

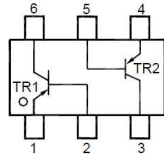
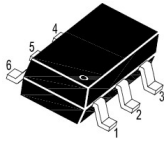


# MMBT3906DW

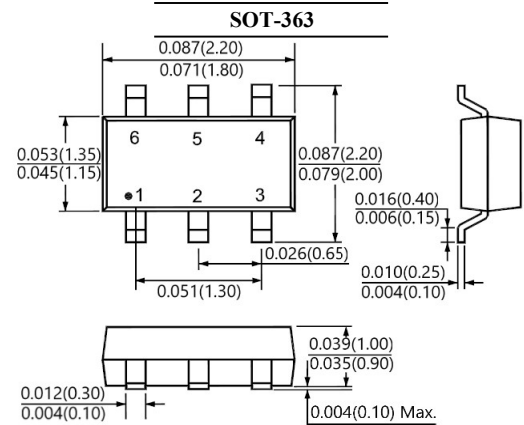
## PNP TRANSISTOR

### FEATURES

· Suffix "H" indicates Halogen-free parts, ex. MMBT3906DWH



1. Emitter 2. Base 3. Collector  
4. Emitter 5. Base 6. Collector



Dimensions in inches and (millimeter)

### Maximum Ratings ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Collector Base Voltage	$V_{CB0}$	-40	V
Collector Emitter Voltage	$V_{CEO}$	-40	V
Emitter Base Voltage	$V_{EBO}$	-5.0	V
Collector Current	$I_C$	-200	mA
Power Dissipation	$P_{tot}$	200	mW
Junction Temperature	$T_j$	150	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	- 55 to + 150	$^\circ\text{C}$

### Electrical Characteristics ( $T_A = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Conditions	Symbol	Min.	Max.	Unit
DC Current Gain	$V_{CE} = -1\text{V}, I_C = -0.1\text{mA}$	$h_{FE}$	60	-	-
	$V_{CE} = -1\text{V}, I_C = -1\text{mA}$		80	-	
	$V_{CE} = -1\text{V}, I_C = -10\text{mA}$		100	300	
	$V_{CE} = -1\text{V}, I_C = -50\text{mA}$		60	-	
	$V_{CE} = -1\text{V}, I_C = -100\text{mA}$		30	-	
Collector Base Cutoff Current	$V_{CE} = -30\text{V}$	$I_{CES}$	-	-50	nA
Emitter Base Cutoff Current	$V_{EB} = -3\text{V}$	$I_{EBO}$	-	-50	nA
Collector Base Breakdown Voltage	$I_C = -10\mu\text{A}$	$V_{(BR)CBO}$	-40	-	V
Collector Emitter Breakdown Voltage	$I_C = -1\text{mA}$	$V_{(BR)CEO}$	-40	-	V
Emitter Base Breakdown Voltage	$I_E = -10\mu\text{A}$	$V_{(BR)EBO}$	-5.0	-	V
Collector Emitter Saturation Voltage	$I_C = -10\text{mA}, I_B = -1\text{mA}$	$V_{CE(sat)}$	-	-0.25	V
	$I_C = -50\text{mA}, I_B = -5\text{mA}$		-	-0.40	
Base Emitter Saturation Voltage	$I_C = -10\text{mA}, I_B = -1\text{mA}$	$V_{BE(sat)}$	-0.65	-0.85	V
	$I_C = -50\text{mA}, I_B = -5\text{mA}$		-	-0.95	
Transition Frequency	$V_{CE} = -20\text{V}, I_E = 10\text{mA}, f = 100\text{MHz}$	$f_T$	250	-	MHz
Collector Output Capacitance	$V_{CB} = -10\text{V}, f = 100\text{KHz}$	$C_{ob}$	-	4.5	pF
Delay Time	$V_{CC} = -3\text{V}, V_{BE(OFF)} = -0.5\text{V}, I_C = -10\text{mA}, I_{B1} = -1\text{mA}$	$t_d$	-	35	ns
Rise Time	$V_{CC} = -3\text{V}, V_{BE(OFF)} = -0.5\text{V}, I_C = -10\text{mA}, I_{B1} = -1\text{mA}$	$t_r$	-	35	ns
Storage Time	$V_{CC} = -3\text{V}, I_C = -10\text{mA}, I_{B1} = -I_{B2} = -1\text{mA}$	$t_s$	-	225	ns
Fall Time	$V_{CC} = -3\text{V}, I_C = -10\text{mA}, I_{B1} = -I_{B2} = -1\text{mA}$	$t_f$	-	75	ns



