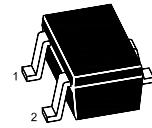


# MMBTSC945W

## NPN Silicon Epitaxial Planar Transistor

for switching and AF amplifier applications

The transistor is subdivided into five groups R, O, Y, P and L, according to its DC current gain.



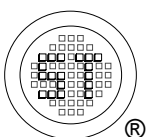
1.Base 2.Emitter 3.Collector  
SOT-323 Plastic Package

### Absolute Maximum Ratings ( $T_a = 25\text{ }^\circ\text{C}$ )

Parameter	Symbol	Value	Unit
Collector Base Voltage	$V_{CBO}$	60	V
Collector Emitter Voltage	$V_{CEO}$	50	V
Emitter Base Voltage	$V_{EBO}$	5	V
Collector Current	$I_C$	150	mA
Power Dissipation	$P_{tot}$	200	mW
Junction Temperature	$T_j$	150	$^\circ\text{C}$
Storage Temperature Range	$T_S$	- 55 to + 150	$^\circ\text{C}$

### Characteristics at $T_a = 25\text{ }^\circ\text{C}$

Parameter	Symbol	Min.	Typ.	Max.	Unit	
DC Current Gain at $V_{CE} = 6\text{ V}$ , $I_C = 1\text{ mA}$ Current Gain Group	R	$h_{FE}$	40	-	80	-
	O	$h_{FE}$	70	-	140	-
	Y	$h_{FE}$	120	-	240	-
	P	$h_{FE}$	200	-	400	-
	L	$h_{FE}$	350	-	700	-
Collector Base Breakdown Voltage at $I_C = 100\text{ }\mu\text{A}$	$V_{(BR)CBO}$	60	-	-	V	
Collector Emitter Breakdown Voltage at $I_C = 10\text{ mA}$	$V_{(BR)CEO}$	50	-	-	V	
Emitter Base Breakdown Voltage at $I_E = 10\text{ }\mu\text{A}$	$V_{(BR)EBO}$	5	-	-	V	
Collector Cutoff Current at $V_{CB} = 40\text{ V}$	$I_{CBO}$	-	-	0.1	$\mu\text{A}$	
Emitter Cutoff Current at $V_{EB} = 3\text{ V}$	$I_{EBO}$	-	-	0.1	$\mu\text{A}$	
Collector Saturation Voltage at $I_C = 100\text{ mA}$ , $I_B = 10\text{ mA}$	$V_{CE(sat)}$	-	-	0.3	V	
Gain Bandwidth Product at $V_{CE} = 6\text{ V}$ , $I_C = 10\text{ mA}$	$f_T$	-	300	-	MHz	
Output Capacitance at $V_{CB} = 6\text{ V}$ , $f = 1\text{ MHz}$	$C_{OB}$	-	2.5	-	pF	
Noise Figure at $V_{CE} = 6\text{ V}$ , $I_E = 0.5\text{ mA}$ , $f = 1\text{ KHz}$ , $R_S = 500\text{ }\Omega$	NF	-	4	-	dB	



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Dated : 12/09/2006

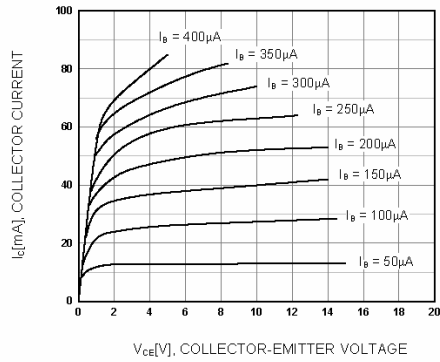


Figure 1. Static Characteristic

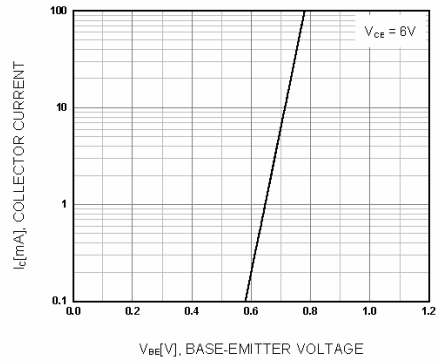


Figure 2. Transfer Characteristic

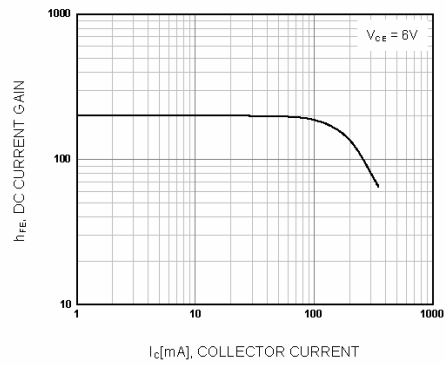


Figure 3. DC current Gain

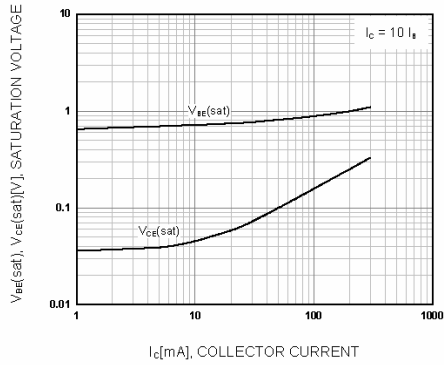


Figure 4. Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

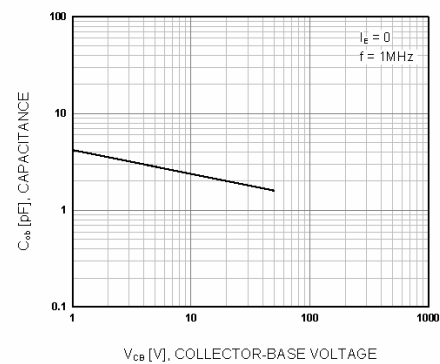


Figure 5. Output Capacitance

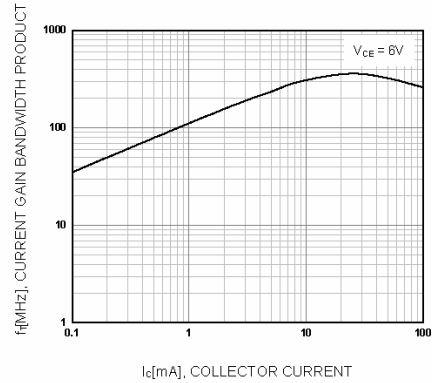
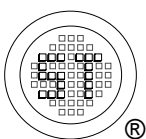


Figure 6. Current Gain Bandwidth Product



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