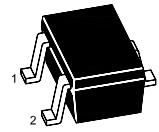


# MMBT5551W

## NPN Silicon Epitaxial Planar Transistors

for high voltage amplifier applications.



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

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

| Parameter                 | Symbol           | Value         | Unit             |
|---------------------------|------------------|---------------|------------------|
| Collector Base Voltage    | $V_{\text{CBO}}$ | 180           | V                |
| Collector Emitter Voltage | $V_{\text{CEO}}$ | 160           | V                |
| Emitter Base Voltage      | $V_{\text{EBO}}$ | 6             | V                |
| Collector Current         | $I_{\text{C}}$   | 600           | mA               |
| Power Dissipation         | $P_{\text{tot}}$ | 200           | mW               |
| Junction Temperature      | $T_{\text{j}}$   | 150           | $^\circ\text{C}$ |
| Storage Temperature Range | $T_{\text{stg}}$ | - 55 to + 150 | $^\circ\text{C}$ |

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

| Parameter                                                                                                                                                                                                               | Symbol                                                | Min.           | Max.          | Unit        |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|----------------|---------------|-------------|
| DC Current Gain<br>at $V_{\text{CE}} = 5\text{ V}$ , $I_{\text{C}} = 1\text{ mA}$<br>at $V_{\text{CE}} = 5\text{ V}$ , $I_{\text{C}} = 10\text{ mA}$<br>at $V_{\text{CE}} = 5\text{ V}$ , $I_{\text{C}} = 50\text{ mA}$ | $h_{\text{FE}}$<br>$h_{\text{FE}}$<br>$h_{\text{FE}}$ | 80<br>80<br>30 | -<br>250<br>- | -<br>-<br>- |
| Collector Base Cutoff Current<br>at $V_{\text{CB}} = 120\text{ V}$                                                                                                                                                      | $I_{\text{CBO}}$                                      | -              | 50            | nA          |
| Emitter Base Cutoff Current<br>at $V_{\text{EB}} = 4\text{ V}$                                                                                                                                                          | $I_{\text{EBO}}$                                      | -              | 50            | nA          |
| Collector Base Breakdown Voltage<br>at $I_{\text{C}} = 100\text{ }\mu\text{A}$                                                                                                                                          | $V_{(\text{BR})\text{CBO}}$                           | 180            | -             | V           |
| Collector Emitter Breakdown Voltage<br>at $I_{\text{C}} = 1\text{ mA}$                                                                                                                                                  | $V_{(\text{BR})\text{CEO}}$                           | 160            | -             | V           |
| Emitter Base Breakdown Voltage<br>at $I_{\text{E}} = 10\text{ }\mu\text{A}$                                                                                                                                             | $V_{(\text{BR})\text{EBO}}$                           | 6              | -             | V           |
| Collector Emitter Saturation Voltage<br>at $I_{\text{C}} = 10\text{ mA}$ , $I_{\text{B}} = 1\text{ mA}$<br>at $I_{\text{C}} = 50\text{ mA}$ , $I_{\text{B}} = 5\text{ mA}$                                              | $V_{\text{CE(sat)}}$                                  | -<br>-         | 0.15<br>0.2   | V           |
| Base Emitter Saturation Voltage<br>at $I_{\text{C}} = 10\text{ mA}$ , $I_{\text{B}} = 1\text{ mA}$<br>at $I_{\text{C}} = 50\text{ mA}$ , $I_{\text{B}} = 5\text{ mA}$                                                   | $V_{\text{BE(sat)}}$                                  | -<br>-         | 1<br>1        | V           |
| Gain Bandwidth Product<br>at $V_{\text{CE}} = 10\text{ V}$ , $I_{\text{C}} = 10\text{ mA}$ , $f = 100\text{ MHz}$                                                                                                       | $f_{\text{T}}$                                        | 100            | 300           | MHz         |
| Collector Base Capacitance<br>at $V_{\text{CB}} = 10\text{ V}$ , $f = 1\text{ MHz}$                                                                                                                                     | $C_{\text{cbo}}$                                      | -              | 6             | pF          |

