

MMBT3903

NPN EPITAXIAL SILICON TRANSISTOR

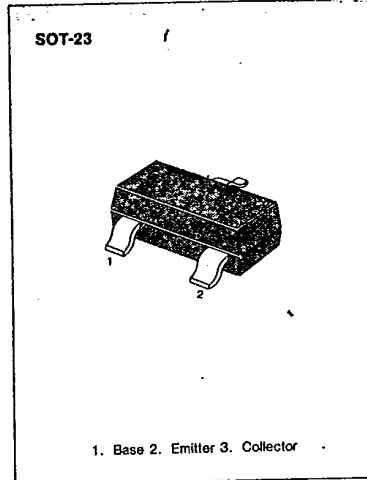
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GENERAL PURPOSE TRANSISTOR

ABSOLUTE MAXIMUM RATINGS (T_a = 25°C)

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	V _{CB0}	60	V
Collector-Emitter Voltage	V _{CE0}	40	V
Emitter-Base Voltage	V _{EB0}	6	V
Collector Current	I _C	200	mA
Collector Dissipation	P _C	350	mW
Storage Temperature	T _{stg}	150	°C

*Refer to MMBT3904 for graphs



1. Base 2. Emitter 3. Collector

ELECTRICAL CHARACTERISTICS (T_a = 25°C)

Characteristic	Symbol	Test Condition	Min	Max	Unit
Collector-Base Breakdown Voltage	BV _{CB0}	I _C = 10μA, I _E = 0	60		V
*Collector-Emitter Breakdown Voltage	BV _{CE0}	I _C = 1mA, I _B = 0	40		V
Emitter-Base Breakdown Voltage	BV _{EB0}	I _E = 10μA, I _C = 0	6		V
Collector Cutoff Current	I _{CEx}	V _{CE} = 30V, V _{EB} = 3V		50	nA
*DC Current Gain	h _{FE}	V _{CE} = 1V, I _C = 0.1mA	20		
		V _{CE} = 1V, I _C = 1mA	35		
		V _{CE} = 1V, I _C = 10mA	50	150	
		V _{CE} = 1V, I _C = 50mA	30		
		V _{CE} = 1V, I _C = 100mA	15		
*Collector-Emitter Saturation Voltage	V _{CE(sat)}	I _C = 10mA, I _B = 1mA		0.2	V
		I _C = 50mA, I _B = 5mA		0.3	V
*Base-Emitter Saturation Voltage	V _{BE(sat)}	I _C = 10mA, I _B = 1mA	0.65	0.85	V
		I _C = 50mA, I _B = 5mA		0.95	V
Current Gain-Bandwidth Product	f _T	I _C = 10mA, V _{CE} = 20V f = 100MHz	250		MHz
Output Capacitance	C _{ob}	V _{CB} = 5V, I _E = 0 f = 1MHz		4	pF
Noise Figure	NF	I _C = 100μA, V _{CE} = 5V R _S = 1KΩ		6	dB
Turn On Time	t _{on}	f = 10Hz to 15.7KHz V _{CC} = 3V, V _{BE} = 0.5V I _C = 10mA, I _{B1} = 1mA		70	ns
Turn Off Time	t _{off}	V _{CC} = 3V, I _C = 10mA I _{B1} = I _{B2} = 1mA		225	ns

*Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%

Marking

