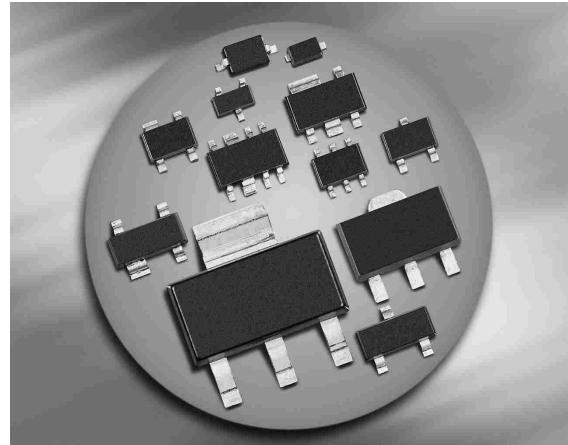


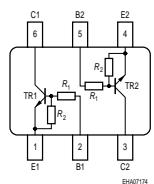
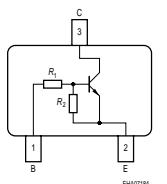
NPN Silicon Digital Transistor

- Switching circuit, inverter, interface circuit, driver circuit
- Built in bias resistor ($R_1=22\text{k}\Omega$, $R_2=22\text{k}\Omega$)
- BCR141S : Two internally isolated transistors with good matching in one multichip package
- BCR141S: For orientation in reel see package information below
- Pb-free (RoHS compliant) package
- Qualified according AEC Q101



BCR141
BCR141W

BCR141S



Type	Marking	Pin Configuration						Package
BCR141	WDs	1=B	2=E	3=C	-	-	-	SOT23
BCR141S	WDs	1=E1	2=B1	3=C2	4=E2	5=B2	6=C1	SOT363
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, $T_S \leq 118^\circ\text{C}$	P_{tot}	250	mW
BCR141S, $T_S \leq 115^\circ\text{C}$		250	
BCR141W, $T_S \leq 124^\circ\text{C}$		250	
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-65 ... 150	

Thermal Resistance

Parameter	Symbol	Value	Unit
Junction - soldering point ¹⁾ BCR141	R_{thJS}	≤ 130	K/W
BCR141S			
BCR141W			

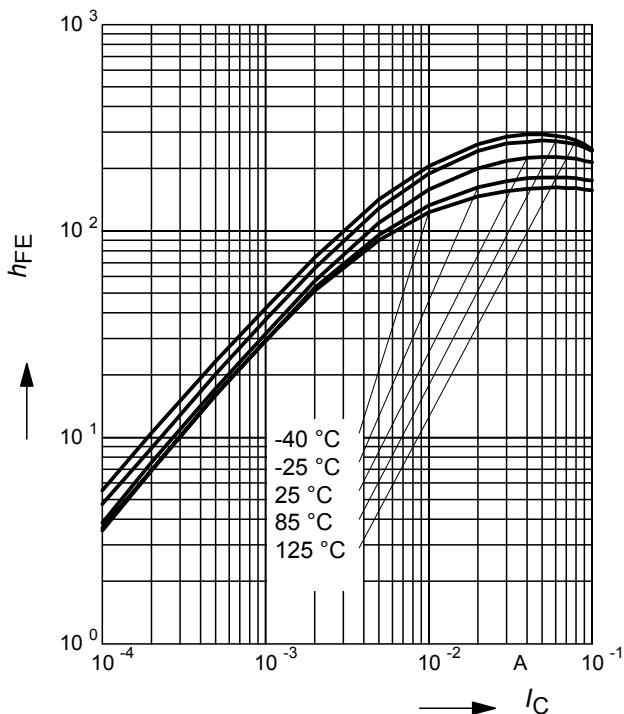
¹For calculation of R_{thJA} please refer to Application Note AN077 (Thermal Resistance Calculation)

