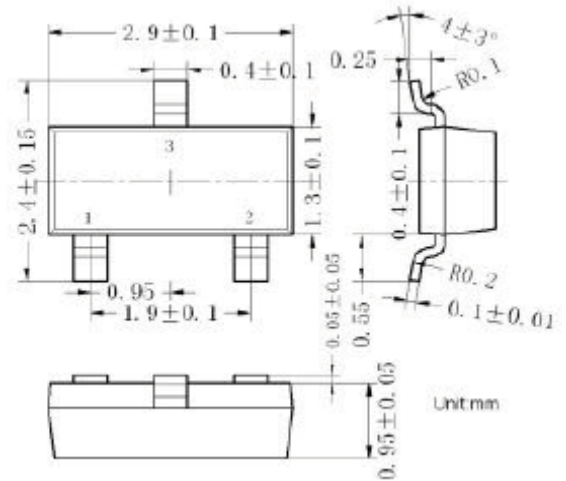


SOT-23

Specification Features:

- ◆ Complementary Type The NPN Transistor
MMBT3904 is Recommended
- ◆ Epitaxial Planar Die Construction
- ◆ P/N suffix V means AEC-Q101 qualified, e.g:MMBT3904V
- ◆ Halogen-free
- ◆ Marking :1AM



1.BASE 2.EMITTER 3.COLLECTOR

Absolute Maximum Ratings $T_A=25^{\circ}\text{C}$ unless otherwise noted

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	60	V
V_{CEO}	Collector-Emitter Voltage	40	V
V_{EBO}	Emitter-Base Voltage	6	V
I_C	Collector Current	200	mA
P_C	Collector Power Dissipation	200	mW
$R_{\theta JA}$	Thermal Resistance From Junction To Ambient	625	$^{\circ}\text{C}/\text{W}$
T_j	Junction Temperature	150	$^{\circ}\text{C}$
T_{stg}	Storage Temperature	-55~+150	$^{\circ}\text{C}$

