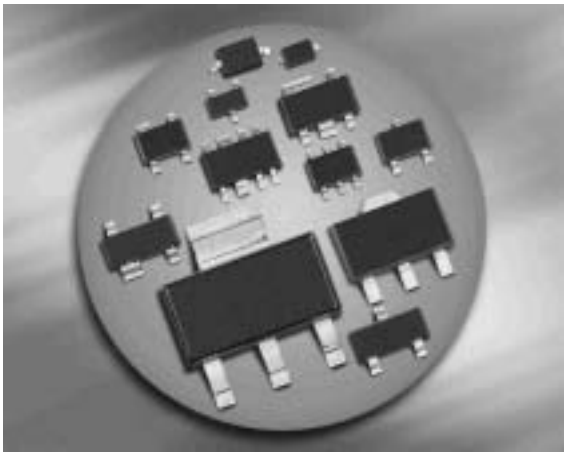
PNP Silicon AF Transistor



- For AF input stages and driver applications
- High current gain
- Low collector-emitter saturation voltage
- Low noise between 30 hz and 15 kHz
- Complementary types:
  BC846...-BC850... (NPN)
- Pb-free (RoHS compliant) package[1)]
- Qualified according AEC Q101

AEC Qualified RoHS

[1]Pb-containing package may be available upon special request

Type	Marking	Pin Configuration						Package
BC856A	3As	1=B	2=E	3=C	-	-	-	SOT23
BC856B	3Bs	1=B	2=E	3=C	-	-	-	SOT23
BC856BW	3Bs	1=B	2=E	3=C	-	-	-	SOT323
BC857A	3Es	1=B	2=E	3=C	-	-	-	SOT23
BC857B	3Fs	1=B	2=E	3=C	-	-	-	SOT23
BC857BF	3Fs	1=B	2=E	3=C	-	-	-	TSFP-3
BC857BL3	3F	1=B	2=E	3=C	-	-	-	TSLP-3-1
BC857BW	3Fs	1=B	2=E	3=C	-	-	-	SOT323
BC857C	3Gs	1=B	2=E	3=C	-	-	-	SOT23
BC857CW	3Gs	1=B	2=E	3=C	-	-	-	SOT323
BC858A	3Js	1=B	2=E	3=C	-	-	-	SOT23
BC858B	3Ks	1=B	2=E	3=C	-	-	-	SOT23
BC858BL3	3K	1=B	2=E	3=C	-	-	-	TSLP-3-1
BC858BW	3Ks	1=B	2=E	3=C	-	-	-	SOT323
BC858C	3Ls	1=B	2=E	3=C	-	-	-	SOT23
BC858CW	3Ls	1=B	2=E	3=C	-	-	-	SOT323
BC859B	4Bs	1=B	2=E	3=C	-	-	-	SOT23
BC859C	4Cs	1=B	2=E	3=C	-	-	-	SOT23
BC860B	4Fs	1=B	2=E	3=C	-	-	-	SOT23
BC860BW	4Fs	1=B	2=E	3=C	-	-	-	SOT323
BC860CW	4Gs	1=B	2=E	3=C	-	-	-	SOT323

Maximum Ratings

Parameter	Symbol	Value	Unit
Collector-emitter voltage	V_{CEO}		V
BC856...		65	
BC857..., BC860...		45	
BC858..., BC859...		30	
Collector-base voltage	V_{CBO}		
BC856...		80	
BC857..., BC860...		50	
BC858..., BC859...		30	
Emitter-base voltage	V_{EBO}	5	
Collector current	I_C	100	mA
Peak collector current	I_{CM}	200	
Total power dissipation	P_{tot}		mW
$T_S \leq 71$ °C, BC856-BC860		330	
$T_S \leq 128$ °C, BC857BF-BC858BF		250	
$T_S \leq 135$ °C, BC857BL3, BC860BL3		250	
$T_S \leq 124$ °C, BC856W-BC860W		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
BC856-BC860		≤ 240	
BC857BF-BC858BF		≤ 90	
BC857BL3, BC858BL3		≤ 60	
BC856W-BC860W		≤ 105	

