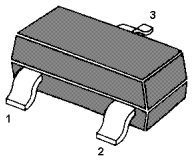
MMBTA42 / MMBTA43

NPN Silicon High Voltage Transistors

for high voltage switching and amplifier applications.



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

Absolute Maximum Ratings (T_a = 25 °C)

Parameter		Symbol	Value	Unit
Collector Base Voltage	MMBTA42 MMBTA43	V_{CBO}	300 200	V
Collector Emitter Voltage	MMBTA42 MMBTA43	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	°C/W
Junction and Storage Temperature Range		T_j, T_{stg}	- 55 to + 150	°C

Characteristics at T_a = 25 °C

Parameter		Symbol	Min.	Max.	Unit
DC Current Gain					
at V_{CE} = 10 V, I_C = 1 mA		h_{FE}	25	-	-
at V_{CE} = 10 V, I_C = 10 mA		h_{FE}	80	200	-
at V_{CE} = 10 V, I_C = 30 mA		h_{FE}	40	-	-
Collector Base Cutoff Current					
at V_{CB} = 200 V	MMBTA42	I_{CBO}	-	0.1	µA
at V_{CB} = 160 V	MMBTA43	I_{CBO}	-	0.1	
Emitter Base Cutoff Current					
at V_{EB} = 6 V	MMBTA42	I_{EBO}	-	0.1	µA
at V_{EB} = 4 V	MMBTA43	I_{EBO}	-	0.1	
Collector Base Breakdown Voltage					
at I_C = 100 µA	MMBTA42	$V_{(BR)CBO}$	300	-	V
	MMBTA43	$V_{(BR)CBO}$	200	-	
Collector Emitter Breakdown Voltage					
at I_C = 1 mA	MMBTA42	$V_{(BR)CEO}$	300	-	V
	MMBTA43	$V_{(BR)CEO}$	200	-	
Emitter Base Breakdown Voltage at I_E = 100 µA		$V_{(BR)EBO}$	6	-	V
Collector Emitter Saturation Voltage at I_C = 20 mA, I_B = 2 mA		$V_{CE(sat)}$	-	0.5	V
Base Emitter Saturation Voltage at I_C = 20 mA, I_B = 2 mA		$V_{BE(sat)}$	-	0.9	V
Gain Bandwidth Product at V_{CE} = 20 V, I_C = 10 mA, f = 100 MHz		f_T	50	-	MHz
Collector Output Capacitance					
at V_{CB} = 20 V, f = 1 MHz	MMBTA42	C_{ob}	-	3	pF
	MMBTA43		-	4	

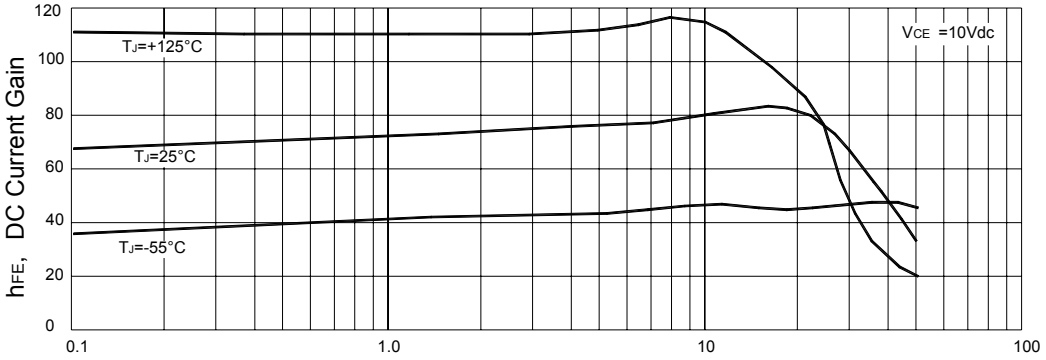


Figure 1. DC Current Gain

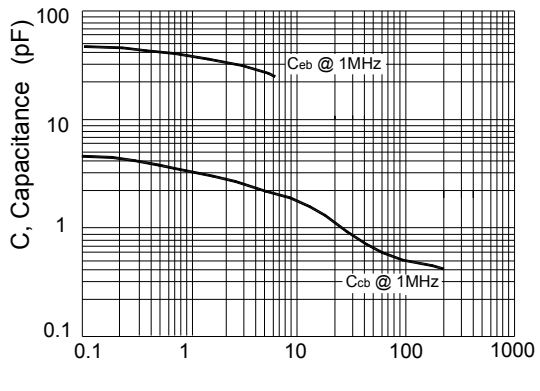


Figure 2. Capacitance

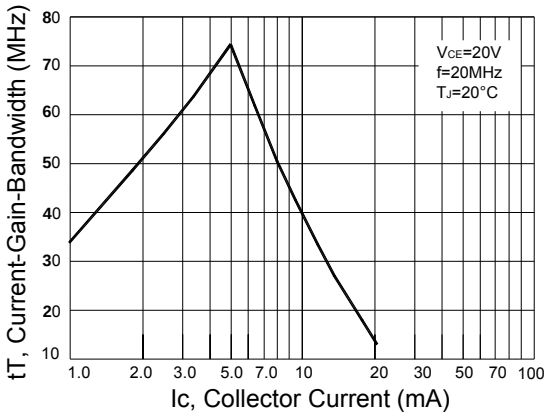


Figure 3. Current-Gain-Bandwidth

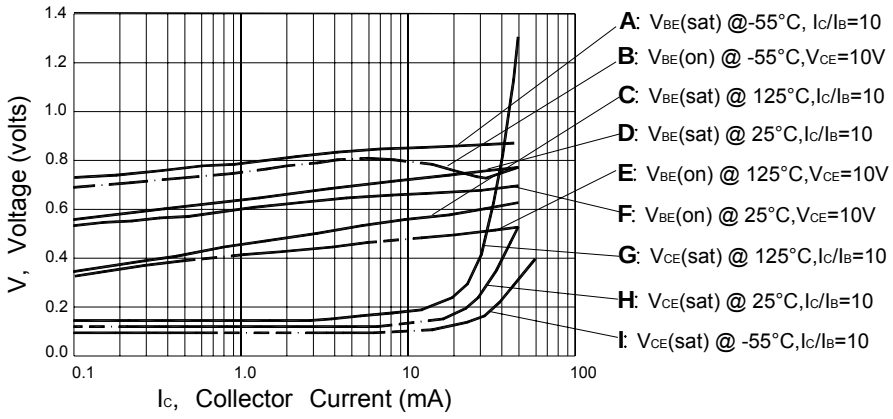


Figure 4."on" Voltages