

## NPN Silicon Epitaxial Planar Transistor

### BC846W/BC847W/BC848W

#### FEATURES

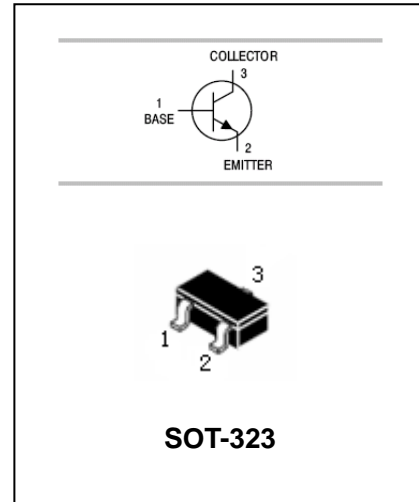
- For AF input stages and driver applications.
- High current gain.
- Low collector-emitter saturation voltage.
- Low noise between 30 Hz and 15 kHz.
- Complementary types:BC856W,BC857W,BC858W.



Lead-free

#### APPLICATIONS

- General purpose switching and amplification application.



#### ORDERING INFORMATION

Type No.	Marking	Package Code
BC846W	1A/1B	SOT-323
BC847W	1E/1F/1G	SOT-323
BC848W	1J/1K/1L	SOT-323

#### MAXIMUM RATING @ Ta=25°C unless otherwise specified

Symbol	Parameter	Value	Units
V <sub>CBO</sub>	Collector-Base Voltage	BC846W	80
		BC847W	50
		BC848W	30
V <sub>CEO</sub>	Collector-Emitter Voltage	BC846W	65
		BC847W	45
		BC848W	30
V <sub>EBO</sub>	Emitter-Base Voltage	BC846W,BC847W	6
		BC848W	5
I <sub>C</sub>	Collector Current -Continuous	100	mA
I <sub>CM</sub>	Peak Collector current	200	mA
I <sub>BM</sub>	Peak Base current	200	mA
P <sub>C</sub>	Collector Dissipation	200	mW
T <sub>j</sub> ,T <sub>stg</sub>	Junction and Storage Temperature	-65 to +150	°C



**NPN Silicon Epitaxial Planar Transistor**

**BC846W/BC847W/BC848W**

**ELECTRICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified**

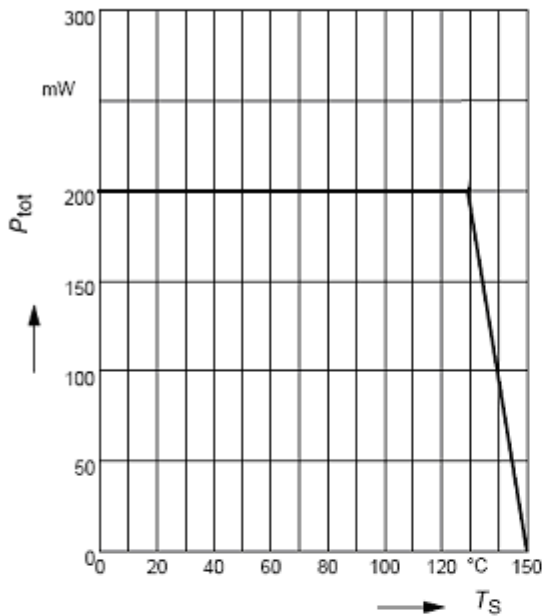
Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=10\mu A, I_E=0$ BC846W	80			V
		BC847W	50			
		BC848W	30			
Collector-emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=10mA, I_B=0$ BC846W	65			V
		BC847W	45			
		BC848W	30			
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=1\mu A, I_C=0$ BC846W	6			V
		BC847W	6			
		BC848W	5			
Collector cut-off current	$I_{CBO}$	$V_{CB}=30V, I_E=0$			15	nA
Emitter cut-off Current	$I_{EBO}$	$V_{EB}=5V, I_C=0$			100	nA
DC Current Gain	$h_{FE}$	$V_{CE}=5V, I_C=10\mu A$ BC846AW, BC847AW BC846BW, BC847BW, BC848BW BC847CW, BC848CW		140		
				250		
				480		
		$V_{CE}=5V, I_C=2mA$ BC846AW, BC847AW	110	180	220	
		BC846BW, BC847BW, BC848BW	200	290	450	
		BC847CW, BC848CW	420	520	800	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=10mA, I_B=0.5mA$		90	250	mV
		$I_C=100mA, I_B=5mA$ note1		200	600	
Base-emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=10mA, I_B=0.5mA$		700		mV
		$I_C=100mA, I_B=5mA$ note1		900		
Base-emitter Voltage	$V_{BE}$	$I_C=2mA, V_{CE}=5V$	580	660	700	mV
		$I_C=10mA, V_{CE}=5V$			770	
Transition Frequency	$f_T$	$V_{CE}=5V, I_C=10mA, f=100MHz$		250		MHz
Collector-Base Capacitance	$C_{cb}$	$V_{CB}=10V, I_E=0, f=1MHz$		2	3	pF
Emitter-Base Capacitance	$C_{eb}$	$V_{EB}=0.5V, I_E=0, f=1MHz$		10	15	pF

