

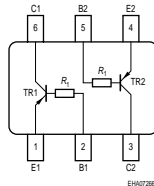
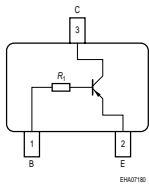
PNP Silicon Digital Transistor

- Switching circuit, inverter, interface circuit, driver circuit
- Built in bias resistor ($R_1 = 4.7 \text{ k}\Omega$)
- BCR169S: Two internally isolated transistors with good matching in one multichip package
- BCR169S: For orientation in reel see package information below
- Pb-free (RoHS compliant) package ¹⁾
- Qualified according AEC Q101



BCR169/F/W

BCR169S



Type	Marking	Pin Configuration						Package
BCR169	WSs	1=B	2=E	3=C	-	-	-	SOT23
BCR169F	WSs	1=B	2=E	3=C	-	-	-	TSFP-3
BCR169S	WSs	1=E1	2=B1	3=C2	4=E2	5=B2	6=C1	SOT363
BCR169W	WSs	1=B	2=E	3=C	-	-	-	SOT323

¹Pb-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	$V_{i(fwd)}$	30		
Input reverse voltage	$V_{i(rev)}$	5		
Collector current	I_C	100	mA	
Total power dissipation	P_{tot}		mW	
BCR169, $T_S \leq 102^\circ\text{C}$				200
BCR169F, $T_S \leq 128^\circ\text{C}$				250
BCR169S, $T_S \leq 115^\circ\text{C}$				250
BCR169W, $T_S \leq 124^\circ\text{C}$				250
Junction temperature	T_j	150	°C	
Storage temperature	T_{stg}	-65 ... 150		

Thermal Resistance

Parameter	Symbol	Value	Unit	
Junction - soldering point ¹⁾	R_{thJS}		K/W	
BCR169				≤ 240
BCR169F				≤ 90
BCR169S				≤ 140
BCR169W				≤ 105

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

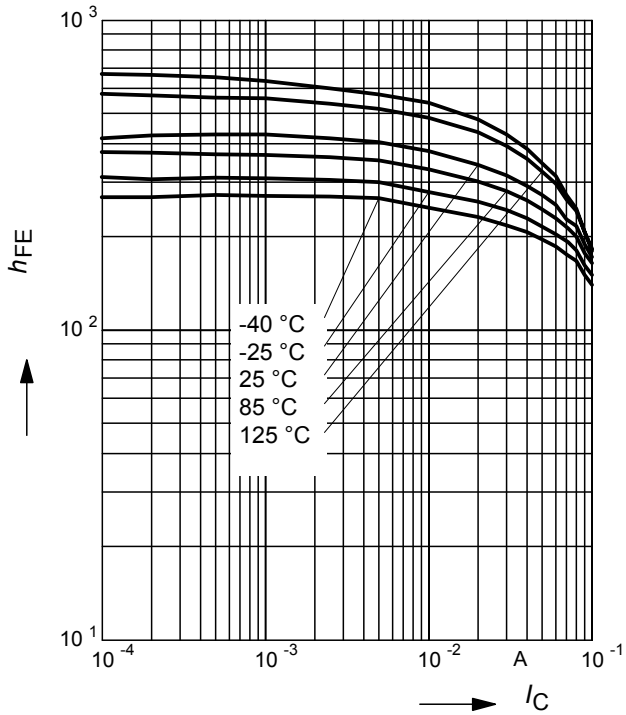
Electrical Characteristics at $T_A = 25^\circ\text{C}$, unless otherwise specified

