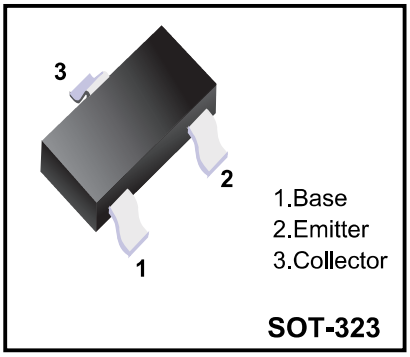
PNP Silicon Epitaxial Planar Transistor

for switching and amplifier applications



Marking Code	
MMBT3906W	2A

Absolute Maximum Ratings (Ta = 25°C)

Parameter	Symbol	Value	Unit
Collector Base Voltage	$-V_{CBO}$	40	V
Collector Emitter Voltage	$-V_{CEO}$	40	V
Emitter Base Voltage	$-V_{EBO}$	5	V
Collector Current	$-I_C$	200	mA
Total Power Dissipation	P_{tot}	200	mW
Junction Temperature	T_j	150	°C
Storage Temperature Range	T_{stg}	- 55 to +150	°C

Characteristics at Ta = 25°C

Parameter	Symbol	Min.	Max.	Unit
DC Current Gain at $-V_{CE}$ = 1 V, $-I_C$ = 0.1 mA at $-V_{CE}$ = 1 V, $-I_C$ = 1 mA at $-V_{CE}$ = 1 V, $-I_C$ = 10 mA at $-V_{CE}$ = 1 V, $-I_C$ = 50 mA at $-V_{CE}$ = 1 V, $-I_C$ = 100 mA	 h_{FE} h_{FE} h_{FE} h_{FE} h_{FE}	 60 80 100 60 30	 - - 300 - -	 - - - - -
Collector Emitter Cutoff Current at $-V_{CE}$ = 30 V	$-I_{CES}$	-	50	nA
Emitter Base Cutoff Current at $-V_{EB}$ = 3 V	$-I_{EBO}$	-	50	nA
Collector Base Breakdown Voltage at $-I_C$ = 10 µA	$-V_{(BR)CBO}$	40	-	V
Collector Emitter Breakdown Voltage at $-I_C$ = 1 mA	$-V_{(BR)CEO}$	40	-	V
Emitter Base Breakdown Voltage at $-I_E$ = 10 µA	$-V_{(BR)EBO}$	5	-	V
Collector Emitter Saturation Voltage at $-I_C$ = 10 mA, $-I_B$ = 1 mA at $-I_C$ = 50 mA, $-I_B$ = 5 mA	$-V_{CE(sat)}$	- -	0.25 0.4	V
Base Emitter Saturation Voltage at $-I_C$ = 10 mA, $-I_B$ = 1 mA at $-I_C$ = 50 mA, $-I_B$ = 5 mA	$-V_{BE(sat)}$	0.65 -	0.85 0.95	V
Transition Frequency at $-V_{CE}$ = 20 V, I_E = 10 mA, f = 100 MHz	f_T	250	-	MHz
Collector Output Capacitance at $-V_{CB}$ = 10 V, f = 100 KHz	C_{ob}	-	4.5	pF
Delay Time at $-V_{CC}$ = 3 V, $-V_{BE(OFF)}$ = 0.5 V, $-I_C$ = 10 mA, $-I_{B1}$ = 1 mA	t_d	-	35	ns
Rise Time at $-V_{CC}$ = 3 V, $-V_{BE(OFF)}$ = 0.5 V, $-I_C$ = 10 mA, $-I_{B1}$ = 1 mA	t_r	-	35	ns
Storage Time at $-V_{CC}$ = 3 V, $-I_C$ = 10 mA, I_{B1} = $-I_{B2}$ = -1 mA	t_{stg}	-	225	ns
Fall Time at $-V_{CC}$ = 3 V, $-I_C$ = 10 mA, I_{B1} = $-I_{B2}$ = -1 mA	t_f	-	75	ns