# MMBT3906DW

## PNP TRANSISTOR

### RATINGS AND CHARACTERISTIC CURVES

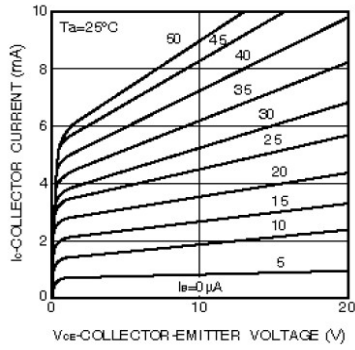


Fig.1 Grounded emitter output characteristics

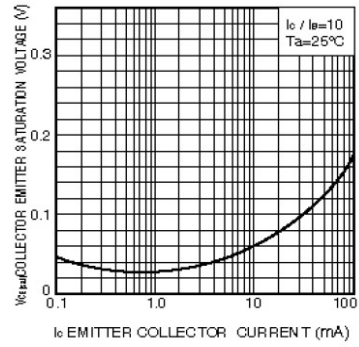


Fig.2 Collector-emitter saturation voltage vs. collector current

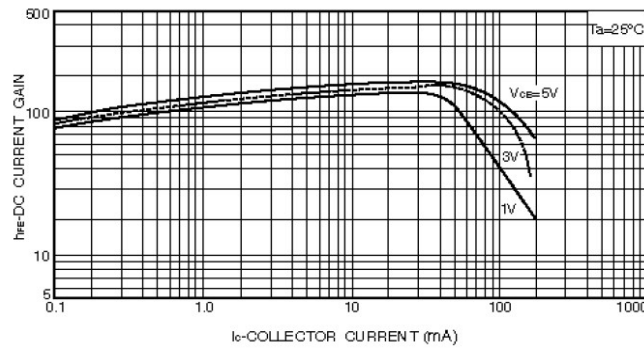


Fig.3 DC current gain vs. collector current ( I )

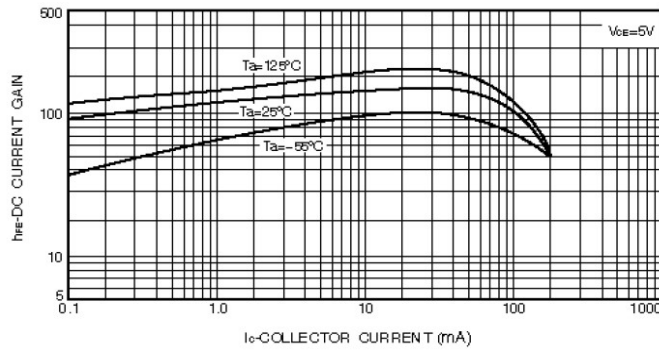


Fig.4 DC current gain vs. collector current ( II )

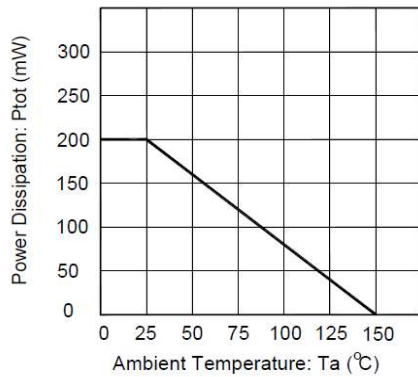


Fig.5 Power Dissipation vs Ambient Temperature

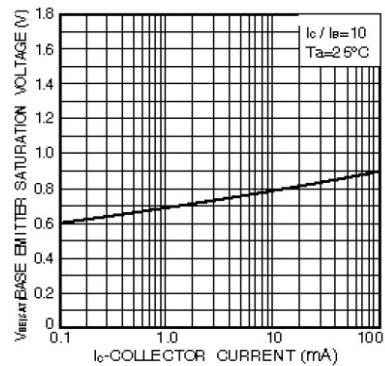


Fig.6 Base-emitter saturation voltage vs. collector current