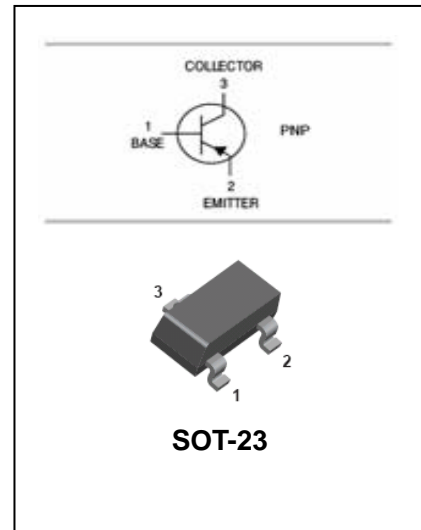


## PNP General Purpose Transistor

## MMBT3906

### FEATURES

- Epitaxial planar die construction.
- Complementary NPN type available (MMBT3904).
- Low Current (Max:-100mA).
- Low Voltage(Max:-40v).



### APPLICATIONS

- Ideal for medium power amplification and switching

### ORDERING INFORMATION

Type No.	Marking	Package Code
MMBT3906	2A	SOT-23

### MAXIMUM RATING @ Ta=25°C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V <sub>CBO</sub>	collector-base voltage	open emitter	-	-40	V
V <sub>CEO</sub>	collector-emitter voltage	open base	-	-40	V
V <sub>EBO</sub>	emitter-base voltage	open collector	-	-6	V
I <sub>C</sub>	collector current (DC)		-	-100	mA
I <sub>CM</sub>	peak collector current		-	-200	mA
I <sub>BM</sub>	peak base current		-	-100	mA
P <sub>tot</sub>	total power dissipation	T <sub>amb</sub> ≤ 25°C	-	250	mW
T <sub>stg</sub>	storage temperature		-65	+150	°C
T <sub>j</sub>	junction temperature		-	150	°C
T <sub>amb</sub>	operating ambient temperature		-65	+150	°C

Note Transistor mounted on an FR4 printed-circuit board.

## PNP General Purpose Transistor

## MMBT3906

### ELECTRICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$I_{CBO}$	collector cut-off current	$I_E = 0; V_{CB} = -30 V$	-	-50	nA
$I_{EBO}$	emitter cut-off current	$I_C = 0; V_{EB} = 6 V$	-	-50	nA
$h_{FE}$	DC current gain	$V_{CE} = -1V;$ $I_C = -0.1mA$ $I_C = -1mA$ $I_C = -10mA$ $I_C = -50mA$ $I_C = -100mA$	60 80 100 60 30	- - 300 - -	
$V_{CEsat}$	collector-emitter saturation voltage	$I_C = -10mA; I_B = 1mA$	-	-200	mV
		$I_C = -50mA; I_B = -5mA$	-	-300	mV
$V_{BEsat}$	base-emitter saturation voltage	$I_C = -10mA; I_B = -1mA$	-	-850	mV
		$I_C = -50mA; I_B = -5mA$	-	-950	mV
$C_c$	collector capacitance	$I_E = I_e = 0; V_{CB} = -5 V;$ $f = 1 MHz$	-	4.5	pF
$C_e$	emitter capacitance	$I_C = I_c = 0; V_{EB} = -500 mV;$ $f = 1 MHz$	-	10	pF
$f_T$	transition frequency	$I_C = -10mA; V_{CE} = -20 V;$ $f = 100MHz$	250	-	MHz
NF	noise figure	$I_C = -100\mu A; V_{CE} = -5V;$ $R_S = 1 k\Omega; f = 10Hz to 15.7 kHz$	-	4	dB
Switching times (between 10% and 90% levels);					
$t_{on}$	Turn-on time	$I_{Con} = -10mA; I_{Bon} = -1mA;$ $I_{Boff} = -1mA$	-	65	ns
$t_d$	delay time		-	35	ns
$t_r$	rise time		-	35	ns
$t_{off}$	turn-off time		-	300	ns
$t_s$	storage time		-	225	ns
$t_f$	fall time		-	75	ns

