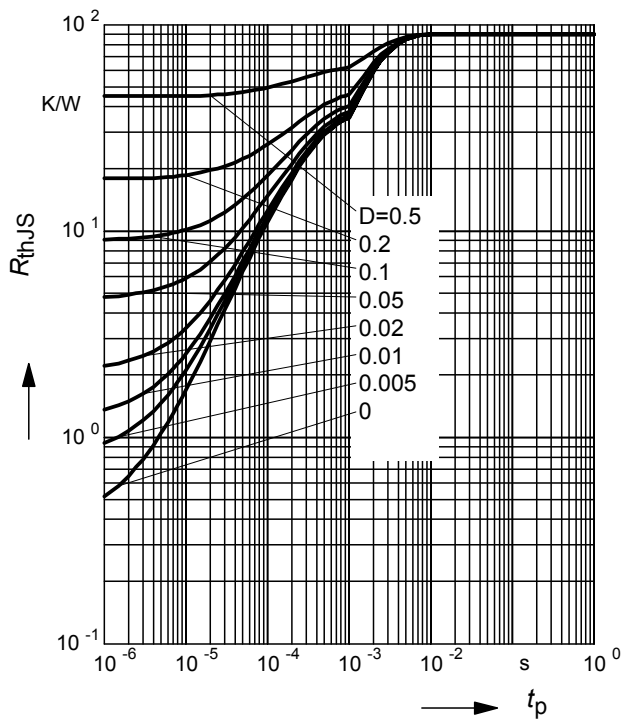
$$P_{totmax}/P_{totDC} = f(t_p)$$

BCR141



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

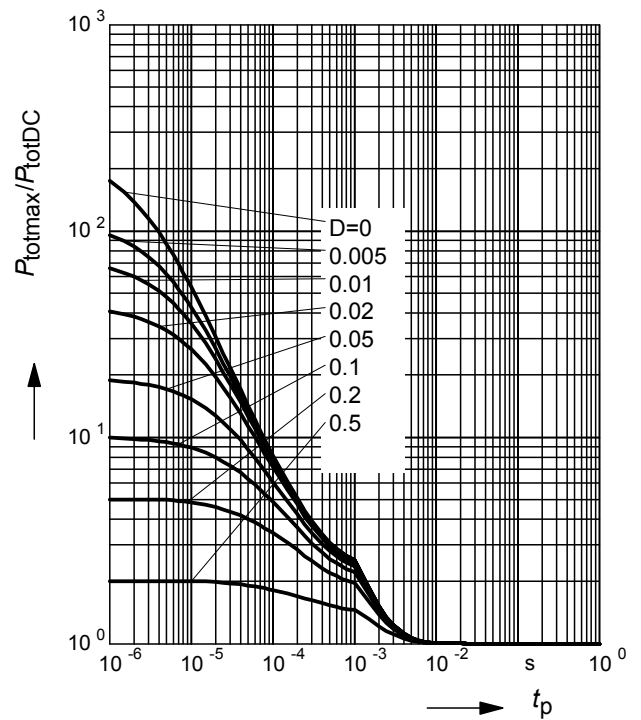
BCR141F



Permissible Pulse Load

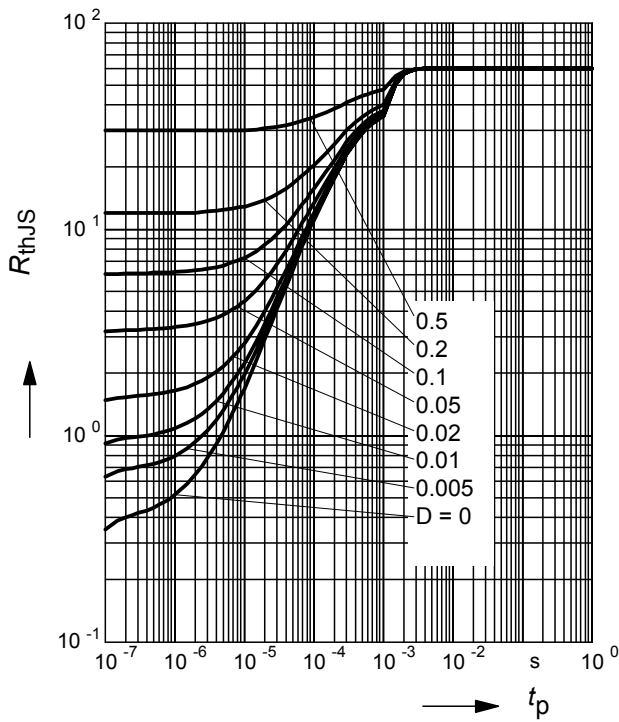
$$P_{totmax}/P_{totDC} = f(t_p)$$

BCR141F



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

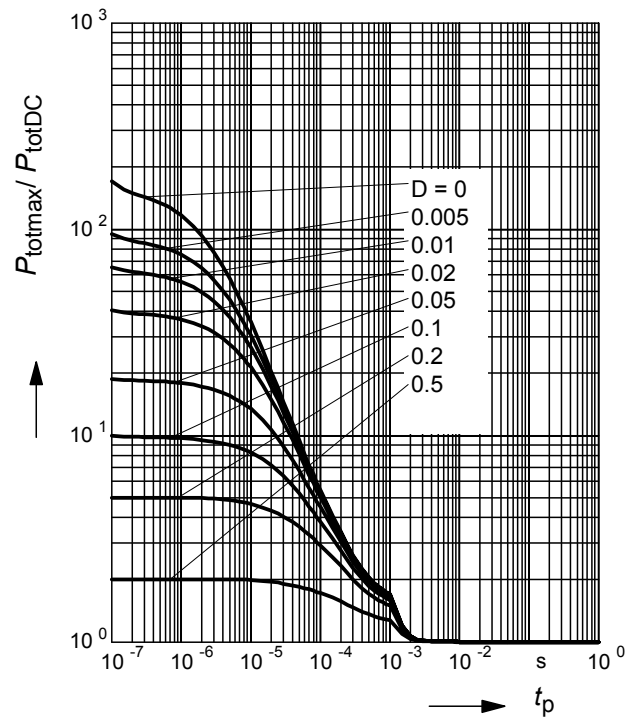
BCR141L3



Permissible Pulse Load

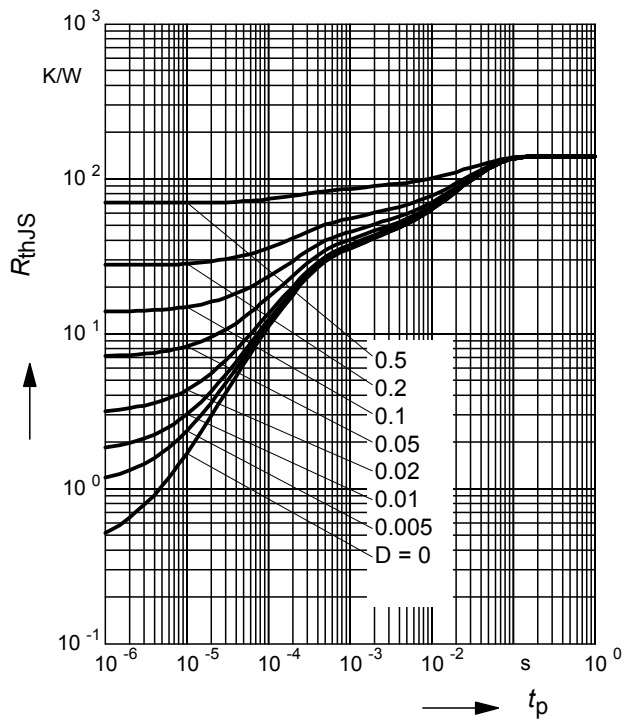