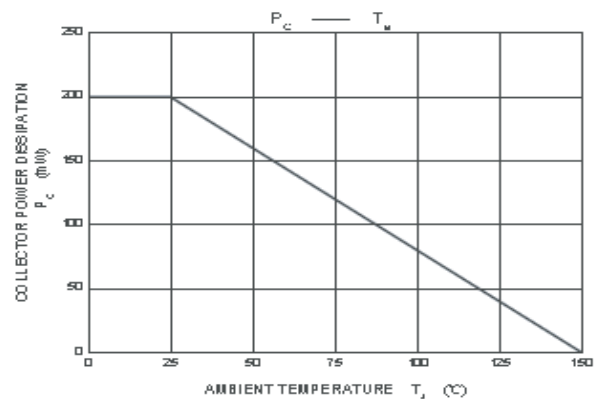
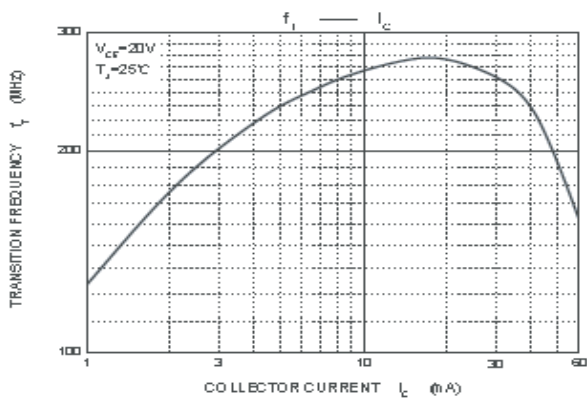
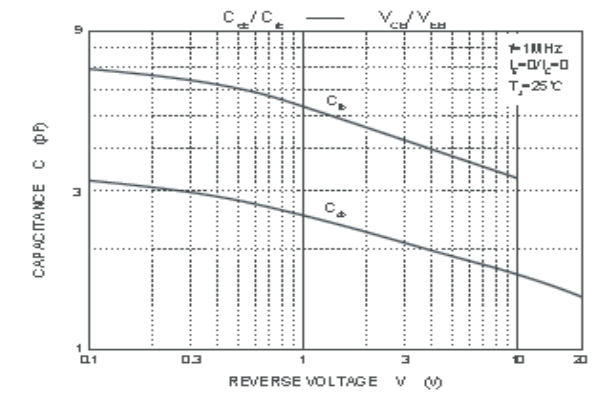
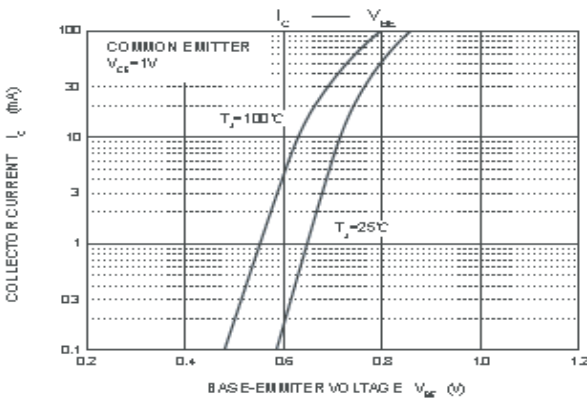
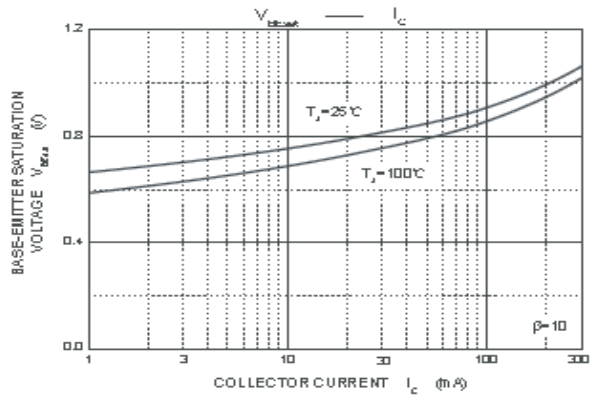
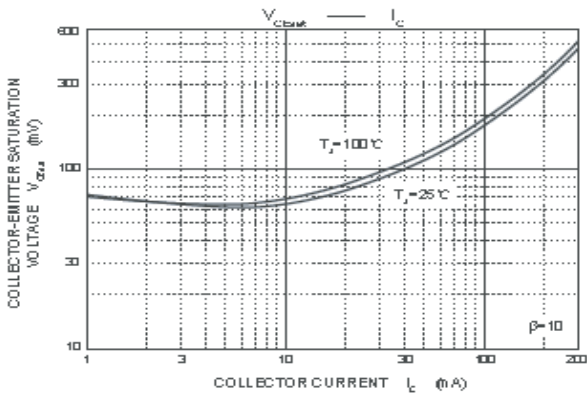
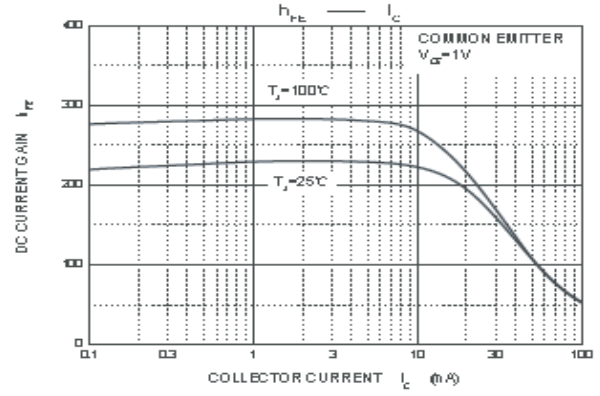
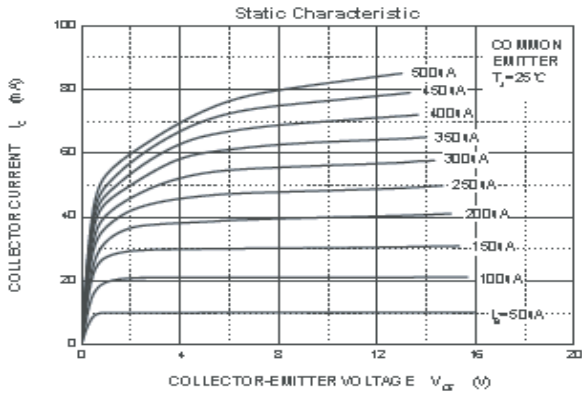
Electrical Characteristics $T_A=25^\circ\text{C}$ unless otherwise specified