Note Pulse test:  $t_p \leq 300 ms; d \leq 0.02.$

## PNP General Purpose Transistor

## MMBT3906

TYPICAL CHARACTERISTICS @  $T_a=25^\circ\text{C}$  unless otherwise specified

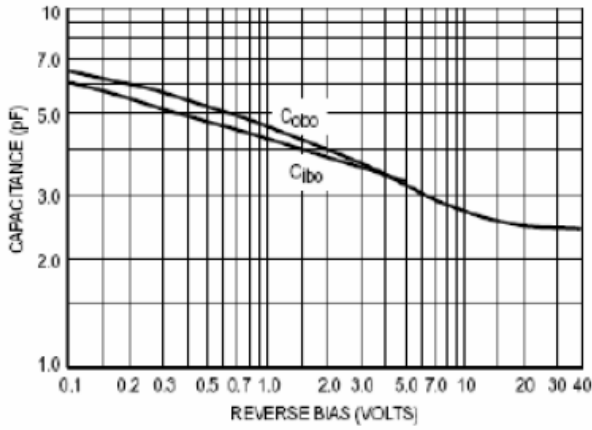


Figure 1 Capacitance

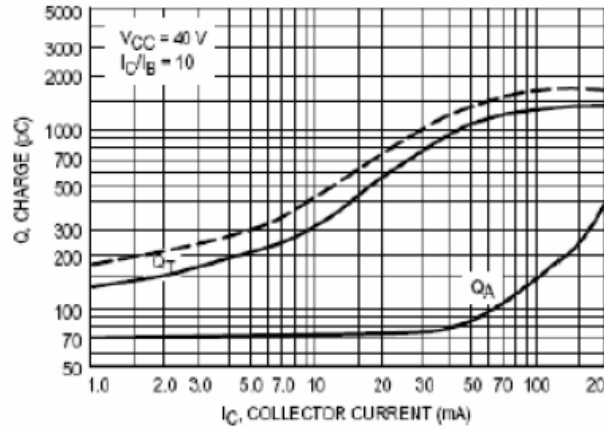


Figure 2 Charge Data

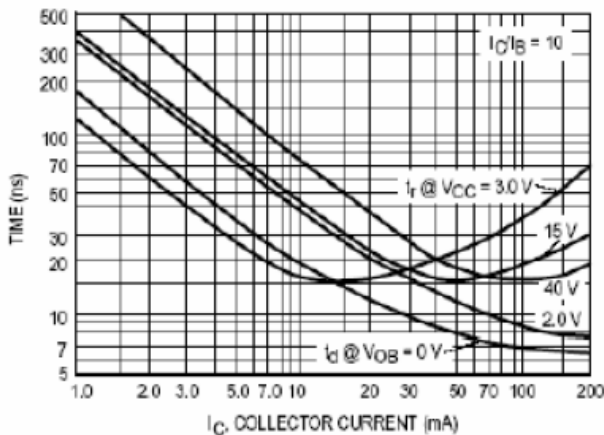


Figure 3 Turn-On Time

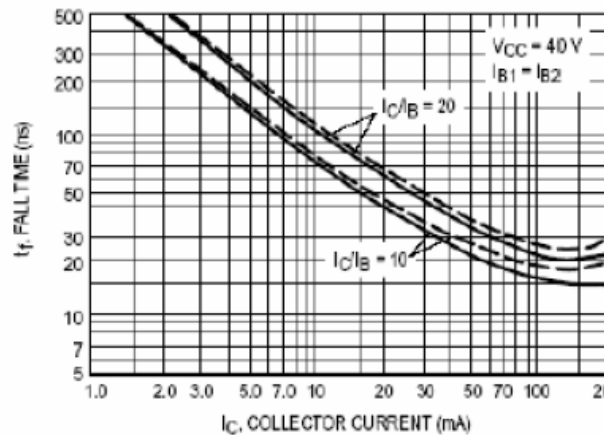


Figure 4 Fall Time