$$P_{totmax}/P_{totDC} = f(t_p)$$

BCR141L3



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

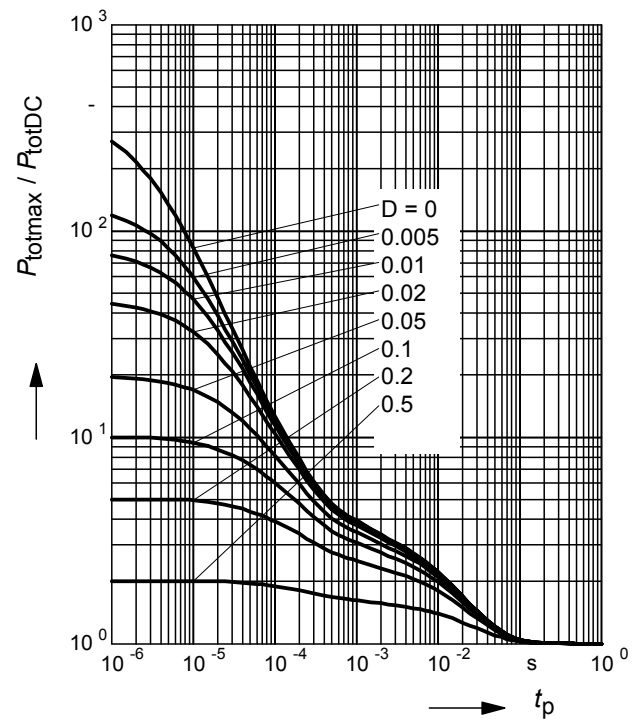
BCR141S



Permissible Pulse Load

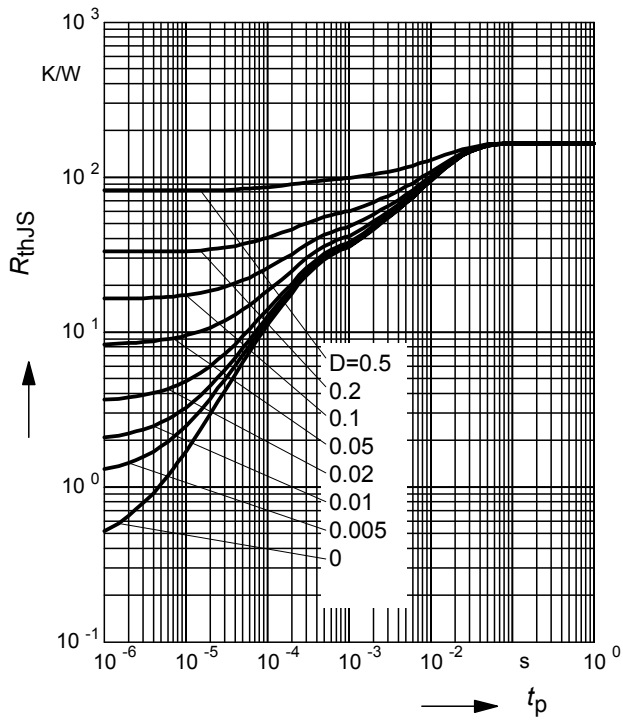
$$P_{totmax}/P_{totDC} = f(t_p)$$

BCR141S



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

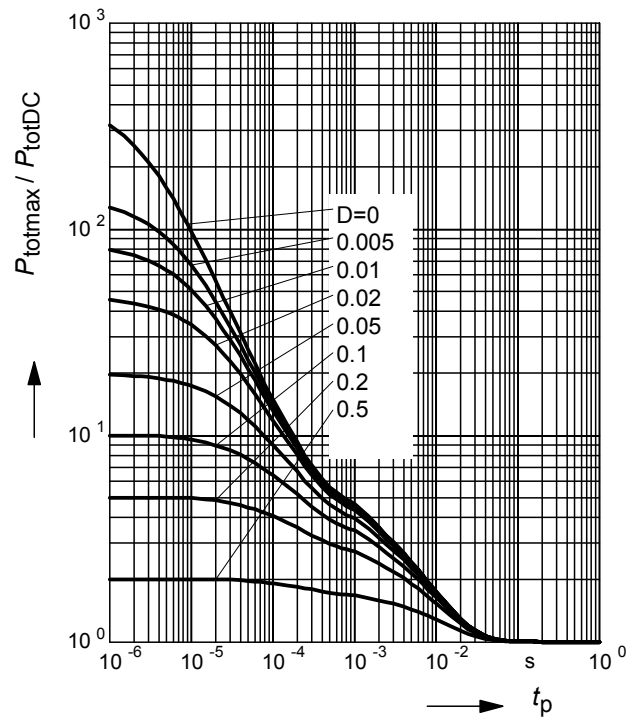
BCR141T



Permissible Pulse Load

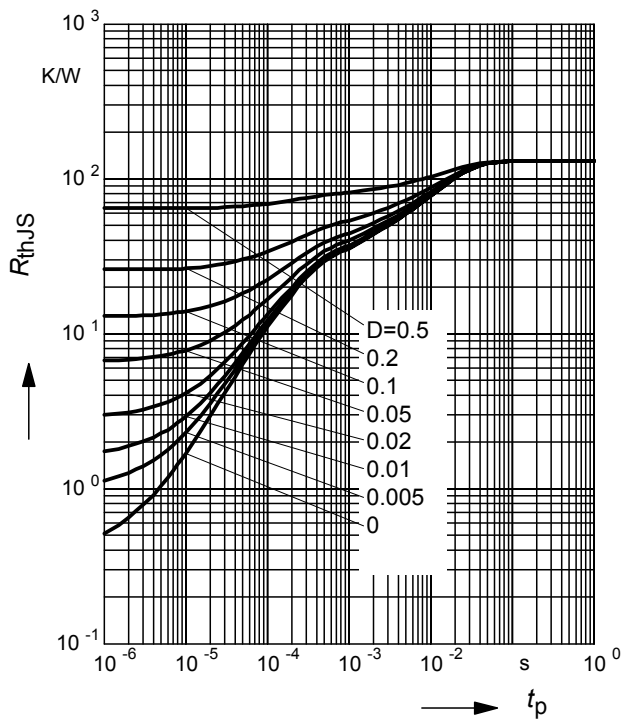
$$P_{totmax}/P_{totDC} = f(t_p)$$

BCR141T



