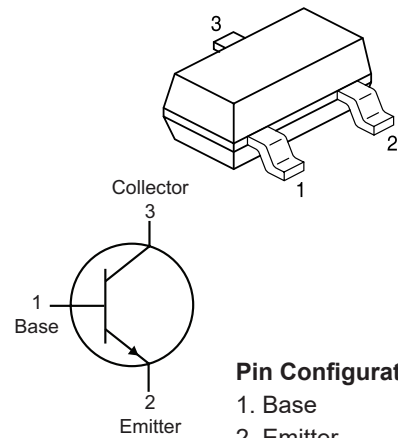


# Bipolar Single Transistor NPN

**multicomp** PRO



### Pin Configuration:

1. Base
2. Emitter
3. Collector

## Features

- For general AF applications
- High current gain
- Low collector-emitter saturation voltage
- Complementary types: BCW67, BCW68 (PNP)

## Applications

- General purpose medium power amplifier
- Switching application

## Maximum Ratings

Parameter	Symbol	Value	Unit
Collector - Base Voltage	$V_{CBO}$	45	V
Collector - Emitter Voltage	$V_{CEO}$	75	
Emitter - Base Voltage	$V_{EBO}$	5	
DC Collector Current	$I_C$	-1	A
Collector Current Continuous	$I_C$	800	mA
Collector Dissipation	$P_C$	330	mW
Junction and Storage Temperature	$T_J, T_{STG}$	-65 to +150	°C

## Electrical Characteristics ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Collector - Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=10\mu\text{A}, I_E=0$	75			V
Collector - Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=10\text{mA}, I_B=0$	45			
Emitter - Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=10\mu\text{A}, I_C=0$	5			
Collector Cut-Off Current	$I_{CBO}$	$V_{CB}=45\text{V}, I_E=0$			20	nA
Emitter Cut-Off Current	$I_{EBO}$	$V_{EB}=4\text{V}, I_C=0$			20	
DC Current Gain	hFE	$V_{CE}=10\text{V}, I_C=100\mu\text{A}$	50 80	-	-	-
		$V_{CE}=1\text{V}, I_C=10\text{mA}$	120 180	-	-	
		$V_{CE}=1\text{V}, I_C=100\text{mA}$	160 250	-	400 630	

Newark.com/multicomp-pro  
 Farnell.com/multicomp-pro  
 sg.element14.com/b/multicomp-pro

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# Bipolar Single Transistor NPN

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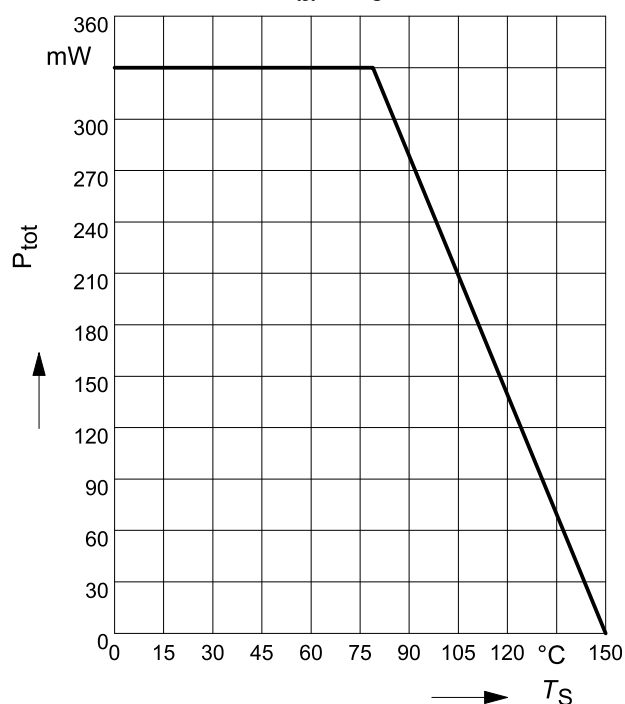
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Collector - Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = -100mA, I_B = 10mA$ $I_C = -500mA, I_B = 50mA$	-	-	0.3 0.7	V
Base Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 100mA, I_B = 10mA$ $I_C = 500mA, I_B = 50mA$	-	-	1.25 2	
Transition Frequency	$f_T$	$V_{CE} = 5V, I_C = 50mA$ $f = 20MHz$	-	170	-	MHz