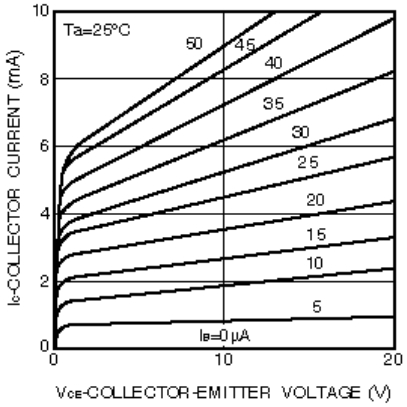


Fig.1 Grounded emitter output characteristics

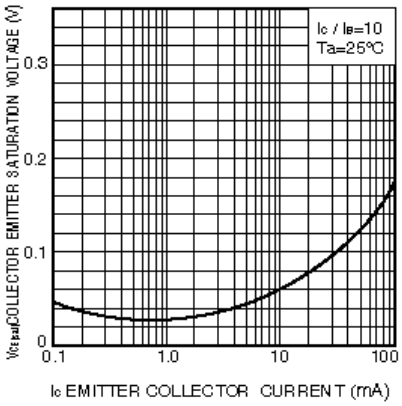


Fig.2 Collector-emitter saturation voltage vs. collector current

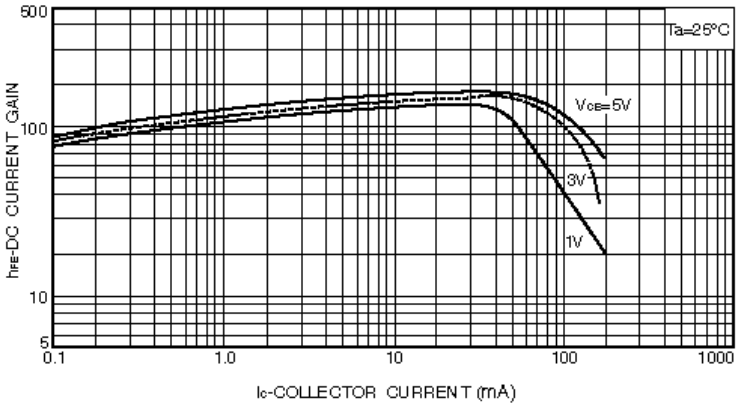


Fig.3 DC current gain vs.collector current (I)

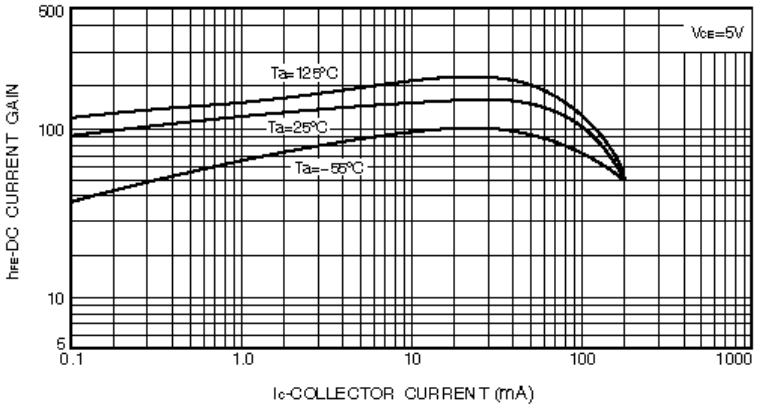


Fig.4 DC current gain vs. collector current (II)