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

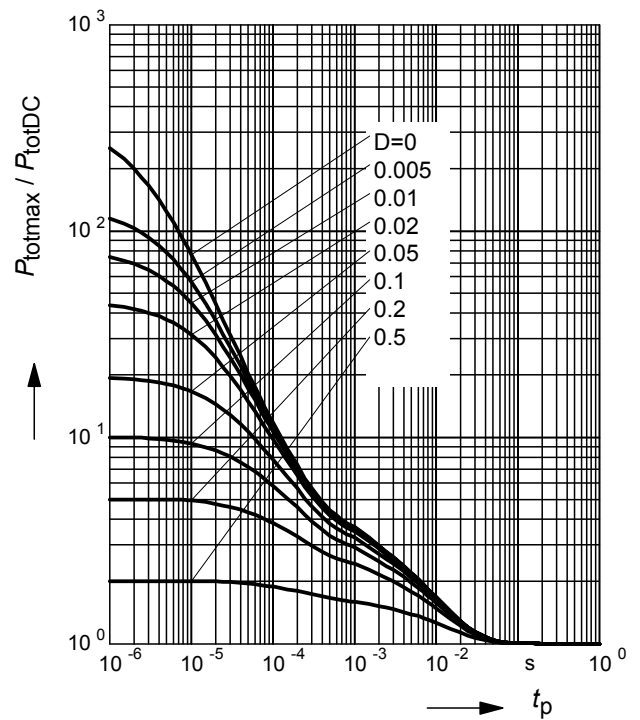
BCR141U



Permissible Pulse Load

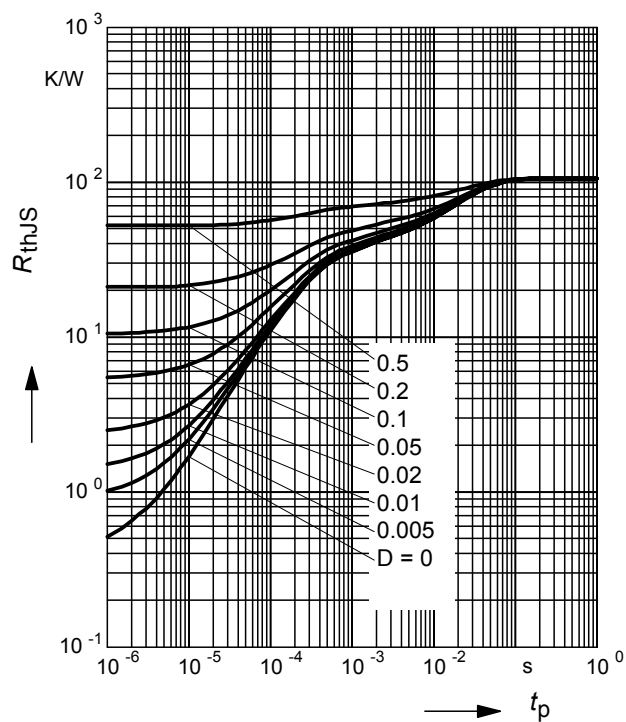
$$P_{totmax}/P_{totDC} = f(t_p)$$

BCR141U



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

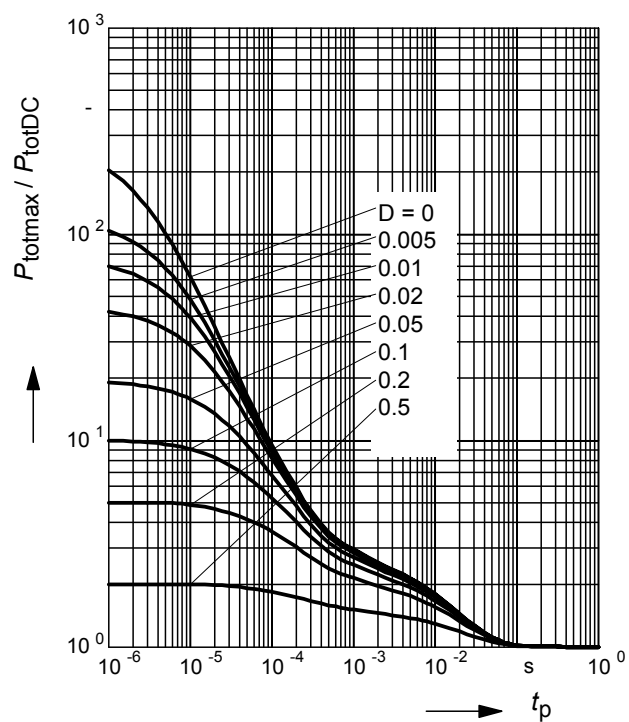
BCR141W



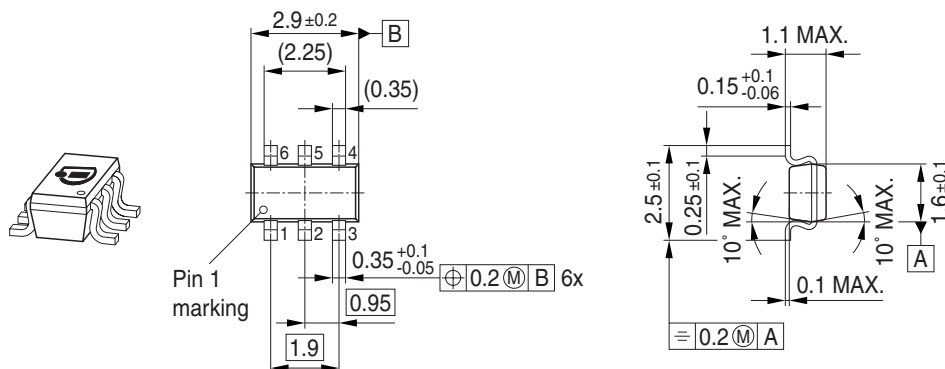
Permissible Pulse Load

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

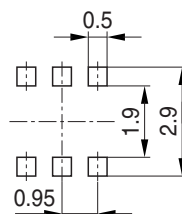
BCR141W



Package Outline

