

**General Purpose NPN Epitaxial Planar Transistor**

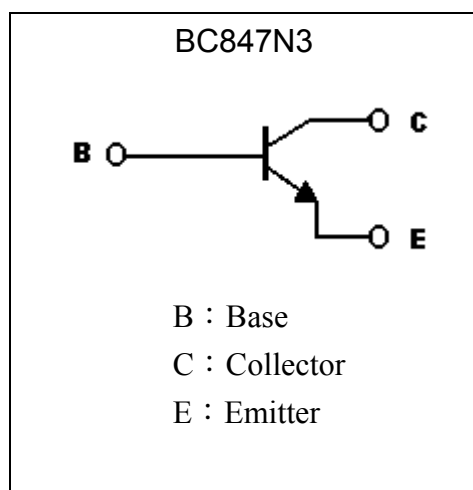
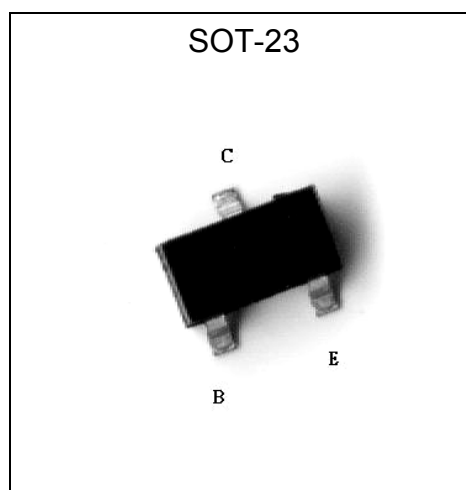
# BC847N3

**Description**

- The BC847N3 is designed for general purpose switching and amplification applications.
- Complementary to BC857N3.

**Features**

- Low current,  $I_{C(max)}=100mA$
- Low voltage,  $BV_{CEO}=45V$ .

**Symbol**

**Outline**

**Absolute Maximum Ratings** ( $T_a=25^{\circ}C$ )

Parameter	Symbol	Limits	Unit
Collector-Base Voltage	$V_{CBO}$	50	V
Collector-Emitter Voltage	$V_{CEO}$	45	V
Emitter-Base Voltage	$V_{EBO}$	6	V
Collector Current (DC)	$I_C$	100	mA
Collector Current (Pulse)	$I_{CP}$	200	mA
Power Dissipation	$P_d$	225	mW
Junction Temperature	$T_j$	150	$^{\circ}C$
Storage Temperature	$T_{stg}$	-55~+150	$^{\circ}C$



**Characteristics (Ta=25°C)**

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
$BV_{CBO}$	50	-	-	V	$I_C=10\mu A$
$BV_{CEO}$	45	-	-	V	$I_C=1mA$
$BV_{EBO}$	6	-	-	V	$I_E=10\mu A$
$I_{CBO}$	-	-	15	nA	$V_{CE}=30V$
$I_{EBO}$	-	-	100	nA	$V_{EB}=5V$
* $V_{CE(sat)1}$	-	-	250	mV	$I_C=10mA, I_B=0.5mA$
* $V_{CE(sat)2}$	-	-	600	mV	$I_C=100mA, I_B=5mA$
* $V_{BE(sat)1}$	-	700	-	mV	$I_C=10mA, I_B=0.5mA$
* $V_{BE(sat)2}$	-	900	-	mV	$I_C=100mA, I_B=5mA$
* $V_{BE(on)1}$	580	660	700	mV	$V_{CE}=5V, I_C=2mA$
* $V_{BE(on)2}$	-	-	770	mV	$V_{CE}=5V, I_C=10mA$
* $h_{FE}$	110	-	800	-	$V_{CE}=5V, I_C=2mA$
$f_T$	100	-	-	MHz	$V_{CE}=5V, I_E=10mA, f=100MHz$
Cob	-	2.5	-	pF	$V_{CB}=10V, I_E=0A, f=1MHz$