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

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

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC Characteristics					
Collector-emitter breakdown voltage	$V_{(BR)CEO}$				V
I_C = 10 mA, I_B = 0 , BC856...		65	-	-	
I_C = 10 mA, I_B = 0 , BC857..., BC860...		45	-	-	
I_C = 10 mA, I_B = 0 , BC858..., BC859...		30	-	-	
Collector-base breakdown voltage	$V_{(BR)CBO}$				
I_C = 10 µA, I_E = 0 , BC856...		80	-	-	
I_C = 10 µA, I_E = 0 , BC857..., BC860...		50	-	-	
I_C = 10 µA, I_E = 0 , BC858..., BC859...		30	-	-	
Emitter-base breakdown voltage	$V_{(BR)EBO}$	5	-	-	
I_E = 1 µA, I_C = 0					
Collector-base cutoff current	I_{CBO}				µA
V_{CB} = 45 V, I_E = 0		-	-	0.015	
V_{CB} = 30 V, I_E = 0 , T_A = 150 °C		-	-	5	
DC current gain[1)]	h_{FE}				-
I_C = 10 µA, V_{CE} = 5 V, h_{FE}-grp.A		-	140	-	
I_C = 10 µA, V_{CE} = 5 V, h_{FE}-grp.B		-	250	-	
I_C = 10 µA, V_{CE} = 5 V, h_{FE}-grp.C		-	480	-	
I_C = 2 mA, V_{CE} = 5 V, h_{FE}-grp.A		125	180	250	
I_C = 2 mA, V_{CE} = 5 V, h_{FE}-grp.B		220	290	475	
I_C = 2 mA, V_{CE} = 5 V, h_{FE}-grp.C		420	520	800	
Collector-emitter saturation voltage[1)]	V_{CEsat}				mV
I_C = 10 mA, I_B = 0.5 mA		-	75	300	
I_C = 100 mA, I_B = 5 mA		-	250	650	
Base emitter saturation voltage[1)]	V_{BEsat}				
I_C = 10 mA, I_B = 0.5 mA		-	700	-	
I_C = 100 mA, I_B = 0.5 mA		-	850	-	
Base-emitter voltage[1)]	$V_{BE(ON)}$				
I_C = 2 mA, V_{CE} = 5 V		600	650	750	
I_C = 10 mA, V_{CE} = 5 V		-	-	820	

