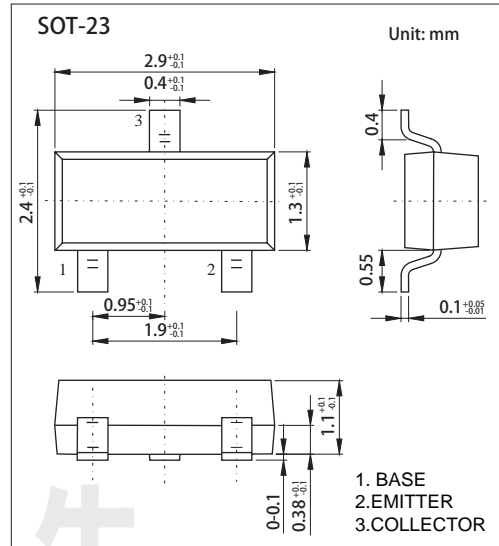


Transistor

NPN Transistors MMBT3904

■ Features

- Collector current: $I_c=0.2A$
- Complementary to MMBT3906



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

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	200	mW
Thermal Resistance From Junction To Ambient	$R_{\theta JA}$	625	$^\circ C/W$
Junction Temperature	T_J	150	$^\circ C$
Storage Temperature	T_{stg}	-55 to 150	

Transistor

NPN Transistors

MMBT3904

■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Collector- base breakdown voltage	V _{CB0}	I _c = 10 μA, I _E =0	60			V
Collector- emitter breakdown voltage	V _{CE0}	I _c = 1 mA, I _B =0	40			
Emitter - base breakdown voltage	V _{EB0}	I _E = 10 μA, I _C =0	6			
Collector cut-off current	I _{CBO}	V _{CB} = 60 V, I _E =0			0.1	μA
Collector cut-off current	I _{CEx}	V _{CE} = 30 V, V _{BE(off)} =3V			50	nA
Emitter cut-off current	I _{EBO}	V _{EB} = 5V, I _C =0			0.1	μA
Collector-emitter saturation voltage	V _{CE(sat)}	I _C =50 mA, I _B = 5mA			0.3	V
Base - emitter saturation voltage	V _{BE(sat)}	I _C =50 mA, I _B = 5mA			0.95	
DC current gain	h _{FE(1)}	V _{CE} = 1V, I _C = 10mA	100		300	
	h _{FE(2)}	V _{CE} = 1V, I _C = 50mA	60			
	h _{FE(3)}	V _{CE} = 1V, I _C = 100mA	30			
Delay time	t _d	V _{CC} =3V, V _{BE(off)} =-0.5V I _C =10mA, I _{B1} =1mA			35	ns
Rise time	t _r				35	
Storage time	t _s	V _{CC} =3V, I _C =10mA, I _{B1} = I _{B2} =1mA			200	
Fall time	t _f				50	
Transition frequency	f _T	V _{CE} = 20V, I _C = 10mA, f=100MHz	300			MHz

■ Classification of hFE(1)

Rank	L	H
Range	100-200	200-300
Marking	1AM	

NPN Transistors MMBT3904

Typical Characteristics