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

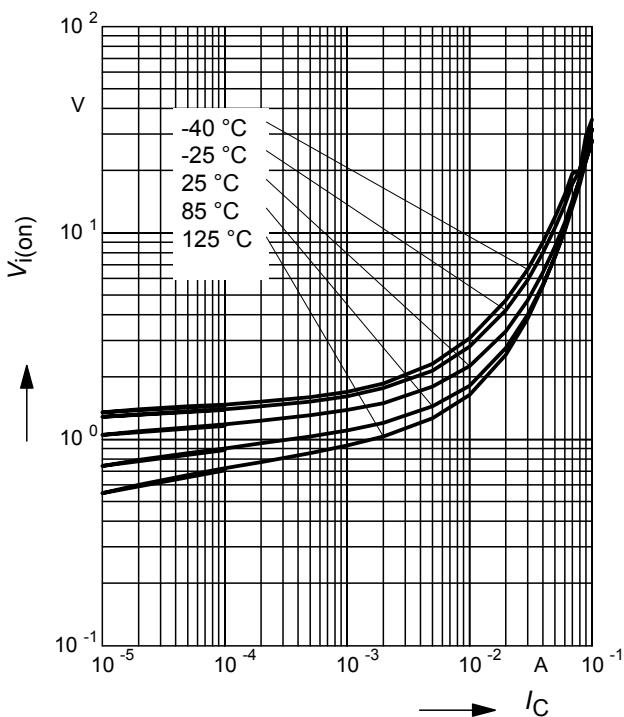
Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC Characteristics					
Collector-emitter breakdown voltage $I_C = 100 \mu\text{A}, I_B = 0$	$V_{(\text{BR})\text{CEO}}$	50	-	-	V
Collector-base breakdown voltage $I_C = 10 \mu\text{A}, I_E = 0$	$V_{(\text{BR})\text{CBO}}$	50	-	-	
Collector-base cutoff current $V_{CB} = 40 \text{ V}, I_E = 0$	I_{CBO}	-	-	100	nA
Emitter-base cutoff current $V_{EB} = 10 \text{ V}, I_C = 0$	I_{EBO}	-	-	350	μA
DC current gain ¹⁾ $I_C = 5 \text{ mA}, V_{CE} = 5 \text{ V}$	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 $I_C = 100 \mu\text{A}, V_{CE} = 5 \text{ V}$	$V_{i(\text{off})}$	0.8	-	1.5	
Input on voltage $I_C = 2 \text{ mA}, V_{CE} = 0.3 \text{ V}$	$V_{i(\text{on})}$	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 $I_C = 10 \text{ mA}, V_{CE} = 5 \text{ V}, f = 100 \text{ MHz}$	f_T	-	130	-	MHz
Collector-base capacitance $V_{CB} = 10 \text{ V}, f = 1 \text{ MHz}$	C_{cb}	-	3	-	pF

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

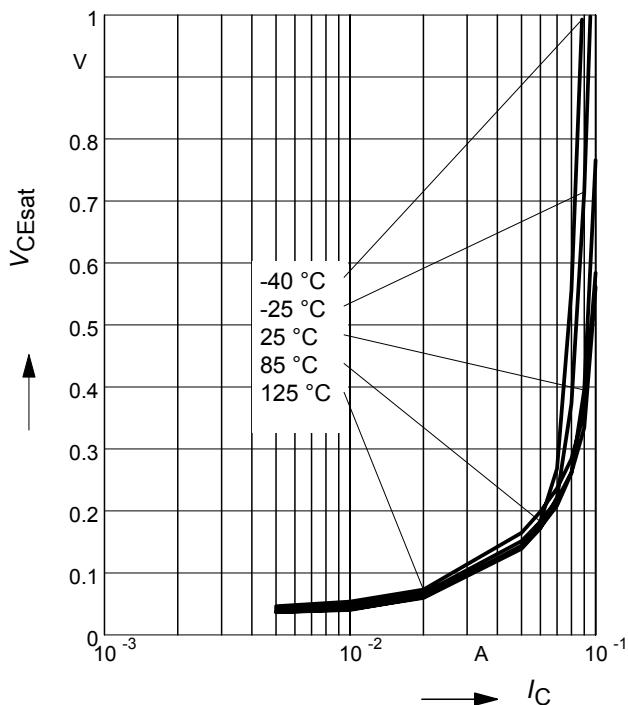
DC current gain $h_{FE} = f(I_C)$
 $V_{CE} = 5 \text{ V}$ (common emitter configuration)