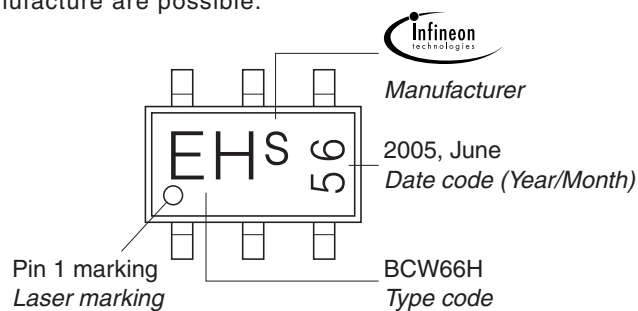


Foot Print



Marking Layout (Example)

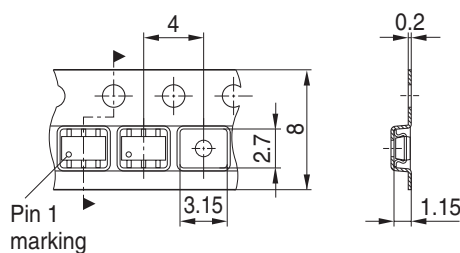
Small variations in positioning of Date code, Type code and Manufacture are possible.



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.



Technical drawing of a mechanical part showing three views: front, top, and side. The dimensions are as follows:

- Front View: Total height is 1.15. The hole has a depth of 0.4. The distance from the top edge to the top of the hole is 0.65. The distance from the bottom of the hole to the bottom edge is 0.4.
- Top View: Total width is 0.5. The hole has a width of 0.4. The distance from the left edge to the left side of the hole is 0.05. The distance from the right side of the hole to the right edge is 0.05.
- Side View: Total width is 0.5. The hole has a width of 0.4. The distance from the left edge to the left side of the hole is 0.05. The distance from the right side of the hole to the right edge is 0.05.

