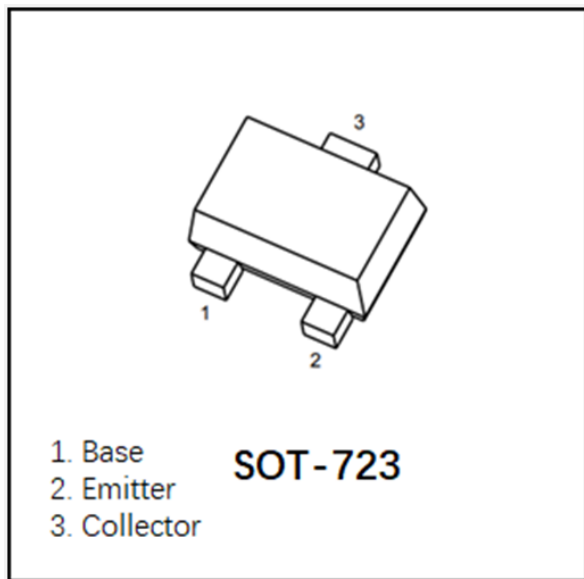


NPN General Purpose Amplifier



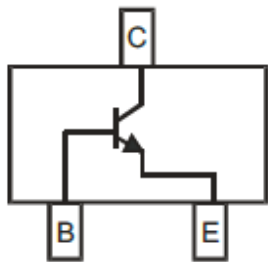
Features

- Epoxy meets UL-94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Halogen free available upon request by adding suffix "HF"
- NPN

Mechanical Data

- **Package:** SOT-723
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Marking:** 1AM

■Equivalent circuit



■Maximum Ratings (Ta=25°C Unless otherwise specified)

Item	Symbol	Unit	Conditions	Value
Collector-Emitter Voltage	V_{CEO}	V	$I_C=1.0mA, I_B=0$	40
Collector-Base Voltage	V_{CBO}	V	$I_C=10\mu A, I_E=0$	60
Emitter-Base Voltage	V_{EBO}	V	$I_E=10\mu A, I_C=0$	6.0
Collector Current	I_C	mA		200
Collector Power Dissipation	P_C	mW		100
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	°C/W		1250
Operation Junction Temperature	T_J	°C		-55 to +150
Storage Temperature	T_{STG}	°C		-55 to +150

