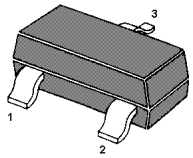
MMBTA42 / MMBTA43

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 °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.

Characteristics at T_{amb}=25 °C

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

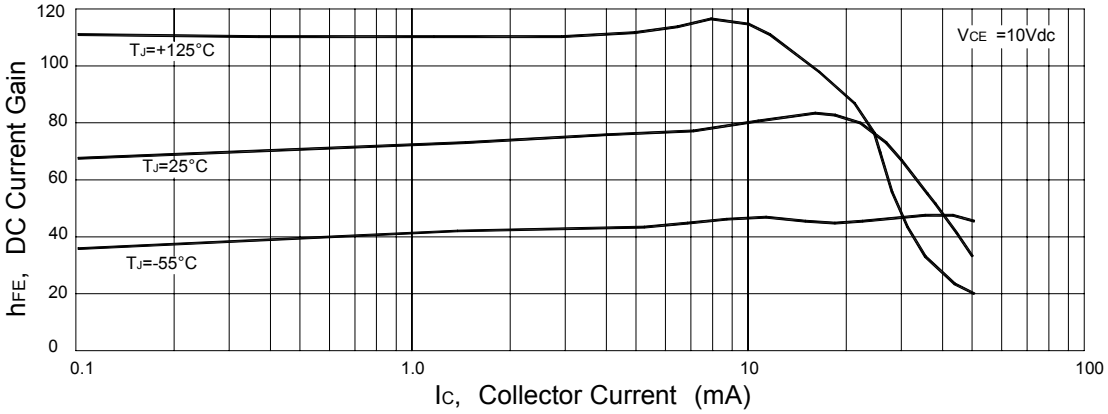


Figure 1. DC Current Gain

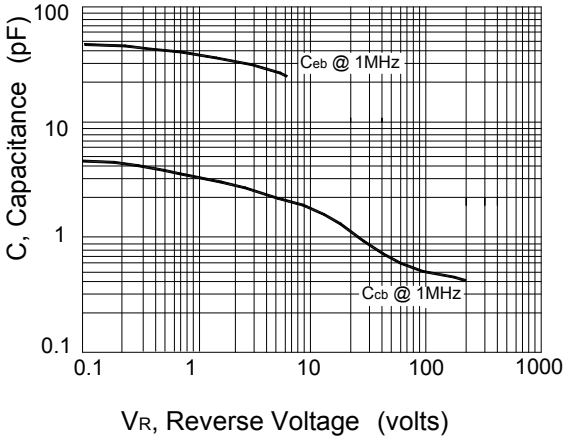


Figure 2. Capacitance

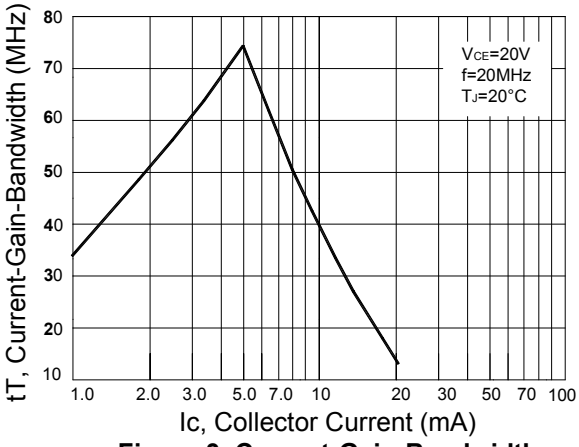


Figure 3. Current-Gain-Bandwidth

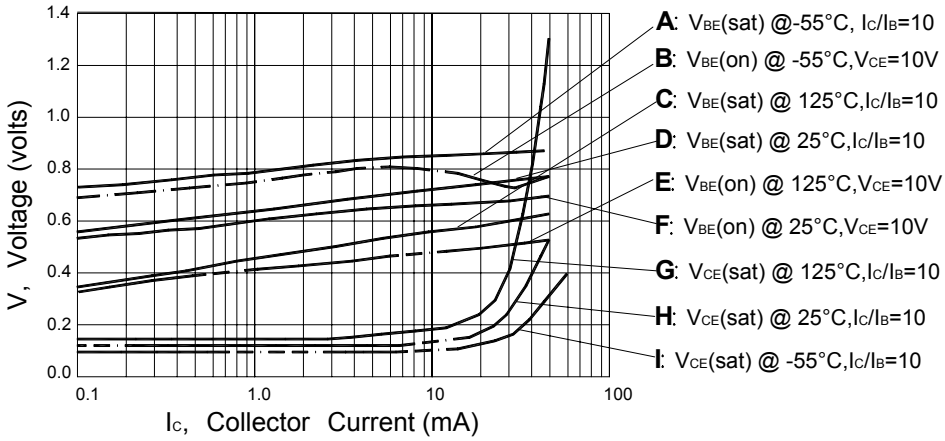


Figure 4."on" Voltages