Diagram illustrating the BCR108T barcode label structure. The label displays the call sign **WHN**. The date code is **2005, December**. The type code is **BCR108T**. The label also indicates **Pin 1** and **Date code**.

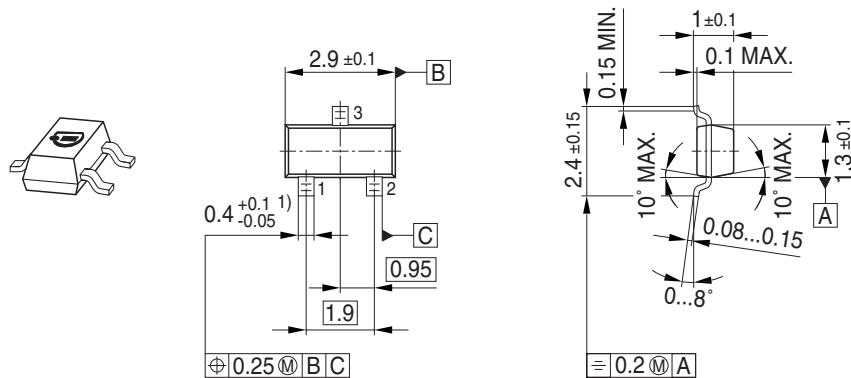
Figure 1: Dimensions of the connector. The diagram shows a top view and a side view of a rectangular connector. The top view shows a width of 8 and a length of 1.75. There are three circular features (pins) spaced 4 apart. The distance from the left edge to the first pin is 0.45. The distance between the pins is 1.4. The distance from the last pin to the right edge is 1.8. The side view shows a height of 0.2 MAX. and a width of 0.9.

Date Code marking for discrete packages with one digit (SCD80, SC79, SC75¹⁾) CES-Code

Month	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
01	a	p	A	P	a	p	A	P	a	p	A	P
02	b	q	B	Q	b	q	B	Q	b	q	B	Q
03	c	r	C	R	c	r	C	R	c	r	C	R
04	d	s	D	S	d	s	D	S	d	s	D	S
05	e	t	E	T	e	t	E	T	e	t	E	T
06	f	u	F	U	f	u	F	U	f	u	F	U
07	g	v	G	V	g	v	G	V	g	v	G	V
08	h	x	H	X	h	x	H	X	h	x	H	X
09	j	y	J	Y	j	y	J	Y	j	y	J	Y
10	k	z	K	Z	k	z	K	Z	k	z	K	Z
11	l	2	L	4	l	2	L	4	l	2	L	4
12	n	3	N	5	n	3	N	5	n	3	N	5

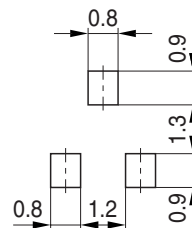
1) New Marking Layout for SC75, implemented at October 2005.

Package Outline

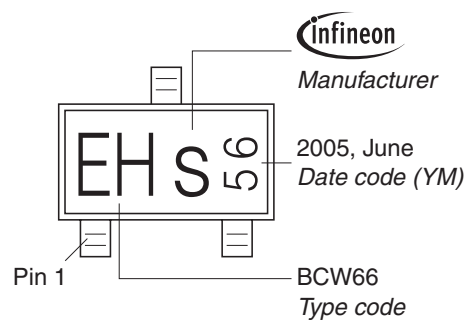


1) Lead width can be 0.6 max. in dambar area

Foot Print

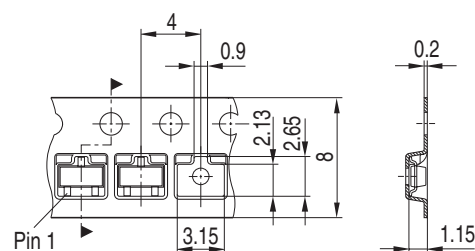


Marking Layout (Example)

