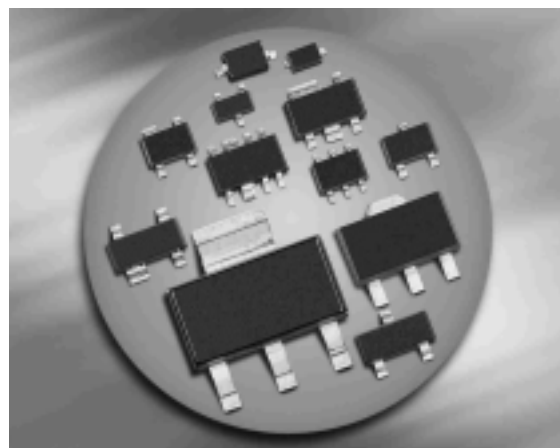


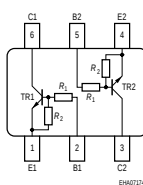
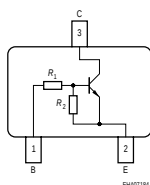
NPN Silicon Digital Transistor

- 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
- Pb-free (RoHS compliant) package¹⁾
- Qualified according AEC Q101



BCR141F/W

BCR141S/U



Type	Marking	Pin Configuration						Package
BCR141F	WDs	1=B	2=E	3=C	-	-	-	TSFP-3
BCR141S	WDs	1=E1	2=B1	3=C2	4=E2	5=B2	6=C1	SOT363
BCR141U	WDs	1=E1	2=B1	3=C2	4=E2	5=B2	6=C1	SC74
BCR141W	WDs	1=B	2=E	3=C	-	-	-	SOT323

¹⁾Pb-containing package may be available upon special request

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- BCR141F, $T_S \leq 128^\circ\text{C}$ BCR141S, $T_S \leq 115^\circ\text{C}$ BCR141U, $T_S \leq 118^\circ\text{C}$ BCR141W, $T_S \leq 124^\circ\text{C}$	P_{tot}	250 250 250 250	mW
Junction temperature	T_j	150	
Storage temperature	T_{stg}	-65 ... 150	

Thermal Resistance

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

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	-

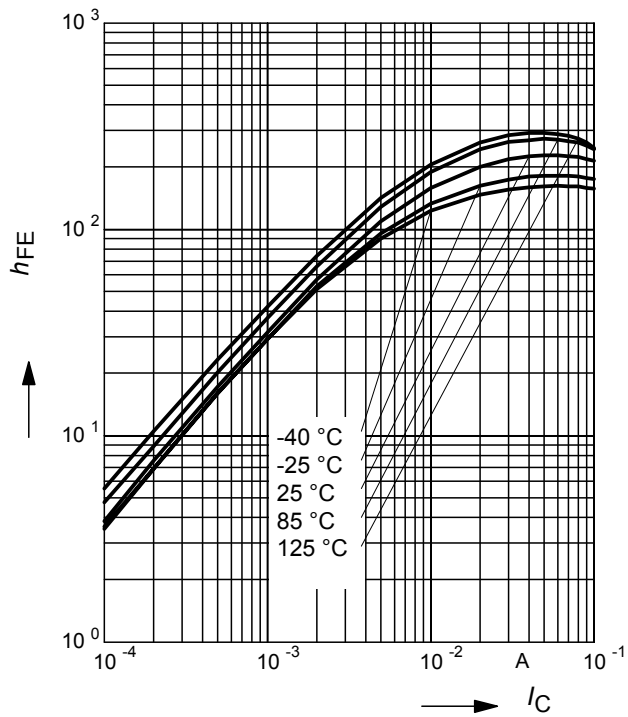
AC Characteristics

Transition frequency $I_C = 10\ \text{mA}$, $V_{CE} = 5\ \text{V}$, $f = 100\ \text{MHz}$	f_T	-	130	-	MHz
Collector-base capacitance $V_{CB} = 10\ \text{V}$, $f = 1\ \text{MHz}$	C_{cb}	-	3	-	pF

