



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

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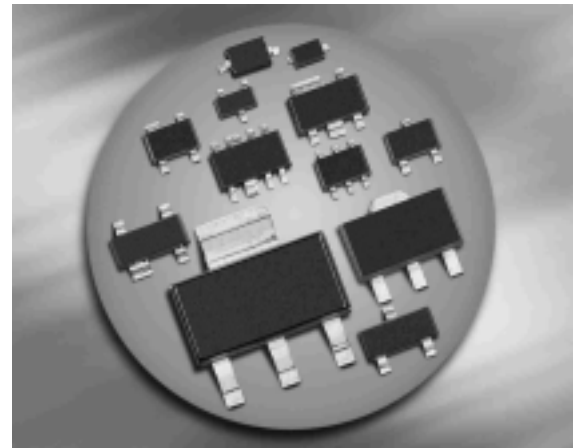
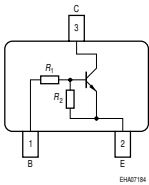
Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



**NPN Silicon Digital Transistor**

- Switching circuit, inverter, interface circuit, driver circuit
- Built in bias resistor ( $R_1=22k\Omega$ ,  $R_2=47k\Omega$ )


**BCR142/F/L3**  
**BCR142T/W**


Type	Marking	Pin Configuration						Package
		1=B	2=E	3=C	-	-	-	
BCR142	WZs	1=B	2=E	3=C	-	-	-	SOT23
BCR142F	WZs	1=B	2=E	3=C	-	-	-	TSFP-3
BCR142FL3	WZ	1=B	2=E	3=C	-	-	-	TSLP-3-4
BCR142T	WZ	1=B	2=E	3=C	-	-	-	SC75
BCR142W	WZs	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- BCR142, $T_S \leq 102^\circ\text{C}$ BCR142F, $T_S \leq 128^\circ\text{C}$ BCR142L3, $T_S \leq 135^\circ\text{C}$ BCR142T, $T_S \leq 109^\circ\text{C}$ BCR142W, $T_S \leq 124^\circ\text{C}$	$P_{tot}$	200 250 250 250 250	mW
Junction temperature	$T_j$	150	°C
Storage temperature	$T_{stg}$	-65 ... 150	

**Thermal Resistance**

Parameter	Symbol	Value	Unit
Junction - soldering point <sup>1)</sup>	$R_{thJS}$		K/W
BCR142		$\leq 240$	
BCR142F		$\leq 90$	
BCR142L3		$\leq 60$	
BCR142T		$\leq 165$	
BCR142W		$\leq 105$	

<sup>1)</sup>For calculation of  $R_{thJA}$  please refer to Application Note Thermal Resistance

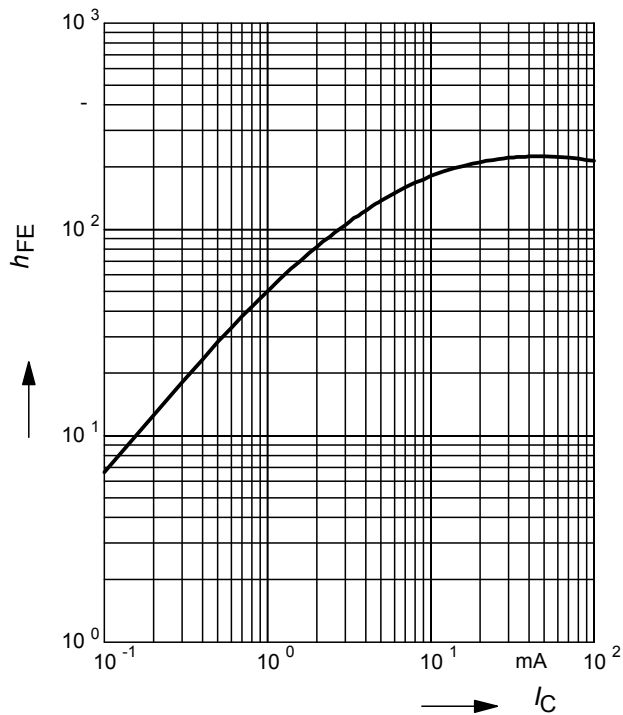
**Electrical Characteristics** at  $T_A = 25^\circ\text{C}$ , unless otherwise specified

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
<b>DC Characteristics</b>					
Collector-emitter breakdown voltage $I_C = 100 \mu\text{A}, I_B = 0$	$V_{(BR)CEO}$	50	-	-	V
Collector-base breakdown voltage $I_C = 10 \mu\text{A}, I_E = 0$	$V_{(BR)CBO}$	50	-	-	
Collector-base cutoff current $V_{CB} = 40 \text{ V}, I_E = 0$	$I_{CBO}$	-	-	100	nA
Emitter-base cutoff current $V_{EB} = 10 \text{ V}, I_C = 0$	$I_{EBO}$	-	-	227	$\mu\text{A}$
DC current gain <sup>1)</sup> $I_C = 5 \text{ mA}, V_{CE} = 5 \text{ V}$	$h_{FE}$	70	-	-	-
Collector-emitter saturation voltage <sup>1)</sup> $I_C = 10 \text{ mA}, I_B = 0.5 \text{ mA}$	$V_{CEsat}$	-	-	0.3	V
Input off voltage $I_C = 100 \mu\text{A}, V_{CE} = 5 \text{ V}$	$V_{i(off)}$	0.5	-	1.2	
Input on voltage $I_C = 2 \text{ mA}, V_{CE} = 0.3 \text{ V}$	$V_{i(on)}$	0.8	-	2.5	
Input resistor	$R_1$	15	22	29	$\text{k}\Omega$
Resistor ratio	$R_1/R_2$	0.42	0.47	0.52	-
<b>AC Characteristics</b>					
Transition frequency $I_C = 10 \text{ mA}, V_{CE} = 5 \text{ V}, f = 100 \text{ MHz}$	$f_T$	-	150	-	MHz
Collector-base capacitance $V_{CB} = 10 \text{ V}, f = 1 \text{ MHz}$	$C_{cb}$	-	3	-	pF