## Thermal Characteristics

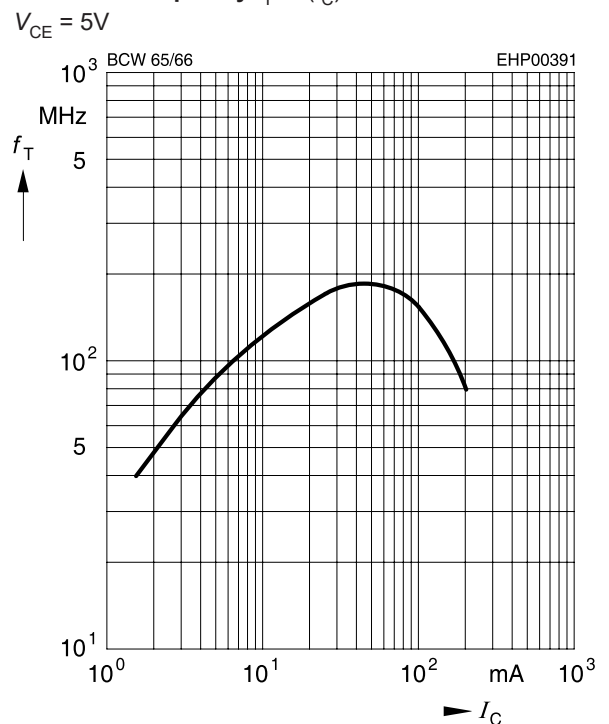
Parameter	Symbol	Value	Unit
Power Dissipation	$P_D$	330	mW
Thermal Resistance Junction-to-Air *	$R_{\theta JA}$	395	$^{\circ}C/W$
Thermal Resistance Junction-to-Case *	$R_{\theta JC}$	218	$^{\circ}C/W$
Thermal Resistance Junction-to-Lead *	$R_{\theta JL}$	191	$^{\circ}C/W$
Operating Junction temperature	$T_J$	-55 to +150	$^{\circ}C$
Storage Temperature Range	$T_{STG}$		

