

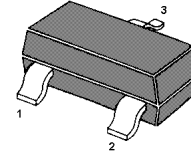


## MMBTA42 / MMBTA43

### NPN Silicon High Voltage Transistors

for high voltage switching and amplifier applications.

As complementary types the PNP transistors MMBTA92 and MMBTA93 are recommended.



1. Base 2. Emitter 3. Collector  
SOT-23 Plastic Package

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

Parameter	Symbol	Value	Unit
Collector Base Voltage	$V_{CBO}$	300 200	V
Collector Emitter Voltage	$V_{CEO}$	300 200	V
Emitter Base Voltage	$V_{EBO}$	6	V
Collector Current	$I_C$	500	mA
Power Dissipation	$P_{tot}$	350	mW
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	357	$^\circ\text{C/W}$
Junction and Storage Temperature Range	$T_j, T_{stg}$	- 55 to + 150	$^\circ\text{C}$

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

Parameter	Symbol	Min.	Max.	Unit
DC Current Gain	$h_{FE}$	25	-	-
at $V_{CE} = 10\text{ V}, I_C = 1\text{ mA}$	$h_{FE}$	40	-	-
at $V_{CE} = 10\text{ V}, I_C = 10\text{ mA}$	$h_{FE}$	40	-	-
at $V_{CE} = 10\text{ V}, I_C = 30\text{ mA}$	$h_{FE}$	40	-	-
Collector Base Cutoff Current	$I_{CBO}$	-	0.1	$\mu\text{A}$
at $V_{CB} = 200\text{ V}$	$I_{CBO}$	-	0.1	$\mu\text{A}$
at $V_{CB} = 160\text{ V}$	$I_{CBO}$	-	0.1	$\mu\text{A}$
Emitter Base Cutoff Current	$I_{EBO}$	-	0.1	$\mu\text{A}$
at $V_{EB} = 6\text{ V}$	$I_{EBO}$	-	0.1	$\mu\text{A}$
at $V_{EB} = 4\text{ V}$	$I_{EBO}$	-	0.1	$\mu\text{A}$
Collector Base Breakdown Voltage	$V_{(BR)CBO}$	300	-	V
at $I_C = 100\text{ }\mu\text{A}$	$V_{(BR)CBO}$	200	-	V
Collector Emitter Breakdown Voltage	$V_{(BR)CEO}$	300	-	V
at $I_C = 1\text{ mA}$	$V_{(BR)CEO}$	200	-	V
Emitter Base Breakdown Voltage	$V_{(BR)EBO}$	6	-	V
Collector Emitter Saturation Voltage	$V_{CE(sat)}$	-	0.5	V
at $I_C = 20\text{ mA}, I_B = 2\text{ mA}$	$V_{CE(sat)}$	-	0.9	V
Base Emitter Saturation Voltage	$V_{BE(sat)}$	-	0.9	V
at $I_C = 20\text{ mA}, I_B = 2\text{ mA}$	$V_{BE(sat)}$	-	0.9	V
Gain Bandwidth Product	$f_T$	50	-	MHz
at $V_{CE} = 20\text{ V}, I_C = 10\text{ mA}, f = 100\text{ MHz}$	$f_T$	50	-	MHz
Collector Output Capacitance	$C_{ob}$	-	3	pF
at $V_{CB} = 20\text{ V}, f = 1\text{ MHz}$	$C_{ob}$	-	4	pF

