

Single Bipolar Transistor multicomp^{PRO}



Features

- Ideal for Medium Power Amplification and Switching

RoHS
Compliant

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

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	V_{CBO}	-40	V
Collector-Emitter Voltage	V_{CEO}		
Emitter - Base Voltage	V_{EBO}	-5	
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 range	T_{stg}	-55 to +150	

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

Parameter	Symbol	Test Conditions	Min	Max	Unit
Collector-Base Breakdown Voltage	V_{CBO}	$I_C = -100\ \mu\text{A}, I_E = 0$	-40		V
Collector-Emitter Breakdown Voltage	V_{CEO}	$I_C = -1\ \text{mA}, I_B = 0$			
Emitter-Base Breakdown Voltage	V_{EBO}	$I_E = -100\ \mu\text{A}, I_C = 0$	-6		
Collector-base cut-off current	I_{CBO}	$V_{CB} = -40\text{V}, I_E = 0$		-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	
		$I_C = -50\ \text{mA}; I_B = -5\ \text{mA}$		-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	$V_{CC} = -3\text{V}, V_{BE} = 0.5\text{V}$ $I_C = -10\ \text{mA}, I_{B1} = -1\ \text{mA}$		35	ns
Rise time	t_r				
Storage time	t_s	$V_{CC} = -3\text{V}, I_C = -10\ \text{mA},$ $I_{B1} = I_{B2} = -1\ \text{mA}$		225	
Fall time	t_f			75	
Collector input capacitance	C_{ib}	$V_{EB} = -0.5\text{V}, I_E = 0, f = 1\text{MHz}$		10	pF
Collector output capacitance	C_{ob}	$V_{CB} = -5\text{V}, I_E = 0, f = 1\text{MHz}$		4.5	
Transition frequency	f_T	$V_{CE} = -20\text{V}, I_C = -10\ \text{mA}, f = 100\text{MHz}$	250		MHz

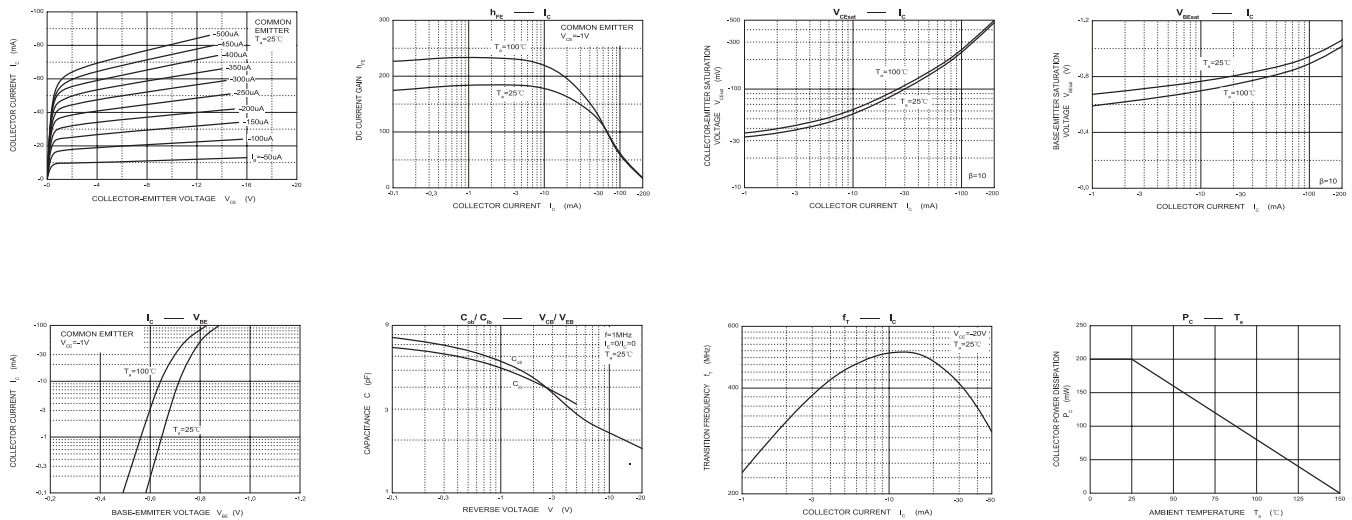
* pulse test: Pulse Width $\leq 300\ \mu\text{s}$, Duty Cycles $\leq 2.0\%$

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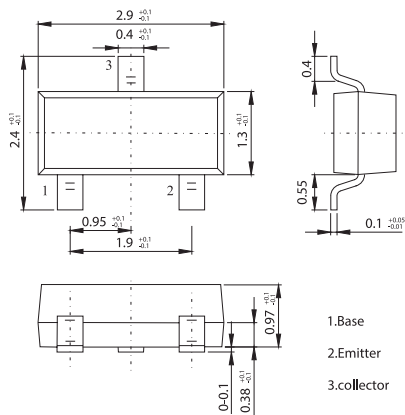
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Typical Characteristics



Diagram



Part Number Table

Description	Part Number
Single Bipolar Transistor, PNP, -0.2A, -40V, SOT 23	MMBT3906

Dimensions : Millimetres

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