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

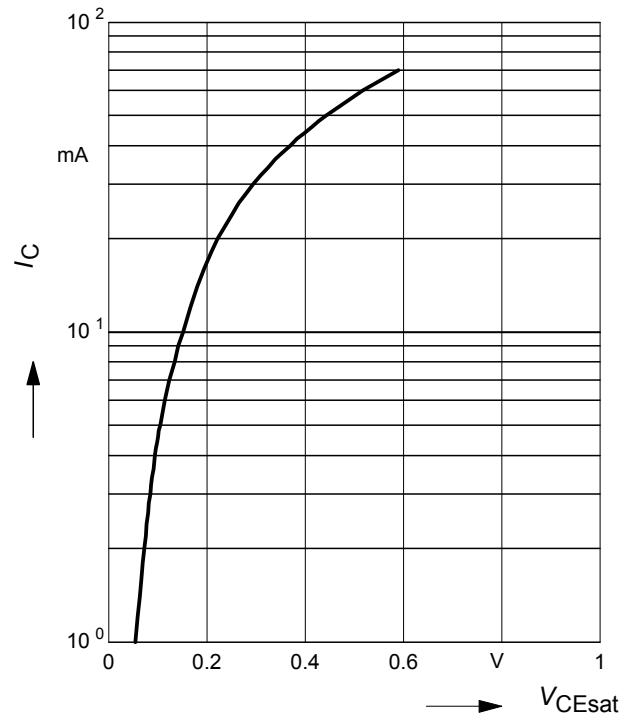
**DC current gain  $h_{FE} = f(I_C)$**

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



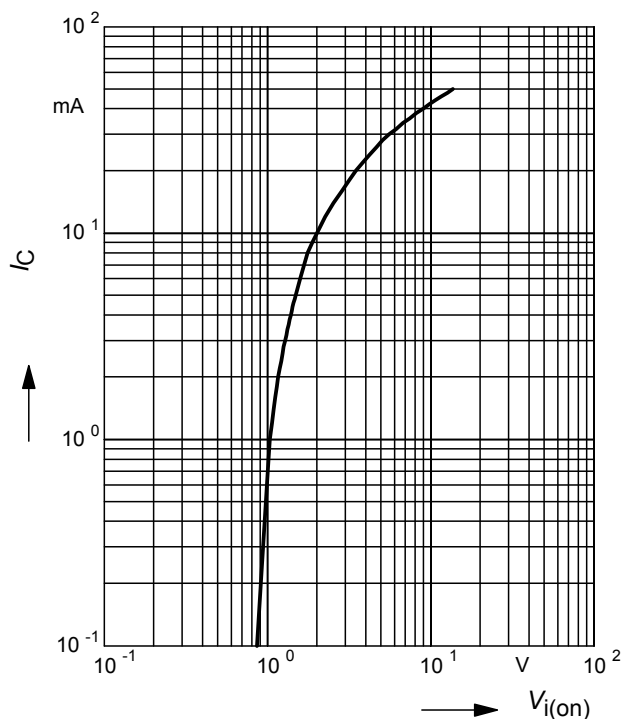
**Collector-emitter saturation voltage**

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



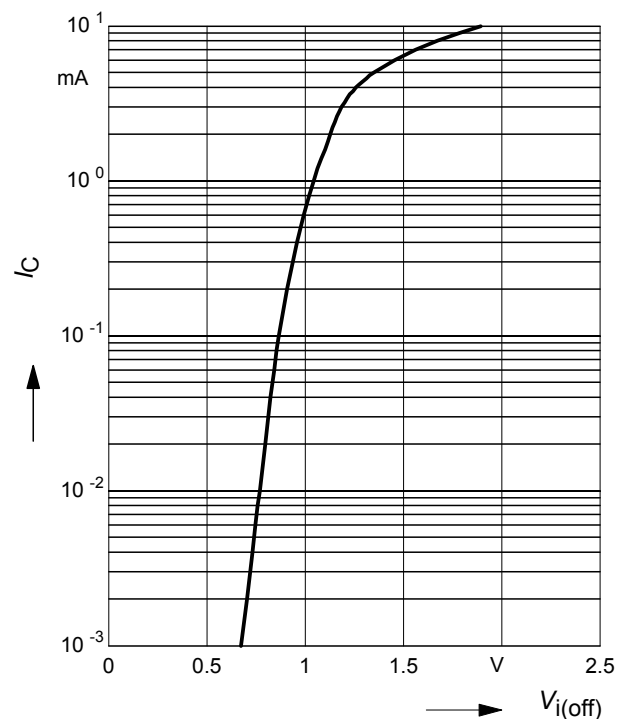
**Input on Voltage  $V_{i(on)} = f(I_C)$**