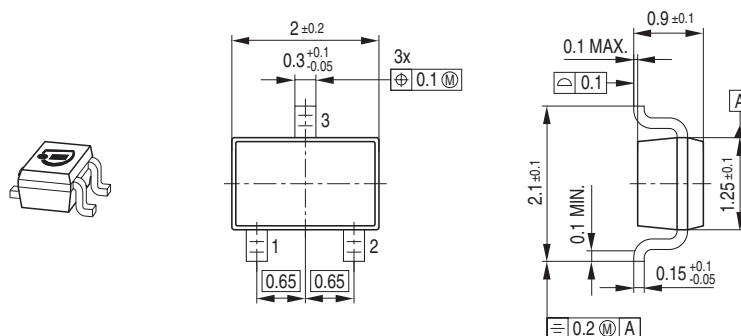


Standard Packing

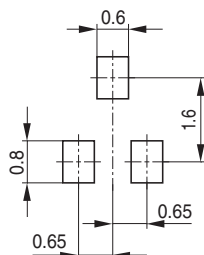
Reel $\varnothing 180$ mm = 3.000 Pieces/Reel
Reel $\varnothing 330$ mm = 10.000 Pieces/Reel



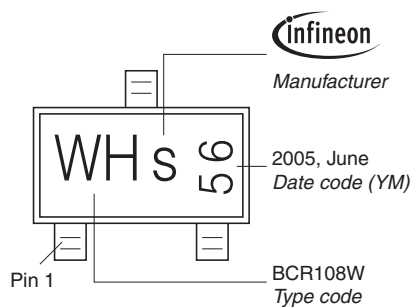
Package Outline



Foot Print

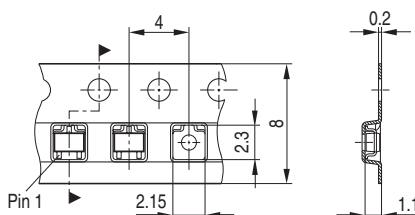


Marking Layout (Example)

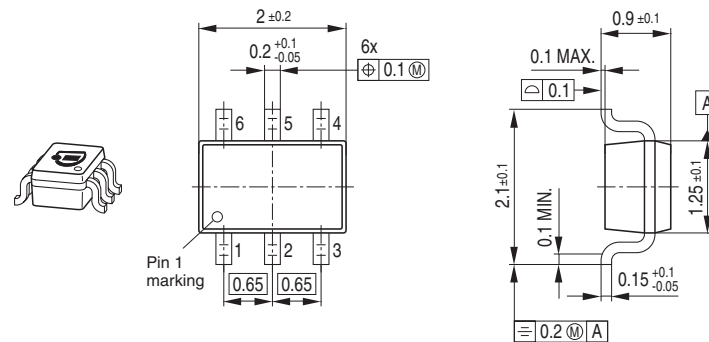


Standard Packing

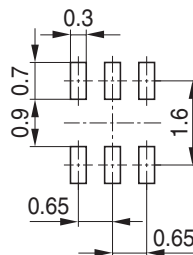
Reel $\varnothing 180$ mm = 3.000 Pieces/Reel
 Reel $\varnothing 330$ mm = 10.000 Pieces/Reel



Package Outline

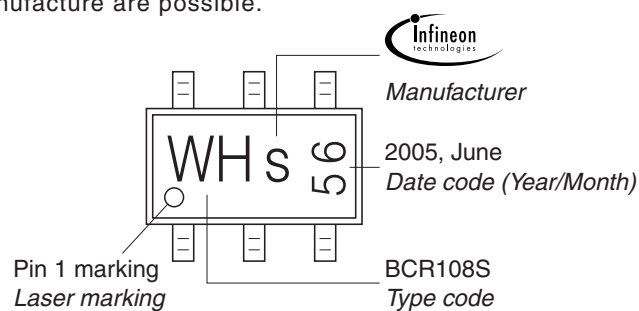


Foot Print



Marking Layout (Example)

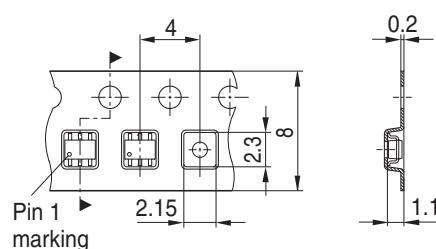
Small variations in positioning of Date code, Type code and Manufacture are possible.



