

Maximum Ratings

Parameter	Symbol	Value	Unit
Collector-emitter voltage BC857..., BC860... BC858..., BC859...	V_{CEO}	45 30	V
Collector-base voltage BC857..., BC860... BC858..., BC859...	V_{CBO}	50 30	
Emitter-base voltage	V_{EBO}	5	
Collector current	I_C	100	mA
Peak collector current, $t_p \leq 10$ ms	I_{CM}	200	
Total power dissipation $T_S \leq 71$ °C, BC857-BC860 $T_S \leq 135$ °C, BC857BL3 $T_S \leq 124$ °C, BC857W-BC860W	P_{tot}	330 250 250	mW
Junction temperature	T_j	150	
Storage temperature	T_{stg}	-65 ... 150	°C

Thermal Resistance

Parameter	Symbol	Value	Unit
Junction - soldering point ¹⁾ BC857-BC860 BC857BL3 BC857W-BC860W	R_{thJS}	≤ 240 ≤ 60 ≤ 105	K/W

¹⁾For 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 $I_C = 10\text{ mA}$, $I_B = 0$, BC857..., BC860... $I_C = 10\text{ mA}$, $I_B = 0$, BC858..., BC859...	$V_{(BR)CEO}$	45 30	- -	- -	V
Collector-base breakdown voltage $I_C = 10\text{ }\mu\text{A}$, $I_E = 0$, BC857..., BC860... $I_C = 10\text{ }\mu\text{A}$, $I_E = 0$, BC858..., BC859...	$V_{(BR)CBO}$	50 30	- -	- -	
Emitter-base breakdown voltage $I_E = 1\text{ }\mu\text{A}$, $I_C = 0$	$V_{(BR)EBO}$	5	-	-	
Collector-base cutoff current $V_{CB} = 45\text{ V}$, $I_E = 0$ $V_{CB} = 30\text{ V}$, $I_E = 0$, $T_A = 150\text{ }^\circ\text{C}$	I_{CBO}	- -	- -	0.015 5	μA
DC current gain ¹⁾ $I_C = 10\text{ }\mu\text{A}$, $V_{CE} = 5\text{ V}$, $h_{FE}\text{-grp.A}$ $I_C = 10\text{ }\mu\text{A}$, $V_{CE} = 5\text{ V}$, $h_{FE}\text{-grp.B}$ $I_C = 10\text{ }\mu\text{A}$, $V_{CE} = 5\text{ V}$, $h_{FE}\text{-grp.C}$ $I_C = 2\text{ mA}$, $V_{CE} = 5\text{ V}$, $h_{FE}\text{-grp.A}$ $I_C = 2\text{ mA}$, $V_{CE} = 5\text{ V}$, $h_{FE}\text{-grp.B}$ $I_C = 2\text{ mA}$, $V_{CE} = 5\text{ V}$, $h_{FE}\text{-grp.C}$	h_{FE}	- - - 125 220 420	140 250 480 180 290 520	- - - 250 475 800	-
Collector-emitter saturation voltage ¹⁾ $I_C = 10\text{ mA}$, $I_B = 0.5\text{ mA}$ $I_C = 100\text{ mA}$, $I_B = 5\text{ mA}$	V_{CEsat}	- -	75 250	300 650	mV
Base emitter saturation voltage ¹⁾ $I_C = 10\text{ mA}$, $I_B = 0.5\text{ mA}$ $I_C = 100\text{ mA}$, $I_B = 5\text{ mA}$	V_{BEsat}	- -	700 850	- -	
Base-emitter voltage ¹⁾ $I_C = 2\text{ mA}$, $V_{CE} = 5\text{ V}$ $I_C = 10\text{ mA}$, $V_{CE} = 5\text{ V}$	$V_{BE(ON)}$	600 -	650 -	750 820	