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

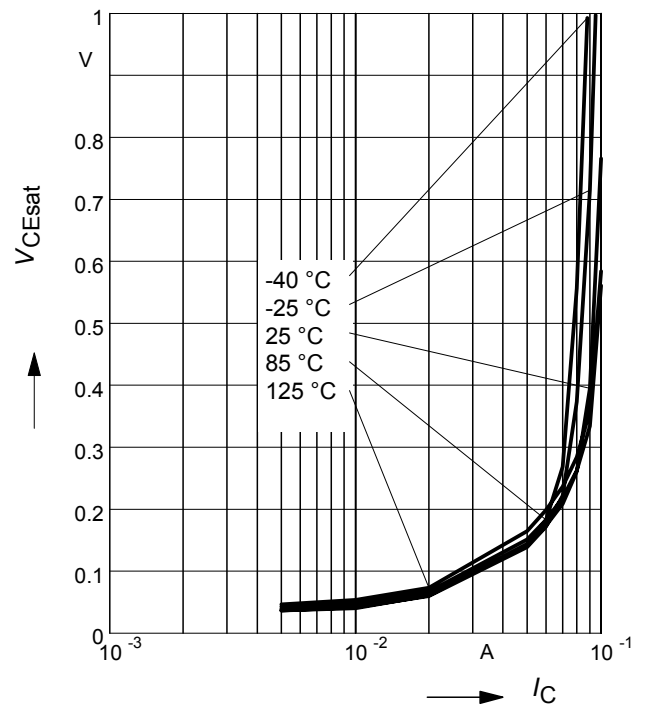
DC current gain $h_{FE} = f(I_C)$

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



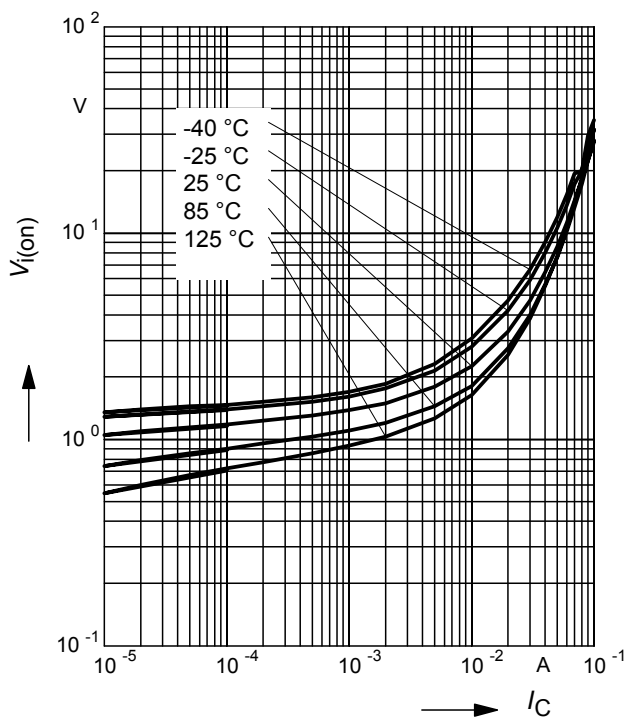
Collector-emitter saturation voltage

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



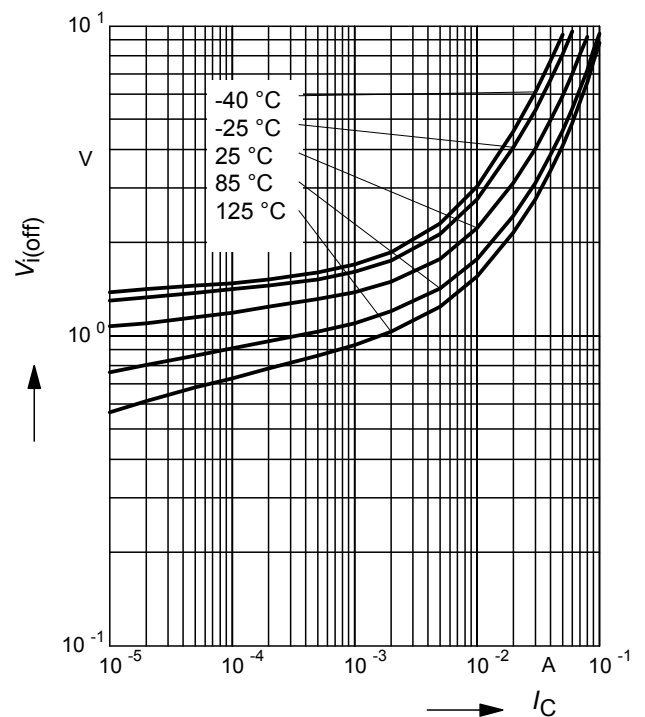
