FMS

SOT-23 Plastic-Encapsulate Transistors

MMBT3906 TRANSISTOR (PNP)

SOT-23

1. BASE
2. EMITTER
3. COLLECTOR

FEATURES

- As complementary type, the NPN transistor MMBT3904 is Recommended
- Epitaxial planar die construction

MARKING: 2A

MAXIMUM RATINGS (T_A=25℃ unless otherwise noted)

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	-40	V
V_{CEO}	Collector-Emitter Voltage	-40	V
V_{EBO}	Emitter-Base Voltage	-5	V
I_C	Collector Current -Continuous	-0.2	A
P_C	Collector Power Dissipation	0.3	W
T_J	Junction Temperature	150	℃
T_{stg}	Storage Temperature	-55-150	℃

ELECTRICAL CHARACTERISTICS (Tamb=25℃ unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	I_C= -10μA,I_E=0	-40		V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	I_C= -1mA, I_B=0	-40		V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E=-10μA, I_C=0	-5		V
Collector cut-off current	I_{CBO}	V_{CB}= -40V, $_E$=0		-0.1	μA
Collector cut-off current	I_{CEX}	V_{CE}=-30V,$V_{BE(off)}$=-3V		-50	nA
Emitter cut-off current	I_{EBO}	V_{EB}= -5V, I_C=0		-0.1	μA
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		
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C=-50mA, I_B=-5mA		-0.4	V
Base-emitter saturation voltage	$V_{BE(sat)}$	I_C=- 50mA, I_B=- 5mA		-0.95	V
Transition frequency	f_T	V_{CE}=-20V, I_C=-10mA, f=100MHz	250		MHz
Delay Time	t_d	V_{CC}=-3.0V,V_{BE}=-0.5V I_C=-10mA,I_{B1}=-1.0mA		35	nS
Rise Time	t_r			35	nS
Storage Time	t_s	V_{CC}=-3.0V,I_C=-10mA I_{B1}=I_{B2}=-1.0mA		225	nS
Fall Time	t_f			75	nS

