

General Purpose Transistor



SMD Diodes Specialist

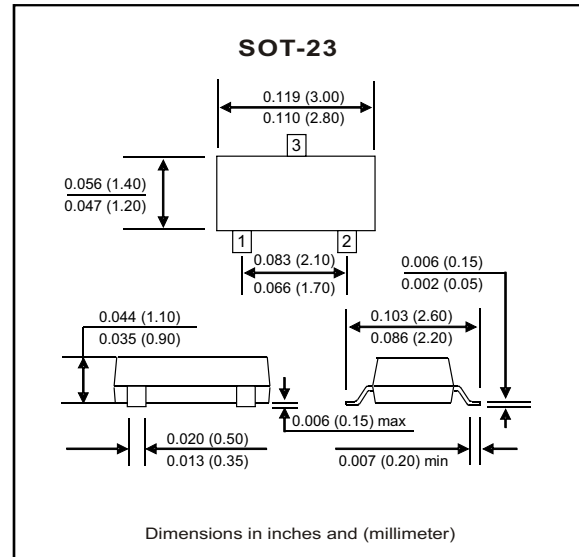
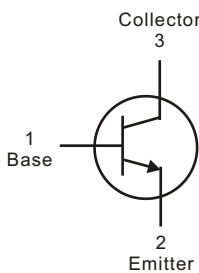
MMBT3904-G (NPN)

RoHS Device



Features

- Epitaxial planar die construction
- As complementary type, the PNP transistor MMBT3906-G is recommended



Maximum Ratings (at TA=25°C unless otherwise noted)

Parameter	Symbol	Min	Typ	Max	Unit
Collector-Base voltage	V _{CB0}			60	V
Collector-Emitter voltage	V _{CEO}			40	V
Emitter-Base voltage	V _{EB0}			6	V
Collector current-Continuous	I _c			0.2	A
Collector dissipation	P _c			0.2	W
Storage temperature and junction temperature	T _{STG} , T _J	-55		+150	°C

Electrical Characteristics (at TA=25°C unless otherwise noted)

Parameter	Conditions	Symbol	Min	Max	Unit
Collector-Base breakdown voltage	I _c = 100μA , I _E = 0	V _{(BR)CBO}	60		V
Collector-Emitter breakdown voltage	I _c = 1mA , I _B = 0	V _{(BR)CEO}	40		V
Emitter-Base breakdown voltage	I _E = 100μA , I _c = 0	V _{(BR)EBO}	6		V
Collector cut-off current	V _{CB} = 60V , I _E = 0	I _{cBO}		0.1	μA
Collector cut-off current	V _{CE} = 40V , I _B = 0	I _{CEO}		0.1	μA
Emitter cut-off current	V _{EB} = 5V , I _c = 0	I _{EBO}		0.1	μA
DC current gain	V _{CE} = 1V , I _c = 10mA	h _{FE(1)}	100	300	
	V _{CE} = 1V , I _c = 50mA	h _{FE(2)}	60		
Collector-Emitter saturation voltage	I _c = 50mA , I _B = 5mA	V _{CE(sat)}		0.3	V
Base-Emitter saturation voltage	I _c = 50mA , I _B = 5mA	V _{BE(sat)}		0.95	V
Transition frequency	V _{CE} = 20V , I _c = 10mA f = 100MHz	f _T	250		Mhz
Delay time	V _{CC} = 3.0V _{dc} , V _{BE} = -0.5V _{dc}	t _d		35	nS
Rise time	I _c = 10mA _{dc} , I _{B1} = 1.0mA _{dc}	t _r		35	nS
Storage time	V _{CC} = 3.0V _{dc} , I _c = 10mA _{dc}	t _s		200	nS
Fall time	I _{B1} = I _{B2} = 1.0mA _{dc}	t _f		50	nS

RATING AND CHARACTERISTIC CURVES (MMBT3904-G)

