

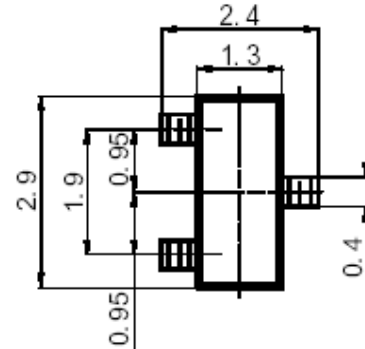
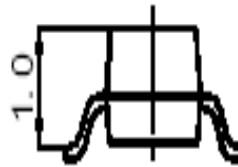


200mW NPN Bipolar Transistors

Description

Mechanical Dimensions

MMBT3904



SOT-23

Dimensions in mm

Feature

- * Power Dissipation $P_{cm} = 200 \text{ mW}$ ($T_a = 25^\circ\text{C}$)
- * Collector Current $I_{cm} = 0.2\text{A}$
- * Collector-base Voltage $V_{br}(cbo) = 60\text{V}$
- * Operating and Storage Junction Temperature Range $T_j, T_{stg}: -55^\circ\text{C} \sim +150^\circ\text{C}$
- * Marking 1AM

Max Ratings at $T_a = 25^\circ\text{C}$ Unless Otherwise Specified

Parameter	Symbol	Test Condition	MIN	MAX	Unit
Collector-base breakdown Voltage	$V_{br}(cbo)$	$I_c = 100\mu\text{A}, I_e = 0$	60		V
Collector-Emitter breakdown Voltage	$V_{br}(ceo)$	$I_c = 1\text{mA}, I_b = 0$	40		V
Emitter-base breakdown Voltage	$V_{br}(ebo)$	$I_e = 100\mu\text{A}, I_c = 0$	6		V
Collector cut- off current	I_{cbo}	$V_{cb} = 60\text{V}, I_e = 0$		0.1	μA
Base cut- off current	I_{ceo}	$V_{ce} = 40\text{V}, I_b = 0$		0.1	μA
Emitter cut- off current	I_{ebo}	$V_{eb} = 5\text{V}, I_c = 0$		0.1	μA
DC current Gain	HFE1	$V_{ce} = 10\text{V}, I_c = 1\text{mA}$	100	300	
DC current Gain	HFE2	$V_{ce} = 1\text{V}, I_c = 50\text{mA}$	60		
Collector-Emitter Saturation Voltage	$V_{ce(sat)}$	$I_c = 50\text{mA}, I_b = 5\text{mA}$		0.3	V
Base-Emitter Saturation Voltage	$V_{be(sat)}$	$I_c = 50\text{mA}, I_b = 5\text{mA}$		0.95	V
Transition frequency	f_T	$V_{ce} = 20\text{V}, I_c = 10\text{mA}, f = 100\text{MHz}$	250		MHz
Delay Time/ Rise Time	t_d / t_r	$V_{cc} = 3.0\text{Vdc}, V_{be} = -0.5\text{Vdc}, I_c = 10\text{mAdc}, I_{b1} = 1.0\text{mAdc}$		35/35	nS
Storage Time / Fall Time	t_s / t_f	$V_{cc} = 3.0\text{Vdc}, I_c = 10\text{mAdcc}, I_{b1} = I_{b2} = 1.0\text{mAdc}$		200/50	nS