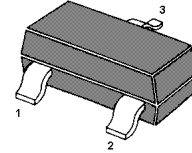


# MMBTSB1690

## PNP Silicon Epitaxial Planar Transistors

for low frequency amplifier and driver applications



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

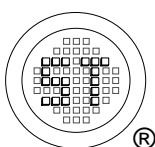
### Absolute Maximum Ratings ( $T_a = 25^\circ\text{C}$ )

Parameter	Symbol	Value	Unit
Collector Base Voltage	$-V_{\text{CBO}}$	15	V
Collector Emitter Voltage	$-V_{\text{CEO}}$	12	V
Emitter Base Voltage	$-V_{\text{EBO}}$	6	V
Collector Current	$-I_{\text{C}}$	2	A
	$-I_{\text{CP}}$	4 <sup>1)</sup>	A
Power Dissipation	$P_{\text{tot}}$	200	mW
Junction Temperature	$T_{\text{J}}$	150	$^\circ\text{C}$
Storage Temperature Range	$T_{\text{stg}}$	-55 to +150	$^\circ\text{C}$

<sup>1)</sup> Single pulse,  $P_w = 1$  ms.

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

Parameter	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at $-V_{\text{CE}} = 2$ V, $-I_{\text{C}} = 200$ mA	$h_{\text{FE}}$	270	-	680	-
Collector Base Breakdown Voltage at $-I_{\text{C}} = 10$ $\mu\text{A}$	$-V_{(\text{BR})\text{CBO}}$	15	-	-	V
Collector Emitter Breakdown Voltage at $-I_{\text{C}} = 1$ mA	$-V_{(\text{BR})\text{CEO}}$	12	-	-	V
Emitter Base Breakdown Voltage at $-I_{\text{E}} = 10$ $\mu\text{A}$	$-V_{(\text{BR})\text{EBO}}$	6	-	-	V
Collector Emitter Saturation Voltage at $-I_{\text{C}} = 1$ A, $-I_{\text{B}} = 50$ mA	$-V_{\text{CEsat}}$	-	-	0.18	V
Collector Cutoff Current at $-V_{\text{CB}} = 15$ V	$-I_{\text{CBO}}$	-	-	100	nA
Emitter Cutoff Current at $-V_{\text{EB}} = 6$ V	$-I_{\text{EBO}}$	-	-	100	nA
Transition Frequency at $-V_{\text{CE}} = 2$ V, $I_{\text{E}} = 200$ mA, $f = 100$ MHz	$f_{\text{T}}$	-	360	-	MHz
Collector Output Capacitance at $-V_{\text{CB}} = 10$ V, $I_{\text{E}} = 0$ mA, $f = 1$ MHz	$C_{\text{ob}}$	-	15	-	pF



**SEMTECH ELECTRONICS LTD.**  
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Dated : 13/01/2006

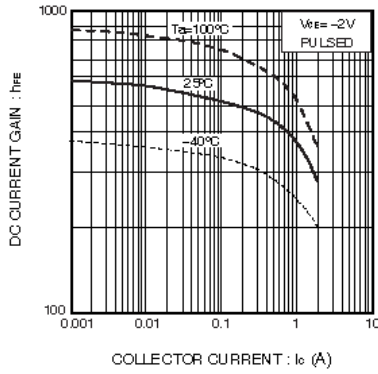


Fig. 1 DC current gain vs. collector current

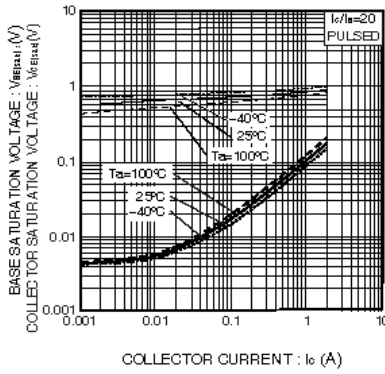


Fig. 2 Collector-emitter saturation voltage vs. collector current

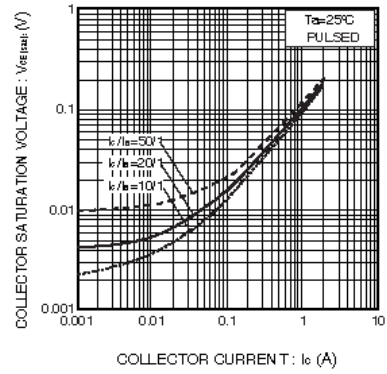


Fig. 3 Collector-emitter saturation voltage vs. collector current

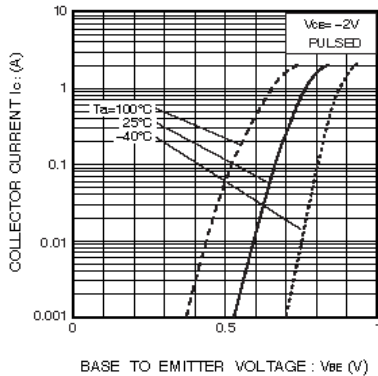


Fig. 4 Grounded emitter propagation characteristics

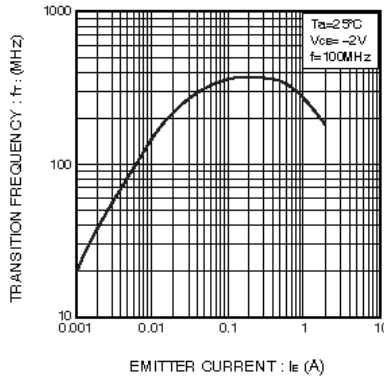


Fig. 5 Gain bandwidth product vs. emitter current

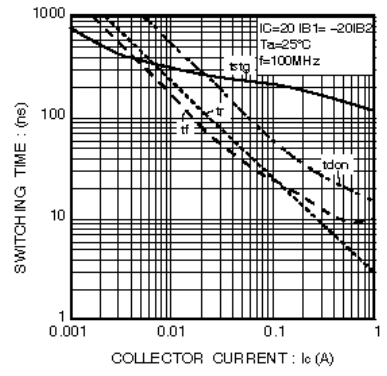


Fig. 6 Switching time

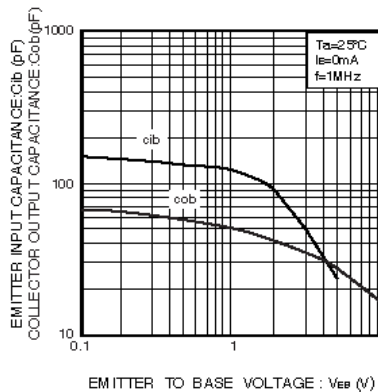


Fig. 7 Collector output capacitance vs. collector-base voltage  
Emitter input capacitance vs. emitter-base voltage