**NPN Silicon Epitaxial Planar Transistor**

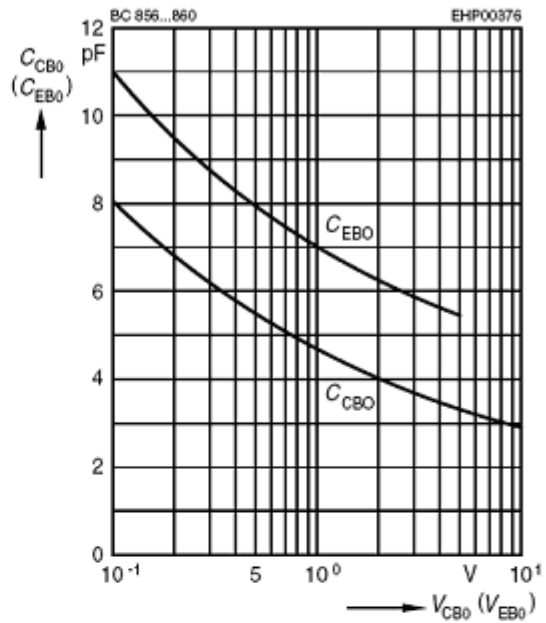
**BC846W/BC847W/BC848W**

TYPICAL CHARACTERISTICS @  $T_a=25^\circ\text{C}$  unless otherwise specified

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

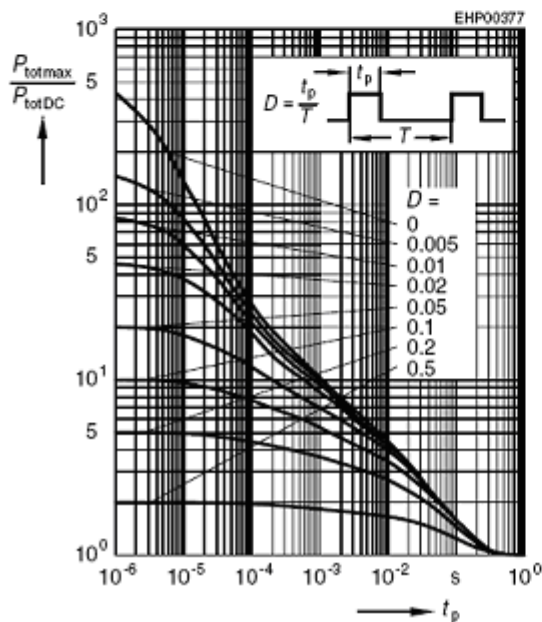


**Collector-base capacitance  $C_{CB} = f(V_{CB0})$   
Emitter-base capacitance  $C_{EB} = f(V_{EB0})$**



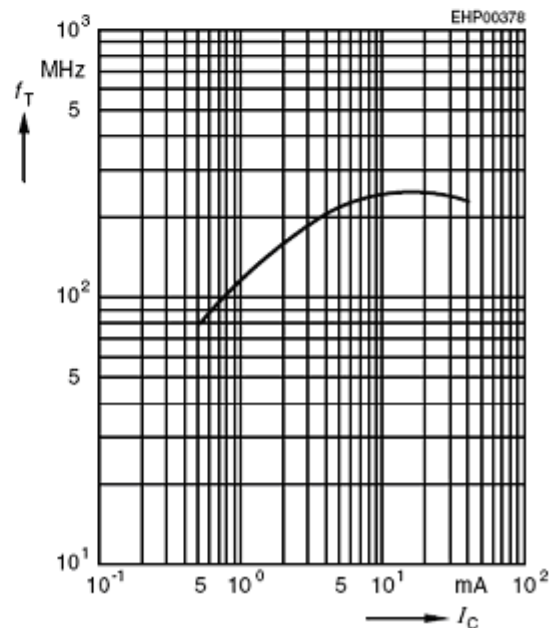
