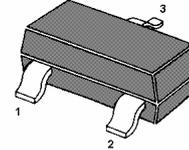


MMBTA42 / MMBTA43

NPN Silicon High Voltage Transistors

for high voltage switching and amplifier applications.

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



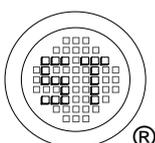
1. Base 2. Emitter 3. Collector

SOT-23 Plastic Package

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

	Symbol	Value		Unit
		MMBTA42	MMBTA43	
Collector Base Voltage	V_{CBO}	300	200	V
Collector Emitter Voltage	V_{CEO}	300	200	V
Emitter Base Voltage	V_{EBO}	6	6	V
Collector Current Continuous	I_C	500		mA
Total Device Dissipation FR-5 Board ¹⁾	P_{tot}	200		mW
Derate above 25°C		1.8		mW/°C
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	417		°C/W
Junction and Storage Temperature	T_J, T_S	-55 to +150		°C

¹⁾ FR-5 = 1 x 0.75 x 0.062 in.



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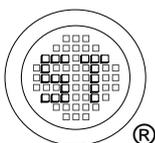


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MMBTA42 / MMBTA43

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

		Symbol	Min.	Max.	Unit	
DC Current Gain	at $V_{CE}=10\text{Vdc}$, $I_C=1\text{mA}$	Both Types	h_{FE}	25	-	
	at $V_{CE}=10\text{Vdc}$, $I_C=10\text{mA}$	Both Types	h_{FE}	40	-	
	at $V_{CE}=10\text{Vdc}$, $I_C=30\text{mA}$	MMBTA42	h_{FE}	40	-	
		MMBTA43	h_{FE}	40	-	
Collector Emitter Saturation Voltage	at $I_C=20\text{mA}$, $I_B=2\text{mA}$	MMBTA42	$V_{CE(sat)}$	-	0.5	V
		MMBTA43	$V_{CE(sat)}$	-	0.5	V
Base Emitter Saturation Voltage	at $I_C=20\text{mA}$, $I_B=2\text{mA}$		$V_{BE(sat)}$	-	0.9	V
Collector Cutoff Current	at $V_{CB}=200\text{V}$	MMBTA42	I_{CBO}	-	0.1	μA
	$V_{CB}=160\text{V}$	MMBTA43	I_{CBO}	-	0.1	μA
Emitter Cutoff Current	at $V_{EB}=6\text{V}$	MMBTA42	I_{EBO}	-	0.1	μA
	$V_{EB}=4\text{V}$	MMBTA43	I_{EBO}	-	0.1	μA
Collector Base Breakdown Voltage	at $I_C=100\mu\text{A}$	MMBTA42	$V_{(BR)CBO}$	300	-	V
		MMBTA43	$V_{(BR)CBO}$	200	-	V
Collector Emitter Breakdown Voltage	at $I_C=1\text{mA}$	MMBTA42	$V_{(BR)CEO}$	300	-	V
		MMBTA43	$V_{(BR)CEO}$	200	-	V
Emitter Base Breakdown Voltage	at $I_E=100\mu\text{A}$		$V_{(BR)EBO}$	6	-	V
Current Gain Bandwidth Product	at $V_{CE}=20\text{V}$, $I_C=10\text{mA}$, $f=100\text{MHz}$		f_T	50	-	MHz
Collector Base Capacitance	at $V_{CB}=20\text{V}$, $I_E=0$, $f=1\text{MHz}$	MMBTA42	C_{cb}	-	3	pF
		MMBTA43	C_{cb}	-	4	pF