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



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

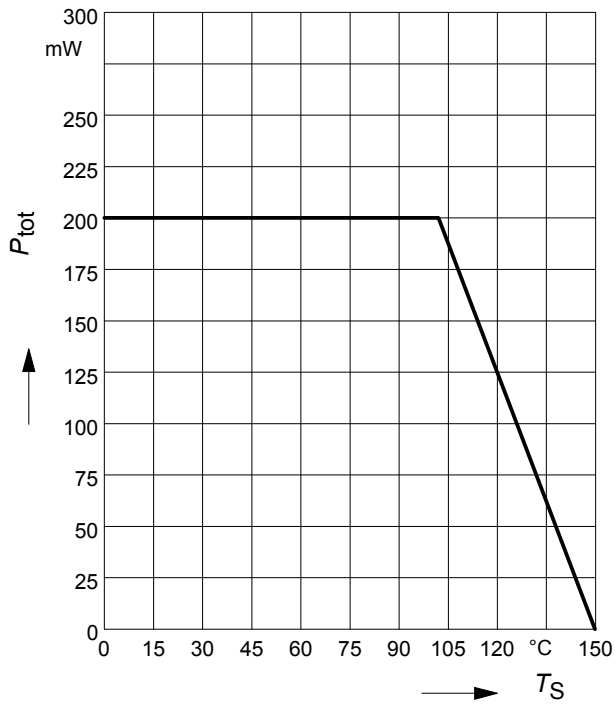
$V_{CE} = 5V$  (common emitter configuration)





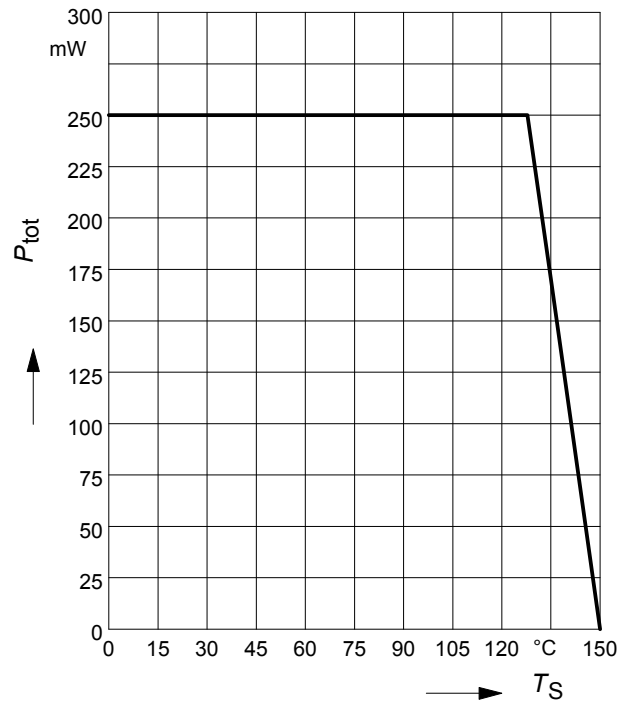
Total power dissipation  $P_{tot} = f(T_S)$

BCR142



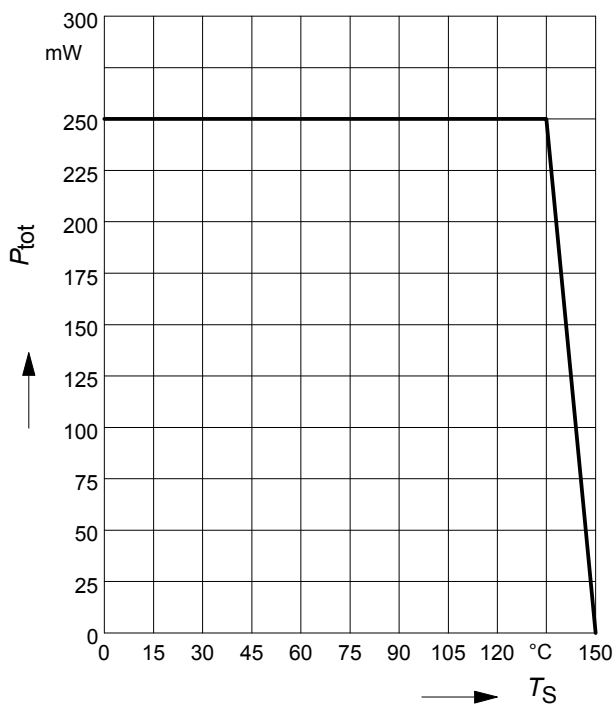
Total power dissipation  $P_{tot} = f(T_S)$

BCR142F



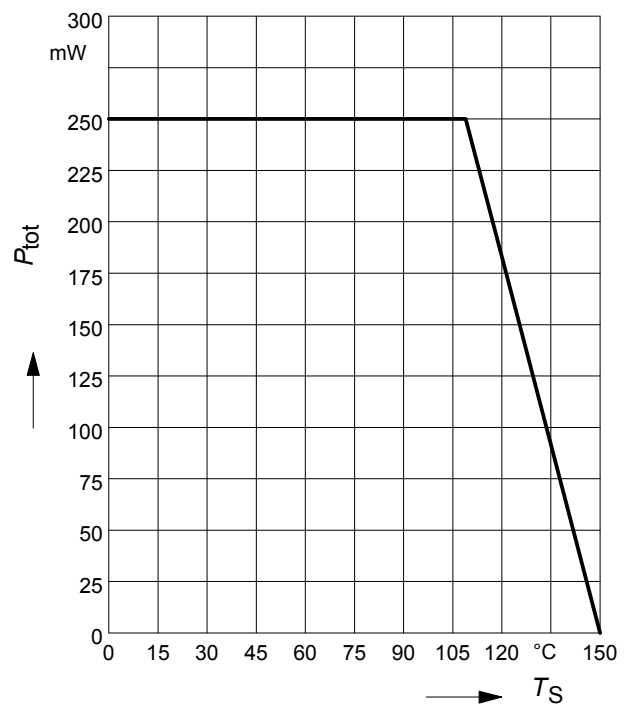
Total power dissipation  $P_{tot} = f(T_S)$