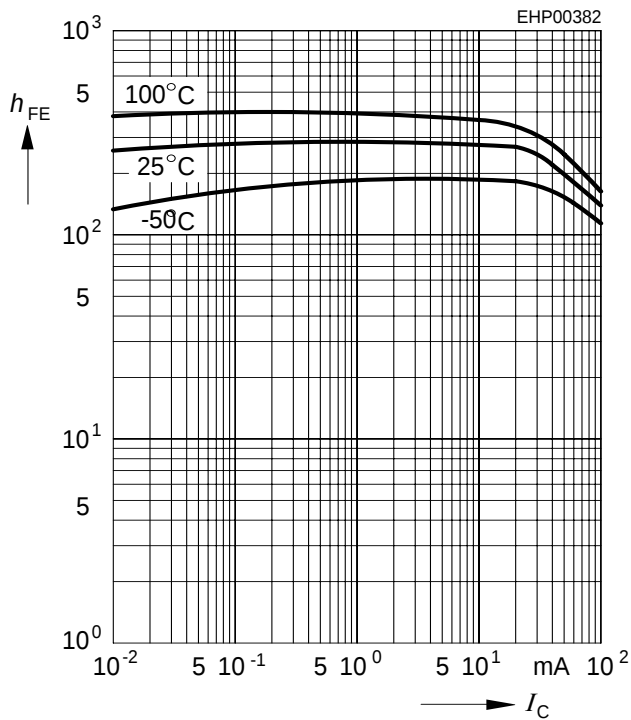
¹⁾Pulse test: $t < 300\mu\text{s}$; $D < 2\%$

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

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
AC Characteristics					
Transition frequency $I_C = 20\text{ mA}$, $V_{CE} = 5\text{ V}$, $f = 100\text{ MHz}$	f_T	-	250	-	MHz
Collector-base capacitance $V_{CB} = 10\text{ V}$, $f = 1\text{ MHz}$	C_{cb}	-	1.5	-	pF
Emitter-base capacitance $V_{EB} = 0.5\text{ V}$, $f = 1\text{ MHz}$	C_{eb}	-	8	-	
Short-circuit input impedance $I_C = 2\text{ mA}$, $V_{CE} = 5\text{ V}$, $f = 1\text{ kHz}$, $h_{FE}\text{-grp.A}$ $I_C = 2\text{ mA}$, $V_{CE} = 5\text{ V}$, $f = 1\text{ kHz}$, $h_{FE}\text{-grp.B}$ $I_C = 2\text{ mA}$, $V_{CE} = 5\text{ V}$, $f = 1\text{ kHz}$, $h_{FE}\text{-grp.C}$	h_{11e}	- - -	2.7 4.5 8.7	- - -	kΩ
Open-circuit reverse voltage transf. ratio $I_C = 2\text{ mA}$, $V_{CE} = 5\text{ V}$, $f = 1\text{ kHz}$, $h_{FE}\text{-grp.A}$ $I_C = 2\text{ mA}$, $V_{CE} = 5\text{ V}$, $f = 1\text{ kHz}$, $h_{FE}\text{-grp.B}$ $I_C = 2\text{ mA}$, $V_{CE} = 5\text{ V}$, $f = 1\text{ kHz}$, $h_{FE}\text{-grp.C}$	h_{12e}	- - -	1.5 2 3	- - -	10 ⁻⁴
Short-circuit forward current transf. ratio $I_C = 2\text{ mA}$, $V_{CE} = 5\text{ V}$, $f = 1\text{ kHz}$, $h_{FE}\text{-grp.A}$ $I_C = 2\text{ mA}$, $V_{CE} = 5\text{ V}$, $f = 1\text{ kHz}$, $h_{FE}\text{-grp.B}$ $I_C = 2\text{ mA}$, $V_{CE} = 5\text{ V}$, $f = 1\text{ kHz}$, $h_{FE}\text{-grp.C}$	h_{21e}	- - -	200 330 600	- - -	-
Open-circuit output admittance $I_C = 2\text{ mA}$, $V_{CE} = 5\text{ V}$, $f = 1\text{ kHz}$, $h_{FE}\text{-grp.A}$ $I_C = 2\text{ mA}$, $V_{CE} = 5\text{ V}$, $f = 1\text{ kHz}$, $h_{FE}\text{-grp.B}$ $I_C = 2\text{ mA}$, $V_{CE} = 5\text{ V}$, $f = 1\text{ kHz}$, $h_{FE}\text{-grp.C}$	h_{22e}	- - -	18 30 60	- - -	μS
Noise figure $I_C = 0.2\text{ mA}$, $V_{CE} = 5\text{ V}$, $f = 1\text{ kHz}$, $\Delta f = 200\text{ Hz}$, $R_S = 2\text{ k}\Omega$, BC859, BC850	F	-	1	4	dB
Equivalent noise voltage $I_C = 200\text{ mA}$, $V_{CE} = 5\text{ V}$, $R_S = 2\text{ k}\Omega$, $f = 10\text{...}50\text{ Hz}$, BC860	V_n	-	-	0.11	μV