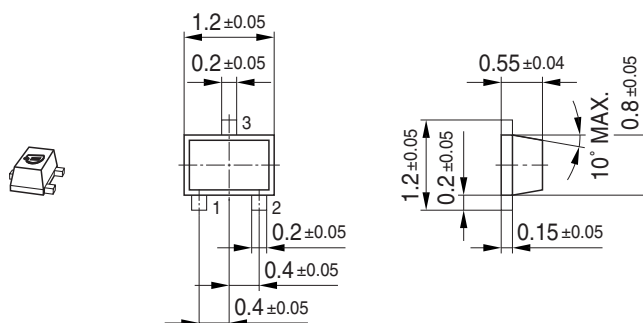
Standard Packing

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

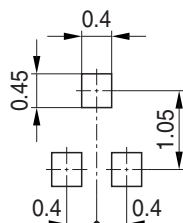
For symmetric types no defined Pin 1 orientation in reel.



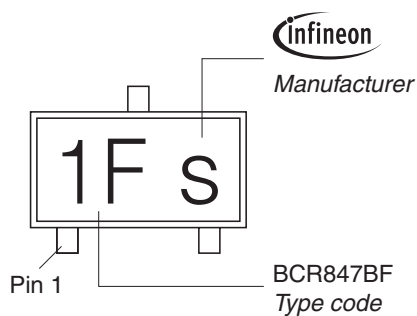
Package Outline



Foot Print

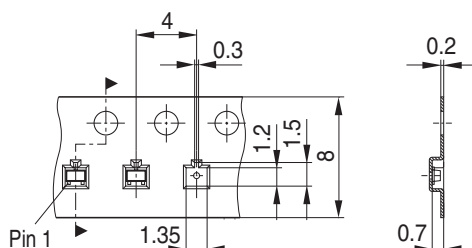


Marking Layout (Example)

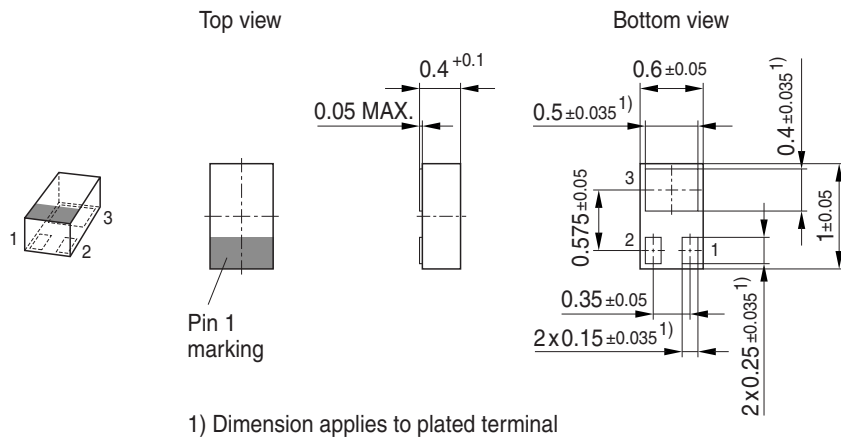


Standard Packing

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

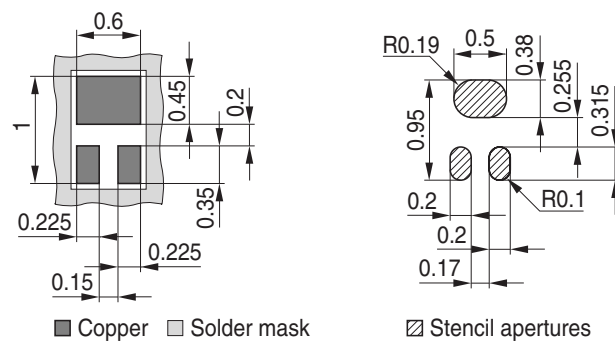


Package Outline

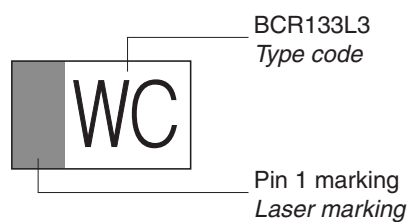


Foot Print

For board assembly information please refer to Infineon website "Packages"

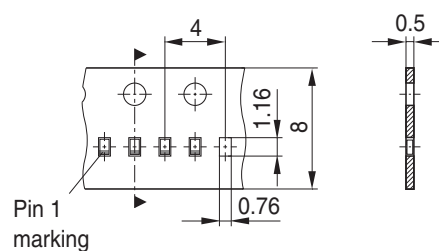


Marking Layout



Standard Packing

Reel ø180 mm = 15.000 Pieces/Reel



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