Input on Voltage $V_{i(on)} = f(I_C)$

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



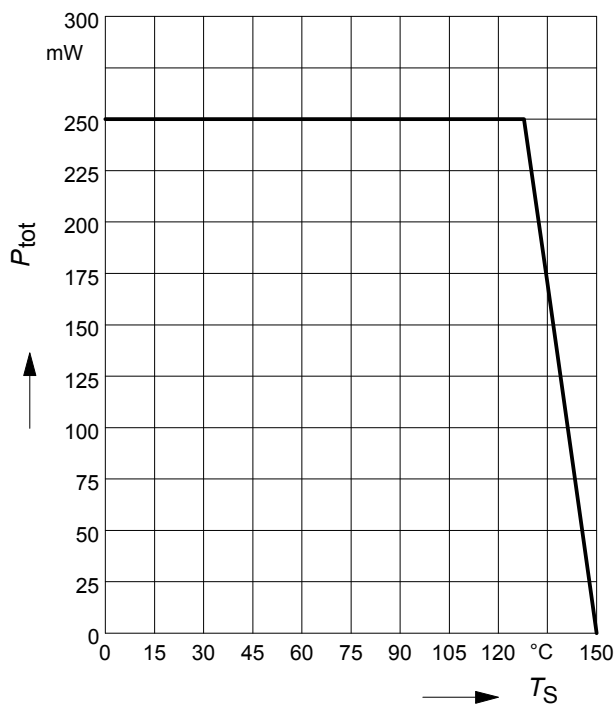
Input off voltage $V_{i(off)} = f(I_C)$

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



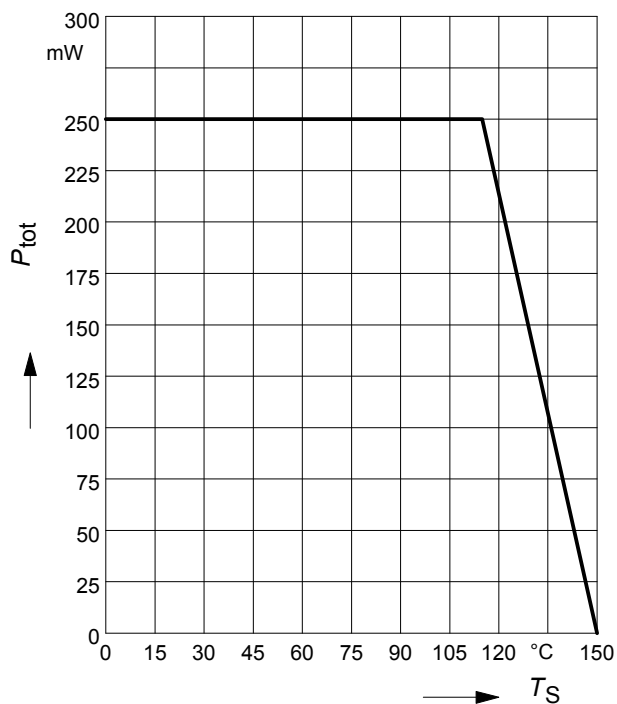
Total power dissipation $P_{\text{tot}} = f(T_S)$

