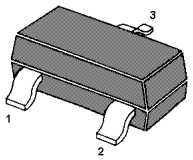
MMBTA92 / MMBTA93

PNP Silicon High Voltage Transistors

for high voltage switching and amplifier applications.



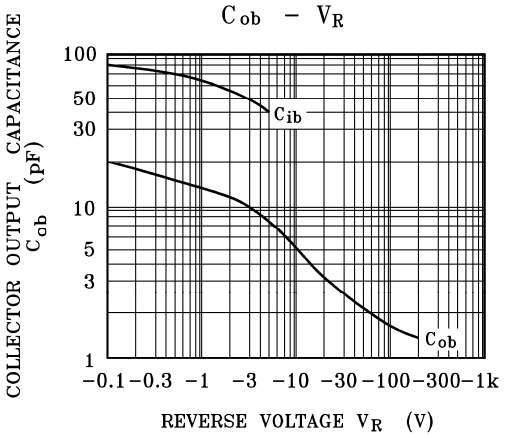
1. Base 2. Emitter 3. Collector
TO-236 Plastic Package

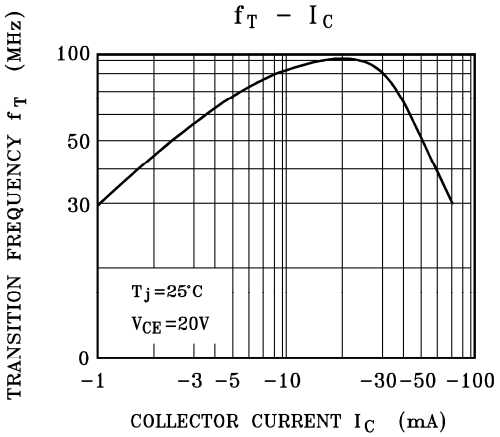
Absolute Maximum Ratings (T_a = 25 °C)

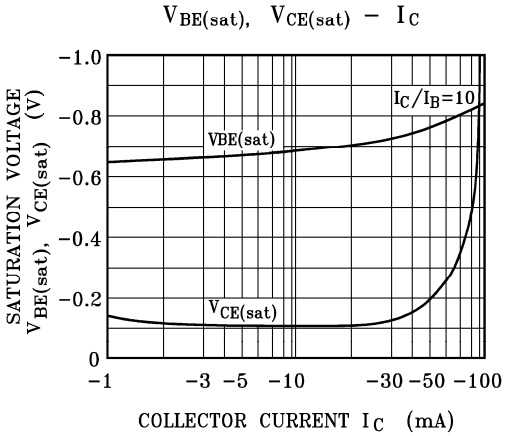
Parameter		Symbol	Value	Unit
Collector Base Voltage	MMBTA92 MMBTA93	$-V_{CBO}$	300 200	V
Collector Emitter Voltage	MMBTA92 MMBTA93	$-V_{CEO}$	300 200	V
Emitter Base Voltage		$-V_{EBO}$	5	V
Collector Current		$-I_C$	500	mA
Total Power Dissipation		P_{tot}	350	mW
Junction Temperature		T_j	150	°C
Storage Temperature Range		T_{stg}	- 55 to + 150	°C

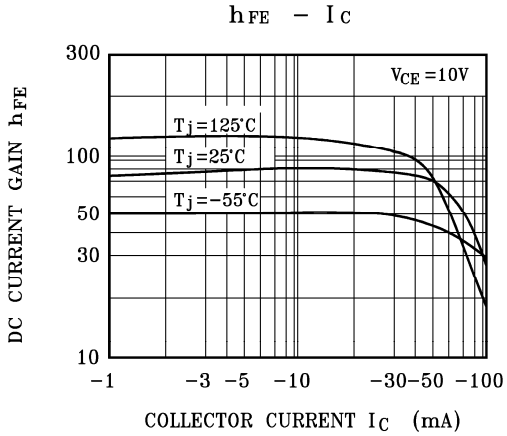
Characteristics at T_a = 25 °C

Parameter		Symbol	Min.	Max.	Unit
DC Current Gain at $-V_{CE}$ = 10 V, $-I_C$ = 1 mA at $-V_{CE}$ = 10 V, $-I_C$ = 10 mA at $-V_{CE}$ = 10 V, $-I_C$ = 30 mA		 h_{FE} h_{FE} h_{FE}	 25 80 25	 - 200 -	 - - -
Collector Base Cutoff Current at $-V_{CB}$ = 200 V at $-V_{CB}$ = 160 V	 MMBTA92 MMBTA93	 $-I_{CBO}$ $-I_{CBO}$	 - -	 0.25 0.25	 µA
Emitter Base Cutoff Current at $-V_{EB}$ = 3 V		$-I_{EBO}$	-	0.1	µA
Collector Base Breakdown Voltage at $-I_C$ = 100 µA	 MMBTA92 MMBTA93	 $-V_{(BR)CBO}$ $-V_{(BR)CBO}$	 300 200	 - -	 V
Collector Emitter Breakdown Voltage at $-I_C$ = 1 mA	 MMBTA92 MMBTA93	 $-V_{(BR)CEO}$ $-V_{(BR)CEO}$	 300 200	 - -	 V
Emitter Base Breakdown Voltage at $-I_E$ = 100 µA		$-V_{(BR)EBO}$	5	-	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
Current Gain Bandwidth Product at $-V_{CE}$ = 20 V, $-I_C$ = 10 mA, f = 100 MHz		f_T	50	-	MHz
Collector Base Capacitance at $-V_{CB}$ = 20 V, f = 1 MHz	 MMBTA92 MMBTA93	 C_{cb}	 - -	 6 8	 pF


Cob – VR
COLLECTOR OUTPUT CAPACITANCE Cob (pF)
100
50
30
10
5
3
1
Cib
Cob
−0.1 −0.3 −1 −3 −10 −30 −100 −300 −1k
REVERSE VOLTAGE VR (V)


fT – IC
TRANSITION FREQUENCY fT (MHz)
100
50
30
0
Tj=25°C
VCE=20V
−1 −3 −5 −10 −30 −50 −100
COLLECTOR CURRENT IC (mA)


VBE(sat), VCE(sat) – IC
SATURATION VOLTAGE VBE(sat), VCE(sat) (V)
−1.0
−0.8
−0.6
−0.4
−0.2
0
IC/IB=10
VBE(sat)
VCE(sat)
−1 −3 −5 −10 −30 −50 −100
COLLECTOR CURRENT IC (mA)


hFE – IC
DC CURRENT GAIN hFE
300
100
50
30
10
VCE=10V
Tj=125°C
Tj=25°C
Tj=−55°C
−1 −3 −5 −10 −30 −50 −100
COLLECTOR CURRENT IC (mA)