BCR142L3



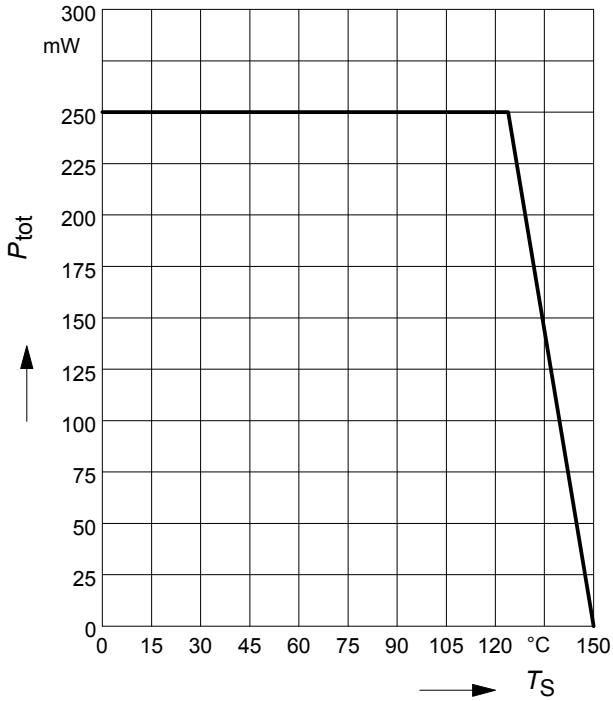
Total power dissipation  $P_{tot} = f(T_S)$

BCR142T



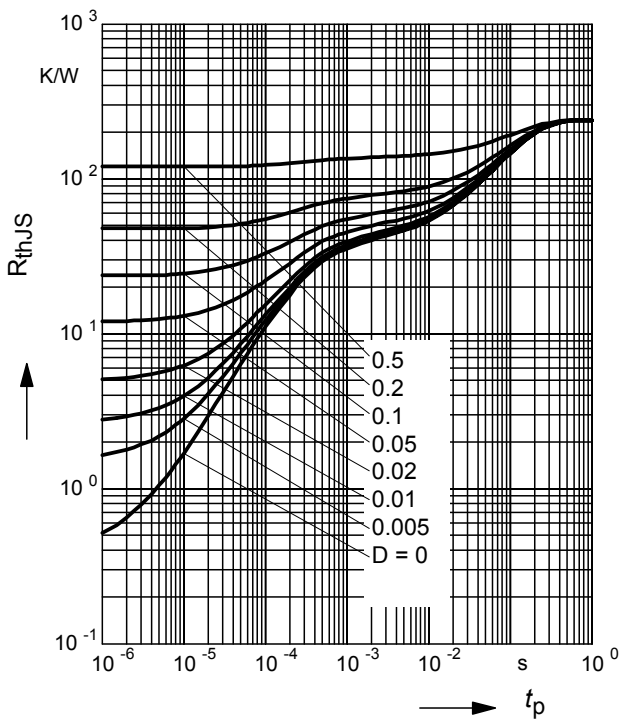
**Total power dissipation  $P_{tot} = f(T_S)$**