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC Characteristics					
Collector-emitter breakdown voltage $I_C = 100 \mu\text{A}, I_B = 0$	$V_{(BR)CEO}$	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 $V_{EB} = 5 \text{ V}, I_C = 0$	I_{EBO}	-	-	100	nA
DC current gain ¹⁾ $I_C = 5 \text{ mA}, V_{CE} = 5 \text{ V}$	h_{FE}	120	-	630	-
Collector-emitter saturation voltage ¹⁾ $I_C = 10 \text{ mA}, I_B = 0.5 \text{ mA}$	V_{CEsat}	-	-	0.3	V
Input off voltage $I_C = 100 \mu\text{A}, V_{CE} = 5 \text{ V}$	$V_{i(off)}$	0.4	-	0.8	
Input on voltage $I_C = 2 \text{ mA}, V_{CE} = 0.3 \text{ V}$	$V_{i(on)}$	0.5	-	1.1	
Input resistor	R_1	3.2	4.7	6.2	k Ω
AC Characteristics					
Transition frequency $I_C = 10 \text{ mA}, V_{CE} = 5 \text{ V}, f = 100 \text{ MHz}$	f_T	-	200	-	MHz
Collector-base capacitance $V_{CB} = 10 \text{ V}, f = 1 \text{ MHz}$	C_{cb}	-	3	-	pF