**Permissible pulse load**

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



**Transition frequency  $f_T = f(I_C)$**

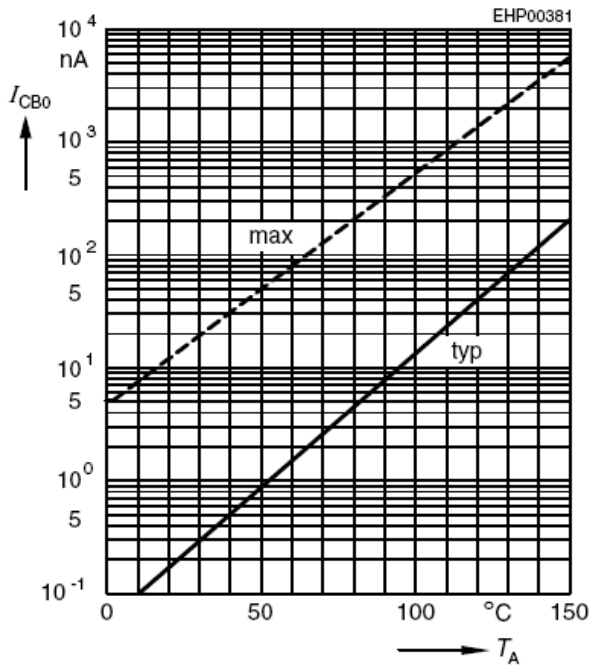
$V_{CE} = 5V$



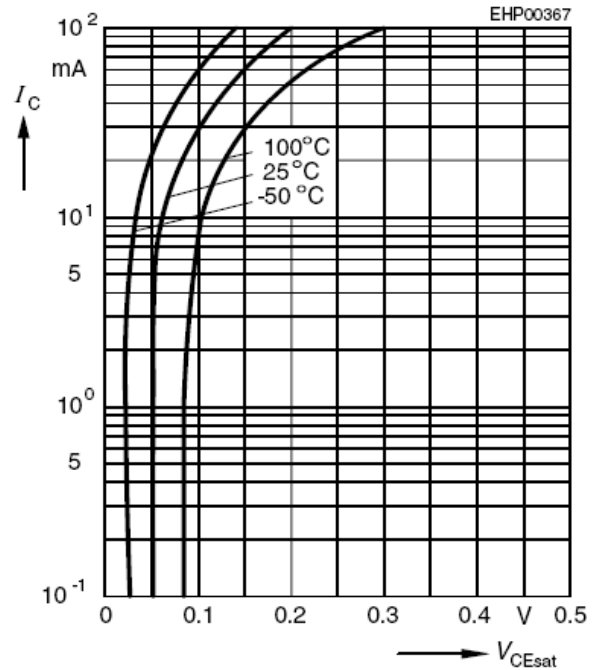
**NPN Silicon Epitaxial Planar Transistor**

**BC846W/BC847W/BC848W**

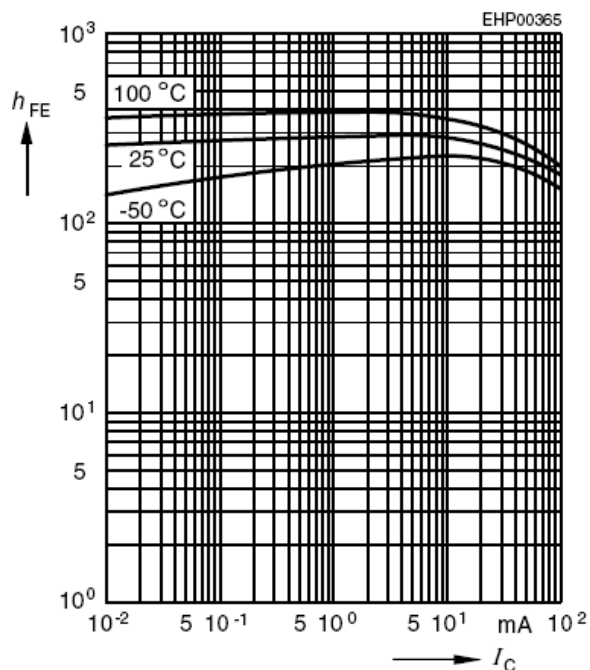
**Collector cutoff current  $I_{CBO} = f(T_A)$**   
 $V_{CB} = 30V$