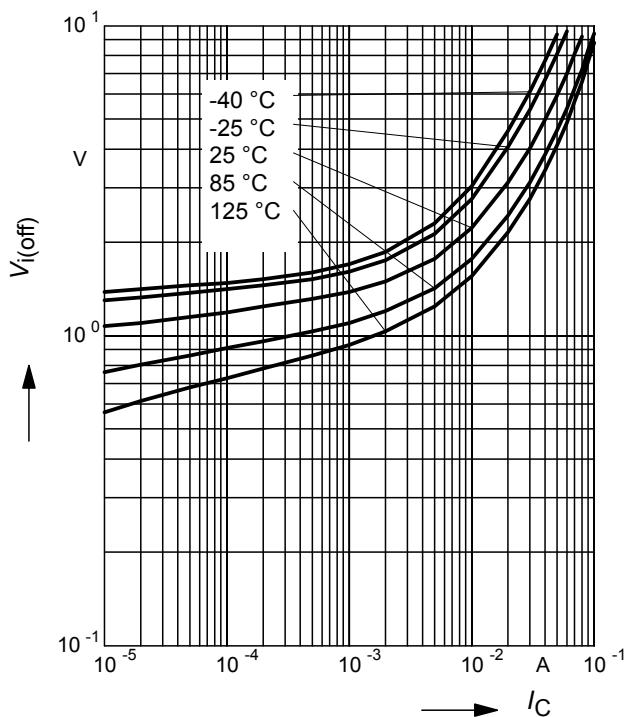
Input on Voltage $V_{i(on)} = f(I_C)$
 $V_{CE} = 0.3 \text{ V}$ (common emitter voltage)



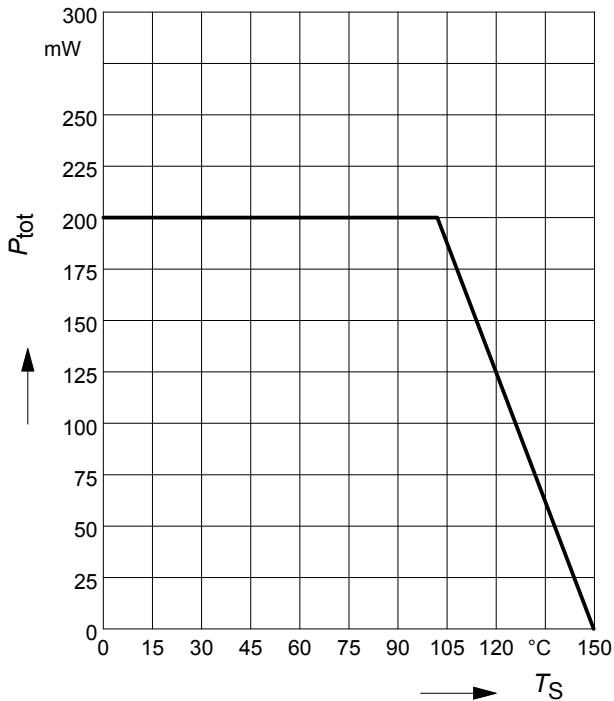
Collector-emitter saturation voltage
 $V_{CEsat} = f(I_C)$, $I_C/I_B = 20$



Input off voltage $V_{i(off)} = f(I_C)$
 $V_{CE} = 5 \text{ V}$ (common emitter voltage)