BCR142W



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

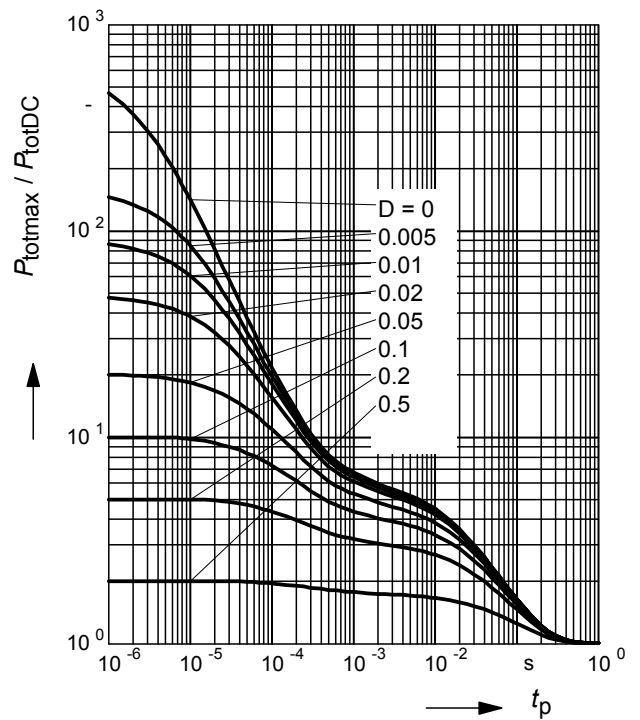
BCR142



**Permissible Pulse Load**

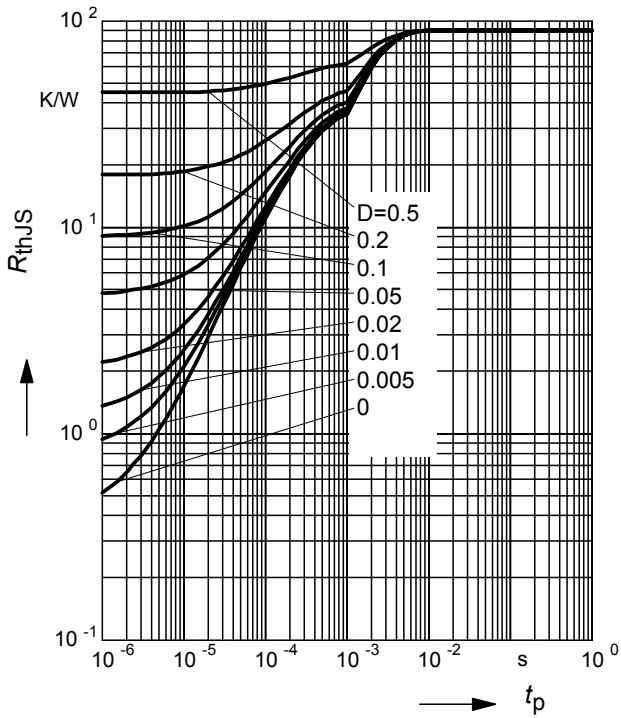
$P_{totmax}/P_{totDC} = f(t_p)$

BCR142



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

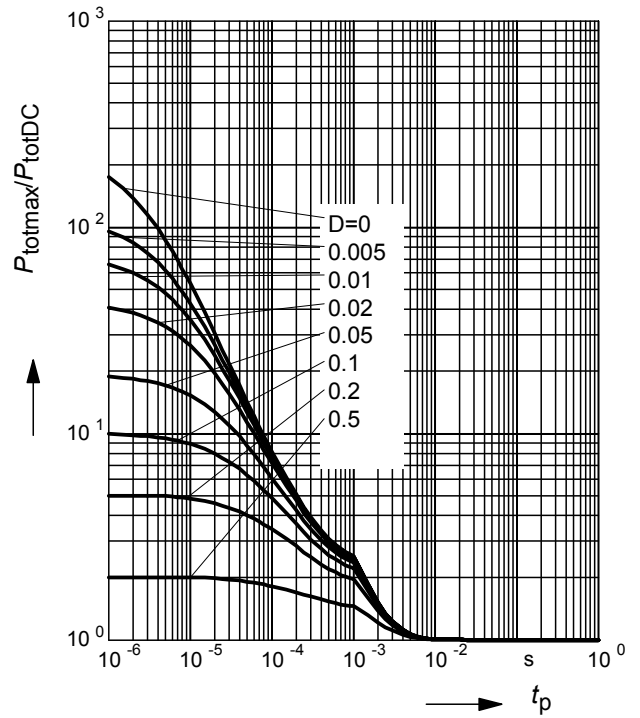
BCR142F



**Permissible Pulse Load**

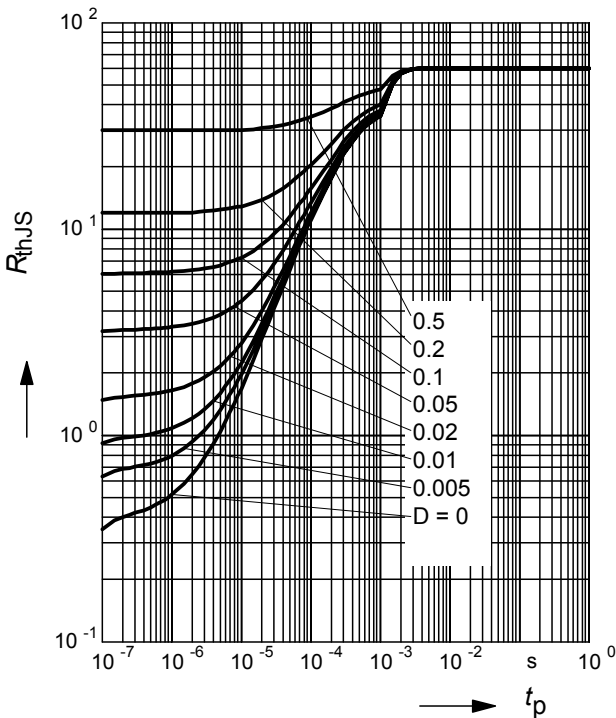
$P_{totmax}/P_{totDC} = f(t_p)$

BCR142F



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

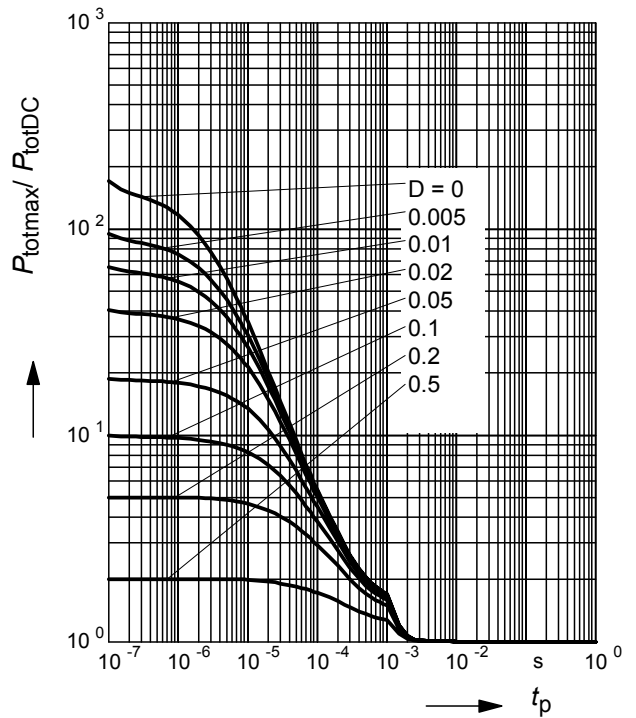
BCR142L3



**Permissible Pulse Load**

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

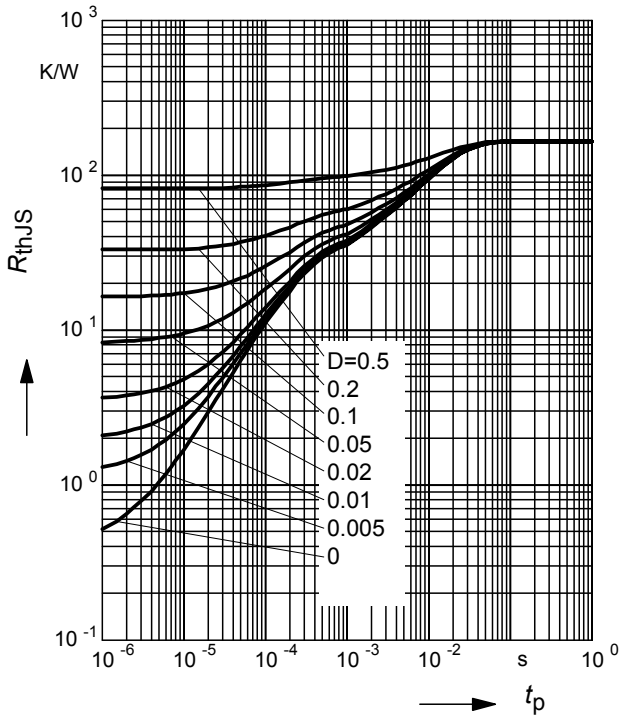
BCR142L3