BCR141F



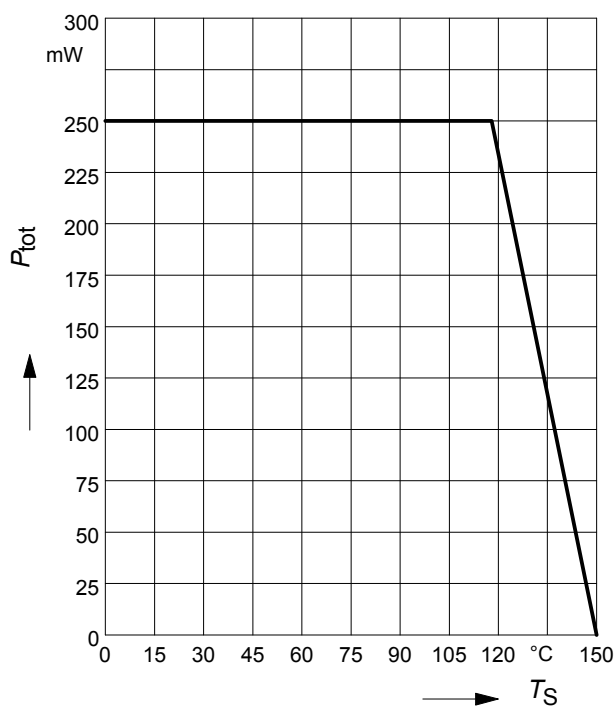
Total power dissipation $P_{\text{tot}} = f(T_S)$

BCR141S



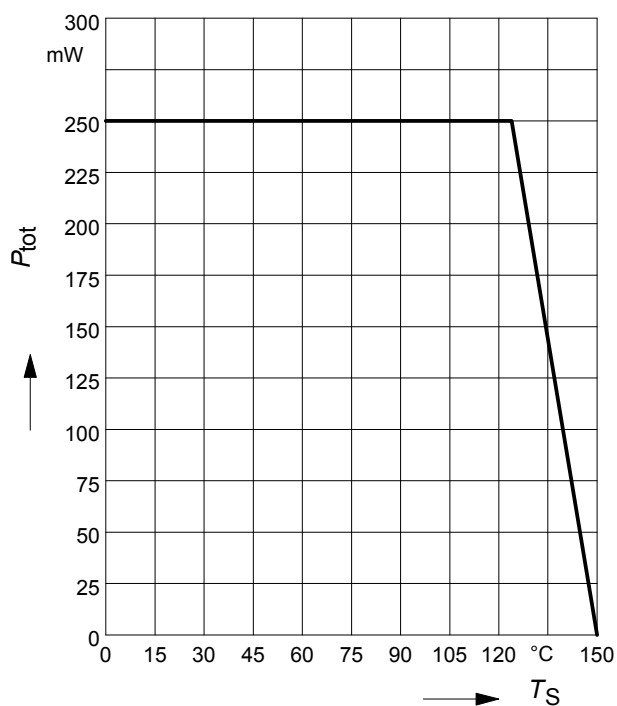
Total power dissipation $P_{\text{tot}} = f(T_S)$

BCR141U



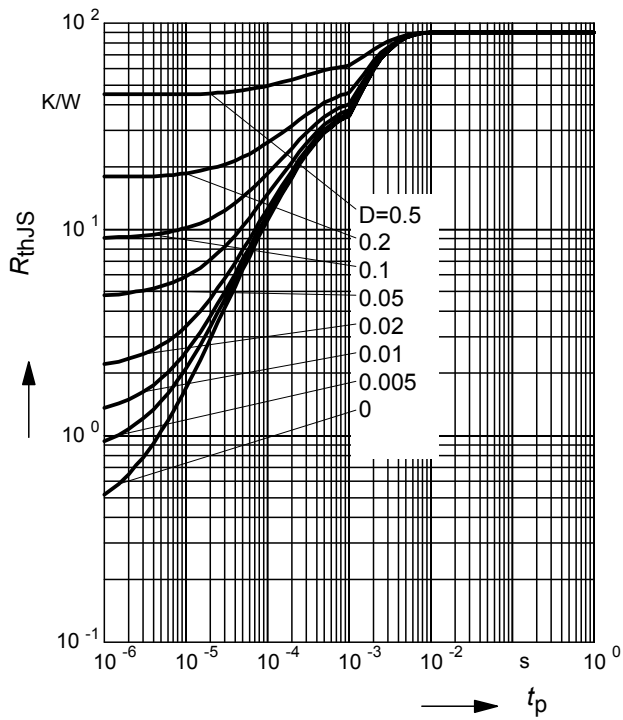
Total power dissipation $P_{\text{tot}} = f(T_S)$