Fig.1 Typical pulsed current gain V.S. Collector current

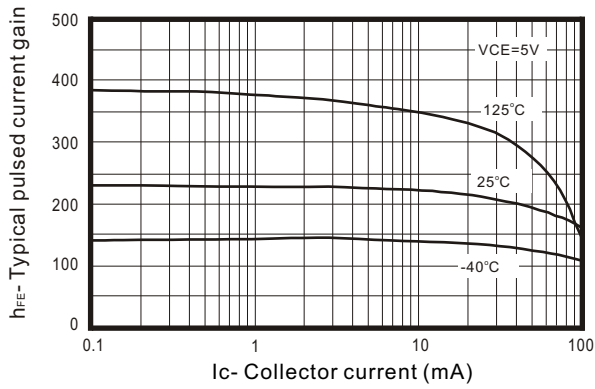


Fig.2 Collector-Emitter saturation voltage V.S. Collector current

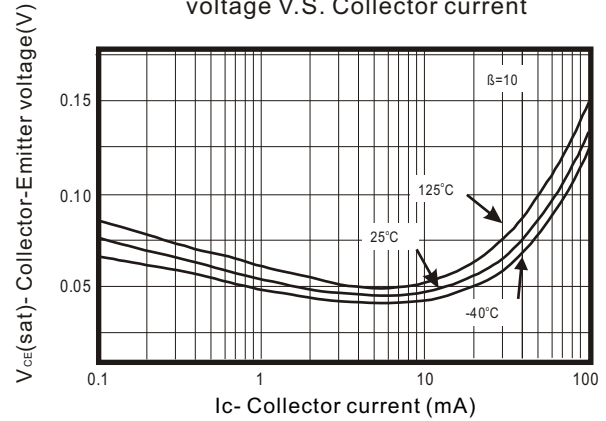


Fig.3 Base-Emitter saturation voltage V.S. Collector current

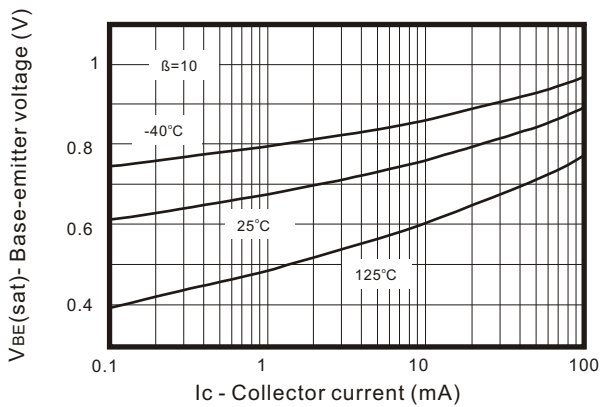


Fig.4 Base-Emitter ON voltage V.S. Collector current

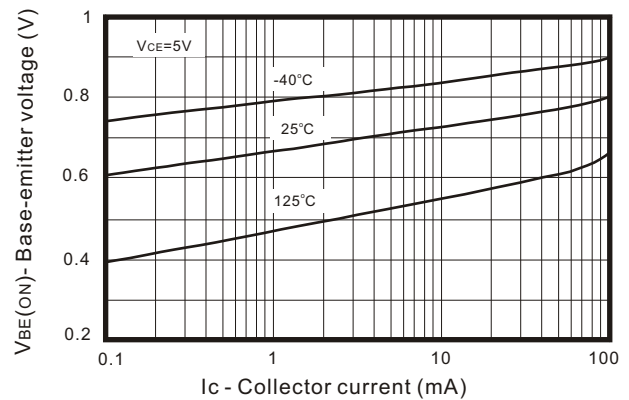


Fig.5 Collector-cutoff current V.S. Ambient temperature

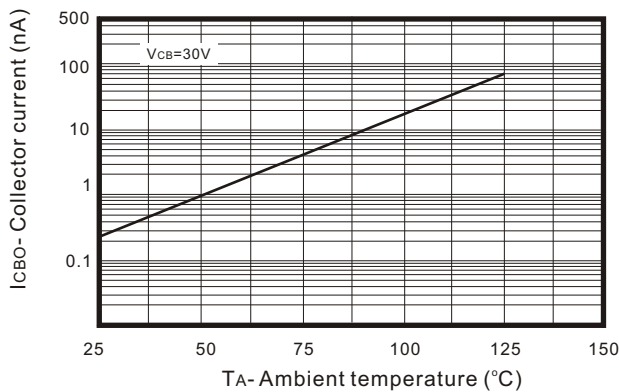


Fig.6 Capacitance V.S. Reverse bias voltage

