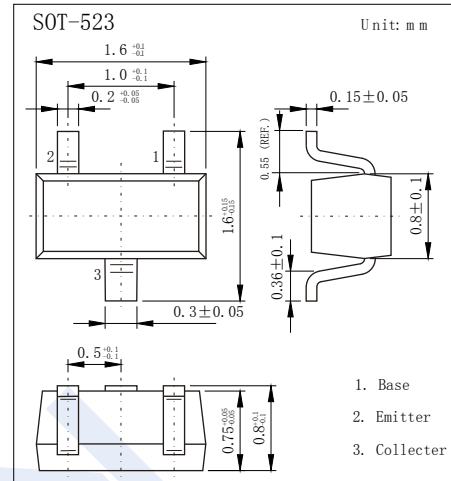


NPN Transistors

MMBT3904T (KMBT3904T)

■ Features

- Small Package
- Complementary to MMBT3906T



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

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	V_{CB0}	60	V
Collector - Emitter Voltage	V_{CE0}	40	
Emitter - Base Voltage	V_{EB0}	6	
Collector Current - Continuous	I_C	200	mA
Collector Power Dissipation	P_C	150	mW
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	833	$^\circ\text{C/W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55 to 150	

NPN Transistors

MMBT3904T (KMBT3904T)

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector- base breakdown voltage	V_{CBO}	$I_C = 100 \mu\text{A}$, $I_E = 0$	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_{CBO}	$V_{CB} = 60 \text{ V}$, $I_E = 0$			100	nA
Collector 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	
		$I_C = 50 \text{ mA}$, $I_B = 5 \text{ mA}$			0.95	
DC current gain	$h_{FE(1)}$	$V_{CE} = 10 \text{ V}$, $I_C = 0.1 \text{ mA}$	40			
	$h_{FE(2)}$	$V_{CE} = 10 \text{ V}$, $I_C = 1 \text{ mA}$	70			
	$h_{FE(3)}$	$V_{CE} = 10 \text{ V}$, $I_C = 10 \text{ mA}$	100		300	
	$h_{FE(4)}$	$V_{CE} = 10 \text{ V}$, $I_C = 50 \text{ mA}$	60			
Delay time	t_d	$V_{CC} = 3 \text{ V}$, $V_{BE(off)} = -0.5 \text{ V}$ $I_C = 10 \text{ mA}$, $I_{B1} = 1 \text{ mA}$			35	nS
Rise time	t_r				35	
Storage time	t_s	$V_{CC} = 3 \text{ V}$, $I_C = 10 \text{ mA}$, $I_{B1} = I_{B2} = 1 \text{ mA}$			200	
Fall time	t_f				50	
Collector output capacitance	C_{ob}	$V_{CB} = 5 \text{ V}$, $I_E = 0$, $f = 1 \text{ MHz}$			4	pF
Base input capacitance	C_{ib}	$V_{EB} = 0.5 \text{ V}$, $I_C = 0$, $f = 1 \text{ MHz}$			8	
Transition frequency	f_T	$V_{CE} = 20 \text{ V}$, $I_C = 10 \text{ mA}$, $f = 100 \text{ MHz}$	300			MHz

■ Marking

Marking	AM
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Typical Characteristics

