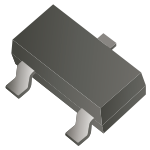
General Purpose Transistor

AMMBT3906-HF (PNP)

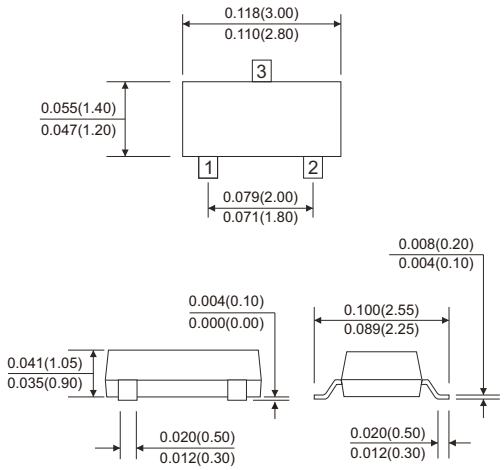
RoHS Device
Halogen Free



Features

- Epoxy meets UL-94 V-0 flammability rating.
- Moisture sensitivity Level 1.
- AEC-Q101 Qualified.

SOT-23



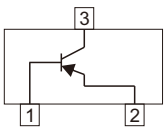
Dimensions in inches and (millimeter)

Mechanical data

- Case: SOT-23, molded plastic.
- Terminals: Tin plated leads, solderable per J-STD-002 and JESD22-B102.

Circuit Diagram

1. Base
2. Emitter
3. Collector



Maximum Ratings (at Ta=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Collector-base voltage	V_{CBO}	-40	V
Collector-emitter voltage	V_{CEO}	-40	V
Emitter-base voltage	V_{EBO}	-5	V
Collector current-continuous	I_C	-200	mA
Total device dissipation	P_D	300	mW
Thermal resistance junction to ambient	$R_{\theta JA}$	357	K/W
Junction temperature range	T_J	-55 to +150	°C
Storage temperature range	T_{STG}	-55 to +150	°C

Electrical Characteristics (at Ta=25°C unless otherwise noted)

Parameter	Conditions	Symbol	Min	Max	Unit
Collector-emitter breakdown voltage	I_C = -1mAdc, I_B = 0	$V_{(BR)CEO}$	-40		Vdc
Collector-base breakdown voltage	I_C = -10μAdc, I_E = 0	$V_{(BR)CBO}$	-40		Vdc
Emitter-base breakdown voltage	I_E = -10μAdc, I_C = 0	$V_{(BR)EBO}$	-5		Vdc
Collector cut-off current	V_{CB} = -40Vdc, I_E = 0	I_{CBO}		-0.1	μAdc
Collector cut-off current	V_{CE} = -30Vdc, V_{EB} = -3Vdc	I_{CEX}		-50	nAdc
Emitter cut-off current	V_{CB} = -5Vdc, I_E = 0	I_{EBO}		-0.1	μAdc
DC current gain	V_{CE} = -1Vdc, I_C = -0.1mAdc	$h_{FE(1)}$	40		
	V_{CE} = -1Vdc, I_C = -1mAdc	$h_{FE(2)}$	70		
	V_{CE} = -1Vdc, I_C = -10mAdc	$h_{FE(3)}$	100	300	
	V_{CE} = -1Vdc, I_C = -50mAdc	$h_{FE(4)}$	60		
	V_{CE} = -1Vdc, I_C = -100mAdc	$h_{FE(5)}$	30		
Collector-emitter saturation voltage	I_C = -10mAdc, I_B = -1mAdc	$V_{CE(sat)}$		-0.25	Vdc
	I_C = -50mAdc, I_B = -5mAdc			-0.4	
Base-emitter saturation voltage	I_C = -10mAdc, I_B = -1mAdc	$V_{BE(sat)}$	-0.65	-0.85	Vdc
	I_C = -50mAdc, I_B = -5mAdc			-0.95	
Output capacitance	V_{CB} = -5Vdc, f = 1MHz, I_E = 0	Cobo		4.5	pF
Input capacitance	V_{EB} = -5Vdc, f = 1MHz, I_C = 0	Cibo		10	pF
Delay time	V_{CC} = -3Vdc, V_{BE} = -0.5Vdc, I_C = -10mAdc, I_{B1} = -1mAdc	t_d		35	ns
Rise time		t_r		35	ns
Storage time	V_{CC} = -3Vdc, I_C = -10mAdc, I_{B1} = I_{B2} = -1mAdc	t_s		225	ns
Fall time		t_f		75	ns

