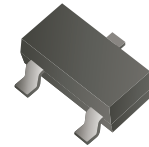


AMMBT3904-HF (NPN)

RoHS Device
Halogen Free



Features

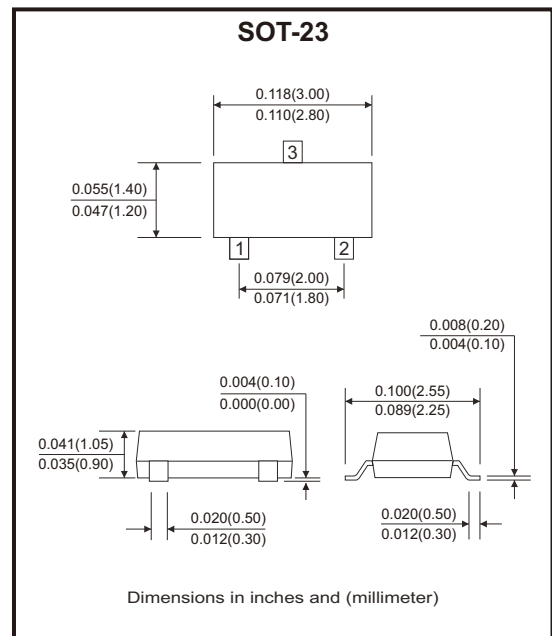
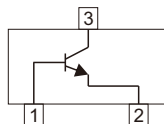
- Epoxy meets UL-94 V-0 flammability rating.
- Moisture sensitivity Level 1.
- AEC-Q101 Qualified.

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}	60	V
Collector-emitter voltage	V _{CEO}	40	V
Emitter-base voltage	V _{EBO}	6	V
Collector current-continuous	I _c	200	mA
Total device dissipation	P _D	300	mW
Thermal resistance junction to ambient	R _{θJA}	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	$I_C = 1\text{mA}_{dc}$, $I_B = 0$	$V_{(BR)CEO}$	40		Vdc
Collector-base breakdown voltage	$I_C = 10\mu\text{A}_{dc}$, $I_E = 0$	$V_{(BR)CBO}$	60		Vdc
Emitter-base breakdown voltage	$I_E = 10\mu\text{A}_{dc}$, $I_C = 0$	$V_{(BR)EBO}$	6		Vdc
Collector cut-off current	$V_{CB} = 60\text{Vdc}$, $I_E = 0$	I_{CBO}		50	nAdc
Collector cut-off current	$V_{CE} = 30\text{Vdc}$, $V_{EB} = 3\text{Vdc}$	I_{CEX}		50	nAdc
DC current gain	$V_{CE} = 1\text{Vdc}$, $I_C = 0.1\text{mA}_{dc}$	$h_{FE(1)}$	40		
	$V_{CE} = 1\text{Vdc}$, $I_C = 1\text{mA}_{dc}$	$h_{FE(2)}$	70		
	$V_{CE} = 1\text{Vdc}$, $I_C = 10\text{mA}_{dc}$	$h_{FE(3)}$	100	300	
	$V_{CE} = 1\text{Vdc}$, $I_C = 50\text{mA}_{dc}$	$h_{FE(4)}$	60		
	$V_{CE} = 1\text{Vdc}$, $I_C = 100\text{mA}_{dc}$	$h_{FE(5)}$	30		
Collector-emitter saturation voltage	$I_C = 10\text{mA}_{dc}$, $I_B = 1\text{mA}_{dc}$	$V_{CE(sat)}$		0.2	Vdc
	$I_C = 50\text{mA}_{dc}$, $I_B = 5\text{mA}_{dc}$			0.3	
Base-emitter saturation voltage	$I_C = 10\text{mA}_{dc}$, $I_B = 1\text{mA}_{dc}$	$V_{BE(sat)}$	0.65	0.85	Vdc
	$I_C = 50\text{mA}_{dc}$, $I_B = 5\text{mA}_{dc}$			0.95	
Output capacitance	$V_{CB} = 5\text{Vdc}$, $f = 1\text{MHz}$, $I_E = 0$	C_{obo}		4.0	pF
Input capacitance	$V_{EB} = 0.5\text{Vdc}$, $f = 1\text{MHz}$, $I_C = 0$	C_{ibo}		8.0	pF
Delay time	$V_{CC} = 3\text{Vdc}$, $V_{BE} = 0.5\text{Vdc}$,	t_d		35	ns
Rise time	$I_C = 10\text{mA}_{dc}$, $I_{B1} = 1\text{mA}_{dc}$	t_r		35	ns
Storage time	$V_{CC} = 3\text{Vdc}$, $I_C = 10\text{mA}_{dc}$,	t_s		200	ns
Fall time	$I_{B1} = I_{B2} = 1\text{mA}_{dc}$	t_f		50	ns