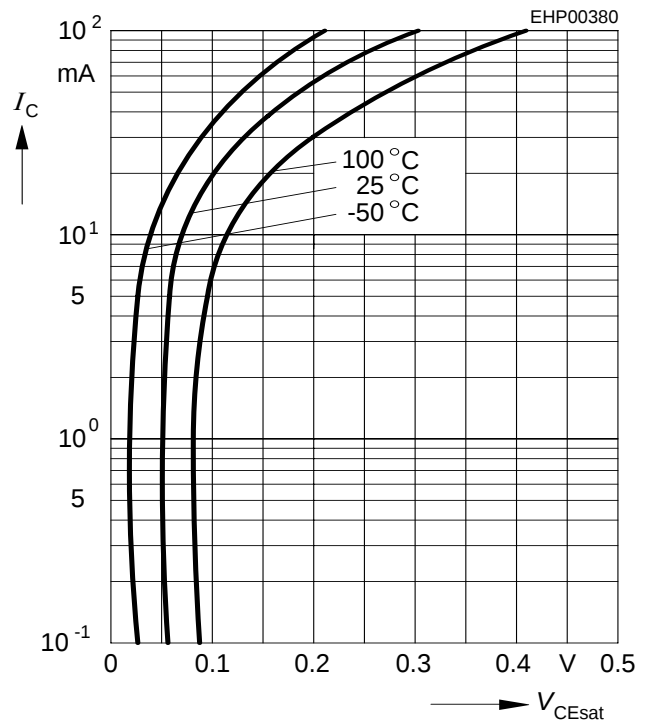
DC current gain $h_{FE} = f(I_C)$

$V_{CE} = 1 \text{ V}$



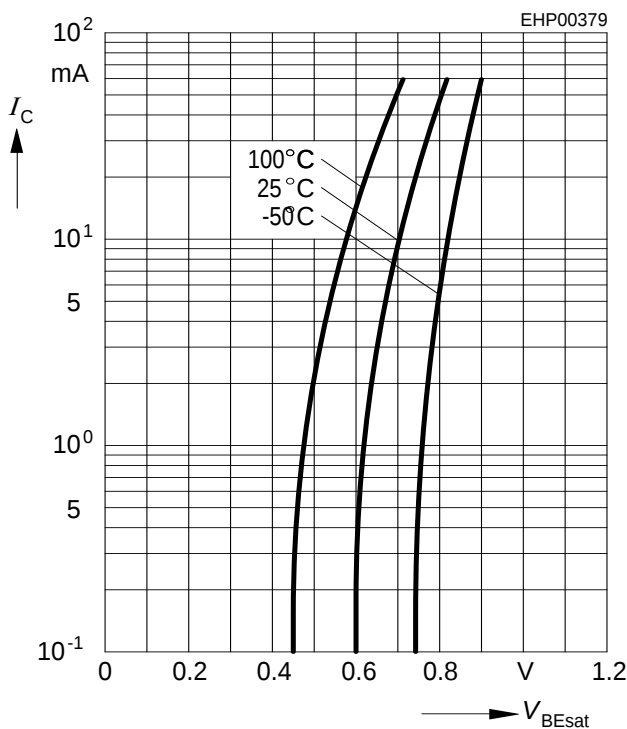
Collector-emitter saturation voltage

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



