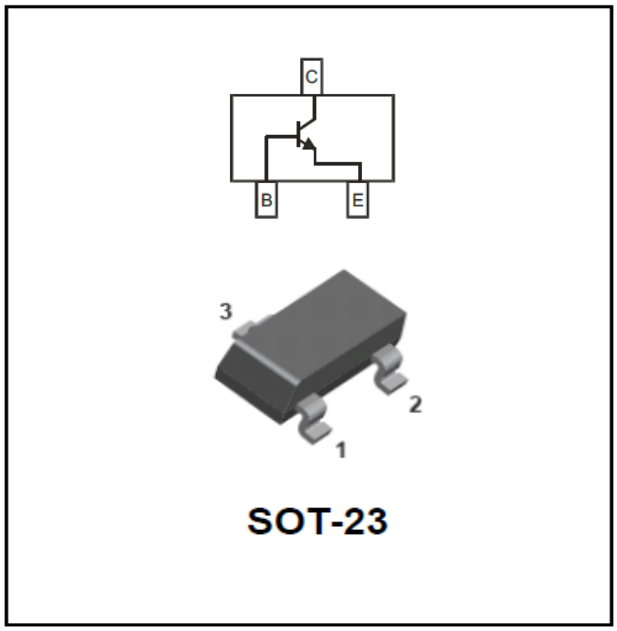
NPN General Purpose Amplifier



Features

- ●Epoxy meets UL-94 V-0 flammability rating
- ●Halogen free available upon request by adding suffix ”HF”
- ●Moisure Sensitivity Level 1
- ●Marking:1AM

■Off Characteristics

Item	Symbol	Unit	Conditions	Value
Collector-Emitter Voltage	V_{CEO}	V	I_C=1.0mAdc, I_B=0	40
Collector-Base Voltage	V_{CBO}	V	I_C=10uAdc, I_E=0	60
Emitter-Base Voltage	V_{EBO}	V	I_E=10uAdc, I_C=0	6.0
Collector Current	I_C	mA		200
Collector-base Cut-off Current	I_{CBO}	nAdc	V_{CB}=60Vdc	50
Collector-emitter Cut-off Current	I_{CEX}	nAdc	VCE=30Vdc,VBE=3Vdc	50
Collector Power Dissipation	P_C	mW		350
Thermal Resistance Junction to Case	$R_{\theta JC}$	℃/W		185
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	℃/W		357
Operation Junction Temperature	T_J	℃		-55 to +150
Storage Temperature	T_{STG}	℃		-55 to +150

*Pulse Width ≤300us, Duty Cycle≤2.0%

■On Chaaracteristics

Item	Symbol	Unit	Conditions	Min	Max
DC Current Gain	h_{FE}		I_C=0.1mAdc, V_{CE}=1.0Vdc	40	
			I_C=1.0mAdc, V_{CE}=1.0Vdc	70	
			I_C=10mAdc, V_{CE}=1.0Vdc	100	300
			I_C=50mAdc, V_{CE}=1.0Vdc	60	
			I_C=100mAdc, V_{CE}=1.0Vdc	30	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	Vdc	I_C=10mAdc, I_B=1.0mAdc		0.2
			I_C=50mAdc, I_B=5.0mAdc		0.3
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	Vdc	I_C=10mAdc, I_B=1.0mAdc	0.65	0.85
			I_C=50mAdc, I_B=5.0mAdc		0.95

■Small-signal Characteristics

Item	Symbol	Unit	Conditions	Min	Max
Collector-base Output Capacitance	Cobo	pF	V_{CB}=5.0Vdc, f=1.0MHz, I_E=0		4
Emitter-base Input Capacitance	Cibo	pF	V_{EB}=0.5Vdc, f=1.0MHz, I_C=0		8
Transition frequency	f_T	MHz	I_C=10mAdc, V_{CE}=20Vdc, f=100MHz	300	
Noise Figure	NF	dB	V_{CE}=5.0V, f=10Hz to 15.7kHz, I_C=100uA, R_S=1.0kΩ		5

