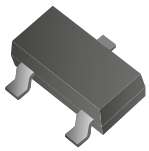
General Purpose Transistor

AMMBT3904-P2-HF

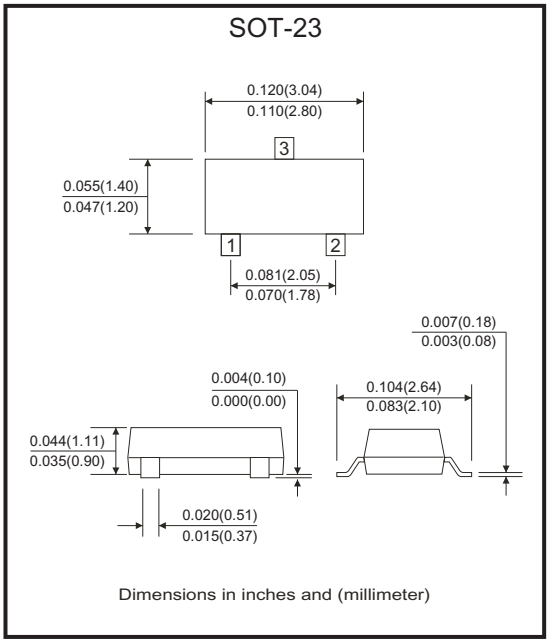
RoHS Device
Halogen Free



Features

- Complementary PNP type available (AMMBT3906-P2-HF).
- AEC-Q101 Qualified.

SOT-23



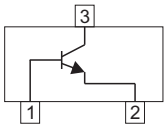
Dimensions in inches and (millimeter)

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



(at Ta=25° C unless otherwise noted)

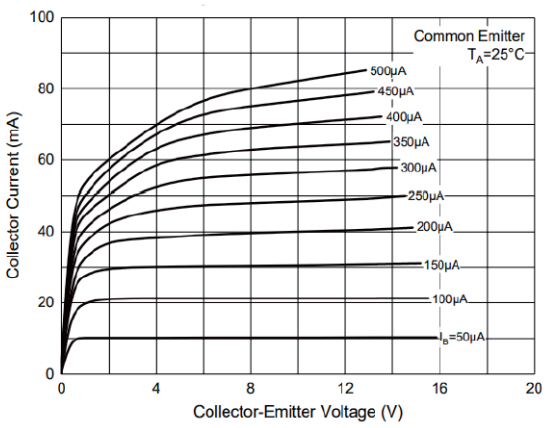
Parameter	Symbol	Value	Unit
Collector-base voltage	V_{CBO}	60	V
Collector-emitter voltage	V_{CEO}	40	V
Emitter-base voltage	V_{EBO}	6	V
Collector current-continuous	I_C	200	mA
Collector power dissipation (Note 1)	P_D	225	mW
Thermal resistance junction to ambient	$R_{\theta JA}$	556	°C/W
Junction temperature range	T_J	-55 to +150	°C
Storage temperature range	T_{STG}	-55 to +150	°C

Note : 1. Device mounted on an FR4 PCB, single-sided copper, tin-plated and standard footprint.

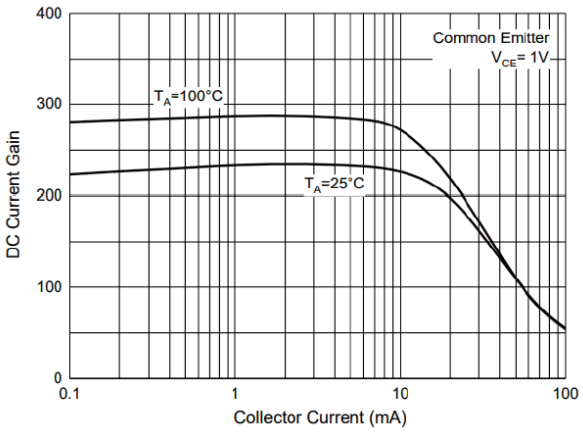
(at Ta=25° C unless otherwise noted)