Rating and Characteristic Curves (AMMBT3904-HF)

Fig.1 - Static Characteristic

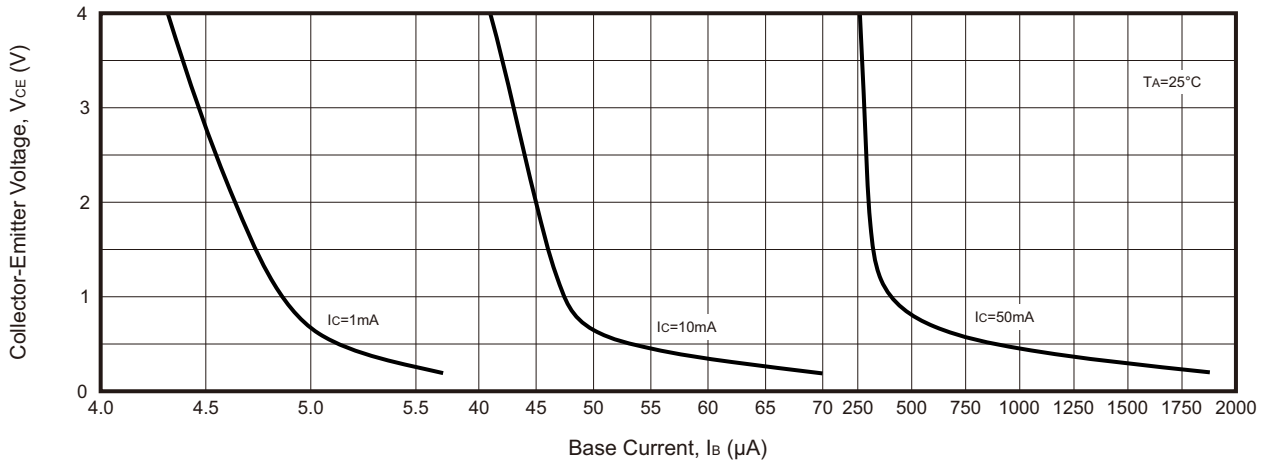


Fig.2 - $H_{FE} - I_C$

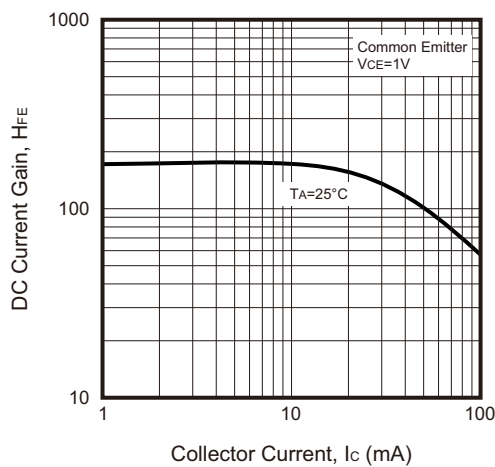


Fig.3 - $V_{BEsat} - I_C$

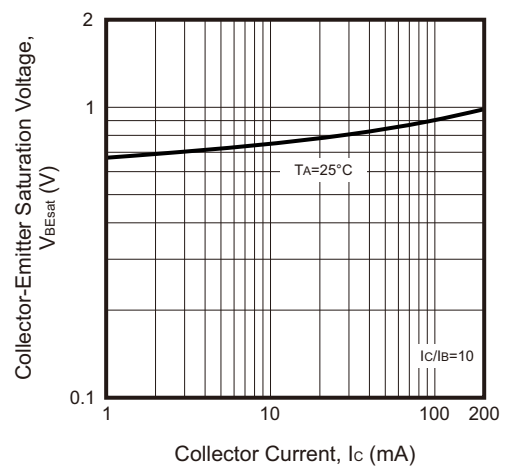