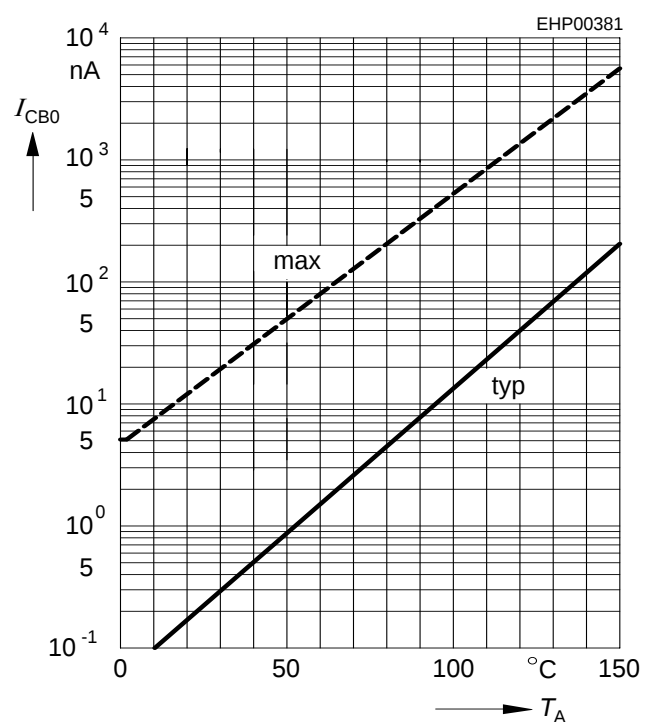
Base-emitter saturation voltage

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



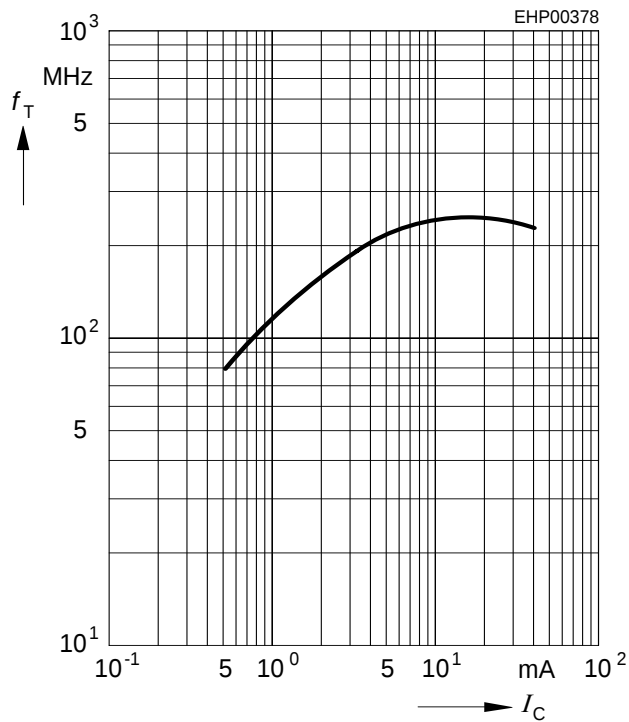
Collector cutoff current $I_{CBO} = f(T_A)$

