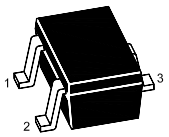
# MMBTSC5345W

## NPN Silicon Epitaxial Planar Transistor

for RF amplifier

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




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

**Absolute Maximum Ratings ($T_a$ = 25 °C)**

| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Collector-Base Voltage | $V_{CBO}$ | 30 | V |
| Collector-Emitter Voltage | $V_{CEO}$ | 20 | V |
| Emitter-Base Voltage | $V_{EBO}$ | 4 | V |
| Collector Current | $I_C$ | 20 | mA |
| Power Dissipation | $P_{tot}$ | 200 | mW |
| Junction Temperature | $T_j$ | 150 | °C |
| Storage Temperature Range | $T_{Stg}$ | - 55 + 150 | °C |

**Characteristics at $T_{amb}$ = 25 °C**

| Parameter | | Symbol | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|
| DC Current Gain at $V_{CE}$ = 6 V, $I_C$ = 1 mA | Current Gain Group R | $h_{FE}$ | 40 | - | 80 | - |
| | O | $h_{FE}$ | 70 | - | 140 | - |
| | Y | $h_{FE}$ | 120 | - | 240 | - |
| Collector Base Breakdown Voltage at $I_C$ = 10 µA | | $V_{(BR)CBO}$ | 30 | - | - | V |
| Collector Emitter Breakdown Voltage at $I_C$ = 5 mA | | $V_{(BR)CEO}$ | 20 | - | - | V |
| Emitter Base Breakdown Voltage at $I_E$ = 10 µA | | $V_{(BR)EBO}$ | 4 | - | - | V |
| Collector Cutoff Current at $V_{CB}$ = 30 V | | $I_{CBO}$ | - | - | 0.5 | µA |
| Emitter Cutoff Current at $V_{EB}$ = 4 V | | $I_{EBO}$ | - | - | 0.5 | µA |
| Collector Emitter Saturation Voltage at $I_C$ = 10 mA, $I_B$ = 1 mA | | $V_{CE(sat)}$ | - | - | 0.3 | V |
| Transition Frequency at $V_{CE}$ = 6 V, $-I_E$ = 1 mA | | $f_T$ | - | 550 | - | MHz |
| Collector Output Capacitance at $V_{CB}$ = 6 V, f = 1 MHz | | $C_{OB}$ | - | 1.4 | - | pF |

**Fig. 1 $P_C$-$T_a$**

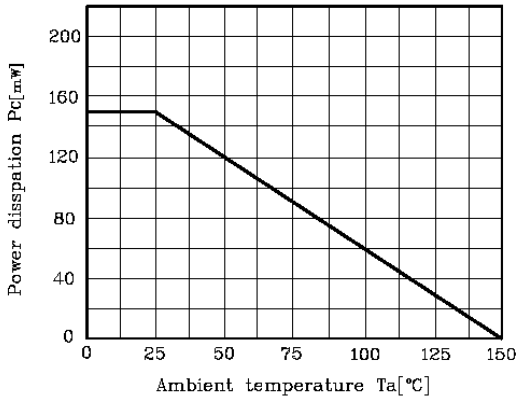



**Fig. 2 $I_C$-$V_{CE}$**

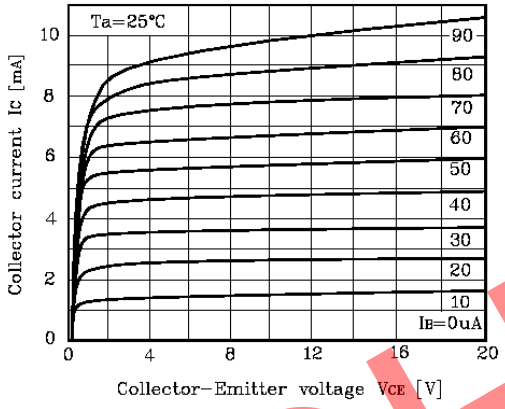



**Fig. 3 $h_{FE}$-$I_C$**

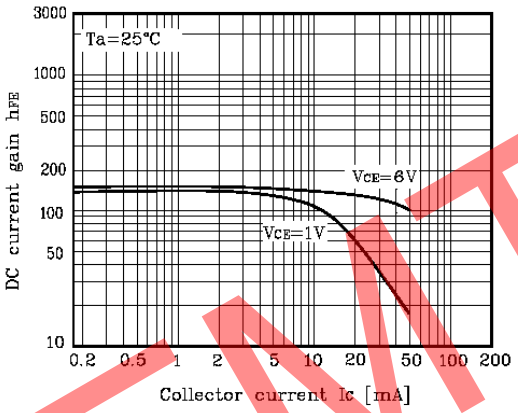



**Fig. 4 $f_T$-$I_E$**

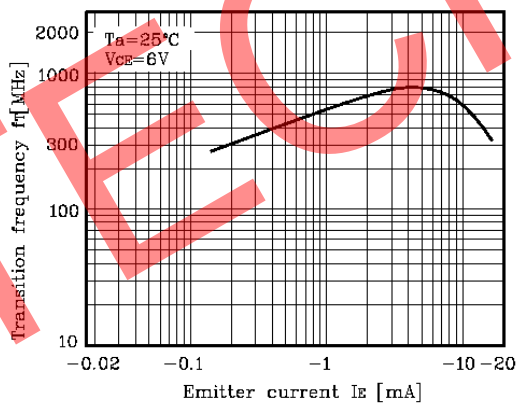



**Fig. 5 $C_{ob}$-$V_{CB}$, $C_{ib}$-$V_{EB}$**

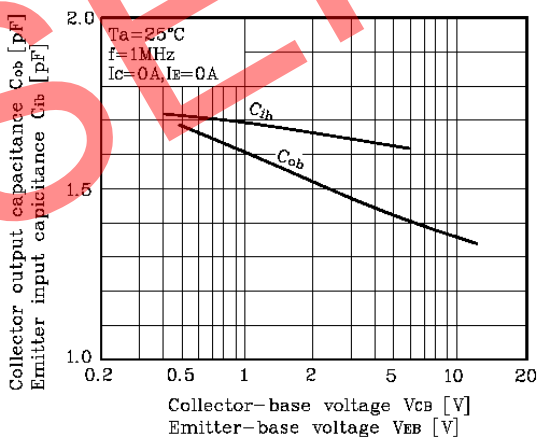



**Fig. 6 Yie-$I_C$**