■Switching Characteristics

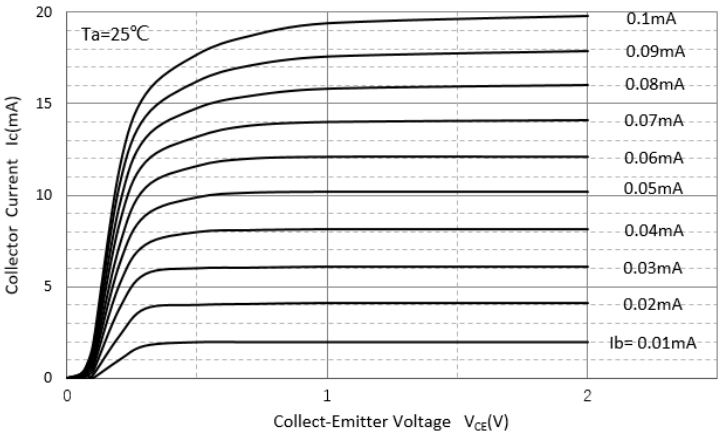
Item	Symbol	Unit	Conditions	Value
Delay Time	td	ns	V_{CC}=3.0Vdc,V_{BE}=0.5Vdc, I_C=10mAdc, I_{B1}=1.0mAdc	35
Rise Time	tr	ns		35
Storage Time	ts	ns	V_{CC}=3.0Vdc,I_C=10mAdc, I_{B1}=I_{B2}=1.0mAdc	200
Fall Time	tf	ns		50

■Ordering Information (Example)

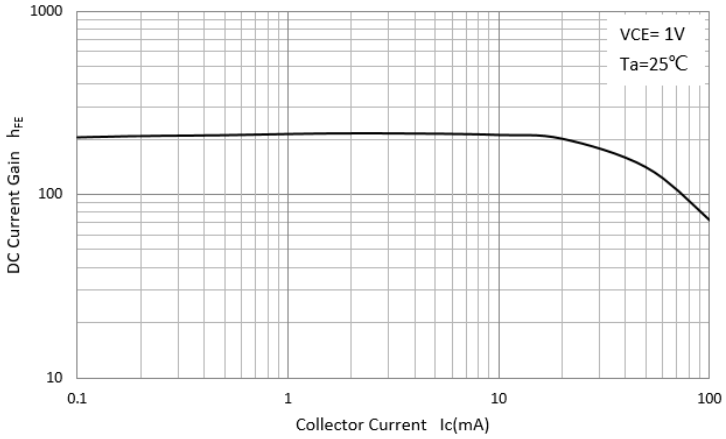
PREFERED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
MMBT3904	F2	Approximate 0.008	3000	30000	120000	7” reel

■ **Characteristics**(Typical)

