TFN847

Description

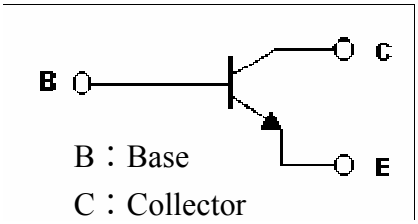
• The TFN847 is designed for general purpose switching and amplification applications.
• Complementary to TFN857.
• Pb-free package

Features

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

Symbol

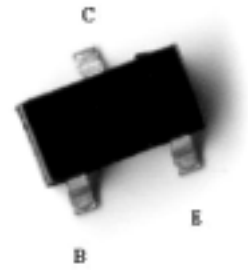
TFN847



B：Base
C：Collector
E：Emitter

Outline

SOT-23



Absolute Maximum Ratings (Ta=25°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	Pd	225	mW
Junction Temperature	Tj	150	°C
Storage Temperature	Tstg	-55~+150	°C

Characteristics (Ta=25°C)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV_{CBO}	50	-	-	V	I_C=10μA
BV_{CEO}	45	-	-	V	I_C=1mA
BV_{EBO}	6	-	-	V	I_E=10μA
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 ≤380μs, Duty Cycle≤2%

Classification of h_{FE} :

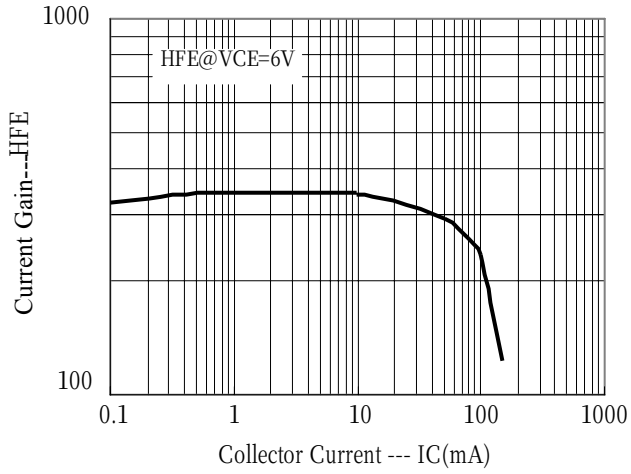
Rank	A	B	C
Range	110--220	200--450	420--800

Ordering Information

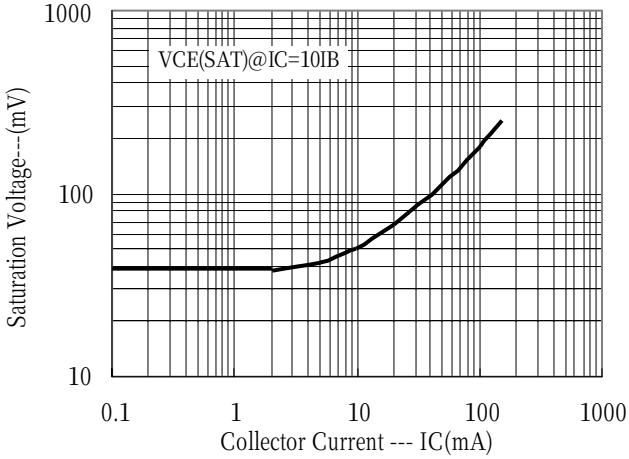
Device	Package	Shipping	Marking
TFN847 A-rank	SOT-23 (Pb-free package)	3000 pcs / Tape & Reel	1E
TFN847 B-rank	SOT-23 (Pb-free package)	3000 pcs / Tape & Reel	1F
TFN847 C-rank	SOT-23 (Pb-free package)	3000 pcs / Tape & Reel	1G