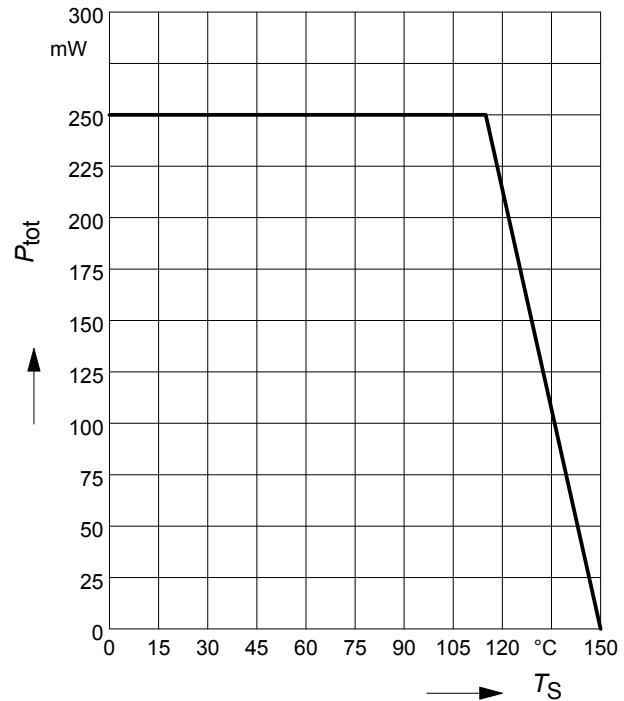


Total power dissipation $P_{\text{tot}} = f(T_S)$
BCR141

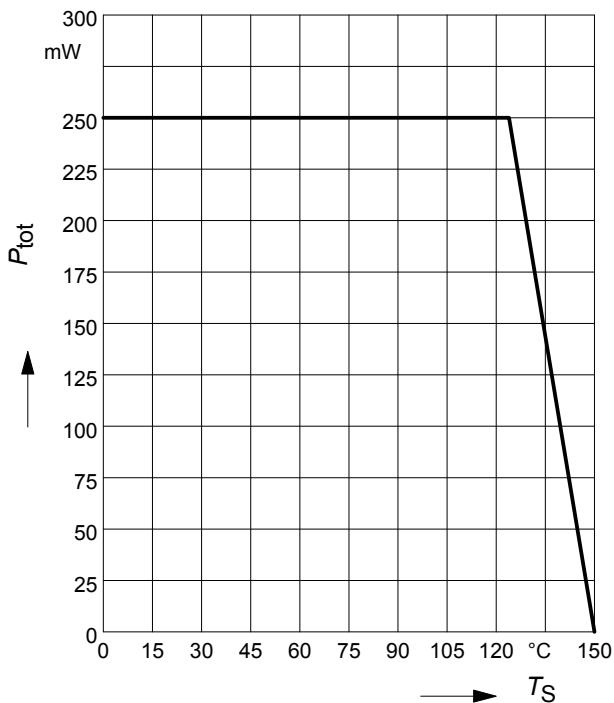


Total power dissipation $P_{\text{tot}} = f(T_S)$
BCR141S

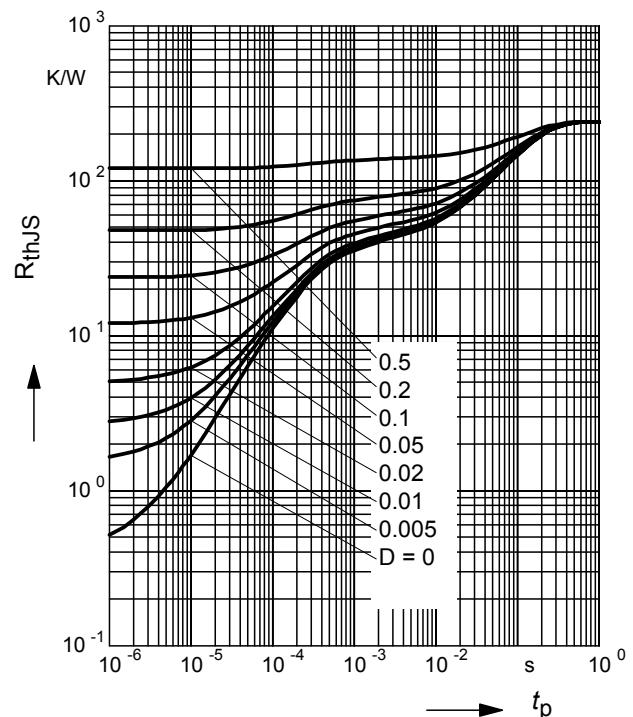