$V_{CBO} = 30 \text{ V}$



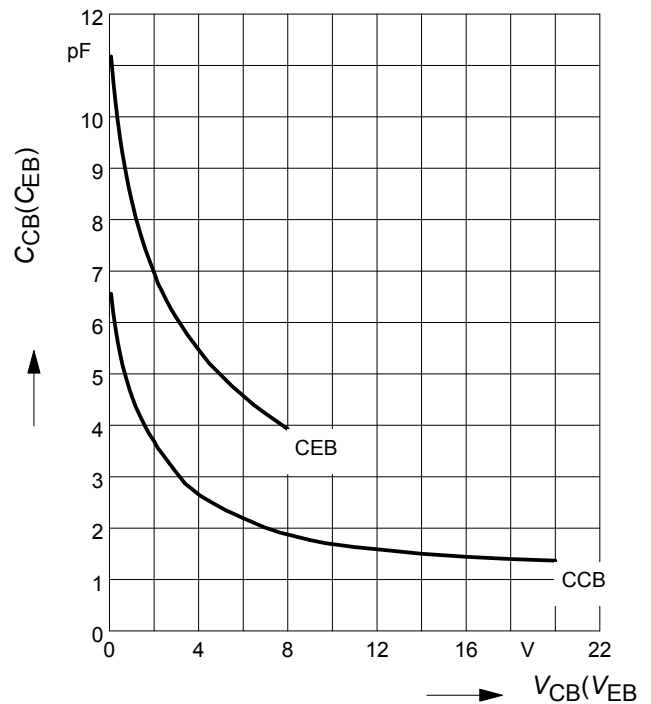
Transition frequency $f_T = f(I_C)$

$V_{CE} = 5 \text{ V}$



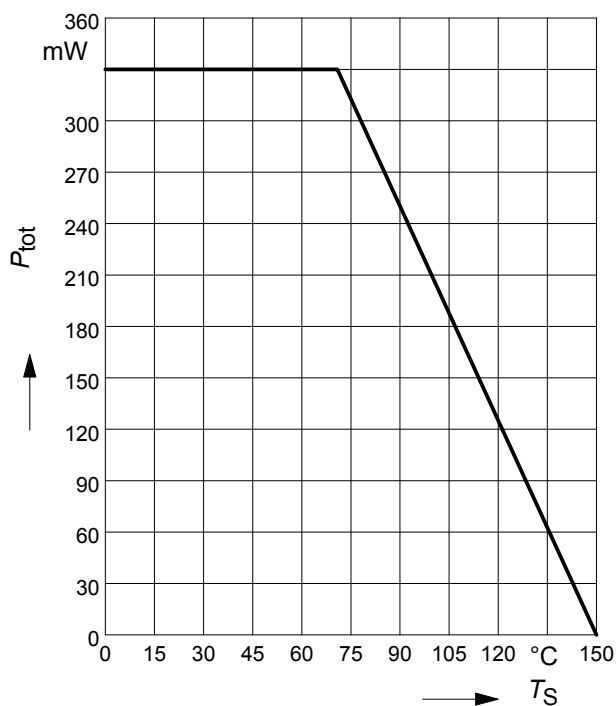
Collector-base capacitance $C_{cb} = f(V_{CB})$

Emitter-base capacitance $C_{eb} = f(V_{EB})$



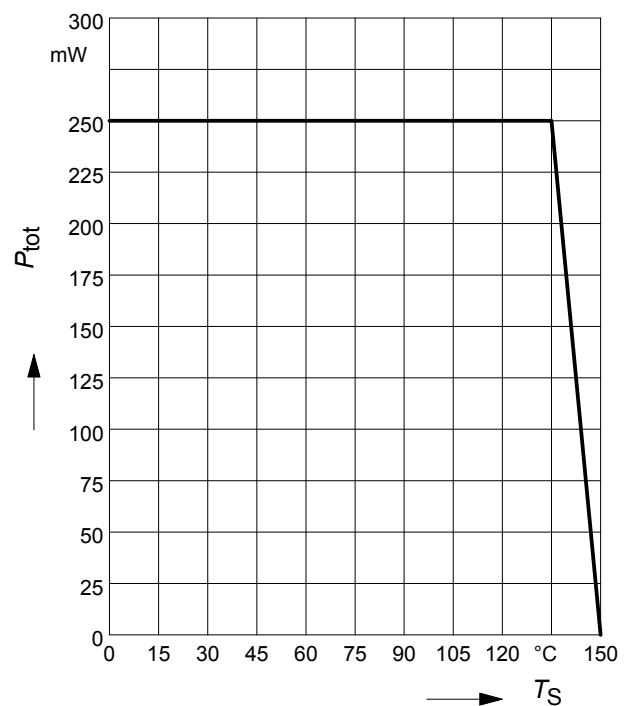
Total power dissipation $P_{tot} = f(T_S)$

