imall

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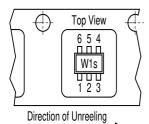
BCR10PN

NPN/PNP Silicon Digital Transistor Array

- Switching circuit, inverter, interface circuit, driver circuit
- Two (galvanic) internal isolated NPN/PNP Transistors in one package
- Built in bias resistor NPN and PNP (R₁=10 kΩ, R₂ =10 kΩ)
- Pb-free (RoHS compliant) package
- Qualified according AEC Q101



Tape loading orientation



Marking on SOT-363 package (for example W1s) corresponds to pin 1 of device

Position in tape: pin 1 opposite of feed hole side

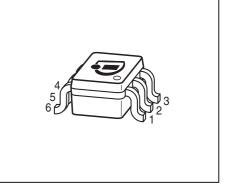
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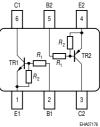
Туре	Marking	Pin Configuration					Package	
BCR10PN	W1s	1=E1	2=B1	3=C2	4=E2	5=B2	6=C1	SOT363

Maximum Ratings for NPN and PNP Types

Parameter	Symbol	Value	Unit	
Collector-emitter voltage	V _{CEO}	50	V	
Collector-base voltage	V _{CBO}	50		
Input forward voltage	V _{i(fwd)}	40		
Input reverse voltage	V _{i(rev)}	10		
DC collector current	I _C	100	mA	
Total power dissipation, $T_{\rm S}$ = 115 °C	P _{tot}	250	mW	
Junction temperature	T _j	150	°C	
Storage temperature	T _{stg}	-65 150		
Thermal Resistance				
Junction - soldering point ¹⁾	R _{thJS}	≤ 140	K/W	

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







Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC Characteristics for NPN and PNP Type	es				
Collector-emitter breakdown voltage	V _{(BR)CEO}	50	-	-	V
<i>I</i> _C = 100 μA, <i>I</i> _B = 0					
Collector-base breakdown voltage	V _{(BR)CBO}	50	-	-	
$I_{\rm C}$ = 10 µA, $I_{\rm E}$ = 0					
Collector cutoff current	I _{CBO}	-	-	100	nA
$V_{\rm CB}$ = 40 V, $I_{\rm E}$ = 0					
Emitter cutoff current	I _{EBO}	-	-	0.75	mA
V _{EB} = 10 V, <i>I</i> _C = 0					
DC current gain 1)	h _{FE}	30	-	-	-
<i>I</i> _C = 5 mA, <i>V</i> _{CE} = 5 V					
Collector-emitter saturation voltage1)	V _{CEsat}	-	-	0.3	V
<i>I</i> _C = 10 mA, <i>I</i> _B = 0.5 mA					
Input off voltage	V _{i(off)}	0.8	-	1.5	
<i>I</i> _C = 100 μA, <i>V</i> _{CE} = 5 V					
Input on Voltage	V _{i(on)}	1	-	2.5	
$I_{\rm C}$ = 2 mA, $V_{\rm CE}$ = 0.3 V					
Input resistor	<i>R</i> ₁	7	10	13	kΩ
Resistor ratio	R_{1}/R_{2}	0.9	1	1.1	-

Electrical Characteristics at T_A =25°C, unless otherwise specified

AC Characteristics for NPN and PNP Types

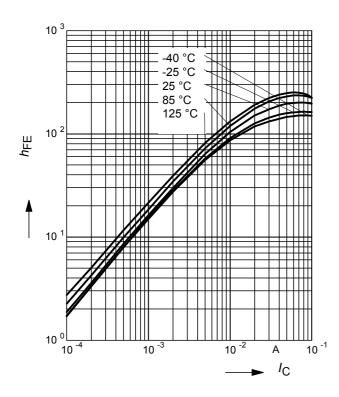
Transition frequency	f _T	-	130	-	MHz
<i>I</i> _C = 10 mA, <i>V</i> _{CE} = 5 V, <i>f</i> = 100 MHz					
Collector-base capacitance	C _{cb}	-	3	-	pF
V _{CB} = 10 V, <i>f</i> = 1 MHz					



NPN Type

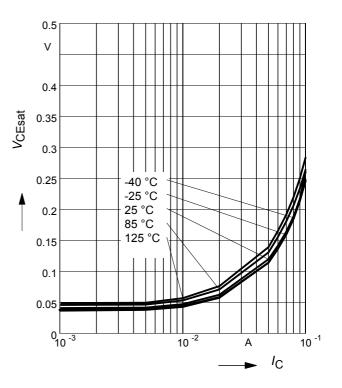
DC Current Gain $h_{\text{FE}} = f(l_{\text{C}})$

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

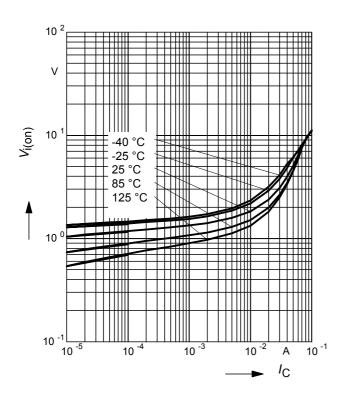


Collector-Emitter Saturation Voltage

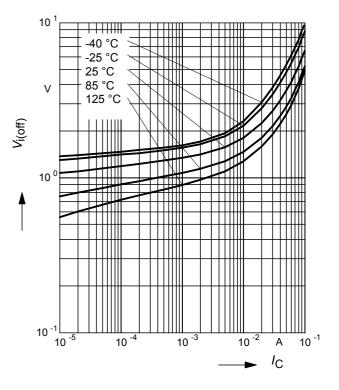
 $V_{\text{CEsat}} = f(I_{\text{C}}), h_{\text{FE}} = 20$