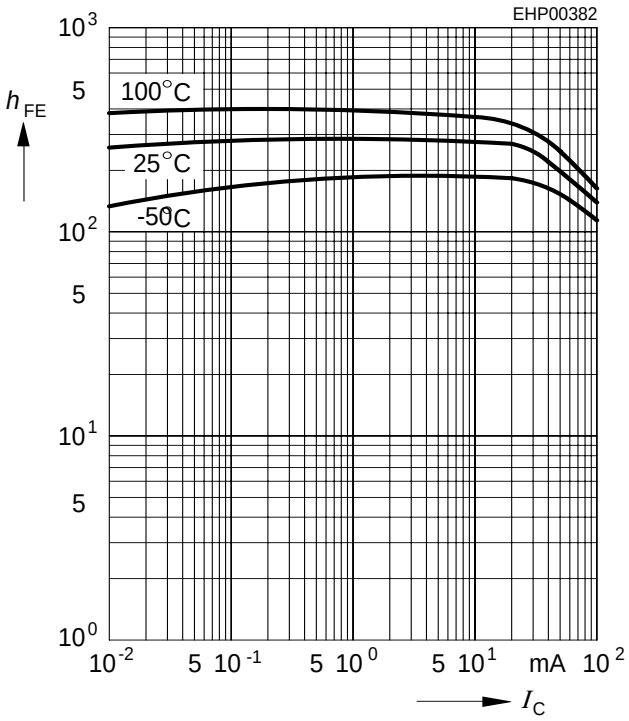
[1]Pulse test: t < 300µs; D < 2%

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

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

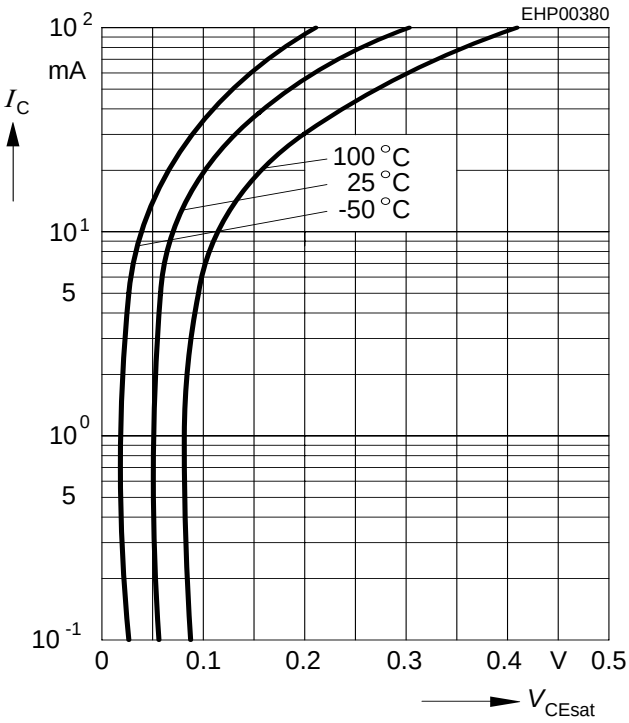
DC current gain $h_{FE} = f(I_C)$

V_{CE} = 1 V



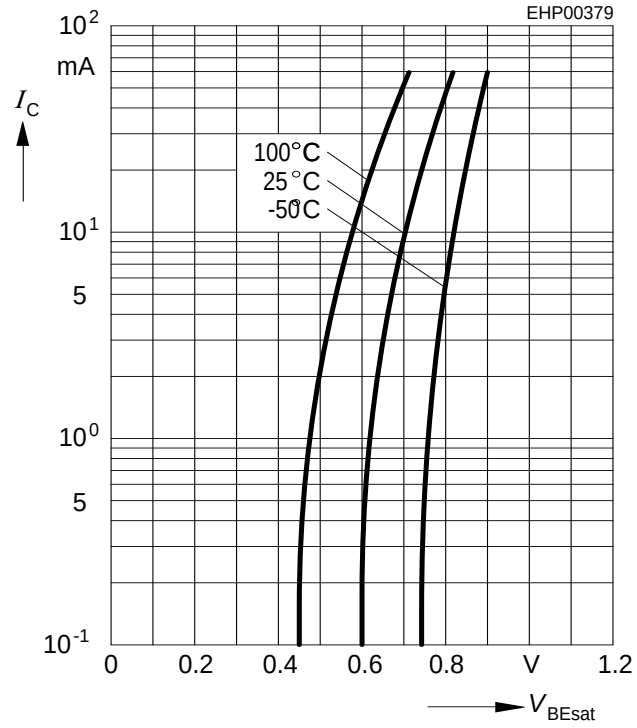
Collector-emitter saturation voltage

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



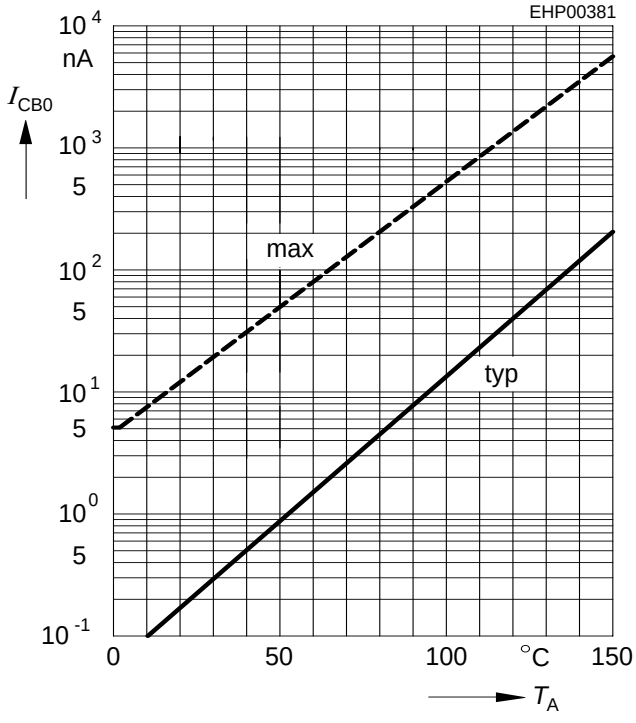
Base-emitter saturation voltage

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



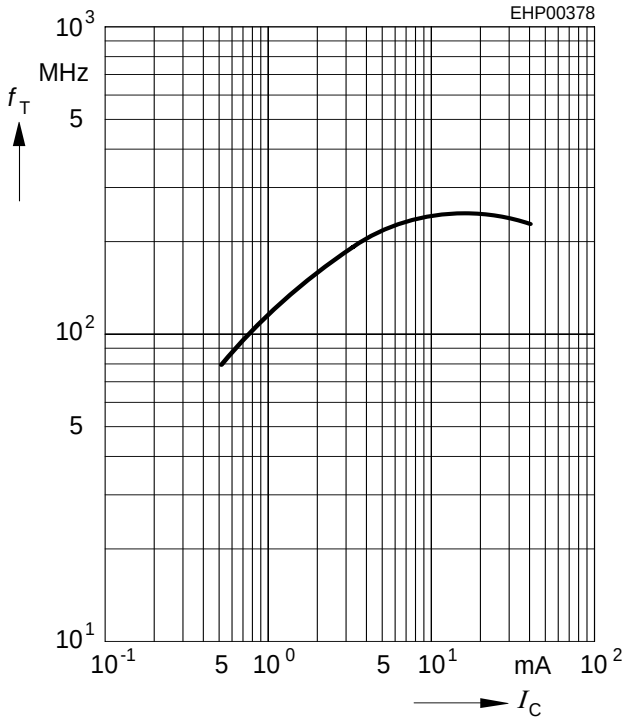
Collector cutoff current $I_{CBO} = f(T_A)$