CLASSIFICATION OF h_{FE1}

Rank	O	Y
Range	100-200	200-300

Typical Characteristics MMBT3906

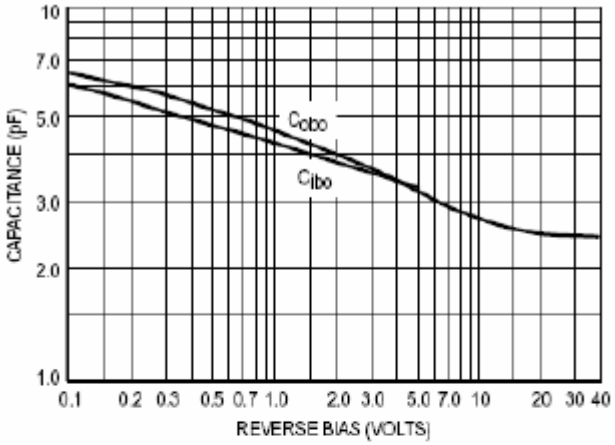

Figure 1 Capacitance

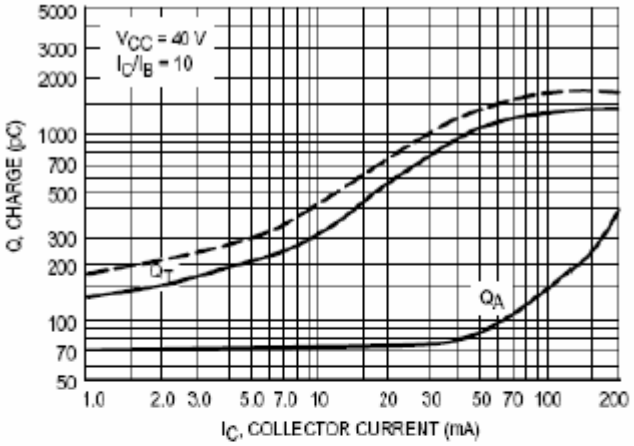

Figure 2 Charge Data

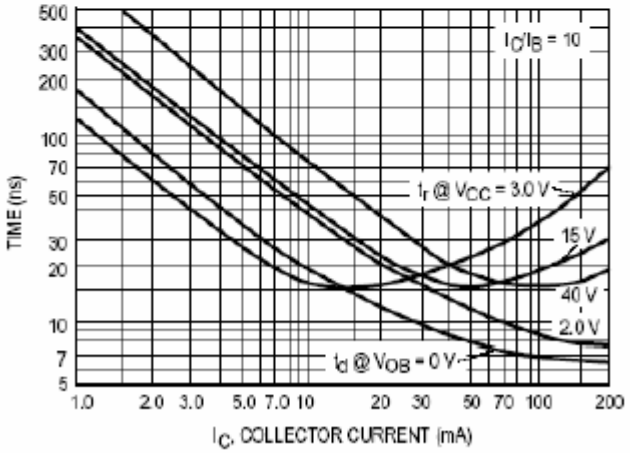

Figure 3 Turn–On Time

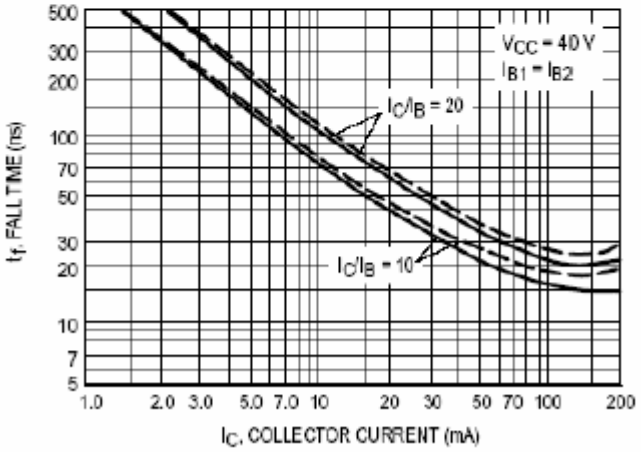

Figure 4 Fall Time

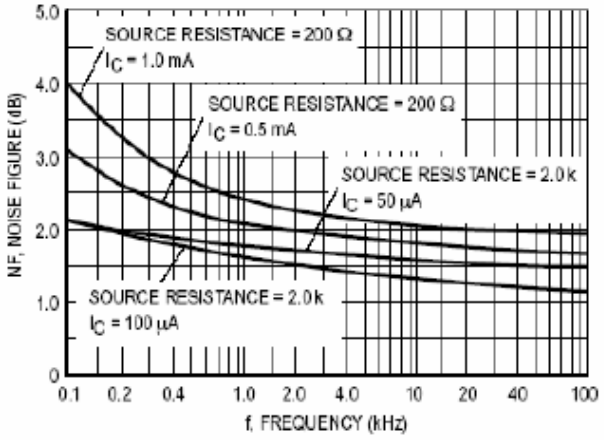

Figure 5

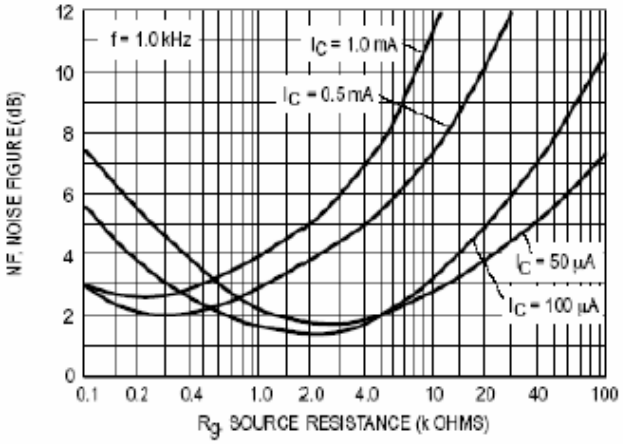

Figure 6

h PARAMETERS

(V_{CE} = −10 Vdc, f = 1.0 kHz, T_A = 25°C)