Parameter	Symbol	Min.	Typ.	Max.	Unit
Collector-base breakdown voltage at $I_C=10\text{mA}$, $I_E=0$	$V_{(BR)CBO}$	60			V
Collector-emitter breakdown voltage at $I_C=1\text{mA}$, $I_B=0$	$V_{(BR)CEO}$	40			V
Emitter-base breakdown voltage at $I_E=10\mu\text{A}$, $I_C=0$	$V_{(BR)EBO}$	6			V
Collector cut-off current at $V_{CE}=30\text{V}$, $V_{EB(off)}=3\text{V}$	I_{CEX}			50	nA
Collector cut-off current at $V_{CB}=60\text{V}$, $I_E=0$	I_{CBO}			100	nA
Emitter cut-off current at $V_{EB}=5\text{V}$, $I_C=0$	I_{EBO}			100	nA
DC current gain at $V_{CE}=1\text{V}$, $I_C=10\text{mA}$ $V_{CE}=1\text{V}$, $I_C=50\text{mA}$ $V_{CE}=1\text{V}$, $I_C=100\text{mA}$	$h_{FE(1)}$	100		400	
	$h_{FE(2)}$	60			
	$h_{FE(3)}$	30			
Collector-emitter saturation voltage at $I_C=50\text{mA}$, $I_B=5\text{mA}$	$V_{CE(sat)}$			0.3	V
base-emitter saturation voltage at $I_C=50\text{mA}$, $I_B=5\text{mA}$	$V_{BE(sat)}$			0.95	V
Transition frequency at $V_{CE}=20\text{V}$, $I_C=10\text{mA}$, $f=100\text{MHZ}$	f_T	300			MHZ
Delay time at $V_{CC}=3\text{V}$, $V_{BE(off)}=-0.5\text{V}$, $I_C=10\text{mA}$, $I_{B1}=1\text{mA}$	t_d			35	ns
Rise time at $V_{CC}=3\text{V}$, $V_{BE(off)}=-0.5\text{V}$, $I_C=10\text{mA}$, $I_{B1}=1\text{mA}$	t_r			35	ns
Storage time at $V_{CC}=3\text{V}$, $I_C=10\text{mA}$, $I_{B1}=I_{B2}=1\text{mA}$	t_s			200	ns
Fall time at $V_{CC}=3\text{V}$, $I_C=10\text{mA}$, $I_{B1}=I_{B2}=1\text{mA}$	t_f			50	ns

Classification Of $h_{FE(1)}$

RANK	O	Y	G
RANGE	100-200	200-300	300-400

RATING AND CHARACTERISTICS CURVES (MMBT3904)



PACKAGING OF DIODE

REEL PACK

PACKAGE	PACKING CODE	REEL (EA)	COMPONENT SPACE(mm)	TAPE SPACE (mm)	REEL DIA (mm)	CARTON SIZE (mm)	EA PER CARTON	GROSS WEIGHT(Kg)
SOT-23/-3L	-T	3,000	---	---	178	438*438*220	180,000	---

DISCLAIMER NOTICE

Rectron Inc reserves the right to make changes without notice to any product specification herein, to make corrections, modifications, enhancements or other changes. Rectron Inc or anyone on its behalf assumes no responsibility or liability for any errors or inaccuracies. Data sheet specifications and its information contained are intended to provide a product description only. "Typical" parameters which may be included on RECTRON data sheets and/ or specifications can and do vary in different applications and actual performance may vary over time. Rectron Inc does not assume any liability arising out of the application or use of any product or circuit.

Rectron products are not designed, intended or authorized for use in medical, life-saving implant or other applications intended for life-sustaining or other related applications where a failure or malfunction of component or circuitry may directly or indirectly cause injury or threaten a life without expressed written approval of Rectron Inc. Customers using or selling Rectron components for use in such applications do so at their own risk and shall agree to fully indemnify Rectron Inc and its subsidiaries harmless against all claims, damages and expenditures.