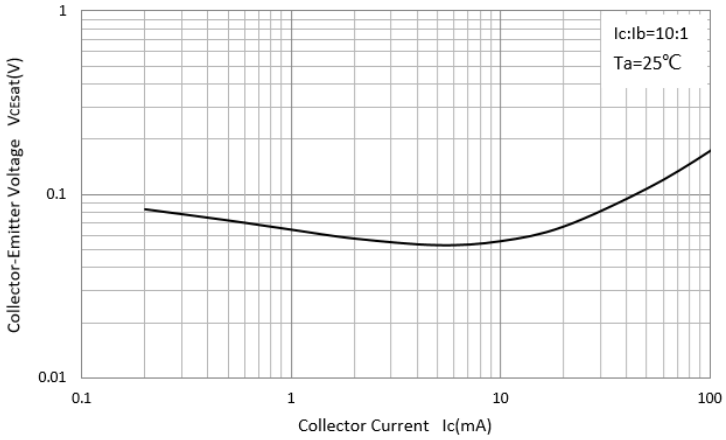
Static Characteristic



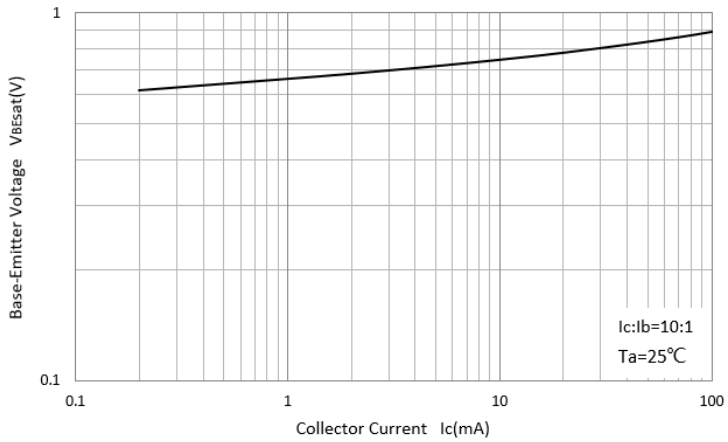
DC Current Gain



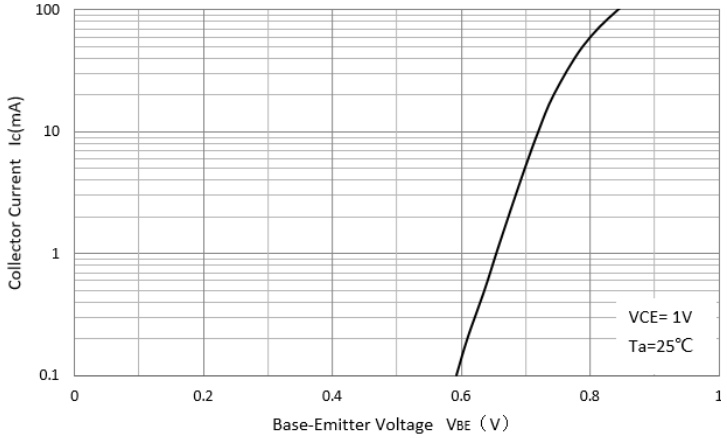
Collector-Emitter Saturation Voltage



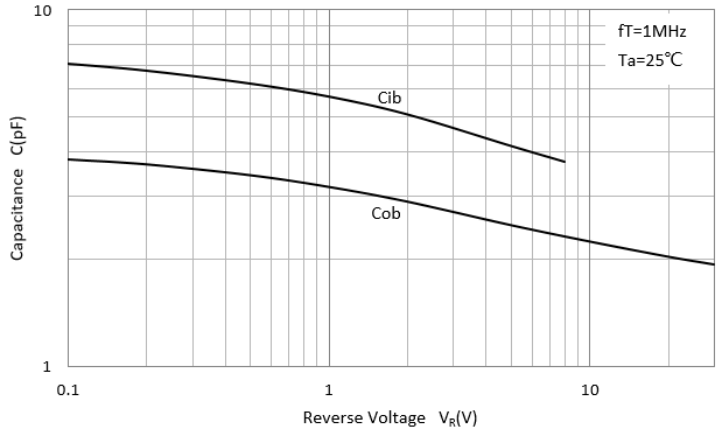
Base-Emitter Saturation Voltage



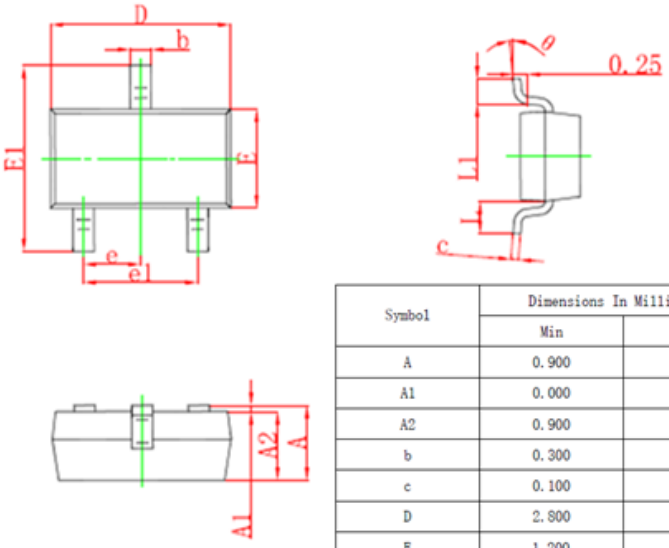
Base-Emitter On Voltage



Cob/Cib-V_{CB}/V_{EB}

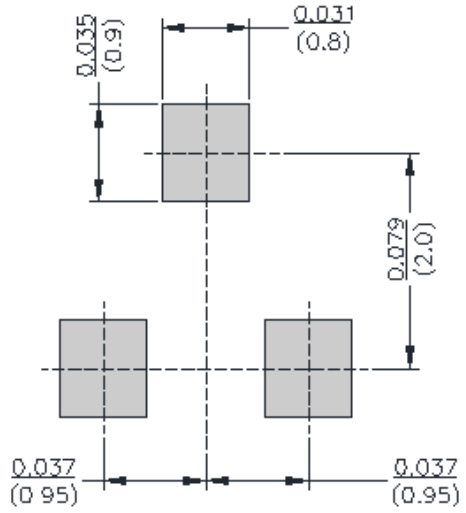


■SOT-23 Package Outline Dimensions

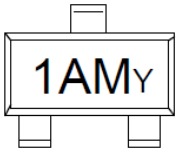


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950TYP		0.037TYP	
e1	1.800	2.000	0.071	0.079
L	0.550REF		0.022REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

■SOT-23 Soldering Footprint



■Marking Information



1AM = Product Type Marking Code
Y=Date Code Marking

Date code Key（2 years a cycle）

Year	2011											
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	J	O	L	C	K	B	P	D	M	E	G	F

Year	2012											
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	W	N	Y	T	R	H	A	I	U	X	Z	S