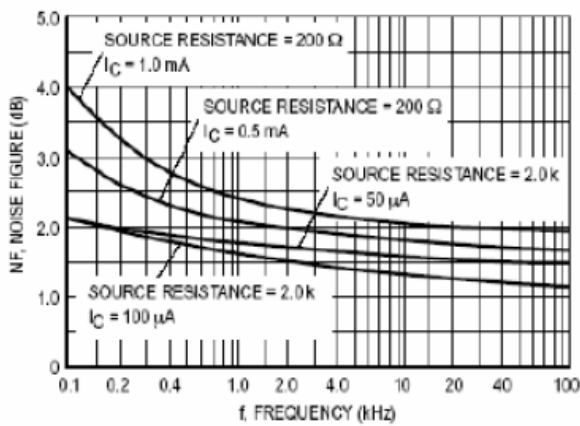


Figure 5

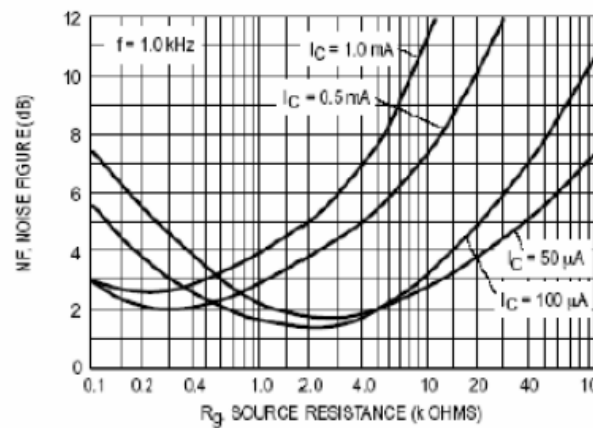


Figure 6

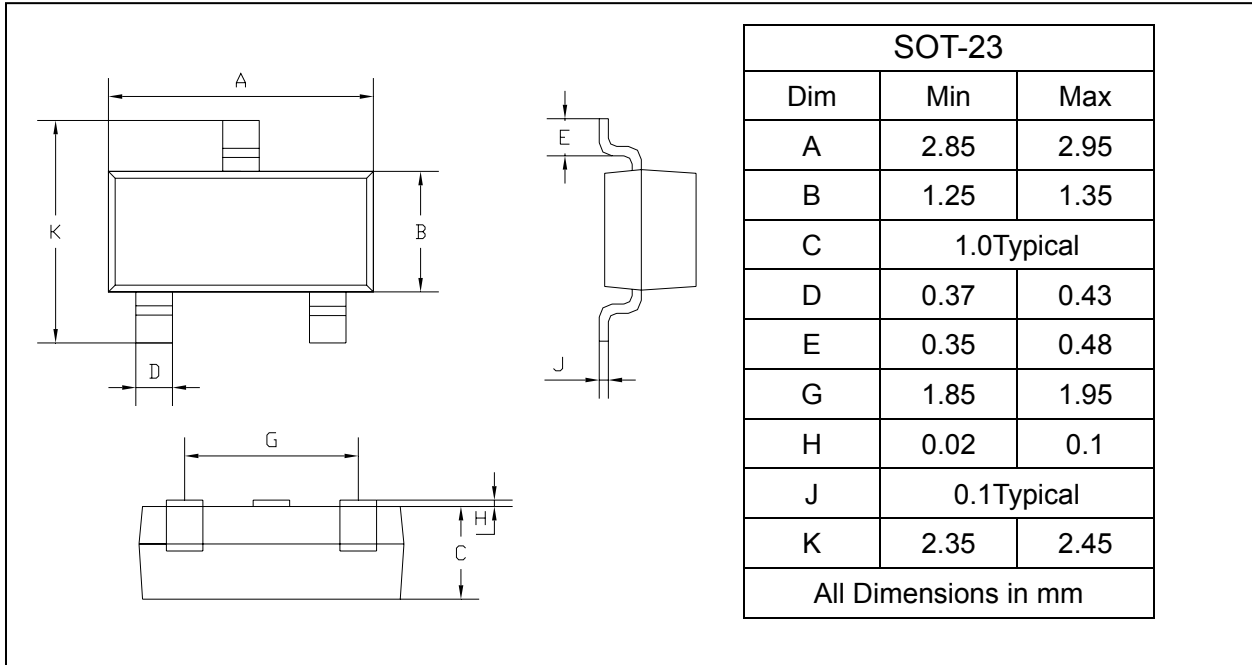
## PNP General Purpose Transistor

## MMBT3906

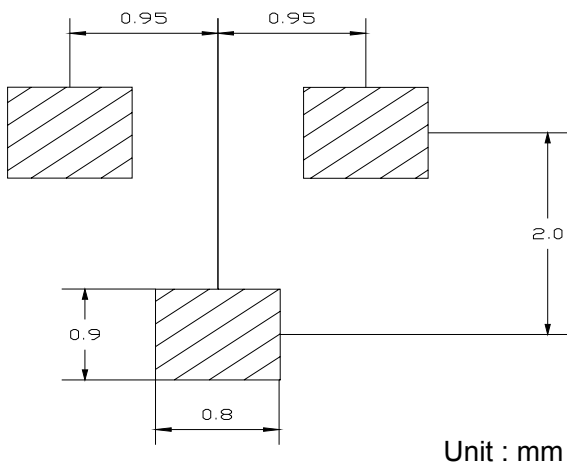
### PACKAGE OUTLINE

Plastic surface mounted package

SOT-23



### SOLDERING FOOTPRINT



### PACKAGE INFORMATION

Device	Package	Shipping
MMBT3906	SOT-23	3000/Tape&Reel

[www.s-manuals.com](http://www.s-manuals.com)