Characteristic Curves

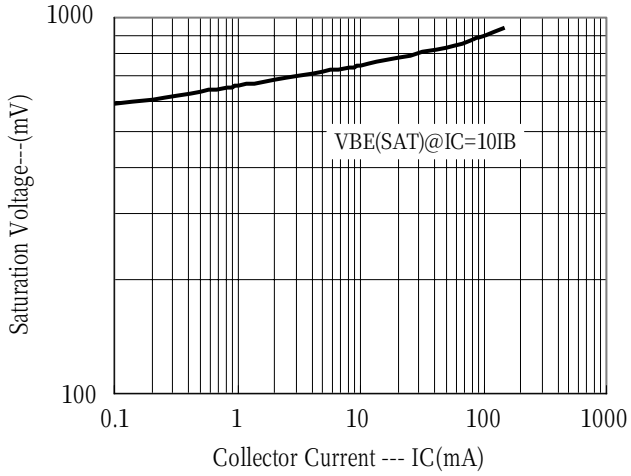
Current Gain vs Collector Current



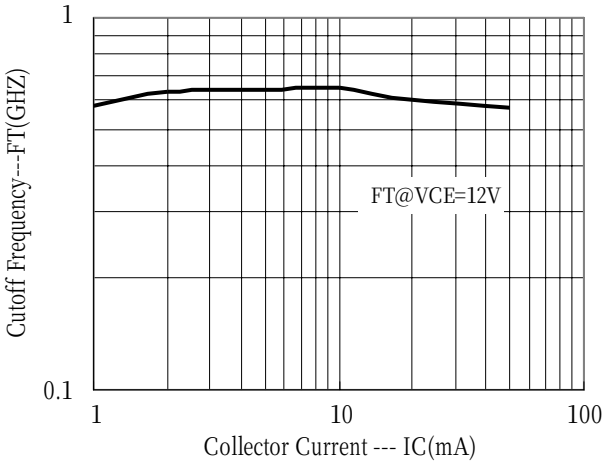
Saturation Voltage vs Collector Current



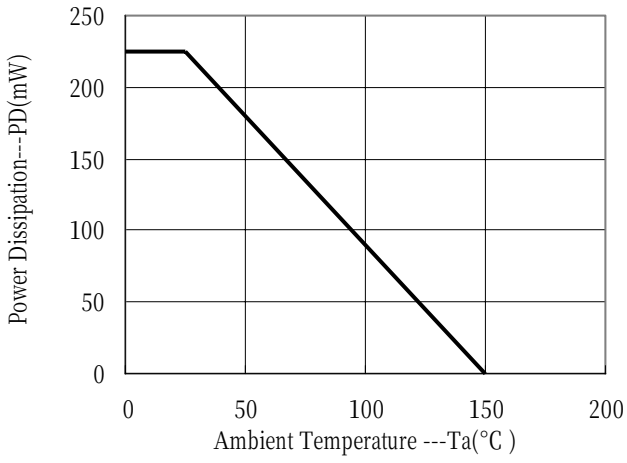
Saturation Voltage vs Collector Current



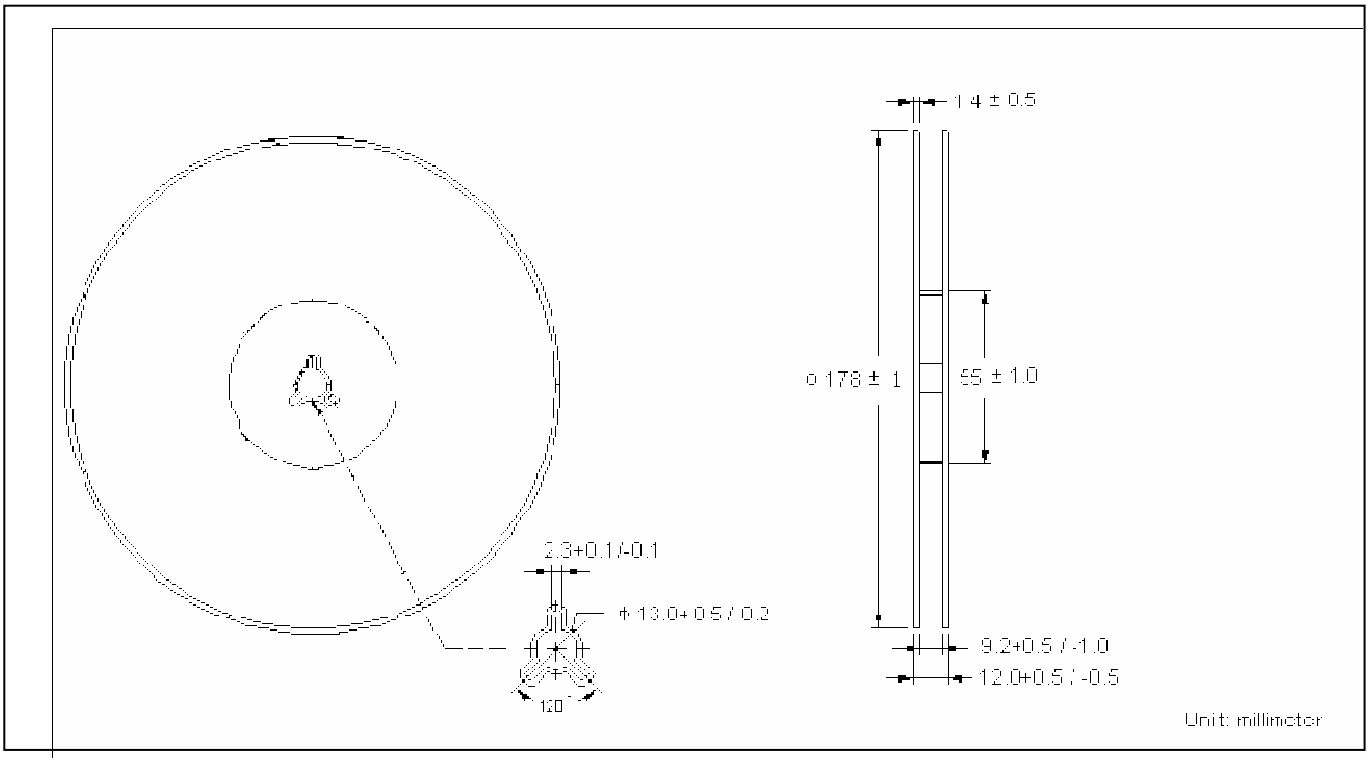
Cutoff Frequency vs Collector Current



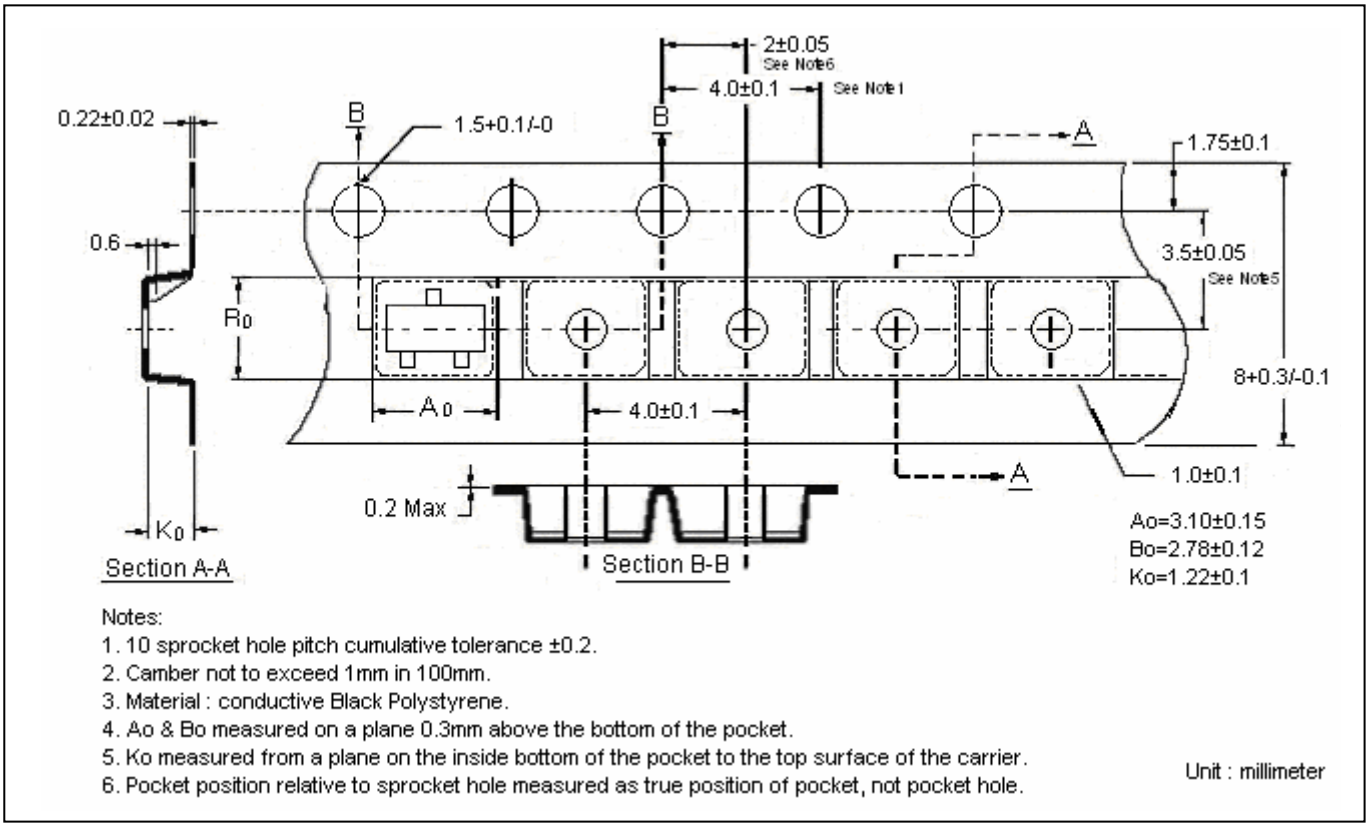
Power Derating Curve



Reel Dimension



Carrier Tape Dimension



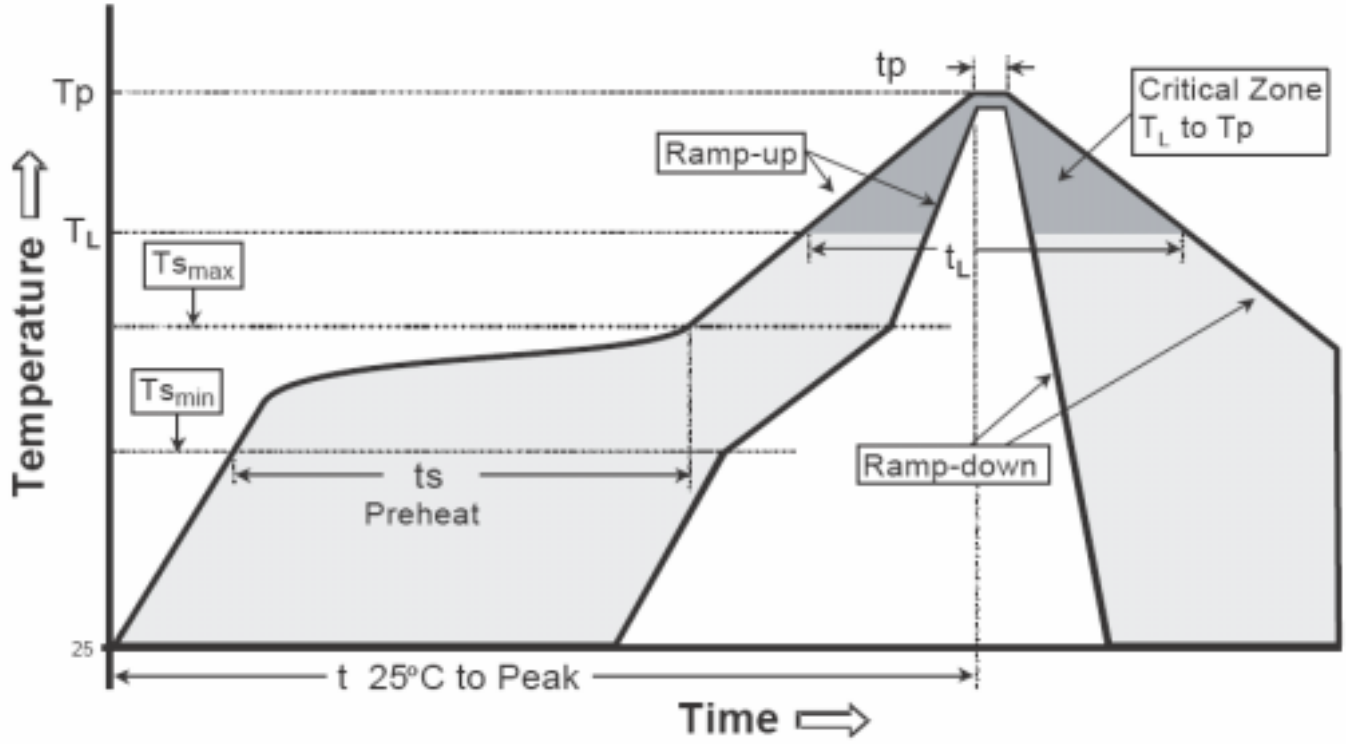
Notes:
1. 10 sprocket hole pitch cumulative tolerance ±0.2.
2. Camber not to exceed 1mm in 100mm.