BC856-BC860



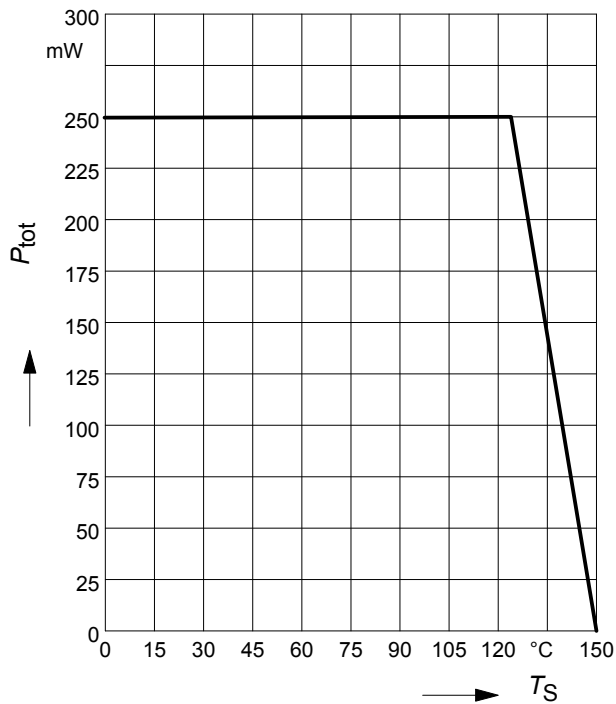
Total power dissipation $P_{tot} = f(T_S)$

BC857BL3



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

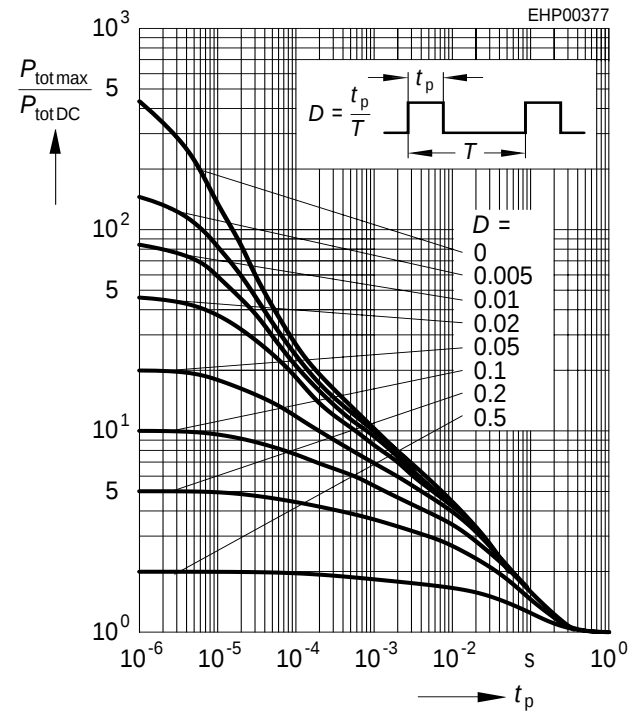
BC857W-BC860W



Permissible Pulse Load

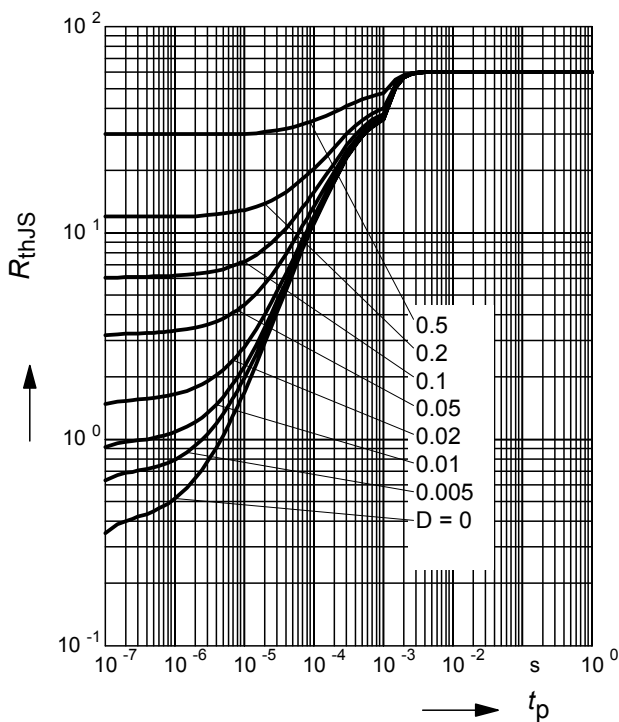
$$P_{\text{totmax}}/P_{\text{totDC}} = f(t_p)$$