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

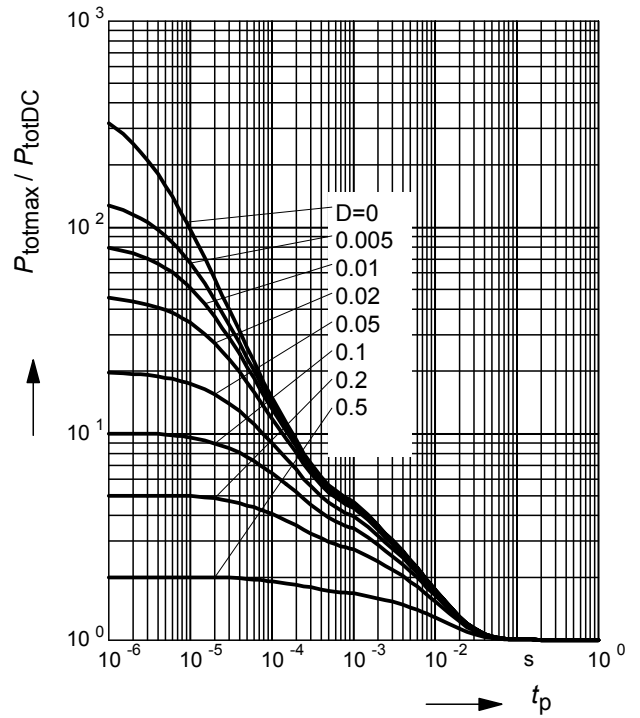
BCR142T



**Permissible Pulse Load**

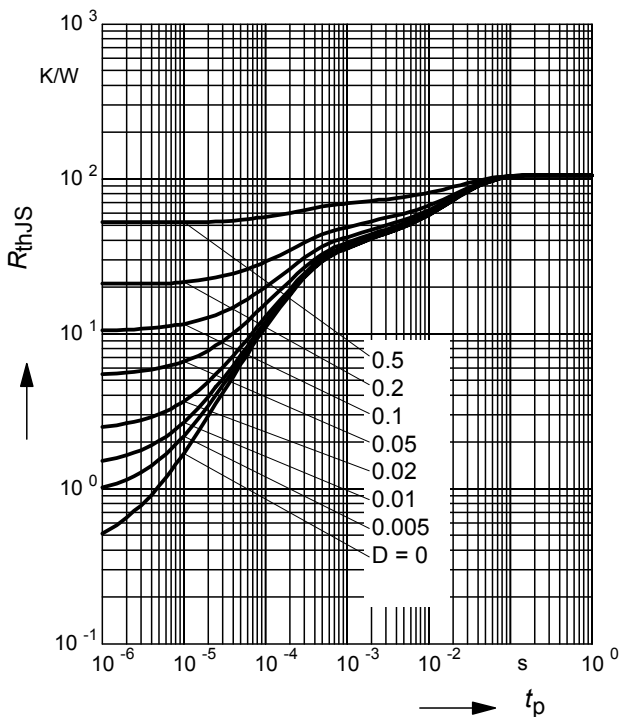
$P_{totmax}/P_{totDC} = f(t_p)$

BCR142T



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

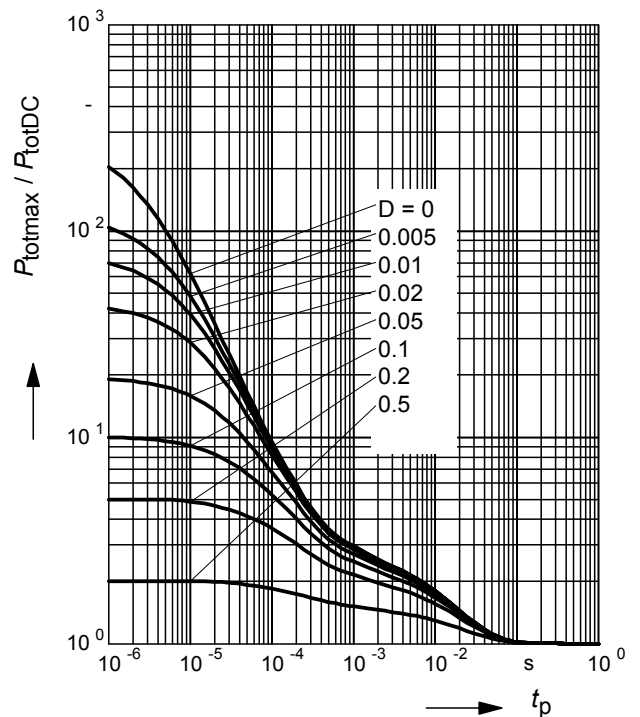
BCR142W



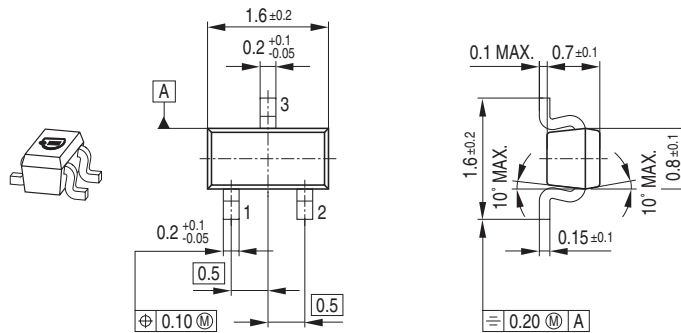
**Permissible Pulse Load**

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

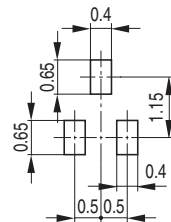
BCR142W



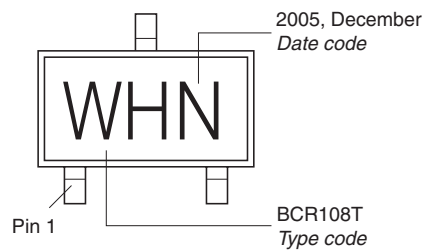
Package Outline



Foot Print

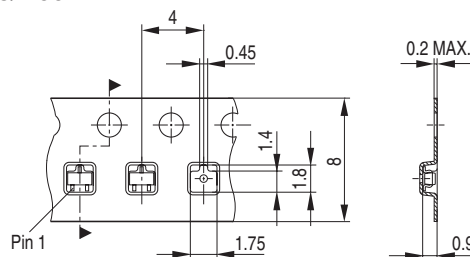


Marking Layout (Example)



Standard Packing

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