V_{CBO} = 30 V



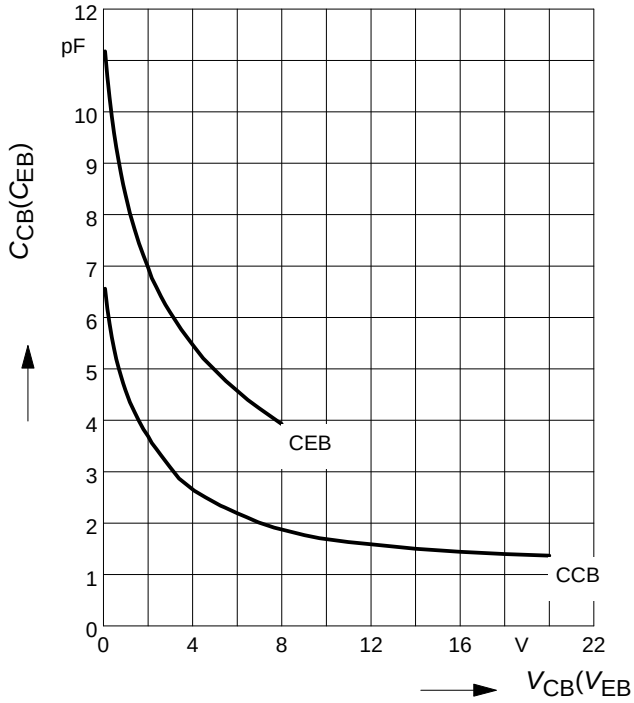
Transition frequency $f_T = f(I_C)$

V_{CE} = 5 V



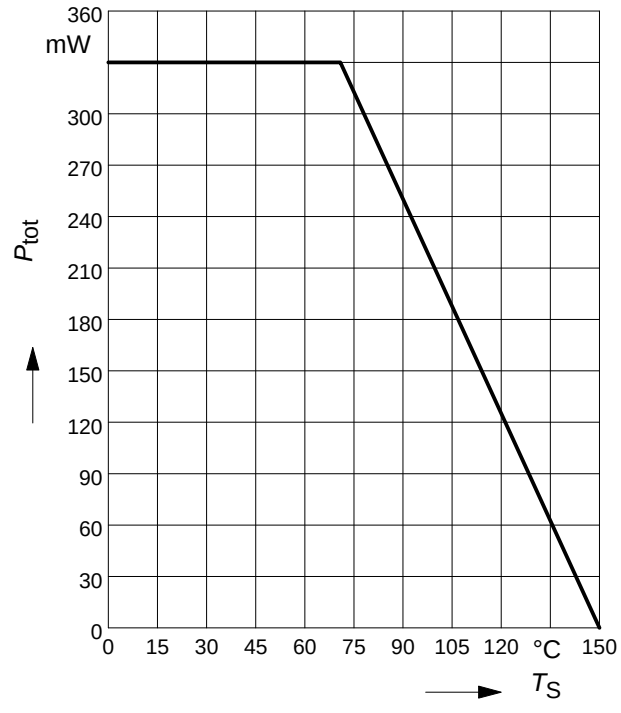
Collector-base capacitance $C_{cb} = f(V_{CB})$

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



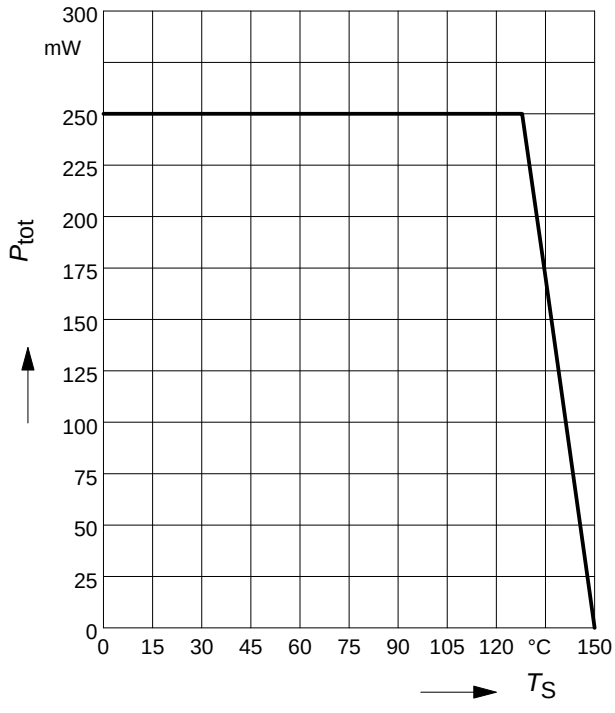
Total power dissipation $P_{tot} = f(T_S)$

BC856-BC860



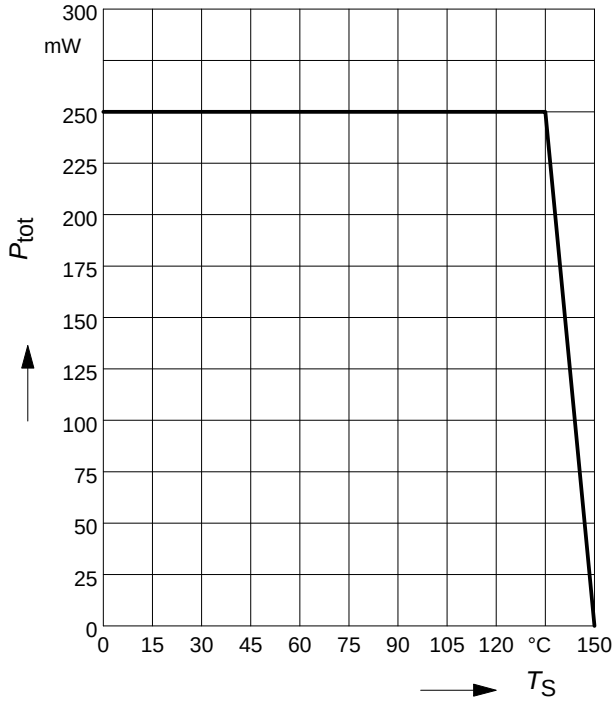
Total power dissipation $P_{tot} = f(T_S)$