BC857/W-BC860/W



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

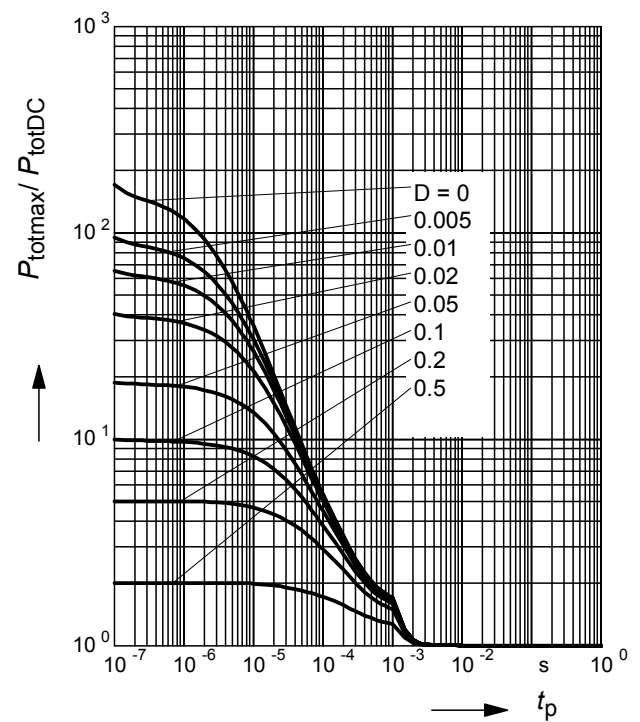
BC857BL3

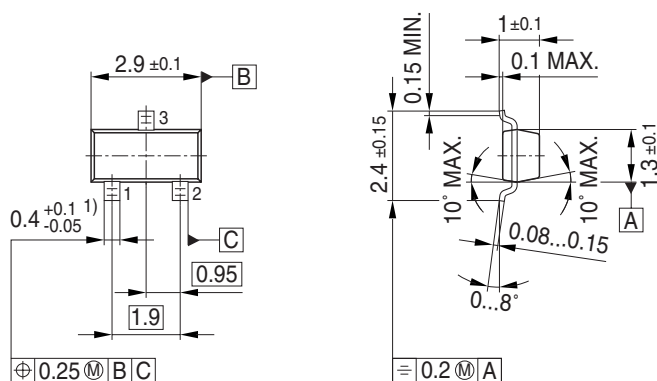


Permissible Pulse Load

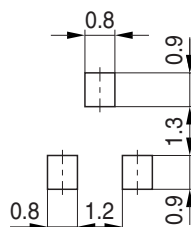
$$P_{\text{totmax}}/P_{\text{totDC}} = f(t_p)$$

BC857BL3





Foot Print



The diagram shows a top-down view of a BCW66 LED package. It is a rectangular component with four pins. The top pin is labeled 'Pin 1'. The package has a central rectangular area with the text 'EHS' and '65' (representing date code 2005, June) and 'BCW66' (representing type code). The Infineon logo is shown in the top right corner.

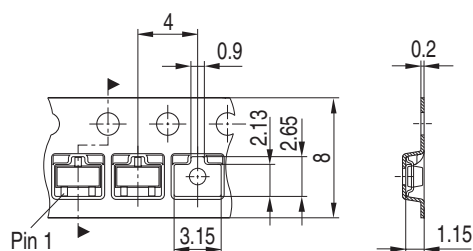
Manufacturer

2005, June
Date code (YM)