**Note:** \* The data tested by surface mounted on a 15mm×15mm×1mm FR4-epoxy P.C.B

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



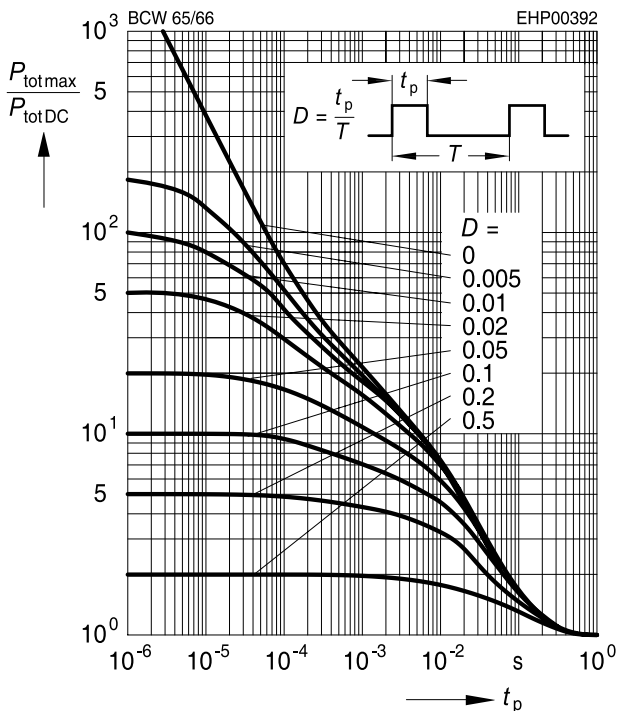
Transition frequency  $f_T = f(I_C)$



# Bipolar Single Transistor NPN

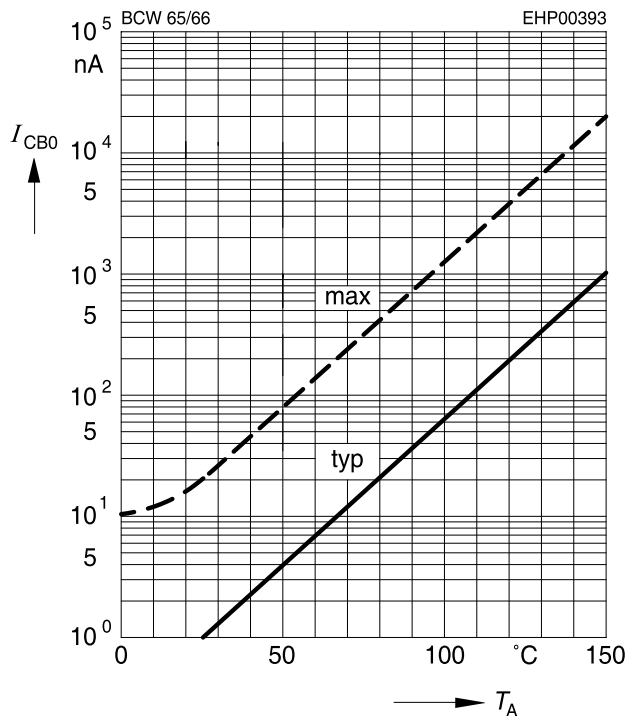
## Permissible pulse load

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



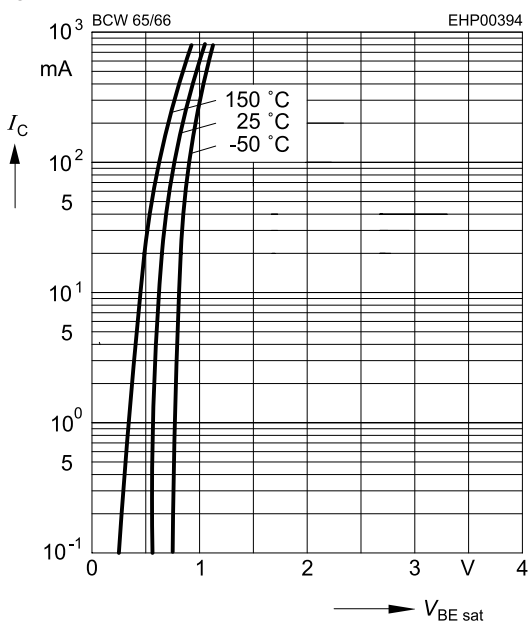
## Collector cutoff current $I_{\text{CBO}} = f(T_A)$

$$V_{\text{CB}} = V_{\text{CEmax}}$$



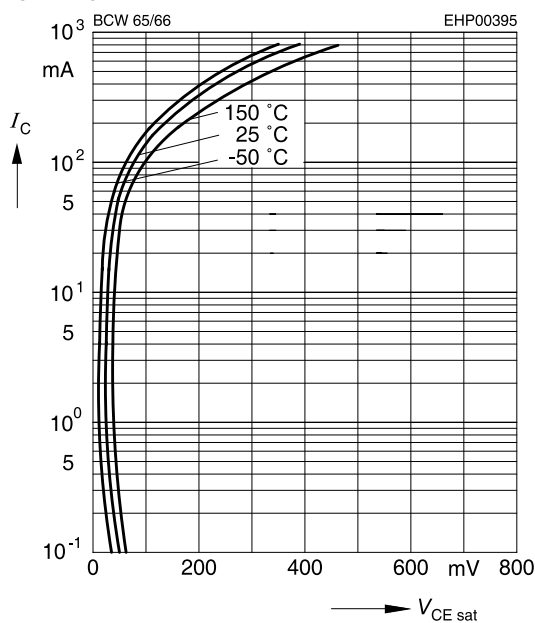
## Base-emitter saturation voltage

$$I_C = f(V_{\text{BEsat}}, h_{\text{FE}} = 10)$$



## Collector-emitter saturation voltage

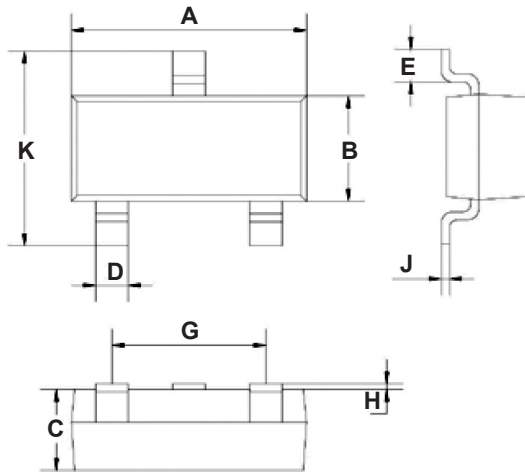
$$I_C = f(V_{\text{CEsat}}, h_{\text{FE}} = 10)$$



# Bipolar Single Transistor NPN

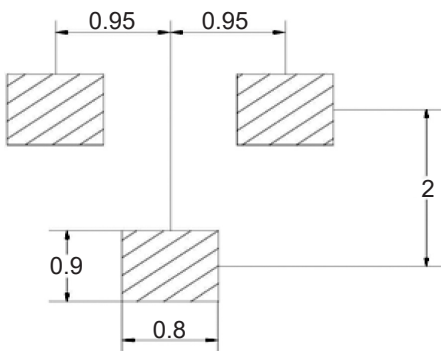
## Package Outline

Plastic Surface Mounted Package



Dimensions	Min.	Max.
A	2.85	2.95
B	1.25	1.35
C	1 Typical	
D	0.4 Typical	
E	0.35	0.48
G	1.85	1.95
H	0.02	0.1
J	0.1 Typical	
K	2.35	2.45

## Soldering Footprint



## Part Number Table

Description	Part Number
Transistor, NPN, 0.8A, 45V, SOT-23	BCW66H

Dimensions : Millimetres

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