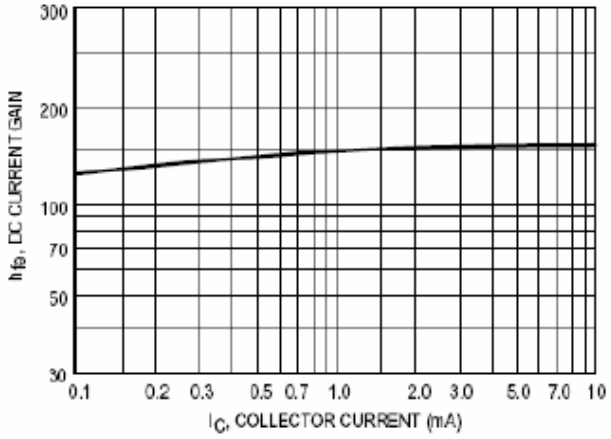

Figure 7 Current Gain

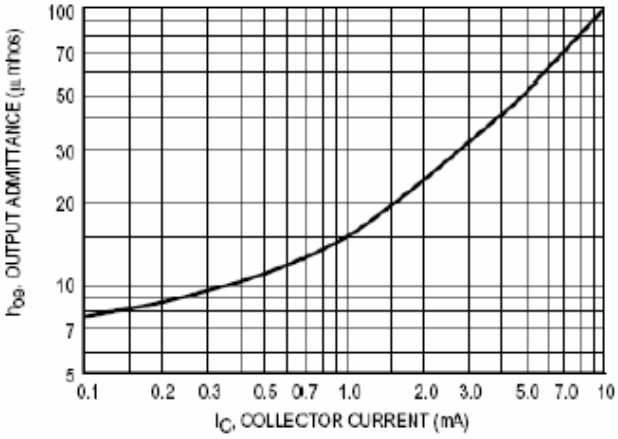

Figure 8 Output Admittance

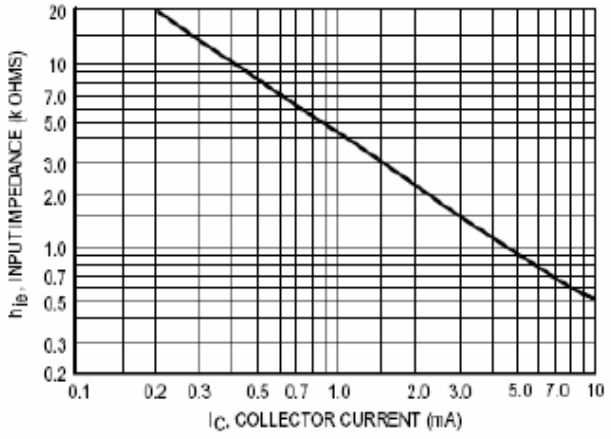

Figure 9 Input Impedance

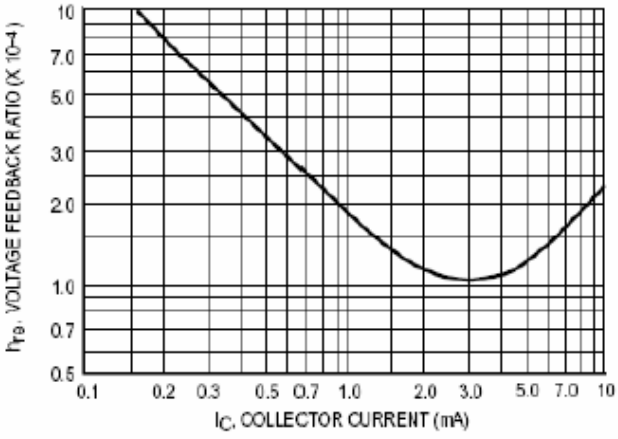

Figure 10 Voltage Feedback Ratio

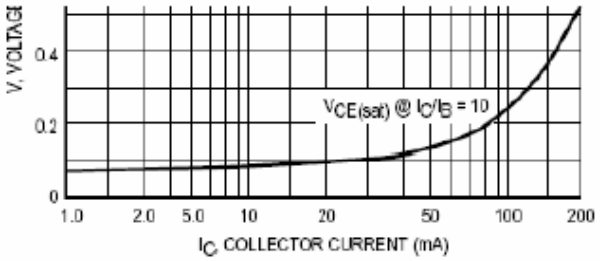

Figure 11 "ON" Voltages

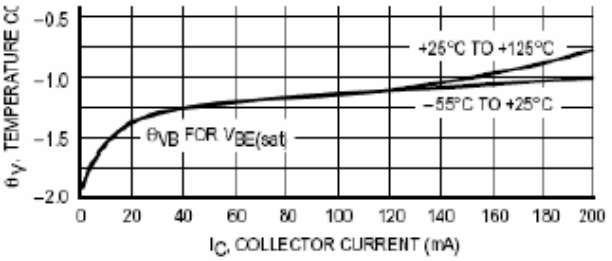

Figure 12 Temperature Coefficients