BC857BF, BC858BF



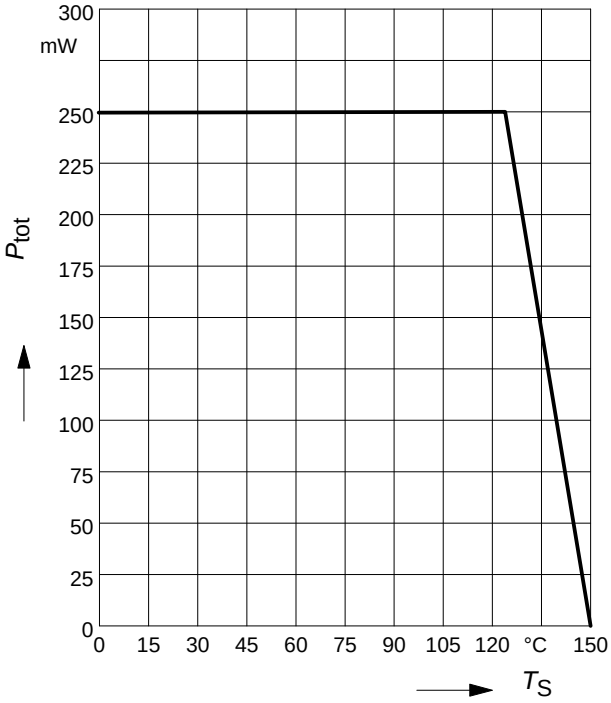
Total power dissipation $P_{tot} = f(T_S)$