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

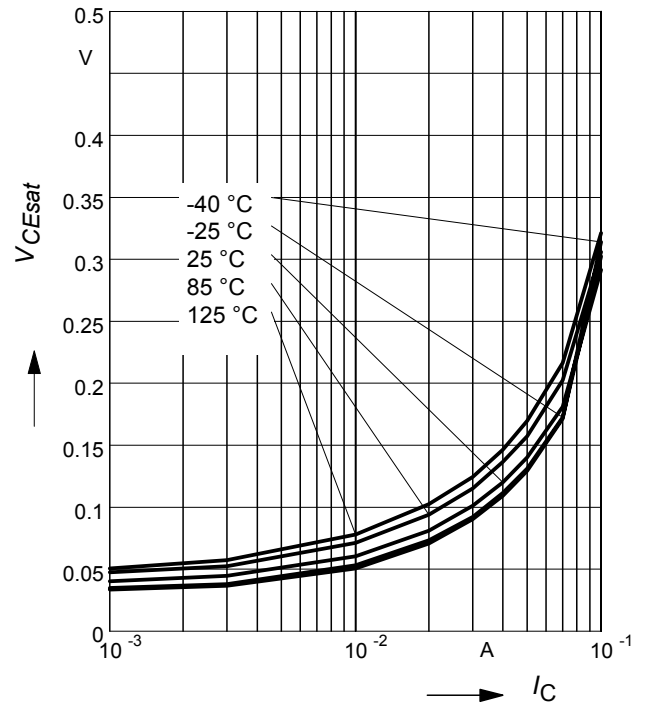
DC current gain $h_{FE} = f(I_C)$

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



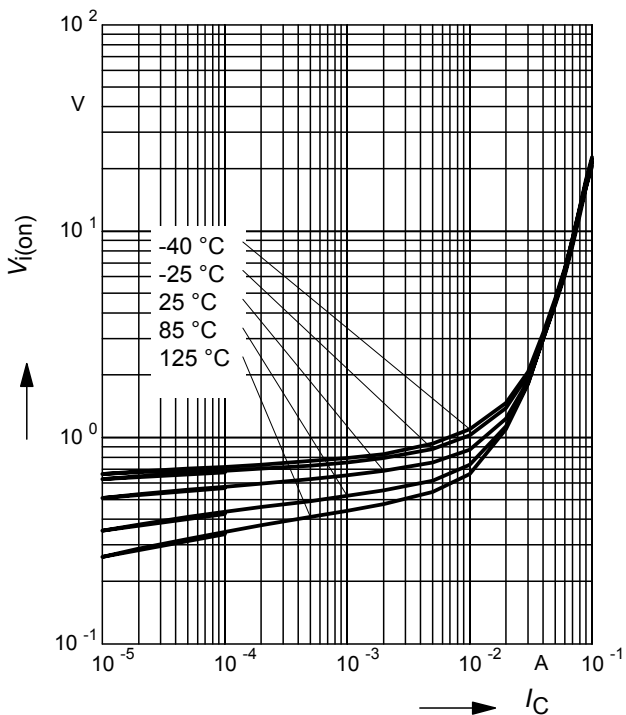
Collector-emitter saturation voltage

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



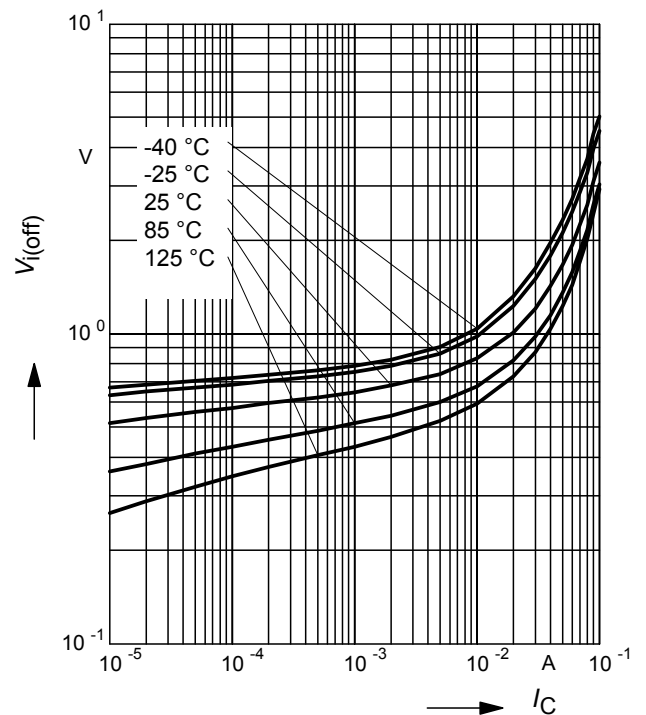
Input on Voltage $V_{i(on)} = f(I_C)$

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



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

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



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

BCR169



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

BCR169F



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

BCR169S



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

BCR169W