BCR141W



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

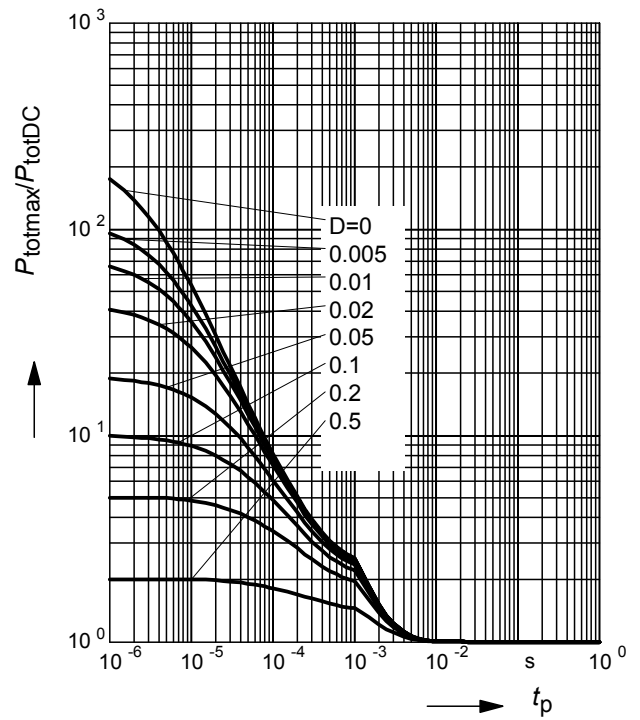
BCR141F



Permissible Pulse Load

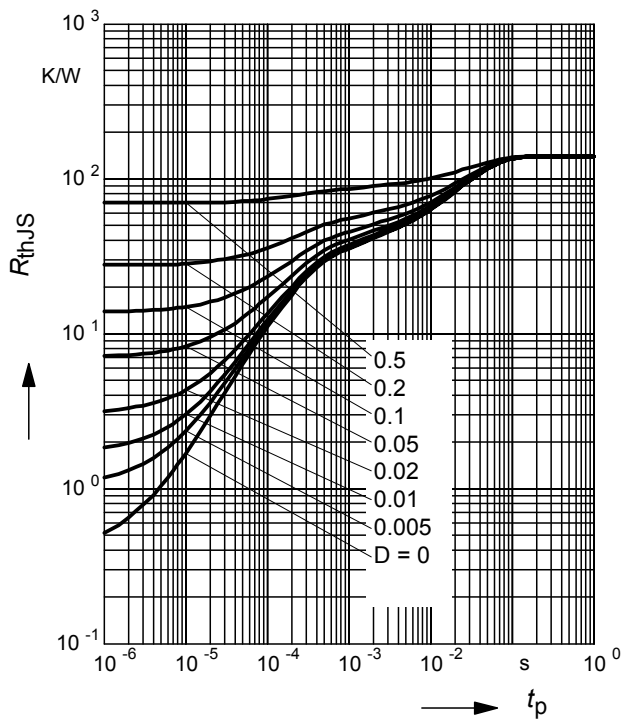
$$P_{totmax}/P_{totDC} = f(t_p)$$

BCR141F



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

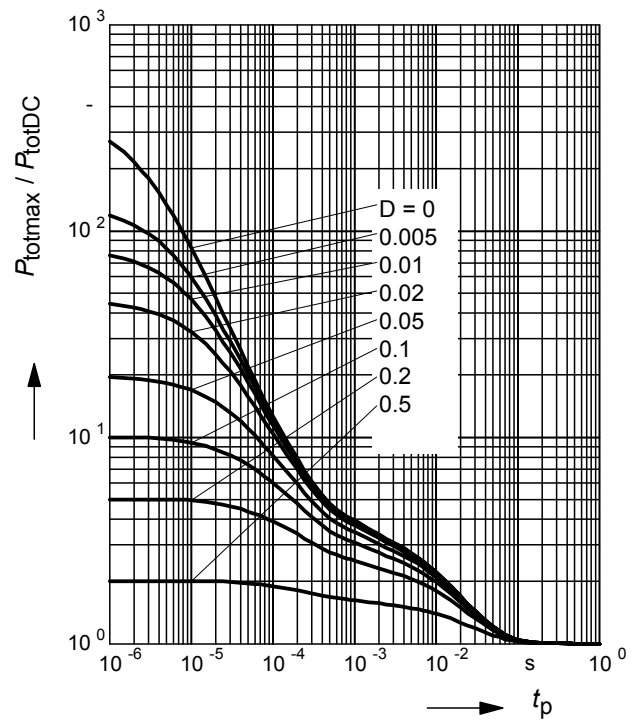
BCR141S



Permissible Pulse Load

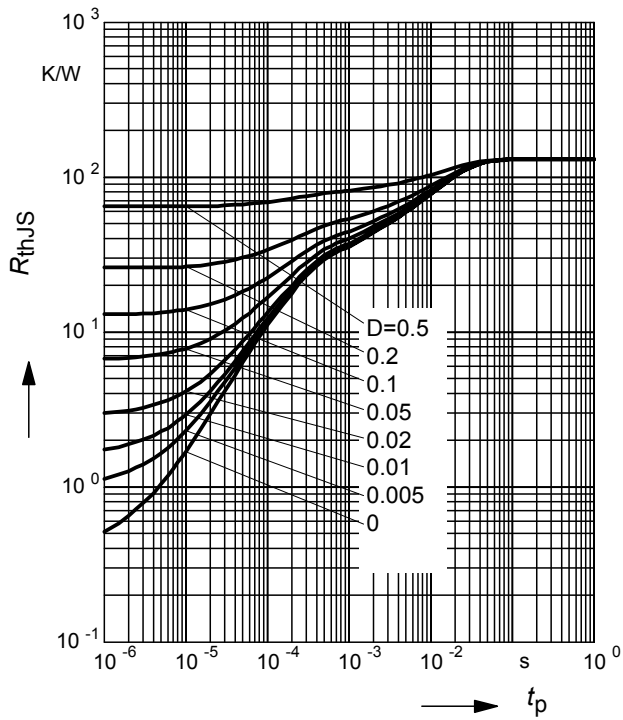
$$P_{totmax}/P_{totDC} = f(t_p)$$

BCR141S



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

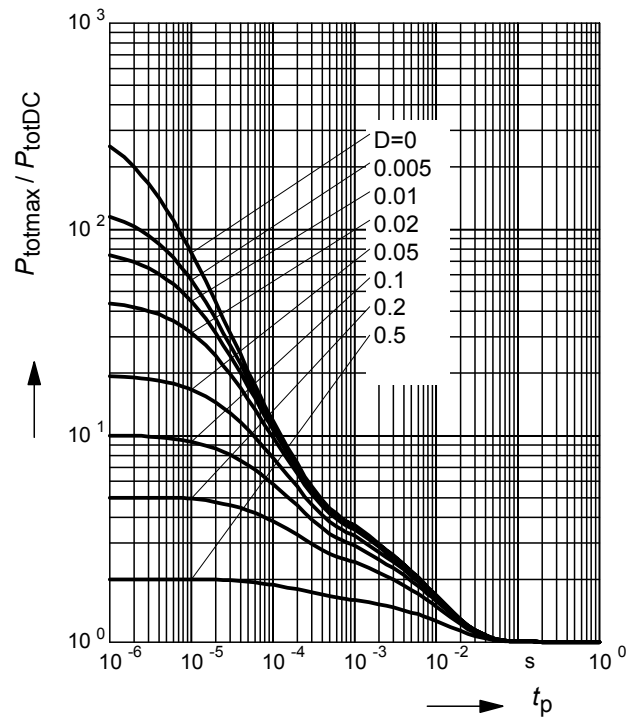
BCR141U



Permissible Pulse Load