# MMBTA42 / MMBTA43

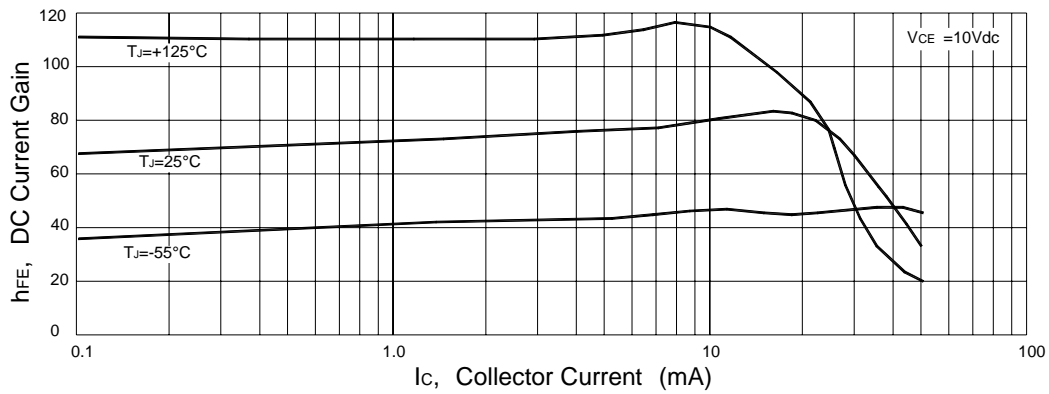


Figure 1. DC Current Gain

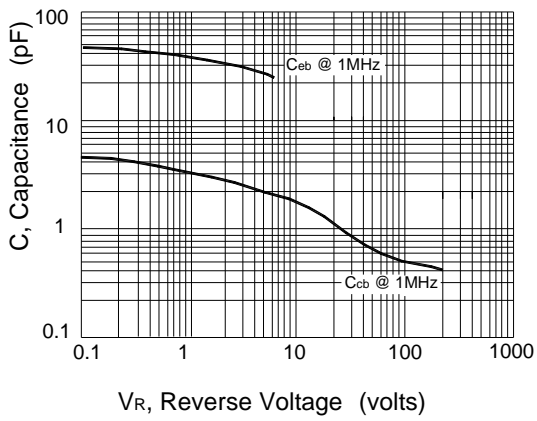


Figure 2. Capacitance

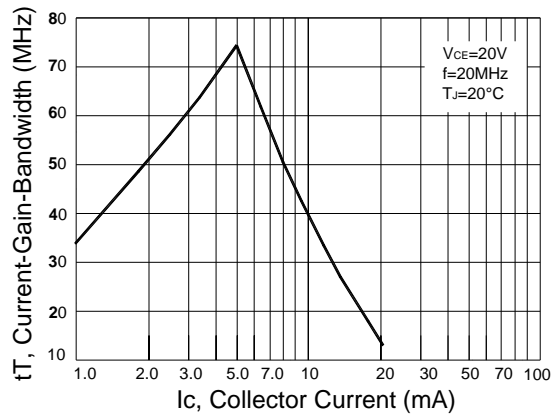


Figure 3. Current-Gain-Bandwidth

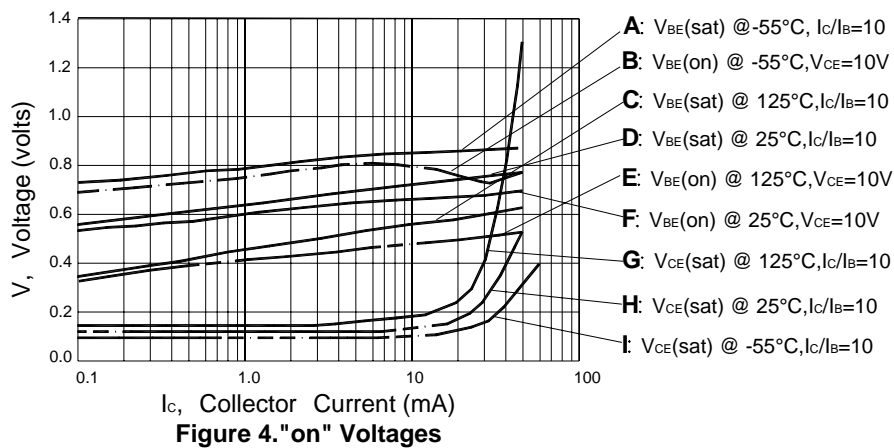


Figure 4. "on" Voltages