Rating and Characteristic Curves (AMMBT3906-HF)

Fig.1 - Static Characteristic

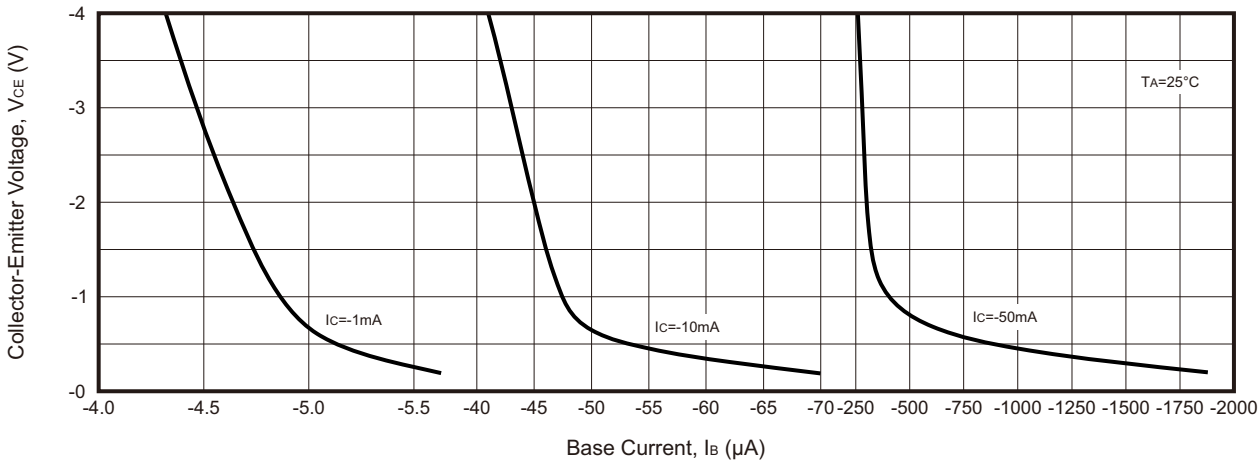


Fig.2 - H_{FE} — I_C

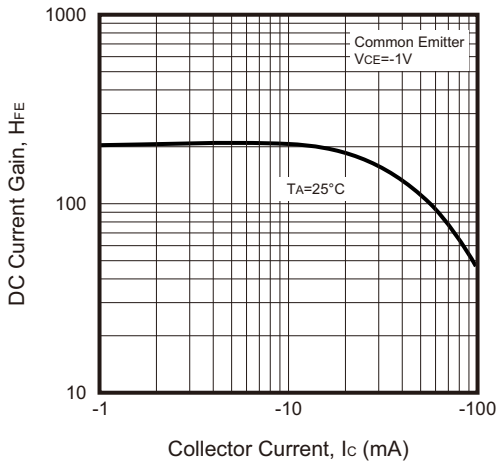


