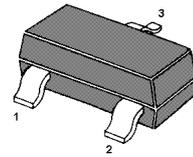


MMBTA42W

NPN Silicon High Voltage Transistors

for high voltage switching and amplifier applications.



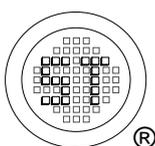
1. Base 2. Emitter 3. Collector
SOT-323 Plastic Package

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

| Parameter | Symbol | Value | Unit |
|--|----------------|---------------|------------------|
| Collector Base Voltage | V_{CBO} | 300 | V |
| Collector Emitter Voltage | V_{CEO} | 300 | V |
| Emitter Base Voltage | V_{EBO} | 6 | V |
| Collector Current | I_C | 500 | mA |
| Power Dissipation | P_{tot} | 200 | mW |
| Junction and Storage Temperature Range | T_j, T_{stg} | - 55 to + 150 | $^\circ\text{C}$ |

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

| Parameter | Symbol | Min. | Max. | Unit |
|---|----------------------------------|----------------|---------------|---------------|
| DC Current Gain at $V_{CE} = 10\text{ V}, I_C = 1\text{ mA}$ at $V_{CE} = 10\text{ V}, I_C = 10\text{ mA}$ at $V_{CE} = 10\text{ V}, I_C = 30\text{ mA}$ | h_{FE} h_{FE} h_{FE} | 25 80 40 | - 200 - | - - - |
| Collector Base Cutoff Current at $V_{CB} = 200\text{ V}$ | I_{CBO} | - | 0.1 | μA |
| Emitter Base Cutoff Current at $V_{EB} = 6\text{ V}$ | I_{EBO} | - | 0.1 | μA |
| Collector Base Breakdown Voltage at $I_C = 100\text{ }\mu\text{A}$ | $V_{(BR)CBO}$ | 300 | - | V |
| Collector Emitter Breakdown Voltage at $I_C = 1\text{ mA}$ | $V_{(BR)CEO}$ | 300 | - | V |
| Emitter Base Breakdown Voltage at $I_E = 100\text{ }\mu\text{A}$ | $V_{(BR)EBO}$ | 6 | - | V |
| Collector Emitter Saturation Voltage at $I_C = 20\text{ mA}, I_B = 2\text{ mA}$ | $V_{CE(sat)}$ | - | 0.5 | V |
| Base Emitter Saturation Voltage at $I_C = 20\text{ mA}, I_B = 2\text{ mA}$ | $V_{BE(sat)}$ | - | 0.9 | V |
| Gain Bandwidth Product at $V_{CE} = 20\text{ V}, I_C = 10\text{ mA}, f = 100\text{ MHz}$ | f_T | 50 | - | MHz |
| Collector Output Capacitance at $V_{CB} = 20\text{ V}, f = 1\text{ MHz}$ | C_{ob} | - | 3 | pF |



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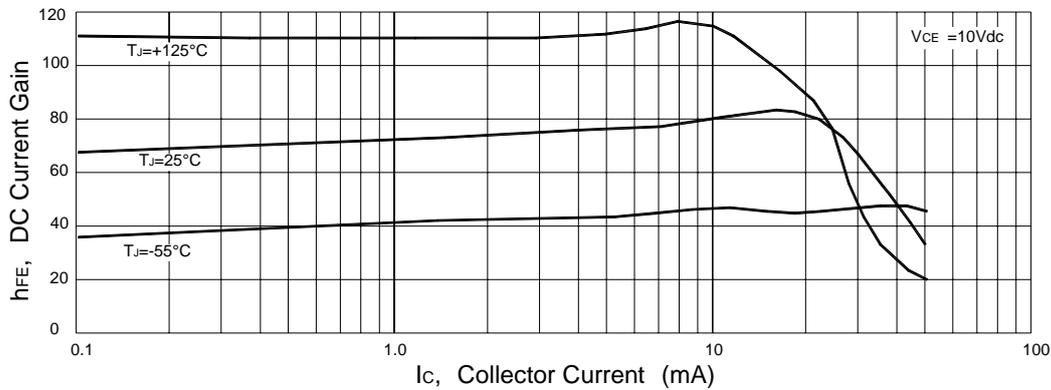


Figure 1. DC Current Gain

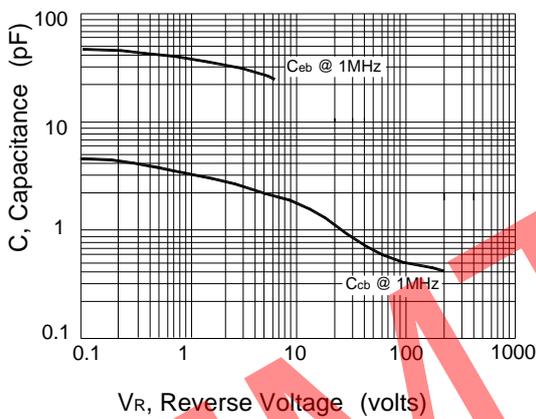


Figure 2. Capacitance

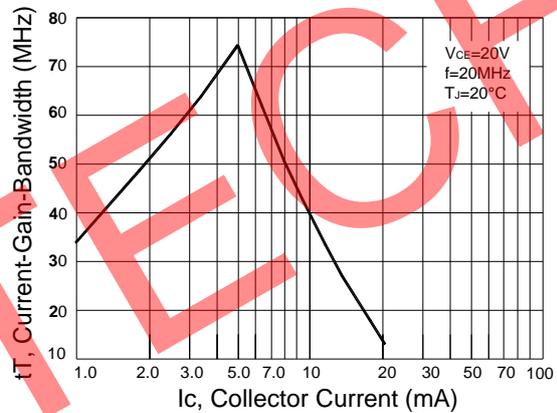


Figure 3. Current-Gain-Bandwidth

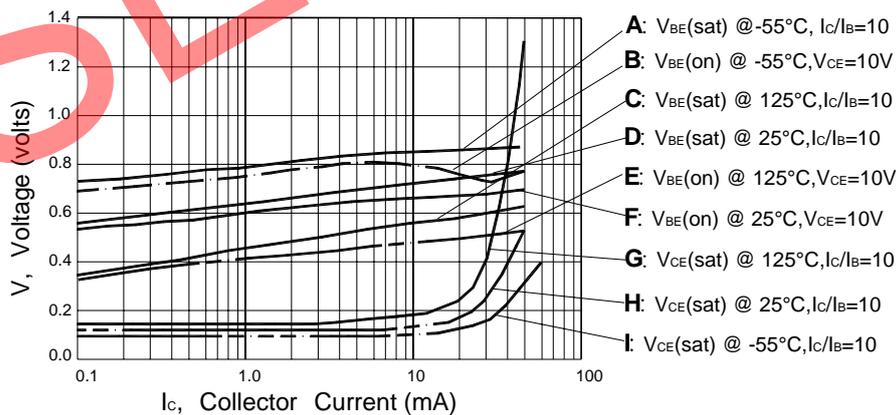
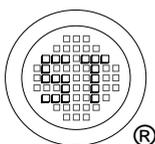


Figure 4. "on" Voltages



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