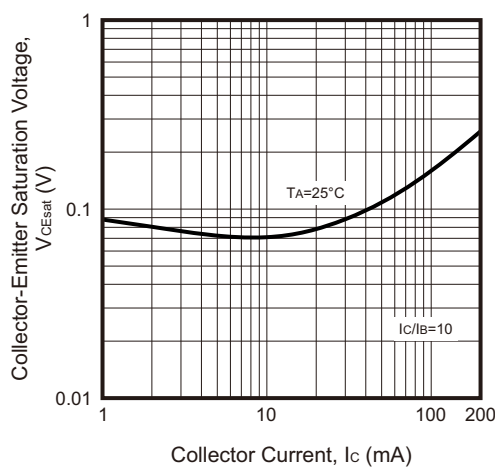


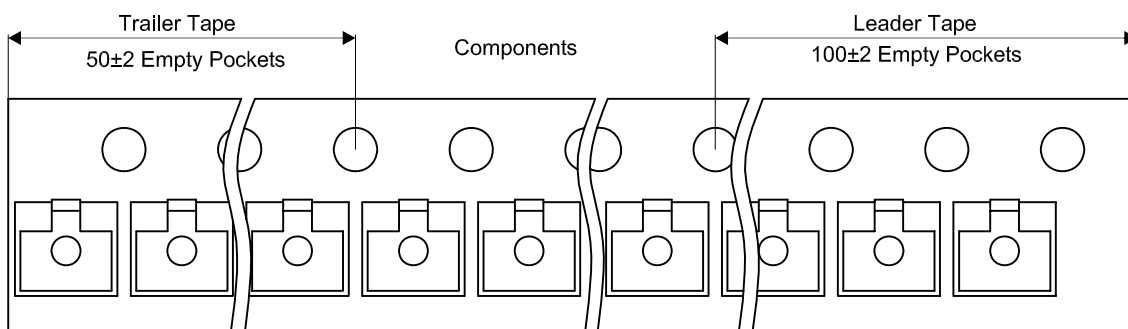
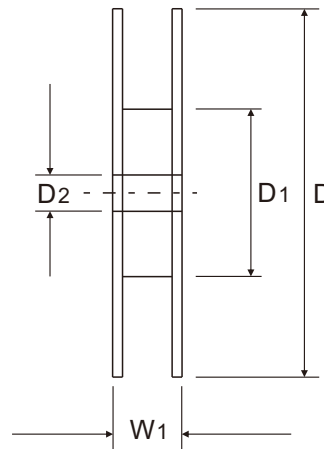
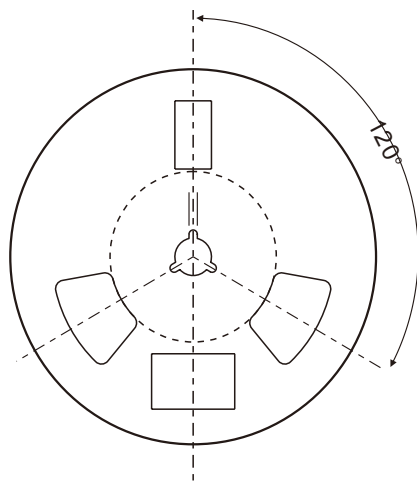
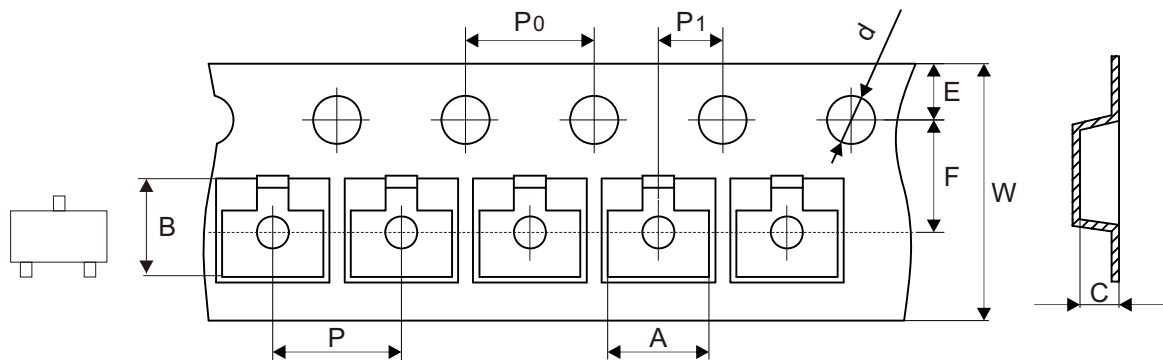
Fig.4 - $V_{CEsat} - I_C$