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

BCR169



Permissible Pulse Load

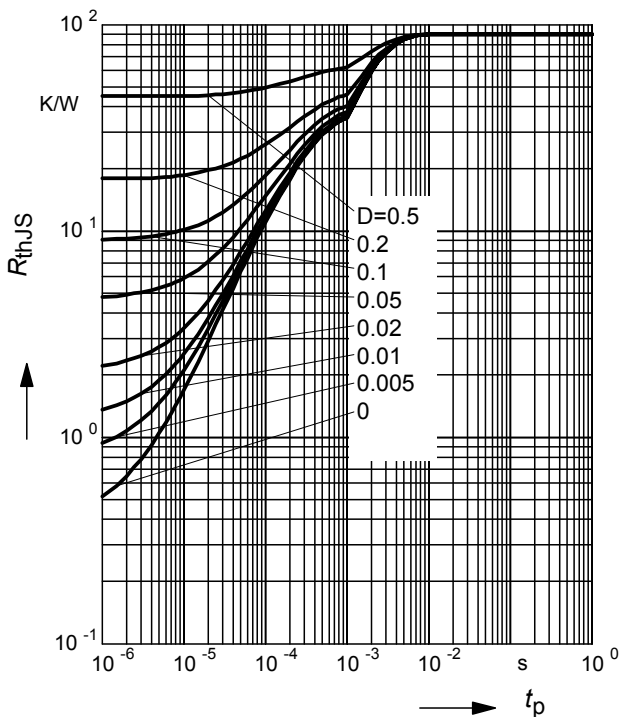
$P_{totmax}/P_{totDC} = f(t_p)$

BCR169



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

BCR169F



Permissible Pulse Load

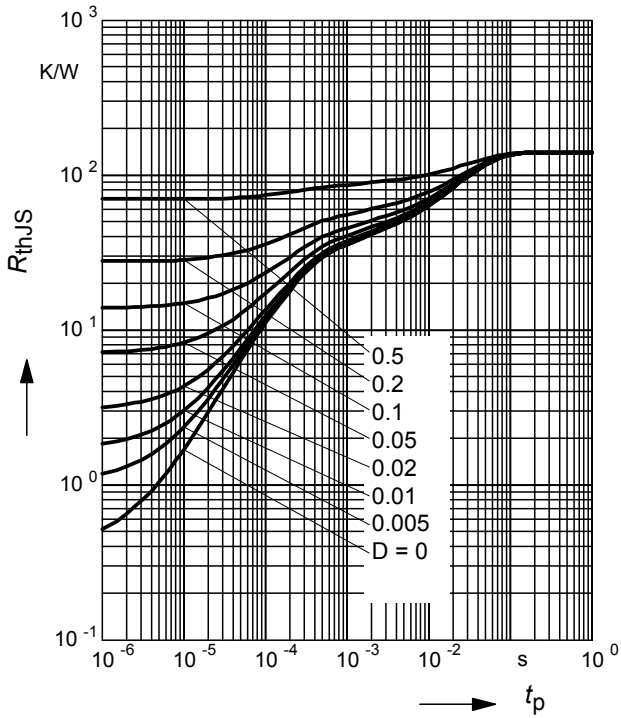
$P_{totmax}/P_{totDC} = f(t_p)$

BCR169F



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

BCR169S



Permissible Pulse Load

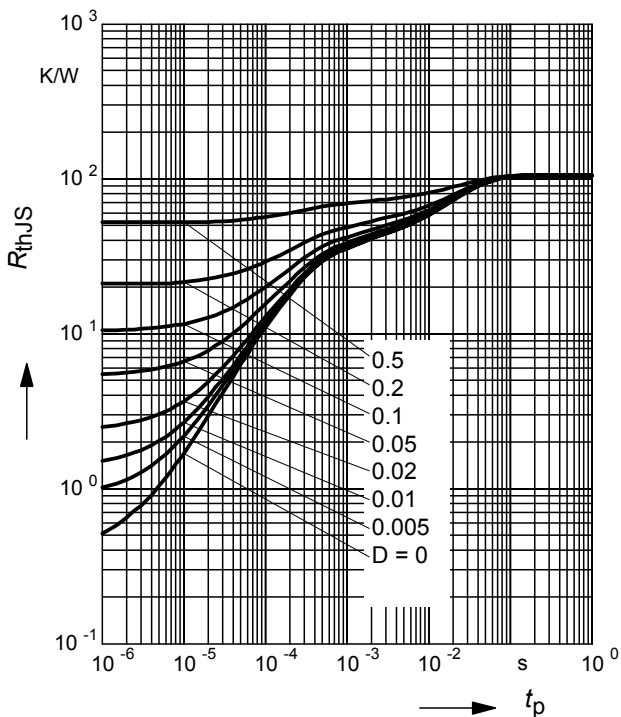
$P_{totmax}/P_{totDC} = f(t_p)$

BCR169S



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

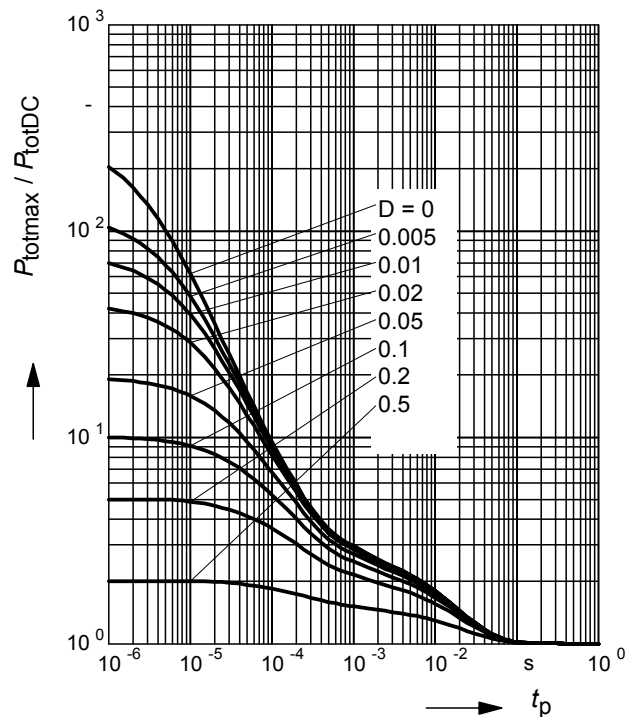
BCR169W



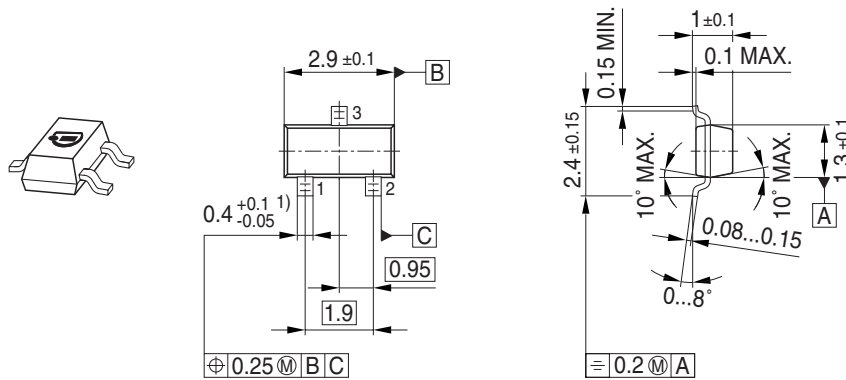
Permissible Pulse Load

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

BCR169W

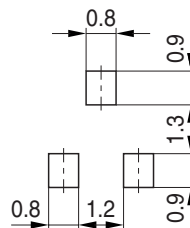


Package Outline