Total power dissipation $P_{\text{tot}} = f(T_S)$
BCR141S



Total power dissipation $P_{\text{tot}} = f(T_S)$
BCR141W



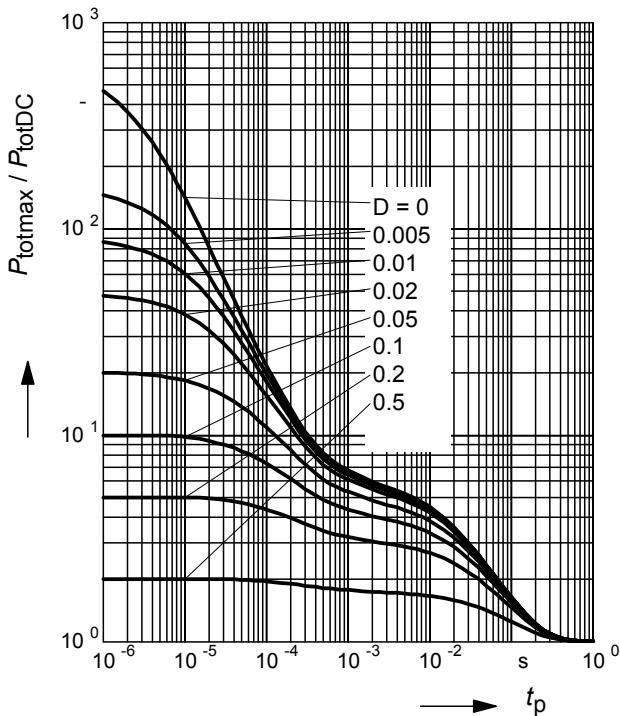
Permissible Pulse Load $R_{\text{thJS}} = f(t_p)$
BCR141