Parameter	Conditions	Symbol	Min	Max	Unit
Collector-emitter breakdown voltage	I_C = 1mA, I_B = 0	$V_{(BR)CEO}$	40		V
Collector-base breakdown voltage	I_C = 10μA, I_E = 0	$V_{(BR)CBO}$	60		V
Emitter-base breakdown voltage	I_E = 10μA, I_C = 0	$V_{(BR)EBO}$	6		V
Collector cut-off current	V_{CB} = 30V, I_E = 0	I_{CBO}		50	nA
Collector cut-off current	V_{CE} = 30V, V_{BE} = 3V	I_{CEX}		50	nA
DC current gain	I_C = 0.1mA,V_{CE} = 1V	$h_{FE(1)}$	40		
	I_C = 1.0mA,V_{CE} = 1V	$h_{FE(2)}$	70		
	I_C = 10mA, V_{CE} = 1V	$h_{FE(3)}$	100	300	
	I_C = 50mA,V_{CE} = 1V	$h_{FE(4)}$	60		
	I_C = 100mA,V_{CE} = 1V	$h_{FE(5)}$	30		
Collector-emitter saturation voltage	I_C = 10mA, I_B = 1mA	$V_{CE(sat)}$		0.2	V
	I_C = 50mA, I_B = 5mA			0.3	
Base-emitter saturation voltage	I_C = 10mA, I_B = 1mA	$V_{BE(sat)}$	0.65	0.85	V
	I_C = 50mA, I_B = 5mA			0.95	
Output capacitance	V_{CB} = 5V, I_E = 0 , f = 1MHz	Cobo		4.0	pF
Input capacitance	V_{BE} = 0.5V, I_C = 0 , f = 1MHz	Cibo		8.0	pF
Delay time	V_{CC} = 3V, V_{BE} = 0.5V, I_C = 10mA, I_{B1} = 1mA	t_d		35	ns
Rise time		t_r		35	ns
Storage time	V_{CC} = 3V, I_C = 10mA, I_{B1} = I_{B2} = 1mA	t_s		200	ns
Fall time		t_f		50	ns
Noise Figure	I_C=100μA, V_{CE}=5.0V, RS=1.0kΩ, f=10Hz to 15.7kHz	NF		5.0	dB
Transition Frequency	I_C=10mA, V_{CE}=20V,f=100MHz	f_T	300		MHZ

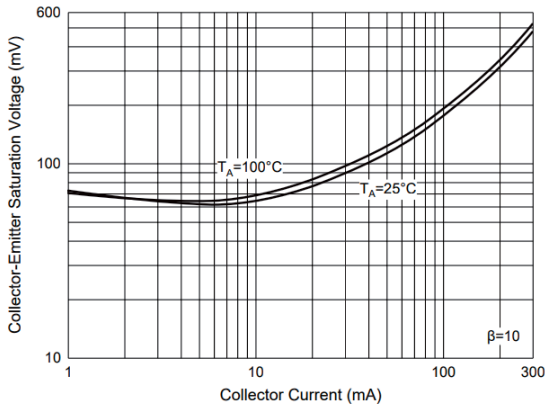
Rating and Characteristic Curves (AMMBT3904-P2-HF)



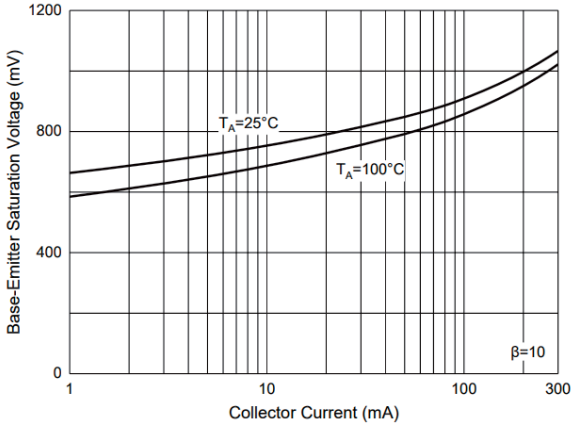
Static Characteristic



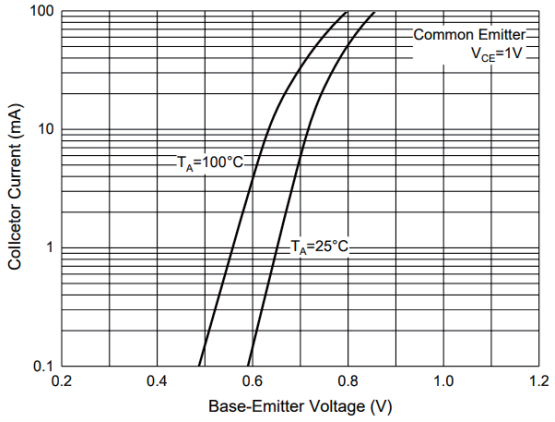
DC Current Gain Characteristics



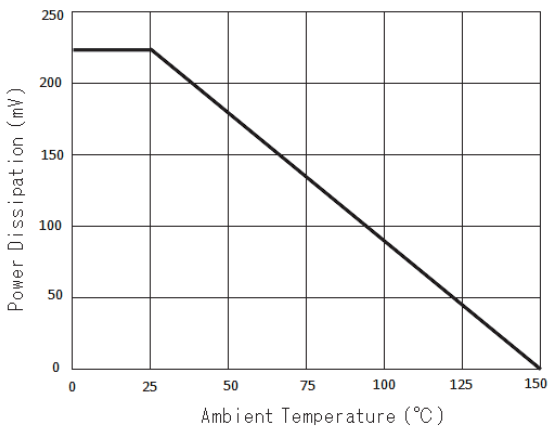
Collector-Emitter Saturation Voltage Characteristics



Base-Emitter Saturation Voltage Characteristics



Base-Emitter Voltage Characteristics



Collector Power Derating Curve