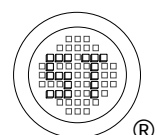


Fig. 1  $h_{FE} - I_C$

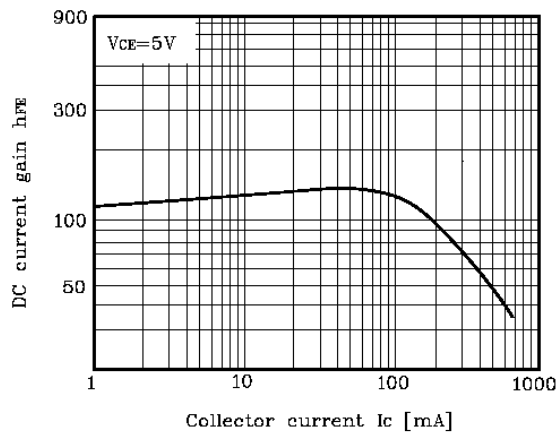


Fig. 2  $I_C - V_{BE}$

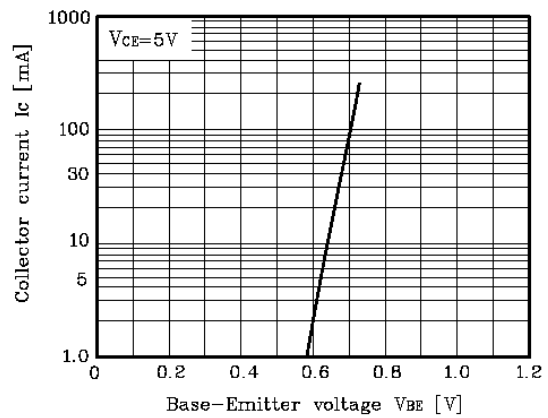


Fig. 3  $f_T - I_C$

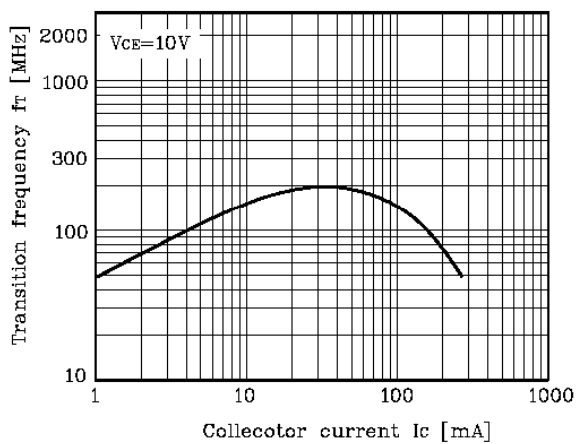


Fig. 4  $V_{CE(sat)}, V_{BE(sat)} - I_C$

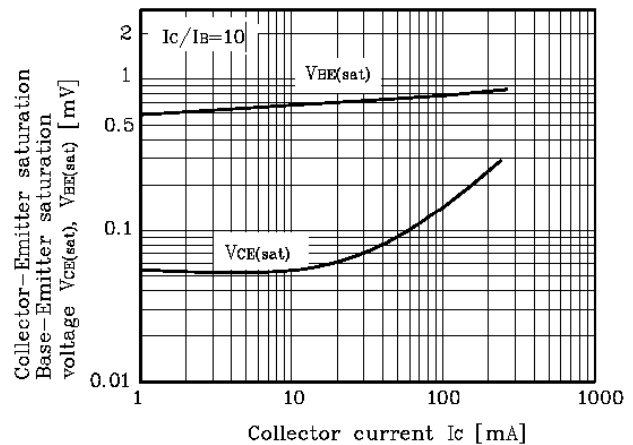


Fig. 5  $C_{ob} - V_{CB}$

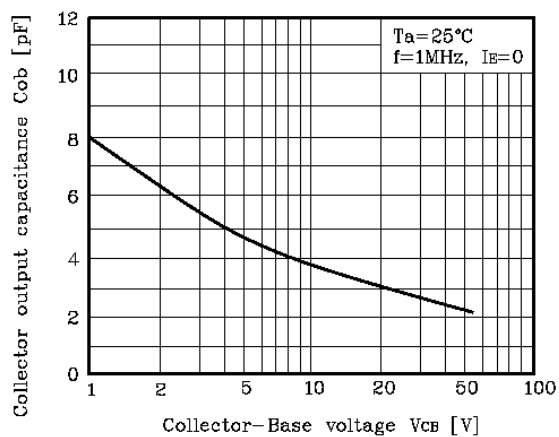


Fig. 6  $P_{tot} - T_a$