\*Pulse Test: Pulse Width  $\leq 380\mu s$ , Duty Cycles  $\leq 2\%$

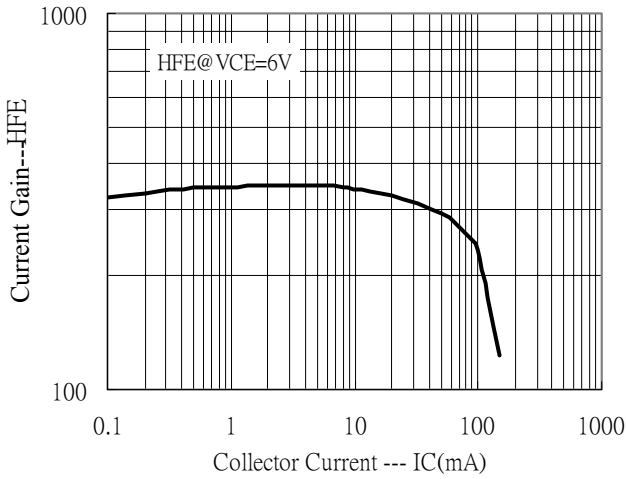
**Classification of  $h_{FE}$  :**

Rank	A	B	C
Range	110--220	200--450	420--800

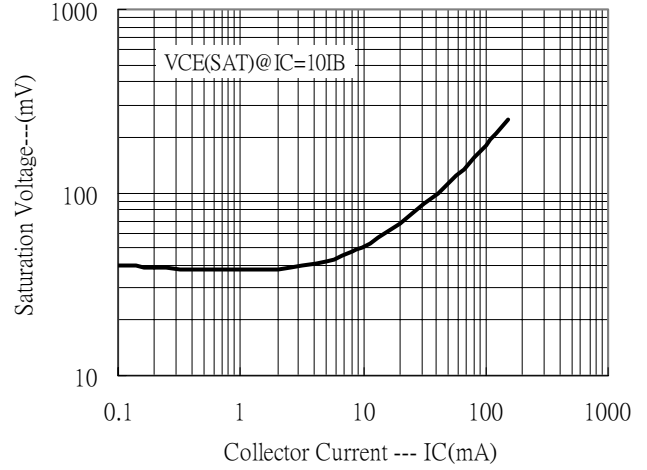


### Characteristic Curves

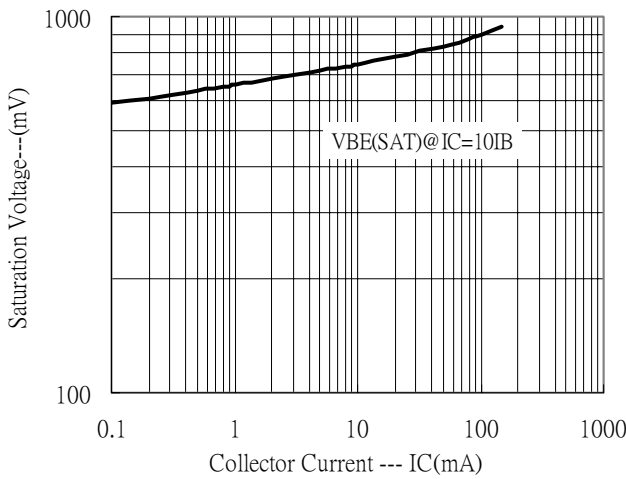
Current Gain vs Collector Current



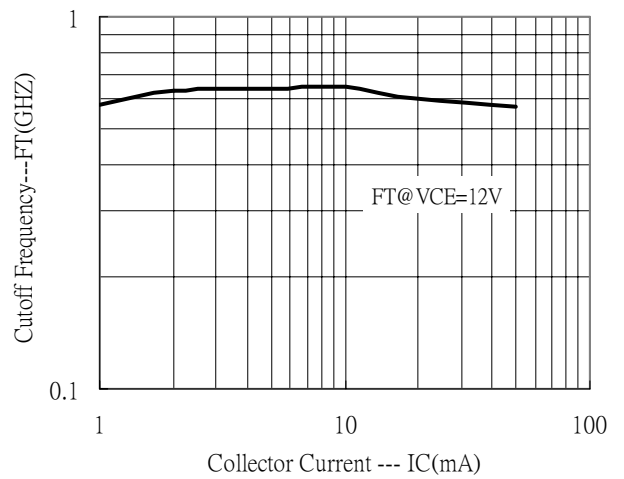
Saturation Voltage vs Collector Current



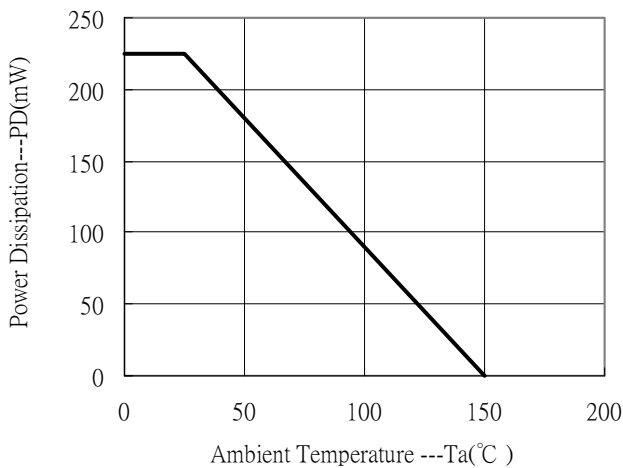
Saturation Voltage vs Collector Current



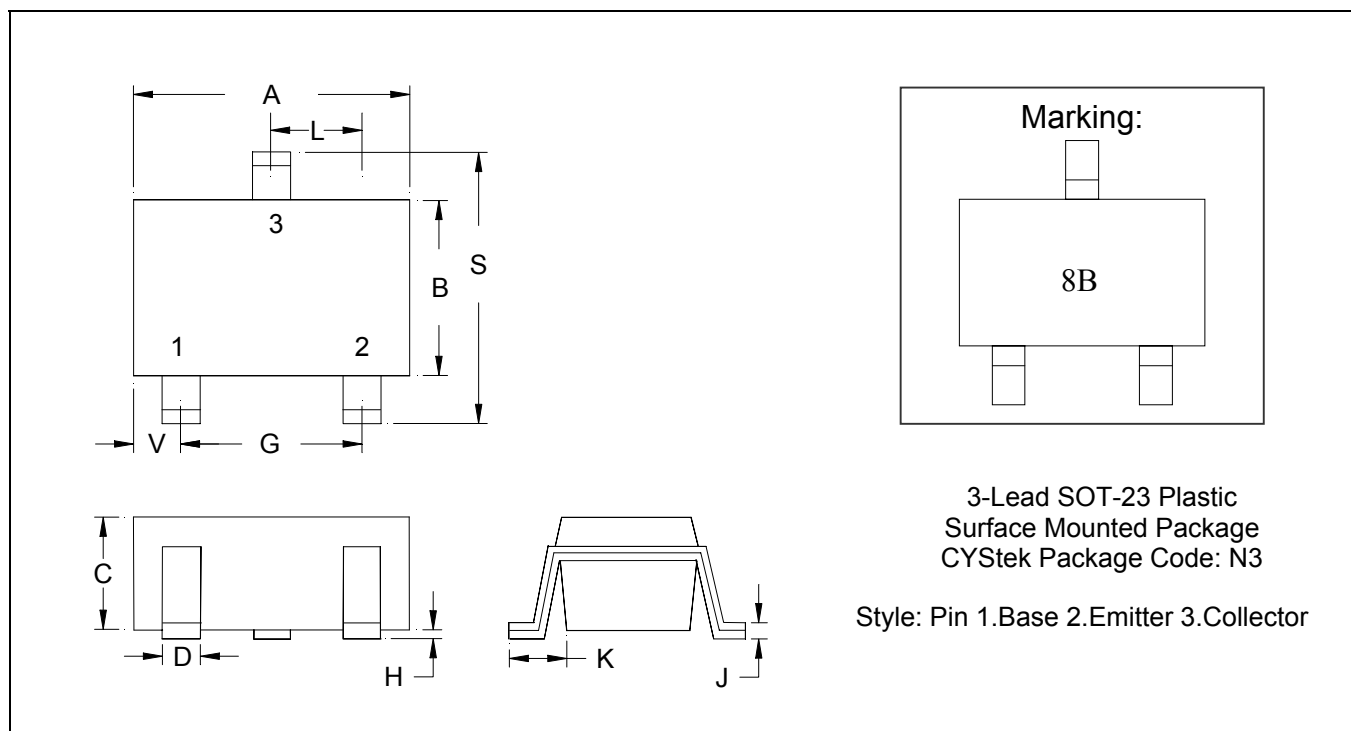
Cutoff Frequency vs Collector Current



Power Derating Curve



**SOT-23 Dimension**



3-Lead SOT-23 Plastic  
 Surface Mounted Package  
 CYStek Package Code: N3  
 Style: Pin 1.Base 2.Emitter 3.Collector

\*: Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.1102	0.1204	2.80	3.04	J	0.0034	0.0070	0.085	0.177
B	0.0472	0.0630	1.20	1.60	K	0.0128	0.0266	0.32	0.67
C	0.0335	0.0512	0.89	1.30	L	0.0335	0.0453	0.85	1.15
D	0.0118	0.0197	0.30	0.50	S	0.0830	0.1083	2.10	2.75
G	0.0669	0.0910	1.70	2.30	V	0.0098	0.0256	0.25	0.65
H	0.0005	0.0040	0.013	0.10					

Notes: 1.Controlling dimension: millimeters.  
 2.Maximum lead thickness includes lead finish thickness, and minimum lead thickness is the minimum thickness of base material.  
 3.If there is any question with packing specification or packing method, please contact your local CYStek sales office.

**Material:**

- Lead: 42 Alloy ; solder plating
- Mold Compound: Epoxy resin family, flammability solid burning class: UL94V-0

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