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)

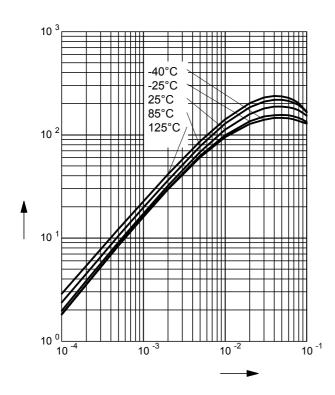




PNP Type

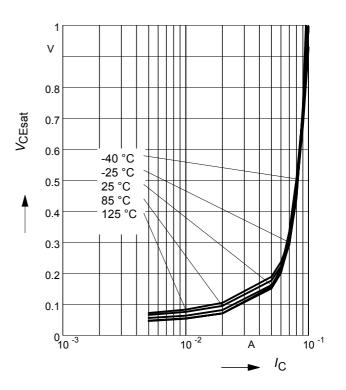
DC Current Gain $h_{\text{FE}} = f(I_{\text{C}})$

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

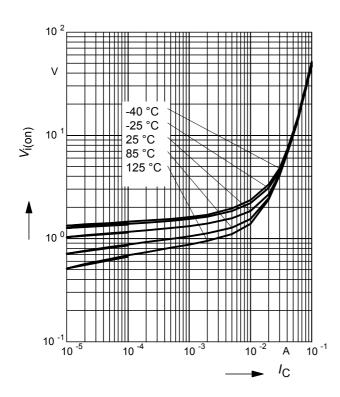


Collector-Emitter Saturation Voltage

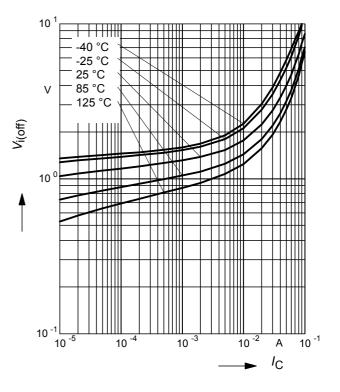
 $V_{\text{CEsat}} = f(I_{\text{C}}), h_{\text{FE}} = 20$



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

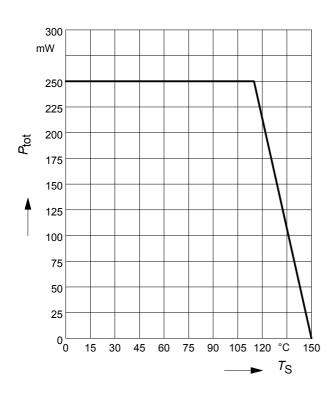


Input off voltage $V_{i(off)} = f(I_C)$ $V_{CE} = 5V$ (common emitter configuration)





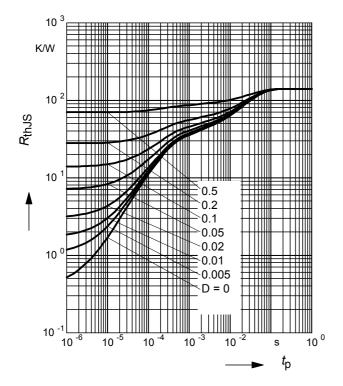


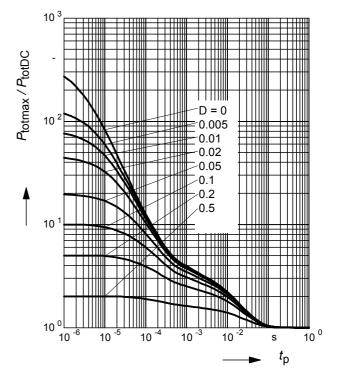


Permissible Pulse Load $R_{thJS} = f(t_p)$

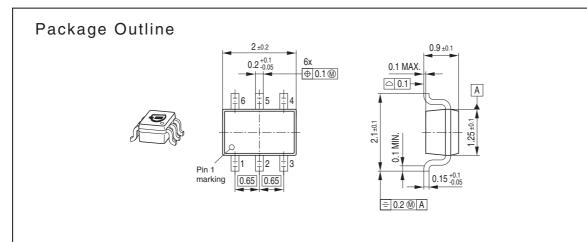
Permissible Pulse Load

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

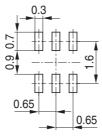






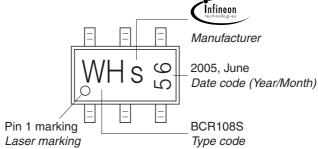


Foot Print



Marking Layout (Example)

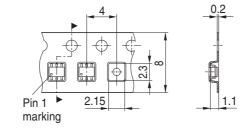
Small variations in positioning of Date code, Type code and Manufacture are possible.



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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