Company reserves the right to improve product design, functions and reliability without notice.

REV:A

Reel Taping Specification



SOT-23	SYMBOL	A	B	C	d	D	D1	D2
	(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

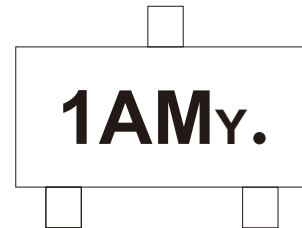
SOT-23	SYMBOL	E	F	P	P0	P1	W	W1
	(mm)	1.75 ± 0.10	3.50 ± 0.05	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	8.00 + 0.30 - 0.10	11.10 ± 0.20
	(inch)	0.069 ± 0.004	0.138 ± 0.002	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.002	0.315 + 0.012 - 0.004	0.437 ± 0.008

Company reserves the right to improve product design, functions and reliability without notice.

REV:A

Marking Code

Part Number	Marking Code
AMMBT3904-HF	1AMy.



Y = Date code

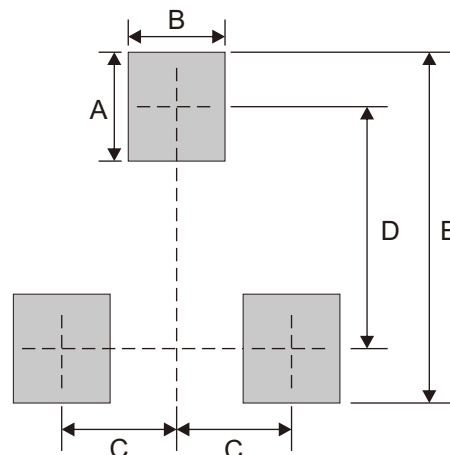
Date code: (2 years a cycle)

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

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for [Bipolar Transistors - BJT category](#):

Click to view products by [Comchip manufacturer](#):

Other Similar products are found below :

[BC559C](#) [MCH4017-TL-H](#) [MMBT-2369-TR](#) [BC546/116](#) [NJVMJD148T4G](#) [NTE16](#) [NTE195A](#) [IMX9T110](#) [2N4401-A](#) [2N6728](#) [2SA1419T-TD-H](#) [2SB1204S-TL-E](#) [2SC5488A-TL-H](#) [FMC5AT148](#) [2N2369ADCSM](#) [2N2907A](#) [2N3904-NS](#) [2N5769](#) [2SC4618TLN](#) [CPH6501-TL-E](#) [BC856BW-13-F](#) [US6T6TR](#) [BAX18/A52R](#) [BC556/112](#) [IMZ2AT108](#) [MMST8098T146](#) [MCH6102-TL-E](#) [BC846B-13-F](#) [2N3879](#) [30A02MH-TL-E](#) [NTE13](#) [NTE282](#) [NTE323](#) [NTE350](#) [NTE81](#) [JANTX2N2920L](#) [JANSR2N2907AUB](#) [CMLT3946EG TR](#) [SNSS40600CF8T1G](#) [CMLT3906EG TR](#) [GRP-DATA-JANS2N2907AUB](#) [GRP-DATA-JANS2N2222AUA](#) [MMDT3946FL3-7](#) [2N4240](#) [JANS2N3019](#) [MSB30KH-13](#) [2N2221AUB](#) [2SD1815T-TL-E](#) [2N6678](#) [2N2907Ae4](#)