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

Foot Print

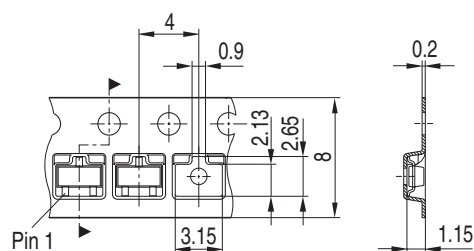


Marking Layout (Example)

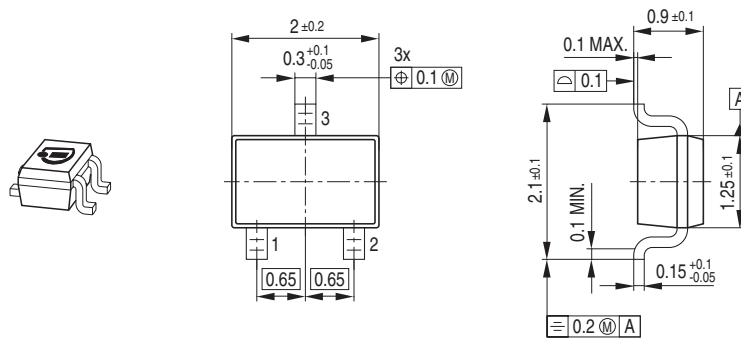


Standard Packing

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



Package Outline



Foot Print

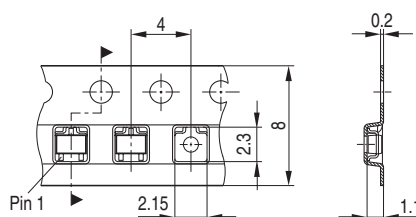


Marking Layout (Example)



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.



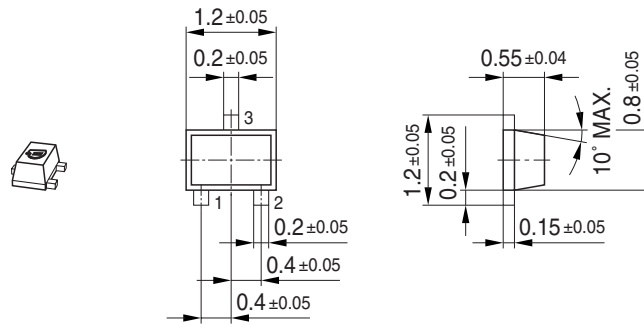
Standard Packing

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

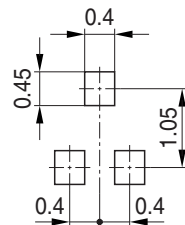
For symmetric types no defined Pin 1 orientation in reel.



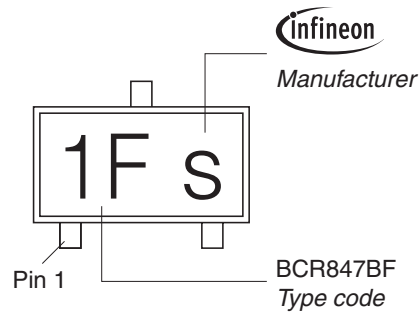
Package Outline



Foot Print



Marking Layout (Example)



Standard Packing

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



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