3. Material : conductive Black Polystyrene.
4. Ao & Bo measured on a plane 0.3mm above the bottom of the pocket.
5. Ko measured from a plane on the inside bottom of the pocket to the top surface of the carrier.
6. Pocket position relative to sprocket hole measured as true position of pocket, not pocket hole.

Unit : millimeter

Recommended wave soldering condition

Product	Peak Temperature	Soldering Time
Pb-free devices	260 +0/-5 °C	5 +1/-1 seconds

Recommended temperature profile for IR reflow



Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (Tsmax to Tp)	3°C/second max.	3°C/second max.
Preheat −Temperature Min(T_S min) −Temperature Max(T_S max) −Time($t_{s\ min}$ to $t_{s\ max}$)	 100°C 150°C 60-120 seconds	 150°C 200°C 60-180 seconds
Time maintained above: −Temperature (T_L) − Time (t_L)	 183°C 60-150 seconds	 217°C 60-150 seconds
Peak Temperature(T_P)	240 +0/-5 °C	260 +0/-5 °C
Time within 5°C of actual peak temperature(tp)	10-30 seconds	20-40 seconds
Ramp down rate	6°C/second max.	6°C/second max.
Time 25 °C to peak temperature	6 minutes max.	8 minutes max.

Note : All temperatures refer to topside of the package, measured on the packa