BC857BL3, BC858BL3



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

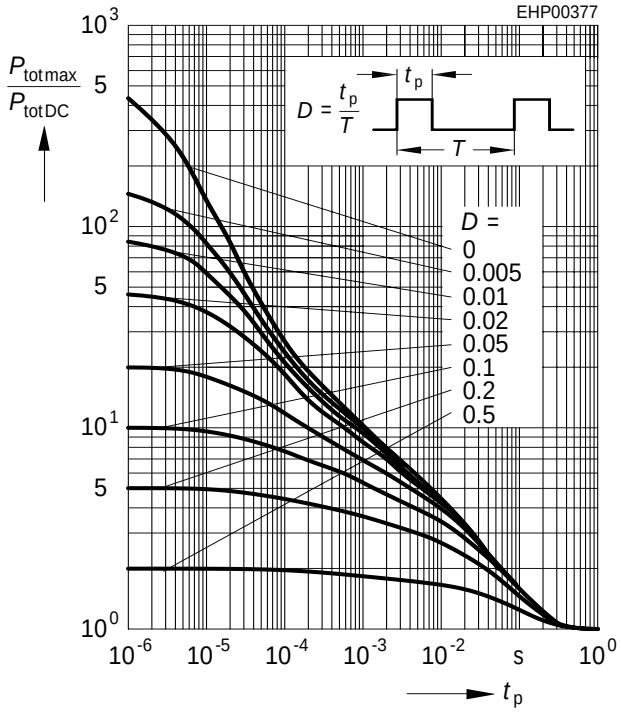
BC856W-BC860W



Permissible Pulse Load

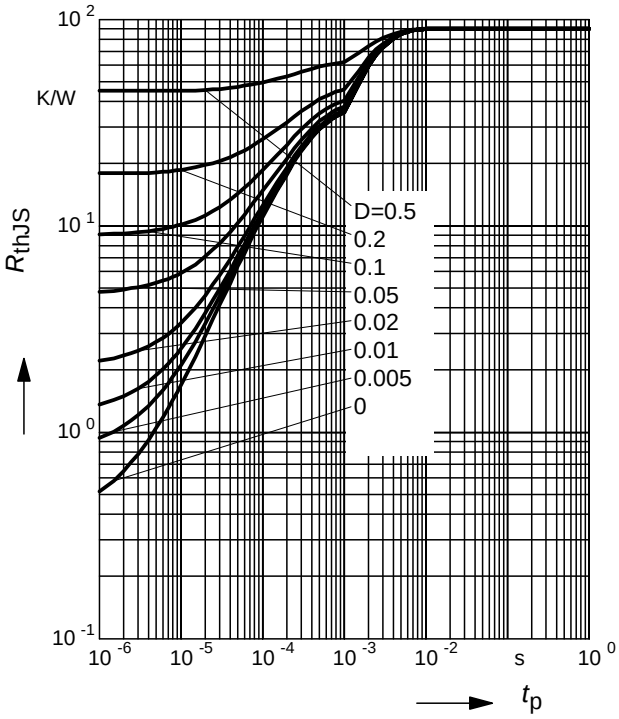
$P_{totmax}/P_{totDC} = f(t_p)$

BC856/W-BC860/W



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

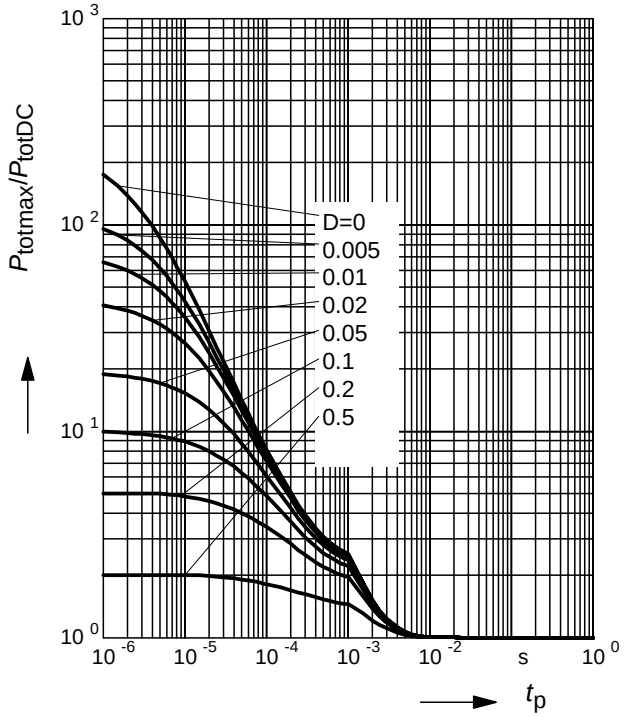
BC857BF, BC858BF



Permissible Pulse Load

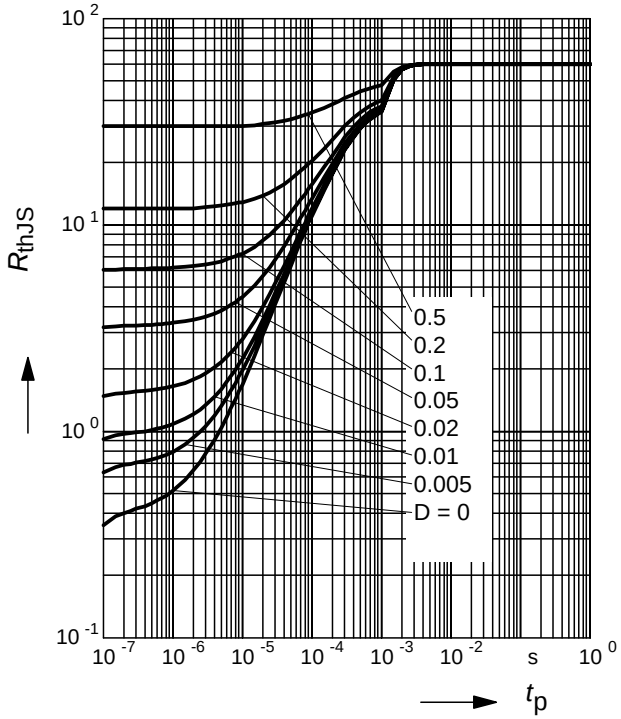
$P_{totmax}/P_{totDC} = f(t_p)$

BC857BF, BC858BF



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

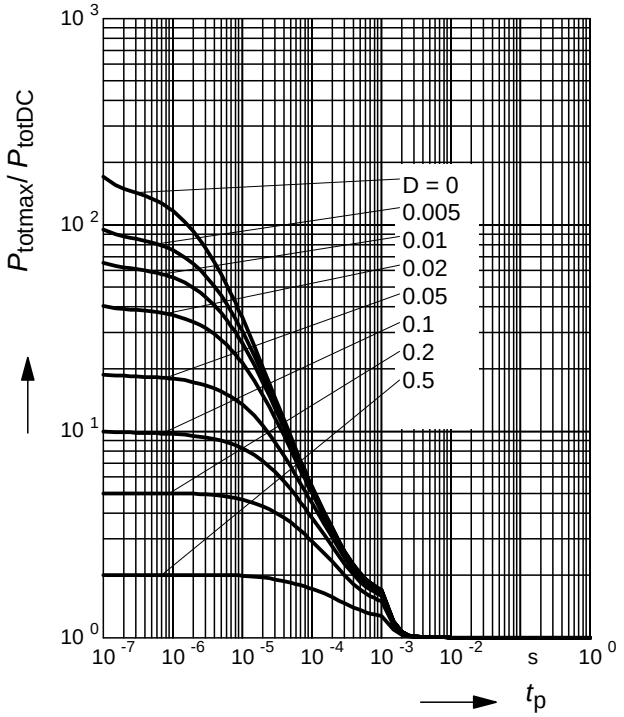
BC857BL3, BC858BL3



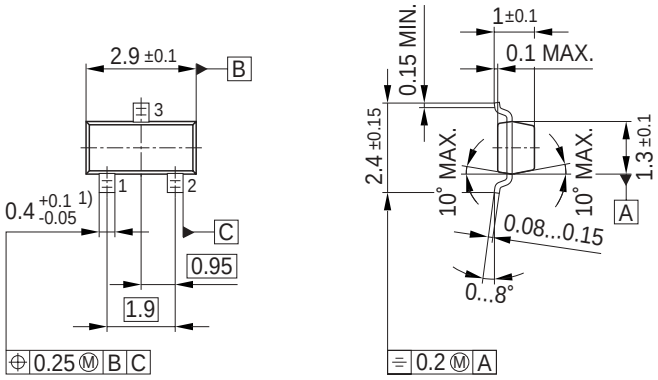
Permissible Pulse Load

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

BC857BL3, BC858BL3

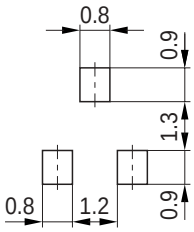


Package Outline

