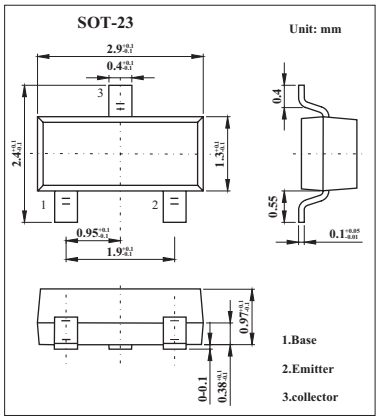
NPN Transistors

KMBT3904(MMBT3904)



■ Features

●Epitaxial planar die construction

■ Absolute Maximum Ratings Ta = 25℃

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	V_{CBO}	60	V
Collector - Emitter Voltage	V_{CEO}	40	V
Emitter - Base Voltage	V_{EBO}	6	V
Collector Current - Continuous	I_C	0.2	A
Collector Power Dissipation	P_C	0.2	W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{stg}	-55 to 150	℃

■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Testconditons	Min	Typ	Max	Unit
Collecto- base breakdown voltage	V_{CBO}	I_C= 100 μA, I_E=0	60			V
Collector- emitter breakdown voltage	V_{CEO}	I_C= 1 mA, I_B=0	40			V
Emitter - base breakdown voltage	V_{EBO}	I_E= 10 μ A, I_C=0	6			V
Collector cut-off current	I_{CBO}	V_{CB}= 60 V , I_E=0			0.1	μ A
Collector cut-off current	I_{CEO}	V_{CE}= 30 V , $V_{BE(off)}$=3V			50	nA
Emitter cut-off current	I_{EBO}	V_{EB}= 5V , I_C=0			0.1	μ A
DC current gain	h_{FE}	V_{CE}= 1V, I_C= 10mA	100		400	
		V_{CE}= 1V, I_C= 50mA	60			
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	V
Delay time	t_d	V_{CC}=3.0V,V_{BE}=-0.5V			35	ns
Rise time	t_r	I_C=10mA,I_{B1}=-I_{B2}=1.0mA			35	
Storage time	t_s	V_{CC}=3.0V,I_C=10mA			200	ns
Fall time	t_f	I_{B1}=-I_{B2}=1.0mA			50	
Transition frequency	f_T	V_{CE}= 20V, I_C= 10mA,f=100MHz	250			MHz

■ Marking

Marking	1AM

KMBT3904(MMBT3904)

■ Typical Characteristics

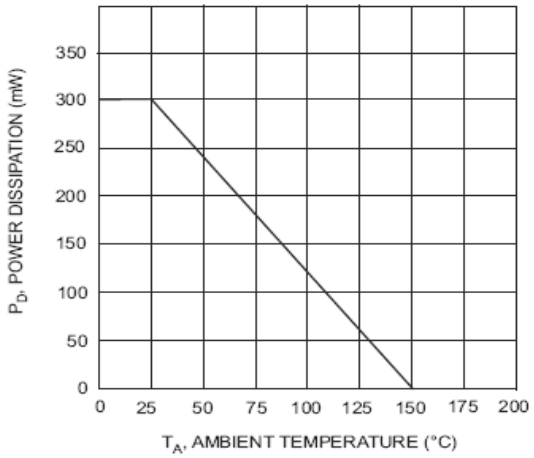


Fig.1 Max Power Dissipation vs Ambient Temperature

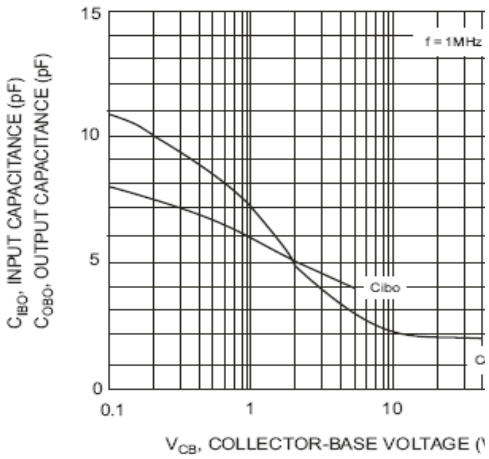


Fig.2 Input and Output Capacitance vs. Collector-Base Voltage

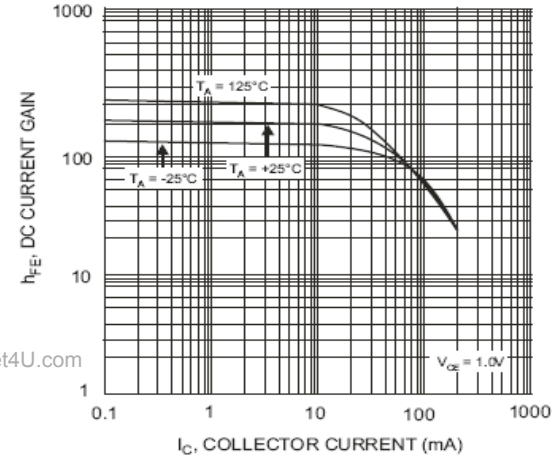


Fig.3 Typical DC Current Gain vs Collector Current

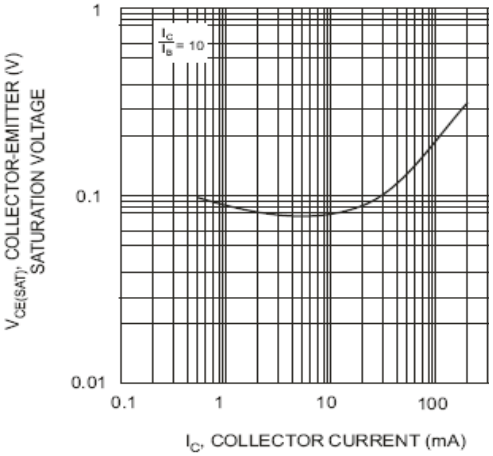


Fig.4 Typical Collector-Emitter Saturation Voltage vs. Collector Current

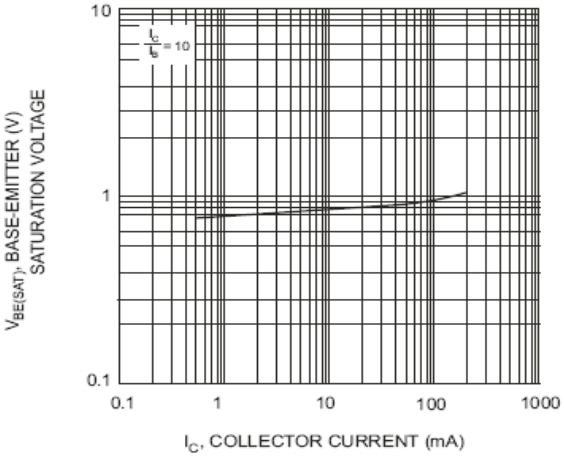


Fig.5 Typical Base-Emitter Saturation Voltage vs. Collector Current