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

BCR141U



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

BCR141W



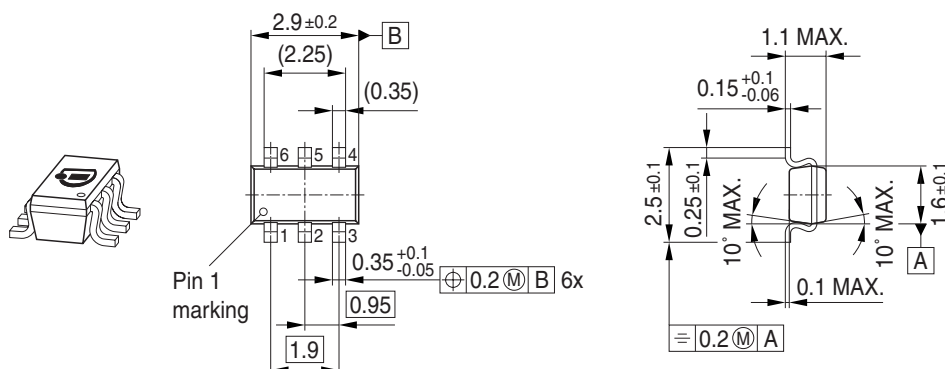
Permissible Pulse Load

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

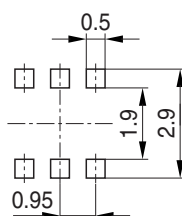
BCR141W



Package Outline

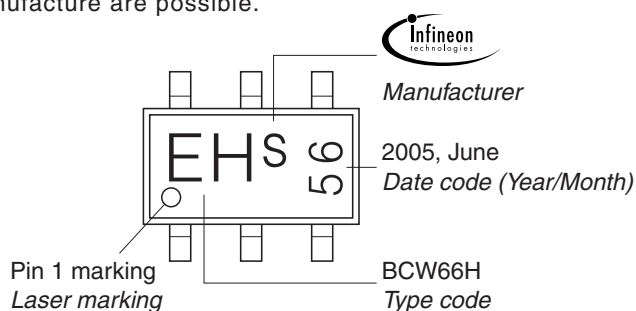


Foot Print



Marking Layout (Example)

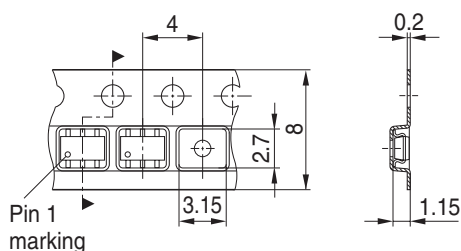
Small variations in positioning of Date code, Type code and Manufacture are possible.



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.