MMBT3904M3

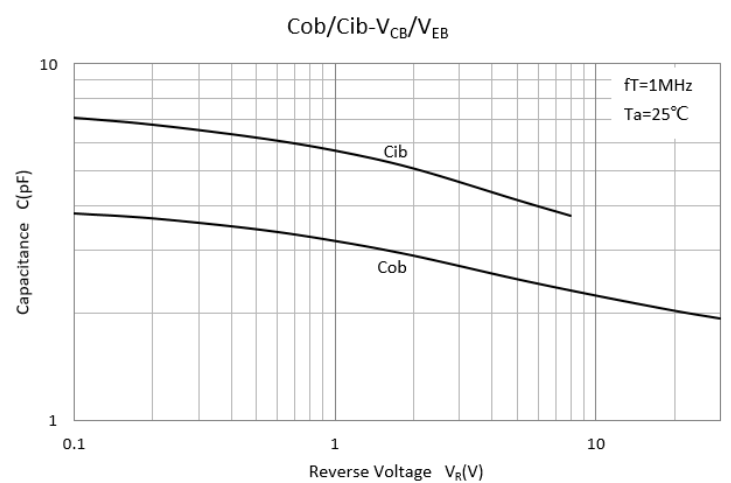
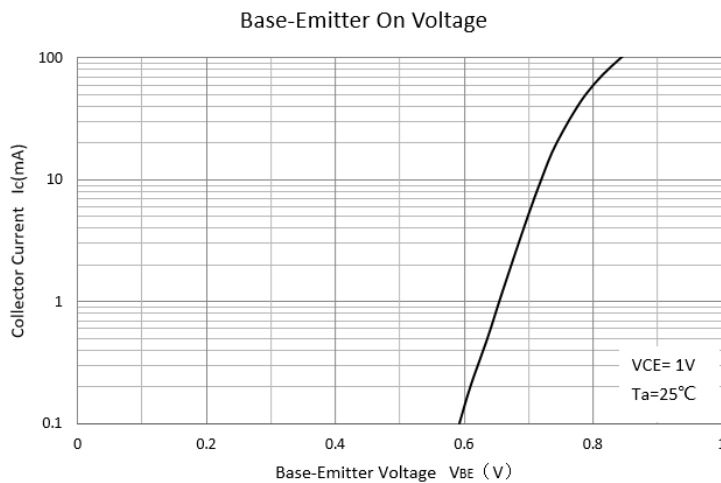
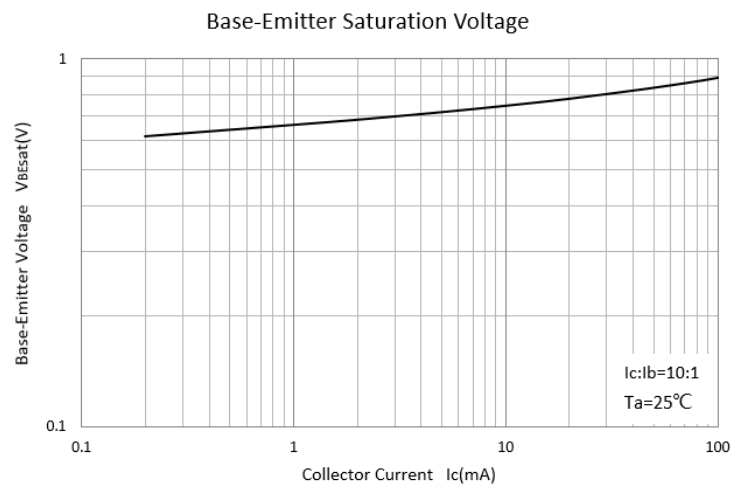
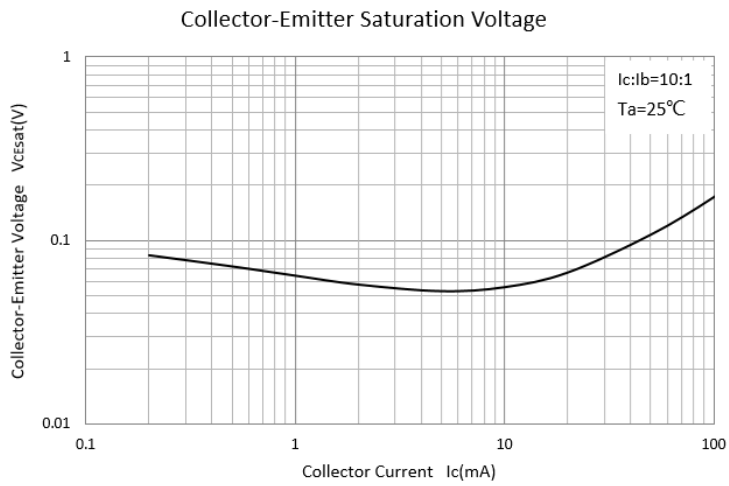
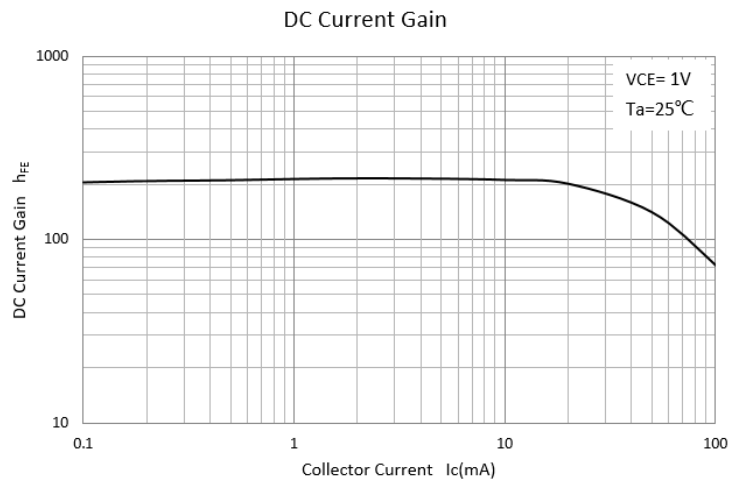
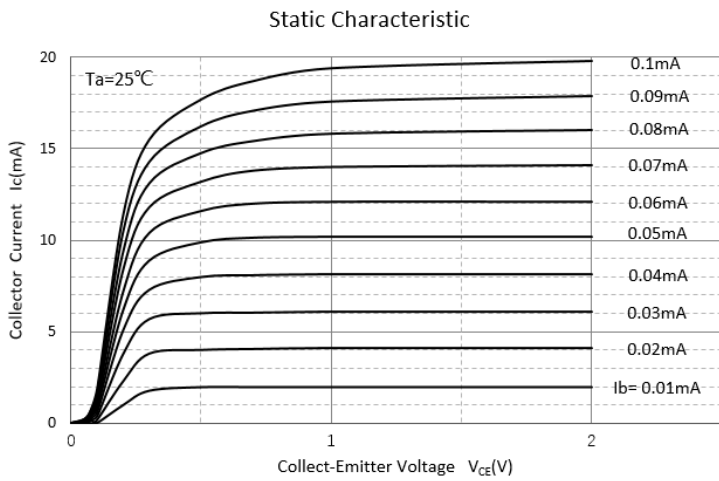
■Electrical Characteristics (Ta=25℃ unless otherwise specified)