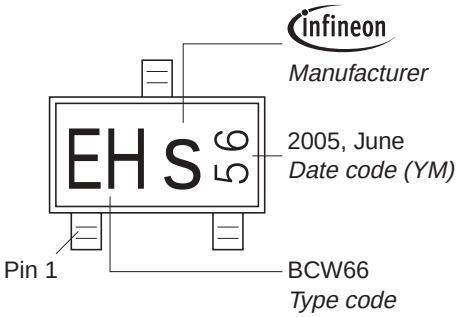


1) Lead width can be 0.6 max. in dambar area

Foot Print

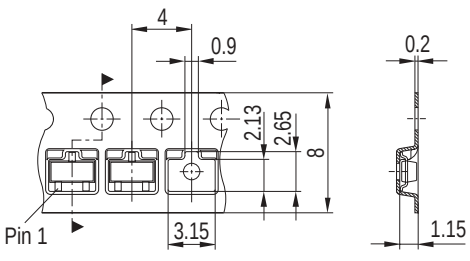


Marking Layout (Example)

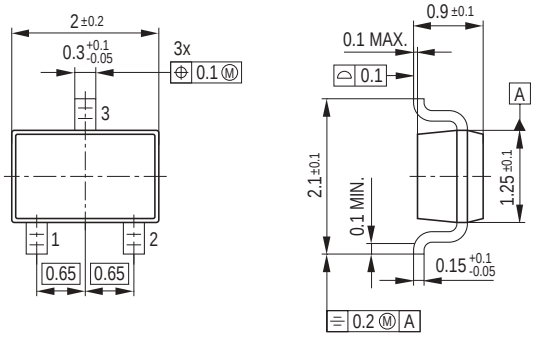


Standard Packing

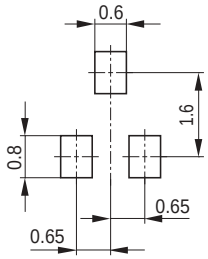
Reel ø180 mm = 3.000 Pieces/Reel
Reel ø330 mm = 10.000 Pieces/Reel



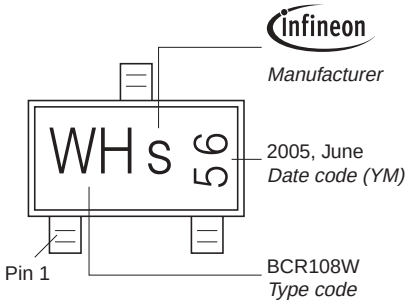
Package Outline



Foot Print

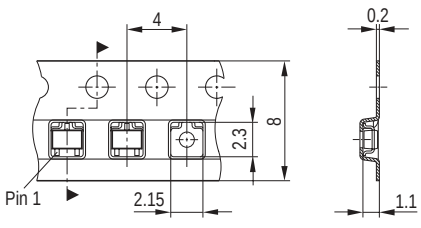


Marking Layout (Example)

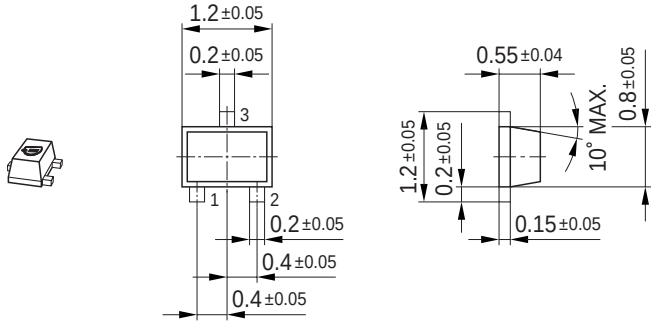


Standard Packing

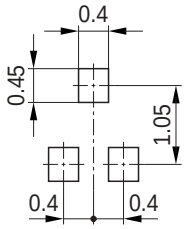
Reel ø180 mm = 3.000 Pieces/Reel
Reel ø330 mm = 10.000 Pieces/Reel



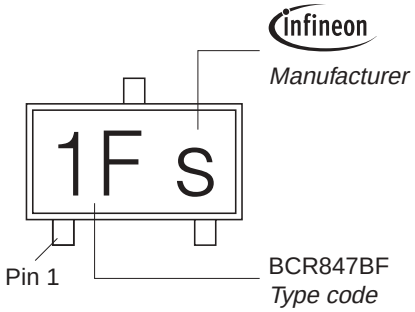
Package Outline



Foot Print

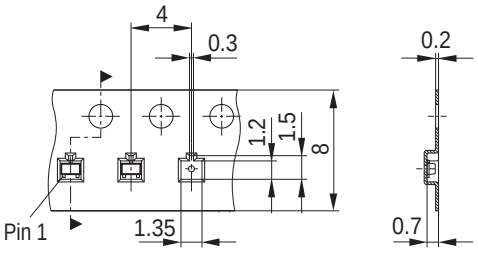


Marking Layout (Example)