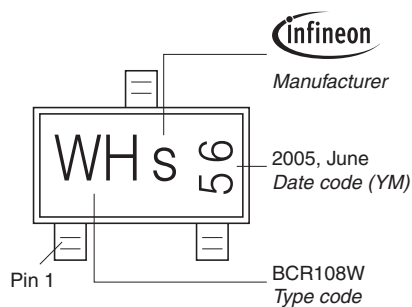
Package Outline



Foot Print



Marking Layout (Example)

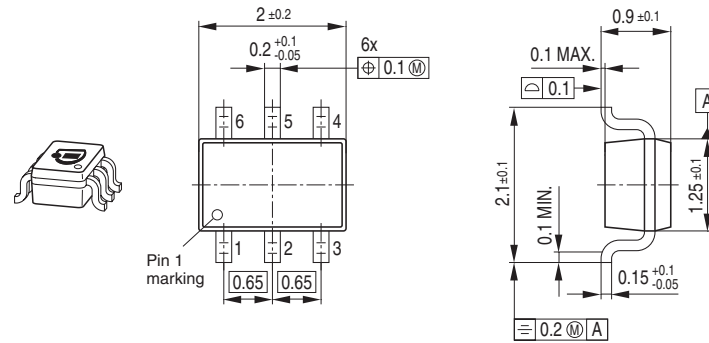


Standard Packing

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



Package Outline



Foot Print



Marking Layout (Example)

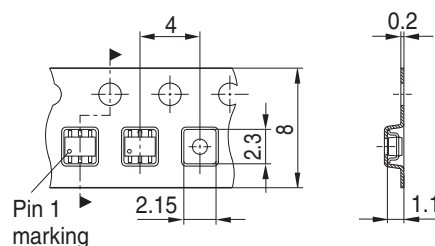
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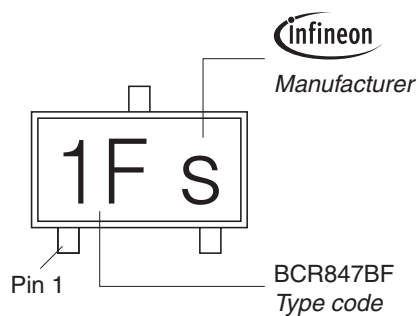
Package Outline



Foot Print



Marking Layout (Example)



Standard Packing

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



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