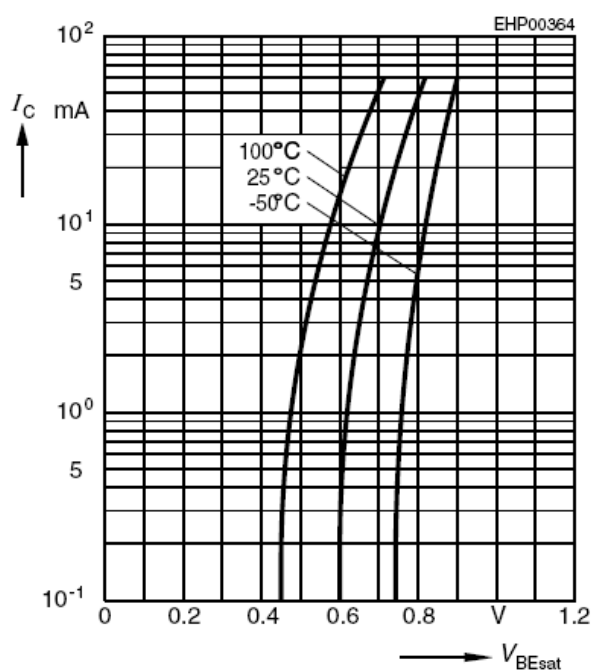
**Collector-emitter saturation voltage**  
 $I_C = f(V_{CEsat}), h_{FE} = 20$



**DC current gain  $h_{FE} = f(I_C)$**   
 $V_{CE} = 5V$



**Base-emitter saturation voltage**  
 $I_C = f(V_{BEsat}), h_{FE} = 20$



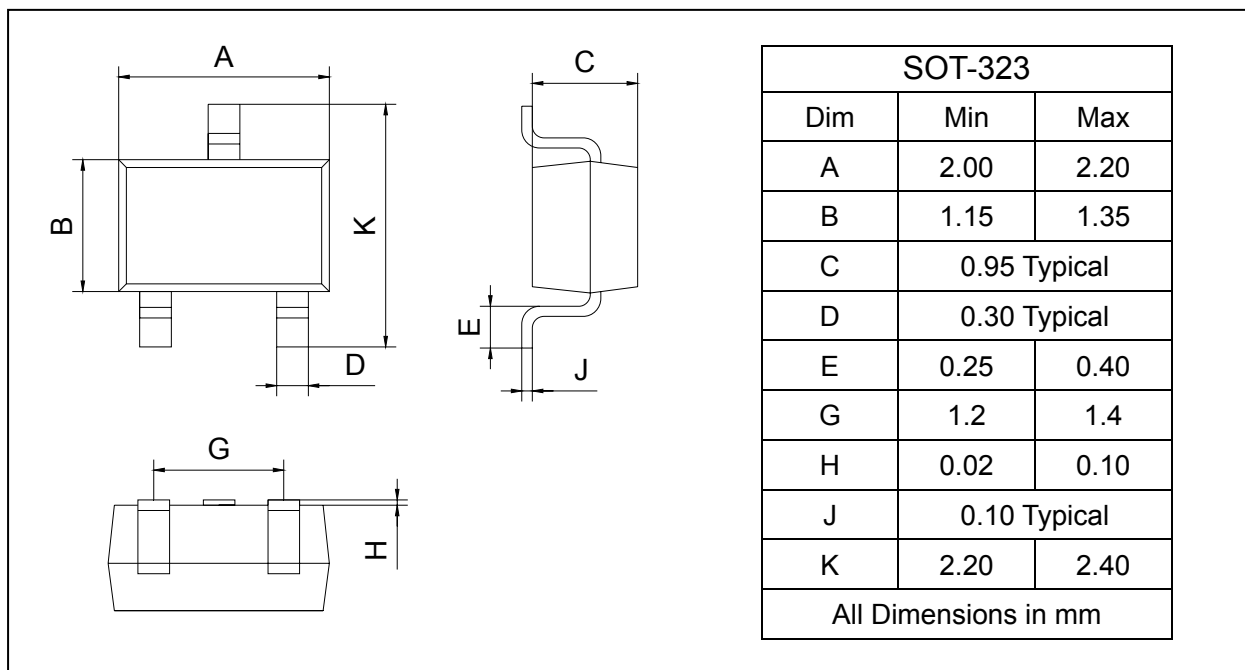
## NPN Silicon Epitaxial Planar Transistor

### BC846W/BC847W/BC848W

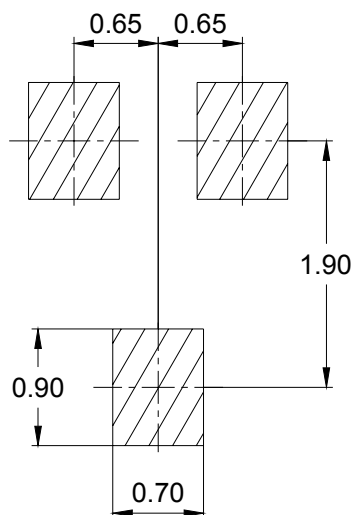
#### PACKAGE OUTLINE

Plastic surface mounted package

SOT-323



#### SOLDERING FOOTPRINT



Unit : mm

#### PACKAGE INFORMATION

Device	Package	Shipping
BC846W/BC847W/BC848W	SOT-323	3000/Tape&Reel