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MMBTA42 / MMBTA43

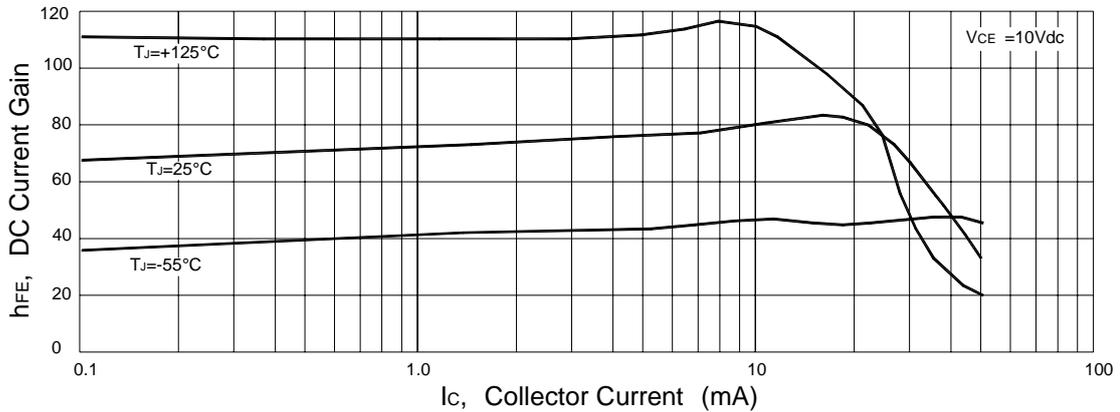


Figure 1. DC Current Gain

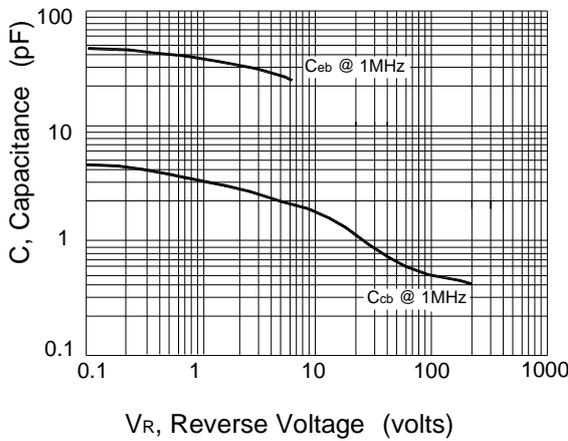


Figure 2. Capacitance

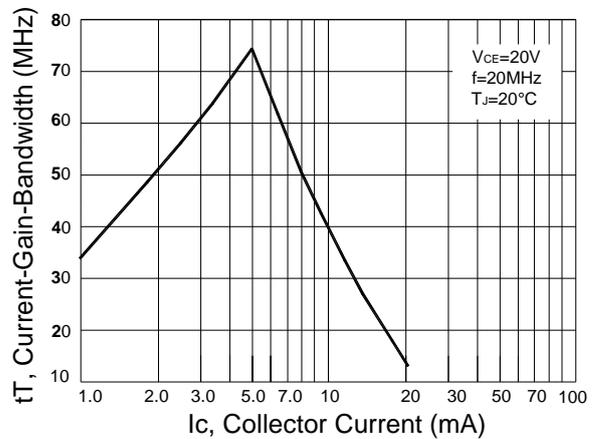


Figure 3. Current-Gain-Bandwidth

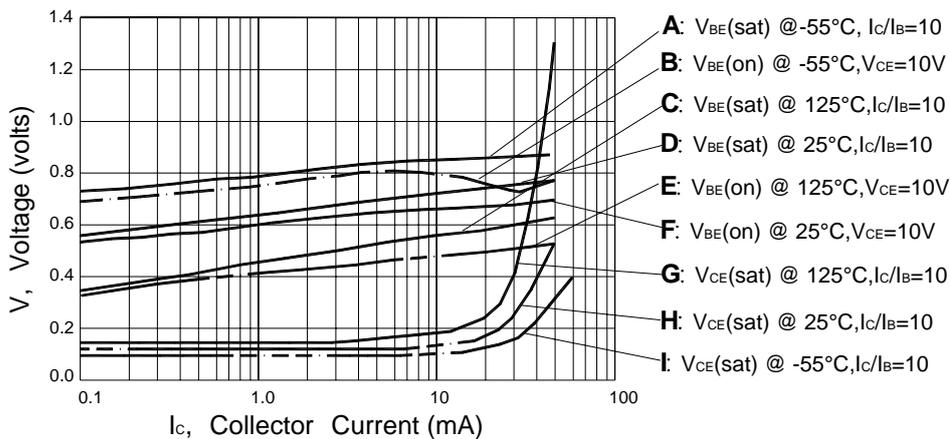
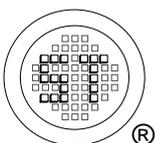


Figure 4. "on" Voltages



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