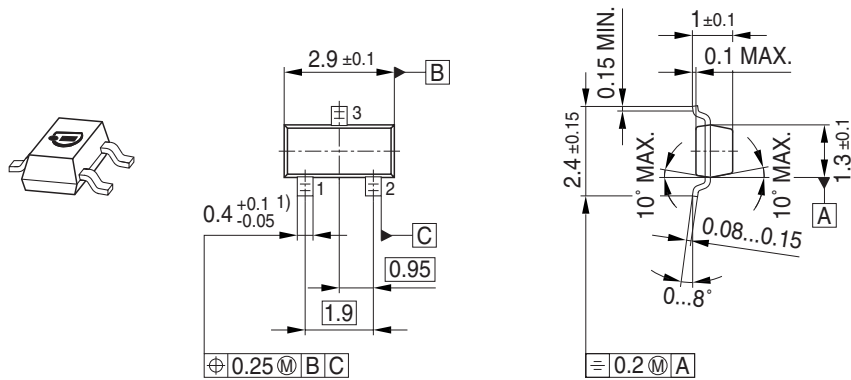


Date Code marking for discrete packages with one digit (SCD80, SC79, SC75<sup>1)</sup>) CES-Code

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

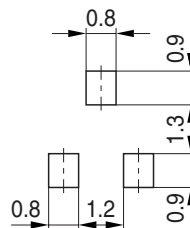
1) New Marking Layout for SC75, implemented at October 2005.

Package Outline

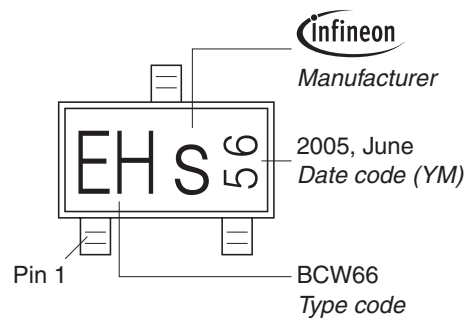


1) Lead width can be 0.6 max. in dambar area

Foot Print

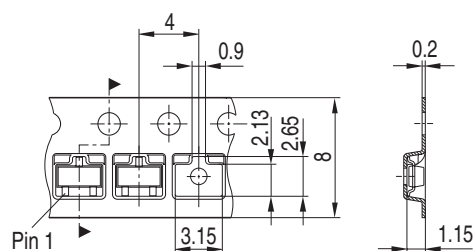


Marking Layout (Example)

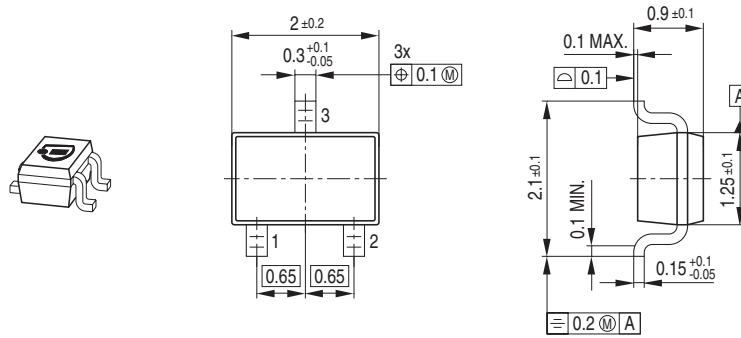


Standard Packing

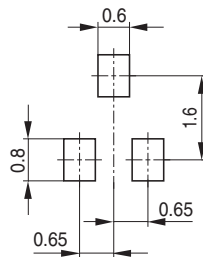
Reel  $\varnothing$ 180 mm = 3.000 Pieces/Reel  
 Reel  $\varnothing$ 330 mm = 10.000 Pieces/Reel