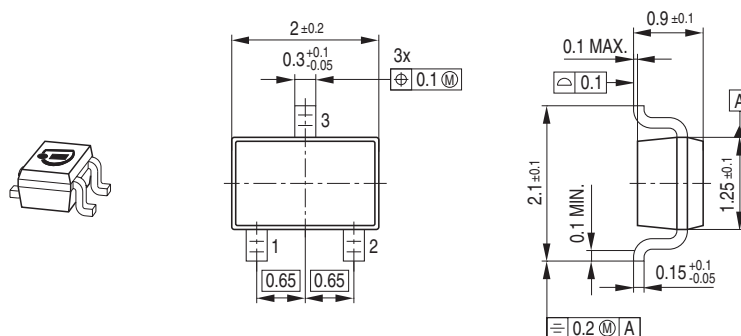
Pin 1

BCW66
Type code

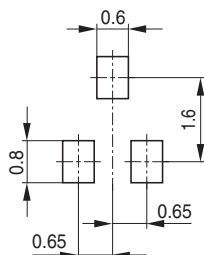
Reel ø180 mm = 3.000 Pieces/Reel
Reel ø330 mm = 10.000 Pieces/Reel



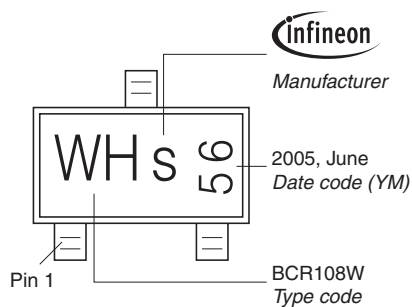
Package Outline



Foot Print

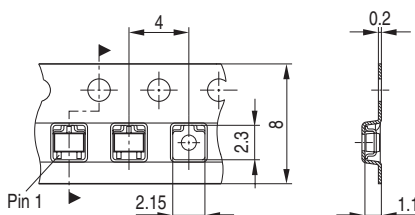


Marking Layout (Example)

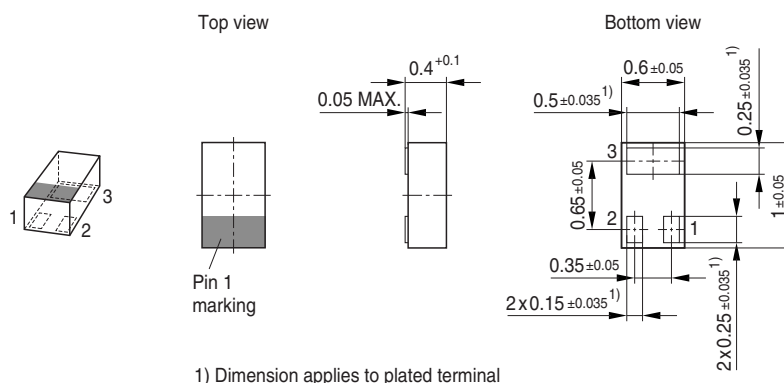


Standard Packing

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

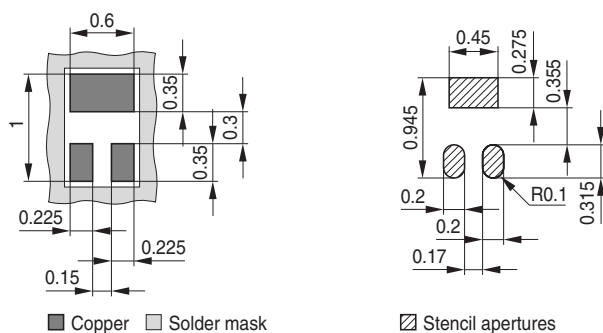


Package Outline

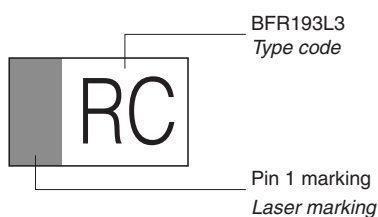


Foot Print

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

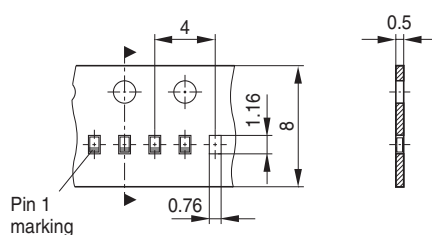


Marking Layout (Example)



Standard Packing

Reel ø180 mm = 15.000 Pieces/Reel



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