Permissible Pulse Load

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

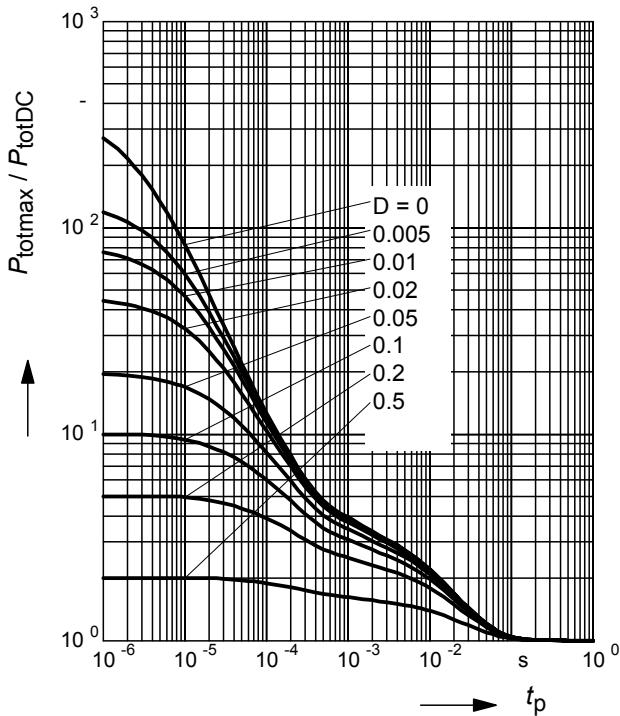
BCR141



Permissible Pulse Load

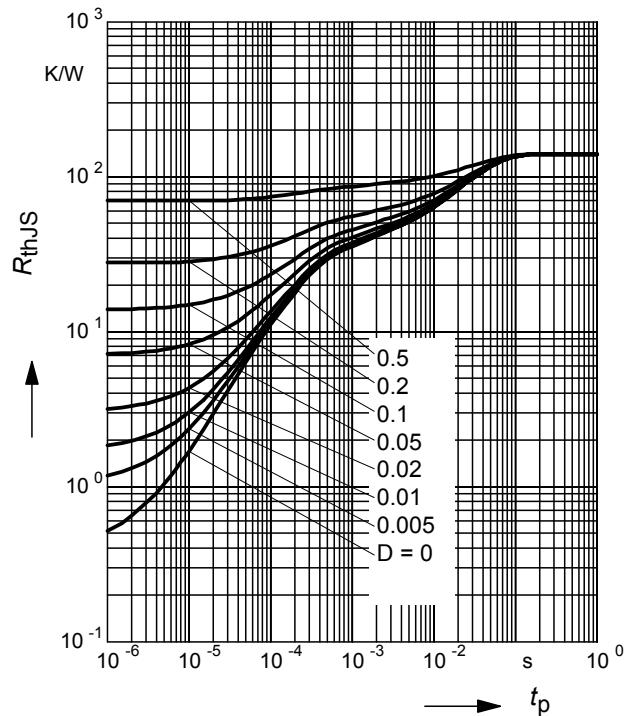
$$P_{\text{totmax}}/P_{\text{totDC}} = f(t_p)$$

BCR141S



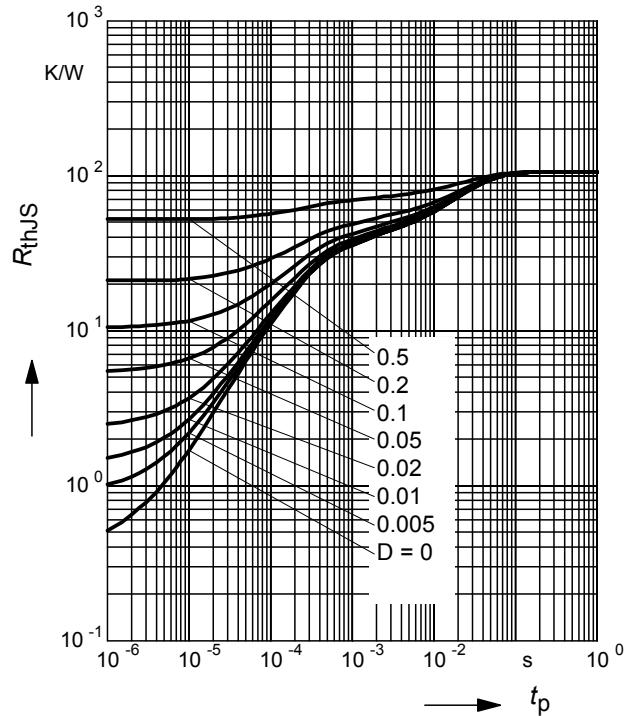
Permissible Puls Load $R_{\text{thJS}} = f(t_p)$