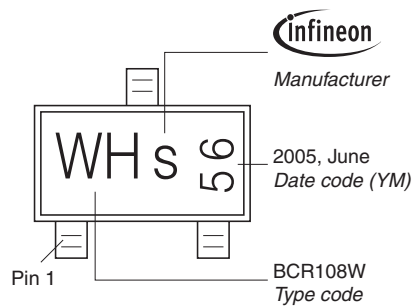
Package Outline



Foot Print

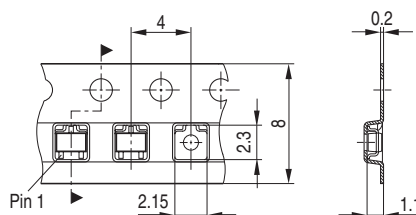


Marking Layout (Example)

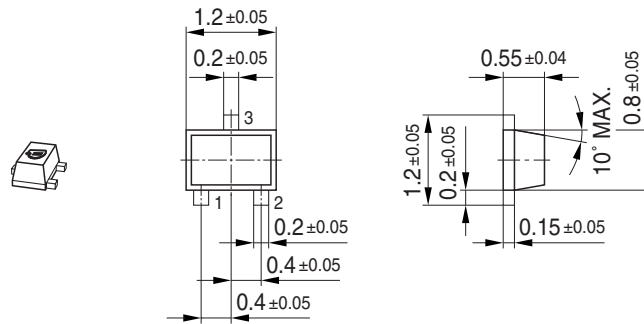


Standard Packing

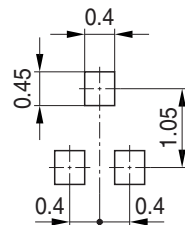
Reel  $\varnothing$ 180 mm = 3.000 Pieces/Reel  
 Reel  $\varnothing$ 330 mm = 10.000 Pieces/Reel



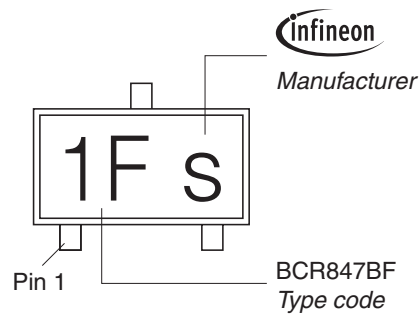
Package Outline



Foot Print

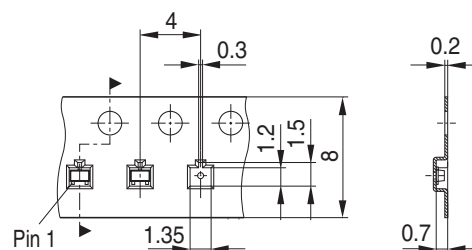


Marking Layout (Example)



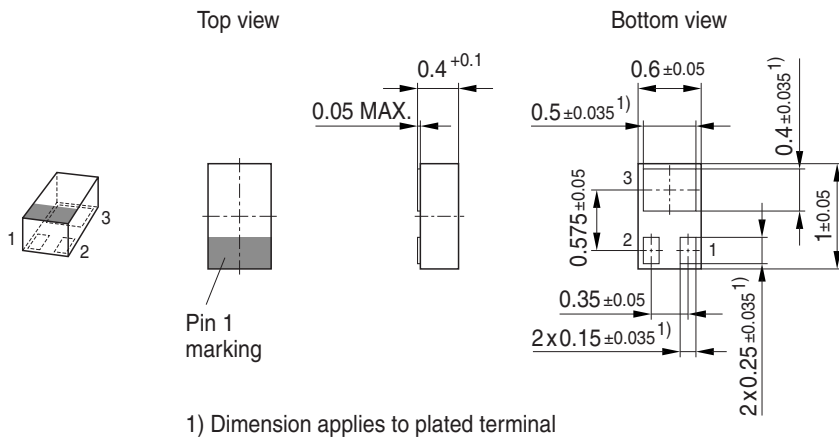
Standard Packing

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



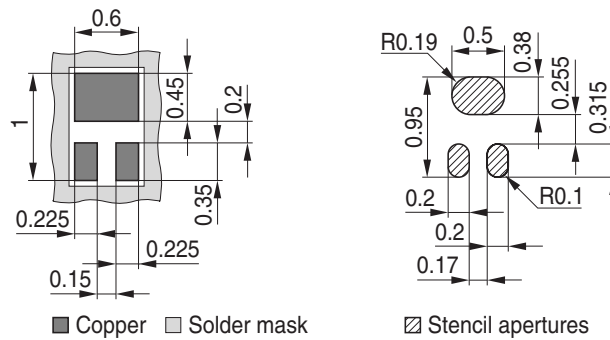


### Package Outline

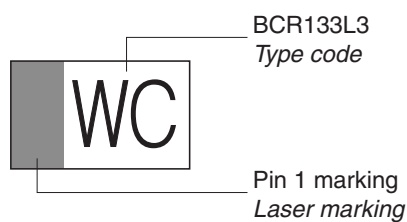


### Foot Print

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

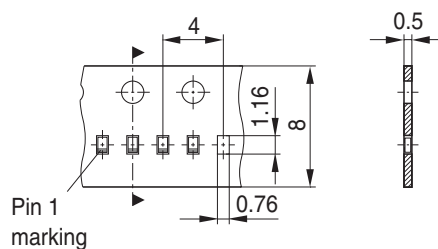


### Marking Layout



### Standard Packing

Reel ø180 mm = 15.000 Pieces/Reel



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