Fig.3 - V_{BEsat} — I_C

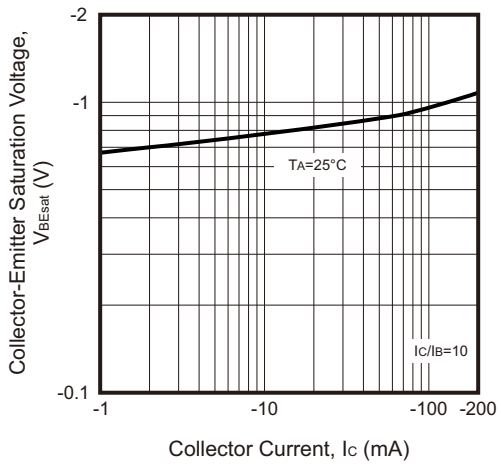
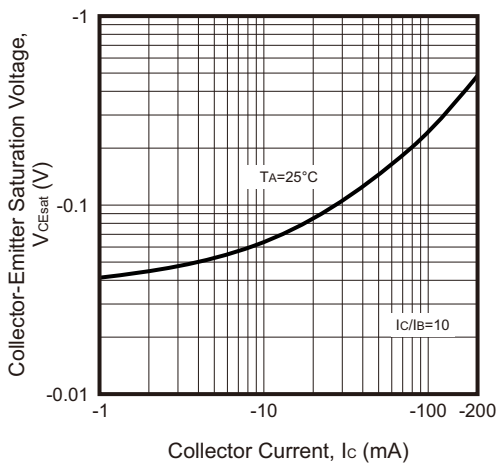
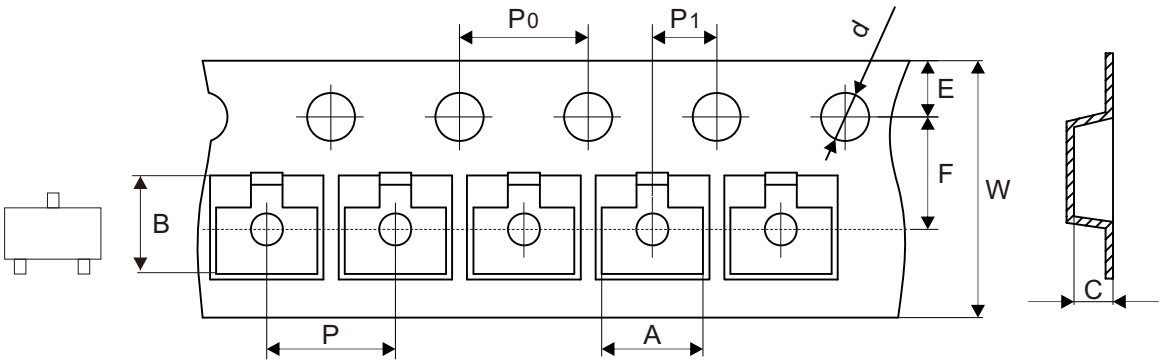
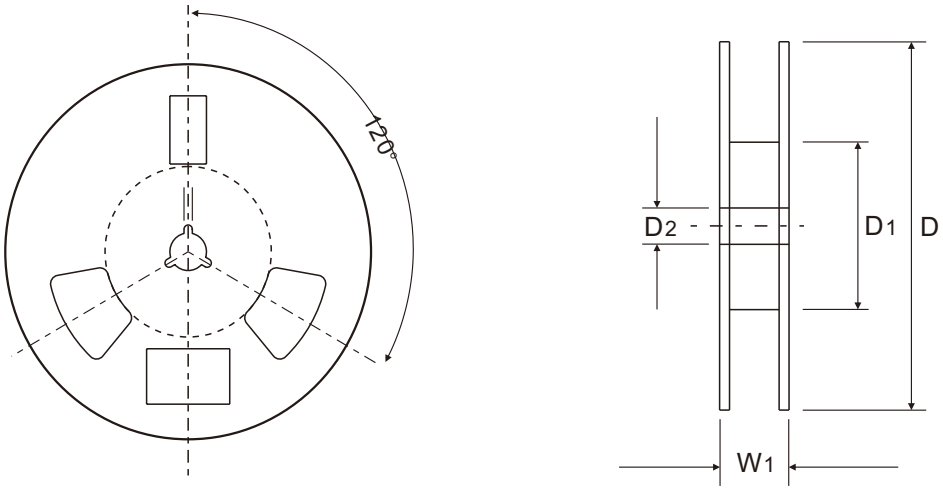