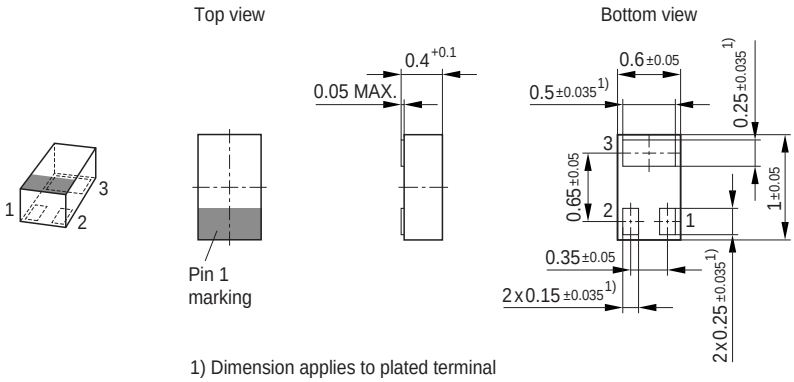


Standard Packing

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



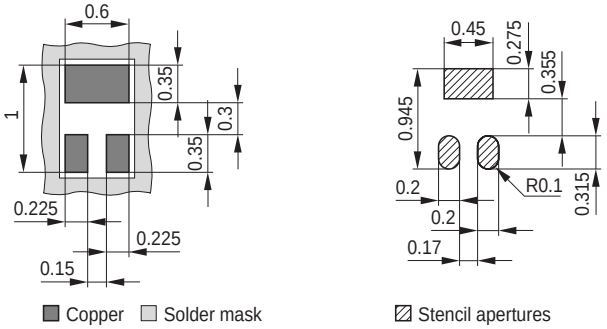
Package Outline



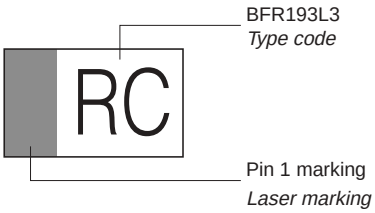
1) Dimension applies to plated terminal

Foot Print

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

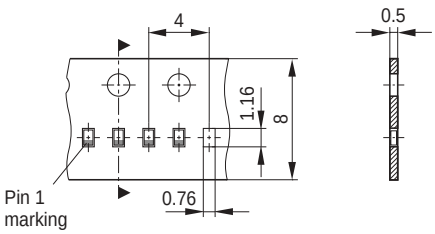


Marking Layout (Example)



Standard Packing

Reel ø180 mm = 15.000 Pieces/Reel



Edition 2006-02-01
Published by
Infineon Technologies AG
81726 München, Germany

Attention please!

The information given in this dokument shall in no event be regarded as a guarantee of conditions or characteristics (“Beschaffenheitsgarantie”). With respect to any examples or hints given herein, any typical values stated herein and/or any information regarding the application of the device, Infineon Technologies hereby disclaims any and all warranties and liabilities of any kind, including without limitation warranties of non-infringement of intellectual property rights of any third party.

Information

For further information on technology, delivery terms and conditions and prices please contact your nearest Infineon Technologies Office (**www.infineon.com**).

Warnings

Due to technical requirements components may contain dangerous substances. For information on the types in question please contact your nearest Infineon Technologies Office.
Infineon Technologies Components may only be used in life-support devices or systems with the express written approval of Infineon Technologies, if a failure of such components can reasonably be expected to cause the failure of that life-support device or system, or to affect the safety or effectiveness of that device or system.
Life support devices or systems are intended to be implanted in the human body, or to support and/or maintain and sustain and/or protect human life. If they fail, it is reasonable to assume that the health of the user or other persons may be endangered.

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for Bipolar Transistors - Pre-Biased ***category:***

Click to view products by Infineon ***manufacturer:***

Other Similar products are found below :

MMUN2217LT1G FP101-TL-E RN1607(TE85L,F) DRC9A14E0L DTA124GKAT146 DTA144WETL DTA144WKAT146 DTC113EET1G DTC115TETL DTC115TKAT146 DTC124TETL DTC144ECA-TP DTC144VUAT106 MUN5241T1G BCR158WH6327XTSA1 NSBA114TDP6T5G NSBA143TF3T5G NSBA143ZF3T5G NSBC114EF3T5G NSBC114YF3T5G NSBC123TF3T5G NSBC143TF3T5G NSVMUN2212T1G NSVMUN5111DW1T3G NSVMUN5314DW1T3G NSVUMC2NT1G SMMUN2134LT1G SMUN2212T1G SMUN5235T1G SMUN5330DW1T1G SSVMUN5312DW1T2G 2SC3650-TD-E RN1303(TE85L,F) RN4605(TE85L,F) BCR135SH6327XT TTEPROTOTYPE79 UMC3NTR DTA113EET1G EMA2T2R EMH15T2R SDTA114YET1G SMMUN2111LT3G SMMUN2113LT1G SMMUN2114LT1G SMMUN2211LT3G SMUN2214T3G SMUN5113DW1T1G SMUN5335DW1T1G NSBA114YF3T5G NSBC114TF3T5G