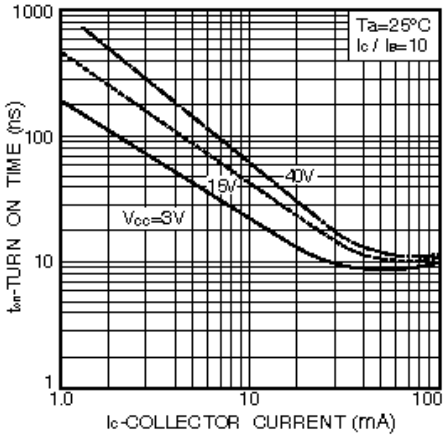


Fig.8 Turn-on time vs. collector current

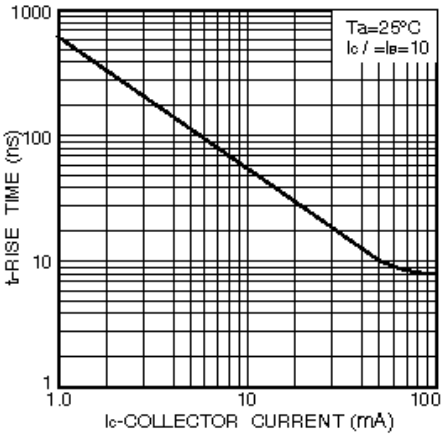


Fig.9 Rise time vs. collector current

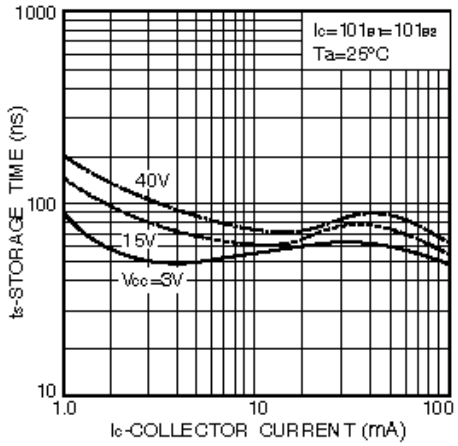


Fig.10 Storage time vs. collector current

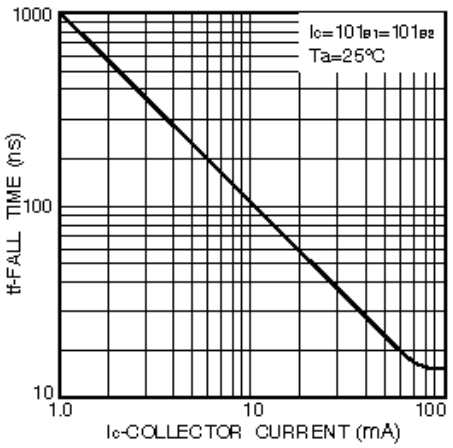


Fig.11 Fall time vs. collector current

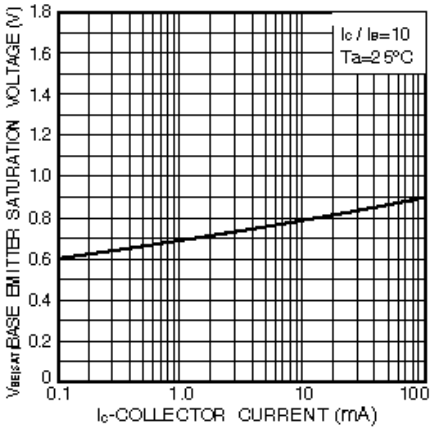


Fig.6 Base-emitter saturation voltage vs. collector current

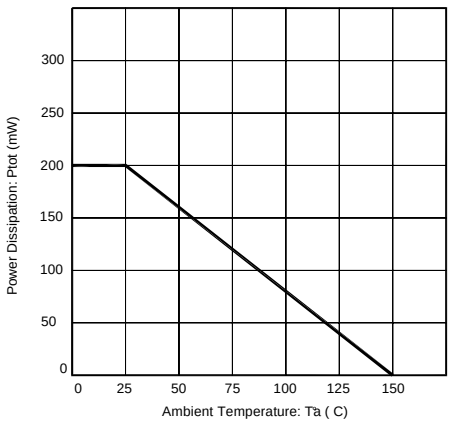


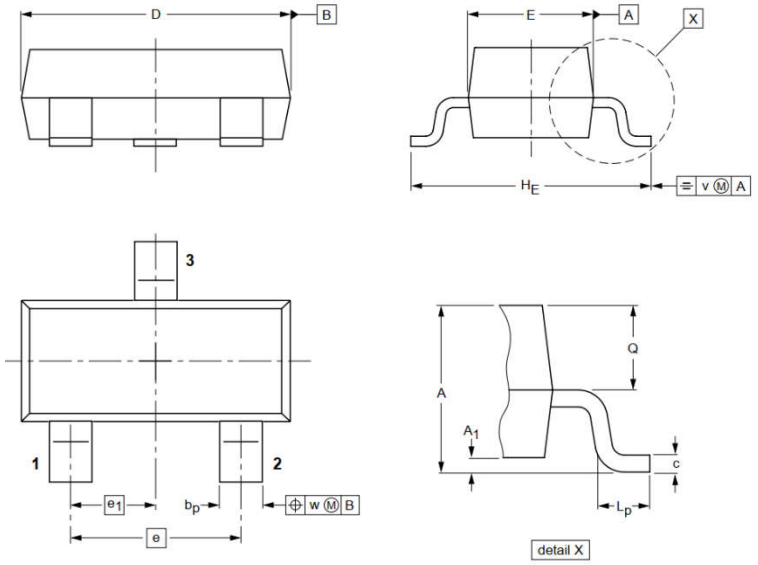
Fig.10 Power Dissipation vs Ambient Temperature

Ordering information

Package	Packing Description	Base Quantity	Packing Quantity
SOT-323	Tape/Reel,7"reel	3000pcs/Reel	24000PCS/Box 120000PCS/Carton

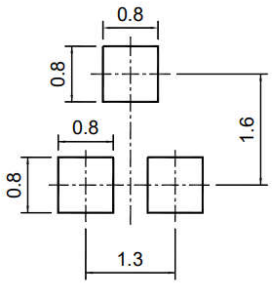
Package Dimensions

SOT-323



Dim.	Millimeter (mm)		mil	
	Min.	Max.	Min.	Max.
A	0.8	1.1	32	43
A1	0.1		4	
bp	0.3	0.4	12	16
C	0.10	0.25	4	10
D	1.8	2.2	71	87
E	1.15	1.35	45	53
E	1.3		51	
E1	0.65		26	
HE	2.0	2.2	79	87
Lp	0.15	0.45	6	18
Q	0.13	0.23	5.1	9
v	0.2		8	
W	0.2		8	

The recommended mounting pad size



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