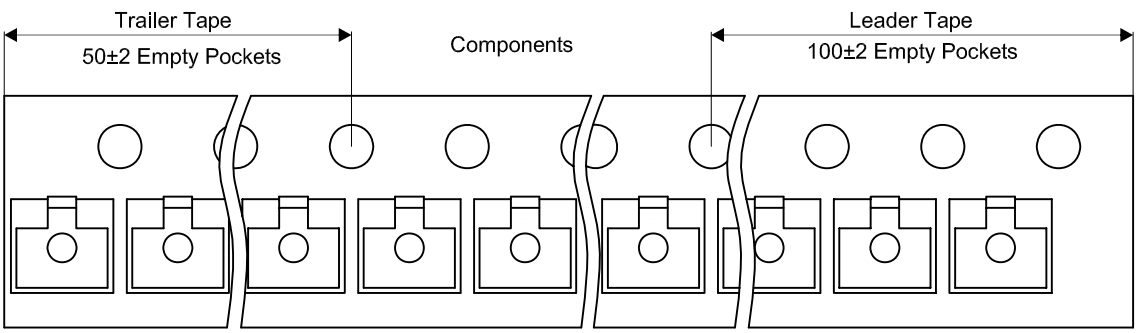
Fig.4 - V_{CEsat} — I_C



Reel Taping Specification





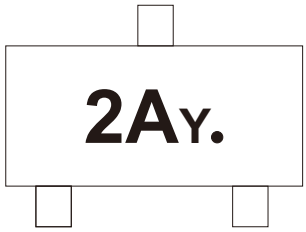


	SYMBOL	A	B	C	d	D	D1	D2
SOT-23	(mm)	3.15 ± 0.10	2.77 ± 0.10	1.22 ± 0.10	1.50 + 0.10 − 0.00	178.00 ± 1.00	54.60 ± 1.00	13.30 ± 1.00
	(inch)	0.124 ± 0.004	0.109 ± 0.004	0.048 ± 0.004	0.059 + 0.004 − 0.000	7.008 ± 0.039	2.150 ± 0.039	0.524 ± 0.039

	SYMBOL	E	F	P	P0	P1	W	W1
SOT-23	(mm)	1.75 ± 0.10	3.50 ± 0.05	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	8.00 + 0.30 − 0.10	11.10 ± 0.20
	(inch)	0.069 ± 0.004	0.138 ± 0.002	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.002	0.315 + 0.012 − 0.004	0.437 ± 0.008

Marking Code

Part Number	Marking Code
AMMBT3906-HF	2AY.



Y = Date code

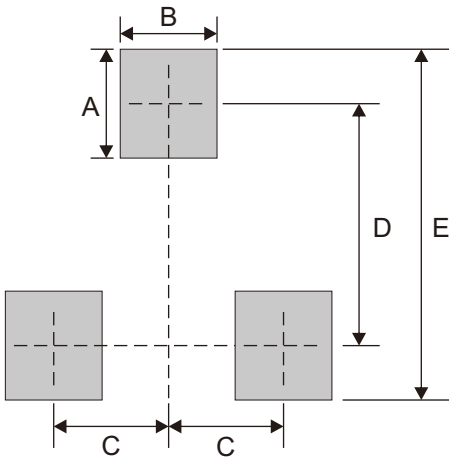
Date code: (2 years a cycle)

Month	Odd Year	Even Year
Jan	J	W
Feb	O	N
Mar	L	Y
Apr	C	T
May	K	R
Jun	B	H

Month	Odd Year	Even Year
Jul	P	A
Aug	D	I
Sep	M	U
Oct	E	X
Nov	G	Z
Dec	F	S

Suggested P.C.B. PAD Layout

SIZE	SOT-23	
	(mm)	(inch)
A	0.90	0.035
B	0.80	0.031
C	0.95	0.037
D	2.00	0.079
E	2.90	0.114



Note: 1. The pad layout is for reference purposes only.

Standard Packaging

Case Type	REEL PACK	
	REEL (pcs)	Reel Size (inch)
SOT-23	3,000	7