BCR141S



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

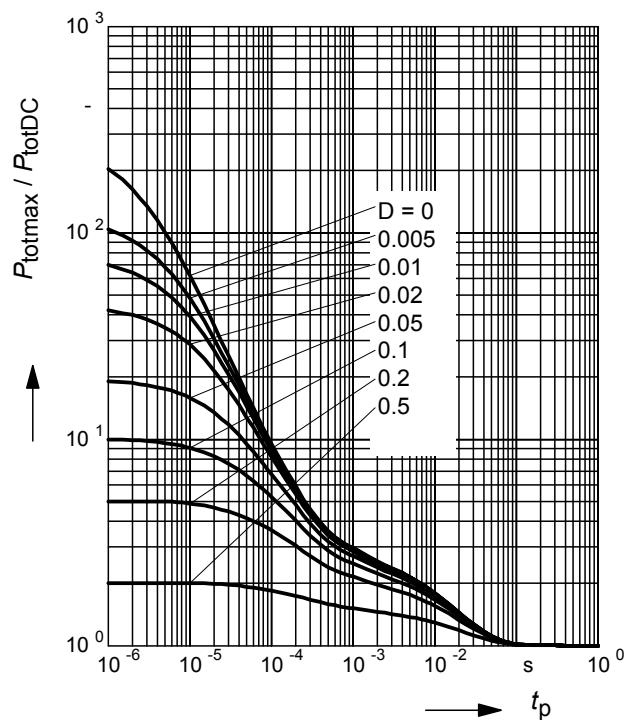
BCR141W



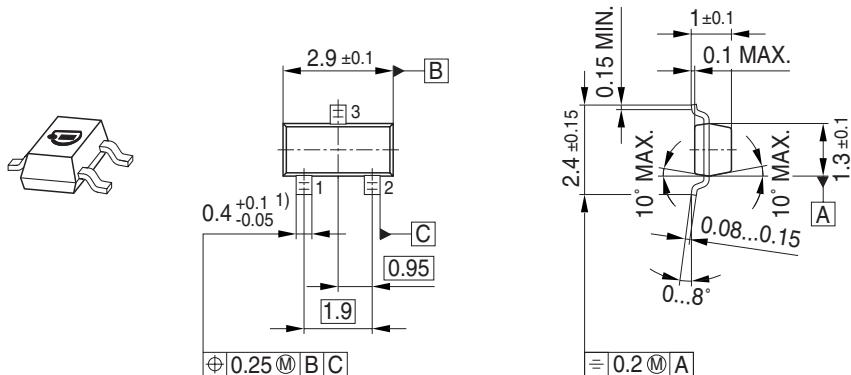
Permissible Pulse Load

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

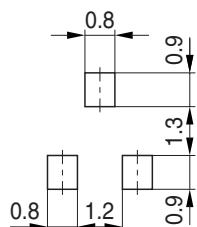
BCR141W



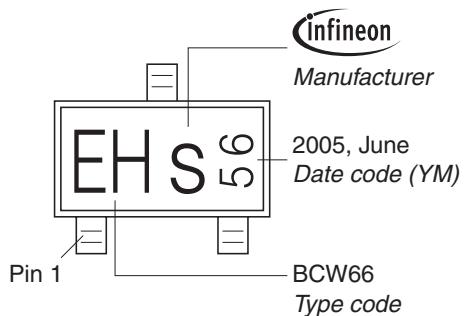
Package Outline



Foot Print

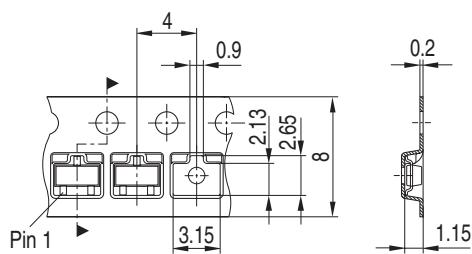


Marking Layout (Example)