Item	Symbol	Unit	Conditions	Min	Max
Collector-Emitter Voltage	V_{CE0}	V	$I_C=1.0\text{mA}$, $I_B=0$	40	
Collector-Base Voltage	V_{CBO}	V	$I_C=10\mu\text{A}$, $I_E=0$	60	
Emitter-Base Voltage	V_{EBO}	V	$I_E=10\mu\text{A}$, $I_C=0$	6.0	
Collector-base Cut-off Current	I_{CBO}	nA	$V_{CB}=60\text{Vdc}$		50
Collector-emitter Cut-off Current	I_{CEX}	nA	$V_{CE}=30\text{Vdc}$, $V_{EB}=3\text{Vdc}$		50
DC Current Gain	h_{FE}		$I_C=0.1\text{mA}$, $V_{CE}=1.0\text{Vdc}$	40	
			$I_C=1.0\text{mA}$, $V_{CE}=1.0\text{Vdc}$	70	
			$I_C=10\text{mA}$, $V_{CE}=1.0\text{Vdc}$	100	300
			$I_C=50\text{mA}$, $V_{CE}=1.0\text{Vdc}$	60	
			$I_C=100\text{mA}$, $V_{CE}=1.0\text{Vdc}$	30	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	V	$I_C=10\text{mA}$, $I_B=1.0\text{mA}$		0.2
			$I_C=50\text{mA}$, $I_B=5.0\text{mA}$		0.3
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	V	$I_C=10\text{mA}$, $I_B=1.0\text{mA}$	0.65	0.85
			$I_C=50\text{mA}$, $I_B=5.0\text{mA}$		0.95
Collector-base Output Capacitance	C_{obo}	pF	$V_{CB}=5.0\text{Vdc}$, $f=1.0\text{MHz}$, $I_E=0$		4
Transition frequency	f_T	MHz	$I_C=10\text{mA}$, $V_{CE}=20\text{V}$, $f=100\text{MHz}$	300	
Delay Time	t_d	ns	$V_{CC}=3.0\text{V}$, $V_{BE}=0.5\text{V}$, $I_C=10\text{mA}$, $I_{B1}=1.0\text{mA}$	35	
Rise Time	t_r	ns		35	
Storage Time	t_s	ns	$V_{CC}=3.0\text{V}$, $I_C=10\text{mA}$, $I_{B1}=I_{B2}=1.0\text{mA}$	200	
Fall Time	t_f	ns		50	

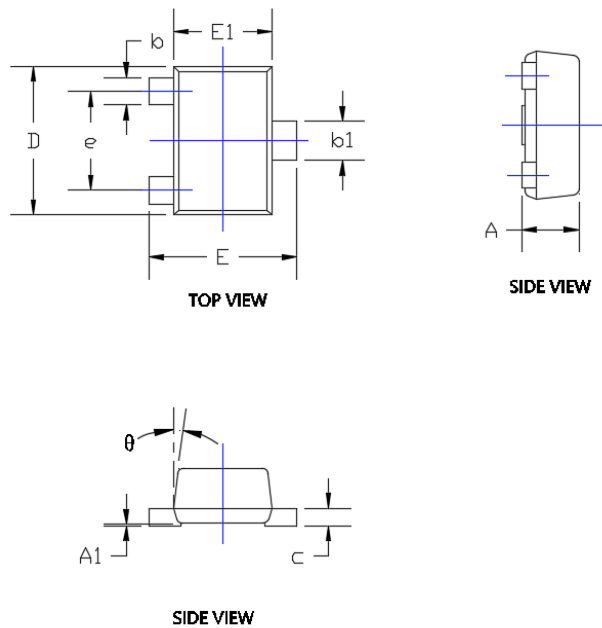
■ Ordering Information (Example)

PREFERRED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
MMBT3904M3	F2	Approximate 0.0013	8000	80000	320000	7" reel

■ Characteristics (Typical)

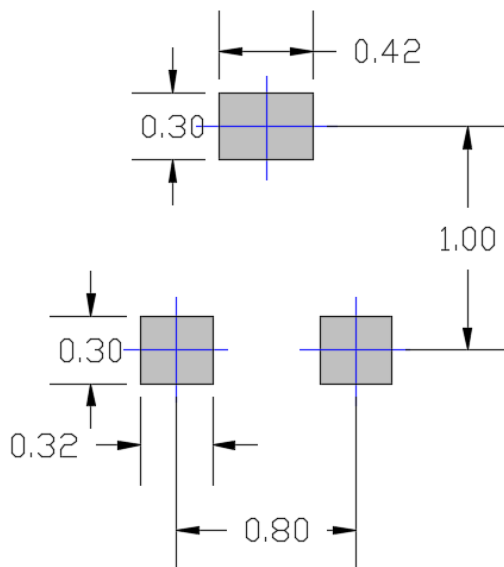


■SOT-723 Package Outline Dimensions



SYMBOL	DIMENSIONS			
	INCHES		Millimeter	
	MIN.	MAX.	MIN.	MAX.
A	0.017	0.022	0.430	0.550
A1	0.000	0.002	0.000	0.050
b	0.007	0.011	0.170	0.270
b1	0.011	0.015	0.270	0.370
c	0.003	0.008	0.080	0.200
D	0.045	0.049	1.150	1.250
E	0.045	0.049	1.150	1.250
E1	0.030	0.033	0.750	0.850
e	0.031TYP.		0.800TYP.	
θ	7°REF.		7°REF.	

■SOT-723 Suggested Pad Layout



Note:

1. Package Body Sizes Exclude Mold Flash And Gate Burrs.
2. Tolerance 0.1mm Unless Otherwise Specified.
3. The Pad Layout Is For Reference Purposes Only.

Disclaimer

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