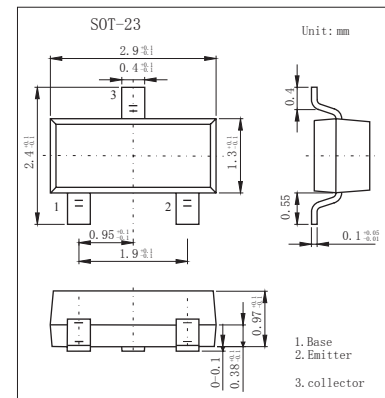


NPN Transistors

MMBT3904-HF (KMBT3904-HF)

■ Features

- Complementary to MMBT3906

■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	V_{CB0}	60	V
Collector - Emitter Voltage	V_{CEO}	40	V
Emitter - Base Voltage	V_{EBO}	6	V
Collector Current - Continuous	I_c	0.2	A
Collector Power Dissipation	P_c	0.2	W
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 to 150	$^\circ\text{C}$

■ Electrical Characteristics $T_a = 25^\circ\text{C}$

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	V_{CB0}	$I_c = 100 \mu\text{A}$, $I_E = 0$	60			V
Collector-emitter breakdown voltage	V_{CEO}	$I_c = 1 \text{ mA}$, $I_B = 0$	40			
Emitter - base breakdown voltage	V_{EBO}	$I_E = 100 \mu\text{A}$, $I_c = 0$	6			
Collector-base cut-off current	I_{CB0}	$V_{CB} = 60 \text{ V}$, $I_E = 0$			100	nA
Collector-emitter cut-off current	I_{CEX}	$V_{CE} = 30 \text{ V}$, $V_{EB(off)} = -3 \text{ V}$			50	
Emitter cut-off current	I_{EBO}	$V_{EB} = 5 \text{ V}$, $I_c = 0$			100	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_c = 10 \text{ mA}$, $I_B = 1 \text{ mA}$			0.2	V
		$I_c = 50 \text{ mA}$, $I_B = 5 \text{ mA}$			0.3	
Base - emitter saturation voltage	$V_{BE(sat)}$	$I_c = 10 \text{ mA}$, $I_B = 1 \text{ mA}$	0.65		0.85	V
		$I_c = 50 \text{ mA}$, $I_B = 5 \text{ mA}$			0.95	
DC current gain	$h_{fe} (1)$	$V_{CE} = 1 \text{ V}$, $I_c = 10 \text{ mA}$	100		300	
	$h_{fe} (2)$	$V_{CE} = 1 \text{ V}$, $I_c = 50 \text{ mA}$	60			
	$h_{fe} (3)$	$V_{CE} = 1 \text{ V}$, $I_c = 100 \text{ mA}$	30			
Delay time	t_d	$V_{CC} = 3 \text{ V}$, $V_{BE(off)} = -0.5 \text{ V}$			35	ns
Rise time	t_r	$I_c = 10 \text{ mA}$, $I_{B1} = 1 \text{ mA}$			35	
Storage time	t_s	$V_{CC} = 3 \text{ V}$, $I_c = 10 \text{ mA}$			200	
Fall time	t_f	$I_{B1} = I_{B2} = 1 \text{ mA}$			50	
Transition frequency	f_T	$V_{CE} = 20 \text{ V}$, $I_c = 10 \text{ mA}$, $f = 100 \text{ MHz}$	300			MHz

■ Marking

Marking	1AM F
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MMBT3904-HF (KMBT3904-HF)

Typical Characteristics