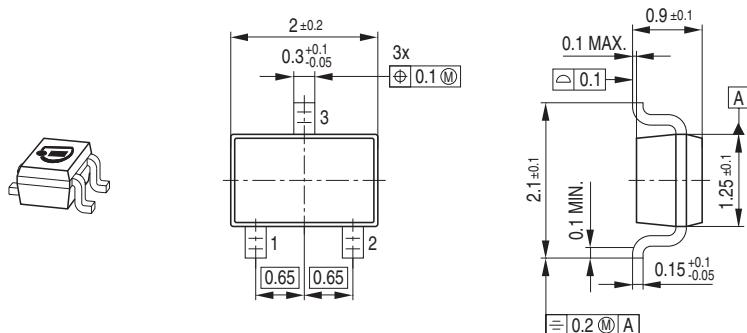


Standard Packing

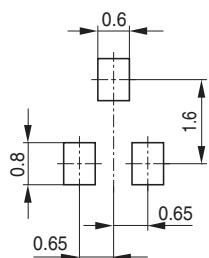
Reel ø180 mm = 3.000 Pieces/Reel
 Reel ø330 mm = 10.000 Pieces/Reel



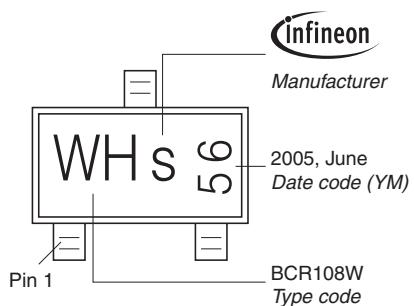
Package Outline



Foot Print

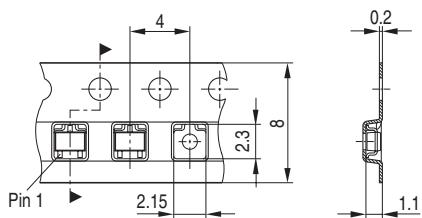


Marking Layout (Example)

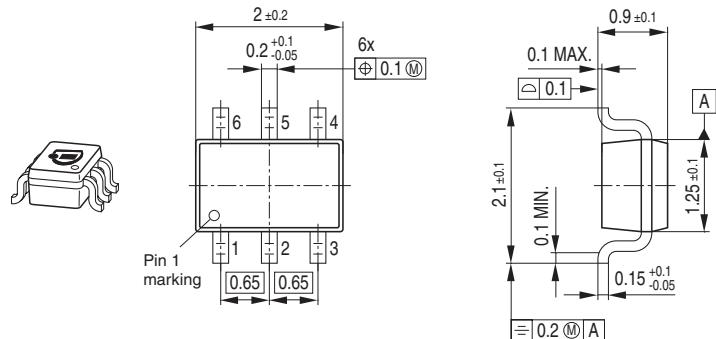


Standard Packing

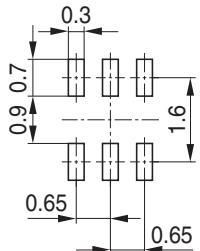
Reel ø180 mm = 3.000 Pieces/Reel
 Reel ø330 mm = 10.000 Pieces/Reel



Package Outline

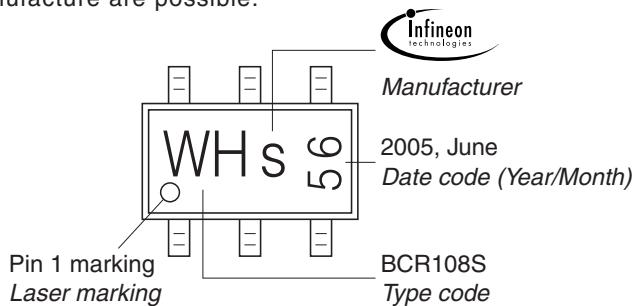


Foot Print



Marking Layout (Example)

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

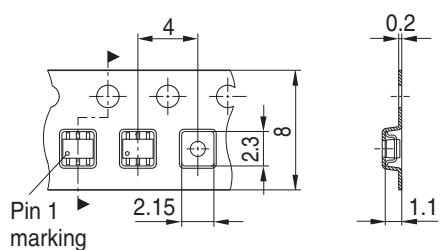


Standard Packing

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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