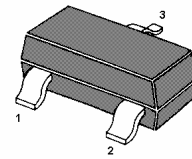


# MMBT5B1690

## PNP Silicon Epitaxial Planar Transistors

for low frequency amplifier and driver applications



1. Base 2. Emitter 3. Collector

SOT-23 Plastic Package

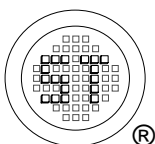
### Absolute Maximum Ratings ( $T_a = 25^\circ\text{C}$ )

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

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

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

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



**SEMTECH ELECTRONICS LTD.**

(Subsidiary of Sino-Tech International Holdings Limited, a company listed on the Hong Kong Stock Exchange, Stock Code: 724)



ISO/TS 16949 : 2002  
Certificate No. 05103



ISO 14001:2004  
Certificate No. 7116



ISO 9001:2000  
Certificate No. 0506098

Dated : 13/01/2006

# MMBTSB1690

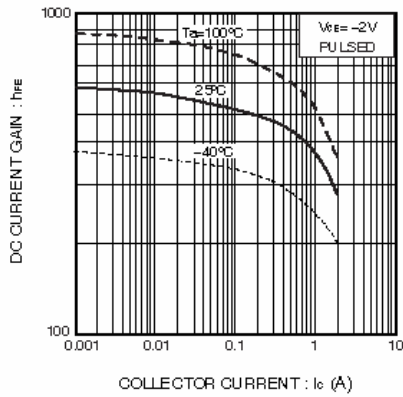


Fig.1 DC current gain vs. collector current

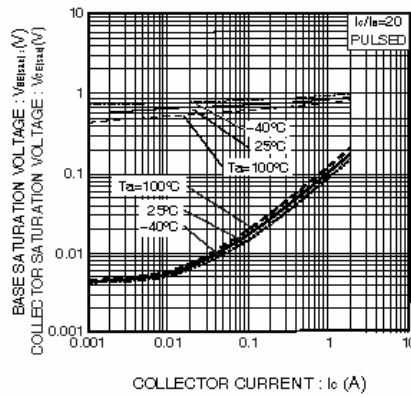


Fig.2 Collector-emitter saturation voltage base-emitter saturation voltage vs. collector current

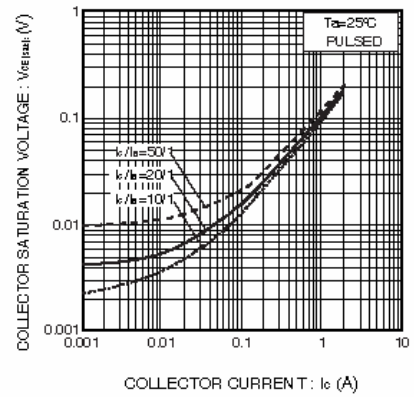


Fig.3 Collector-emitter saturation voltage vs. collector current

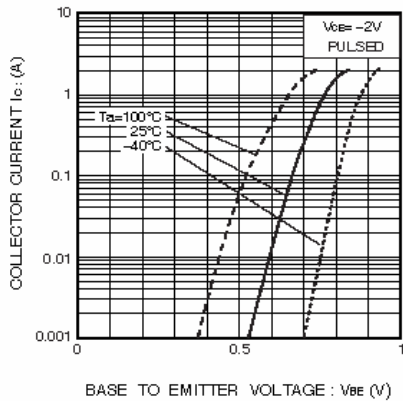


Fig.4 Grounded emitter propagation characteristics

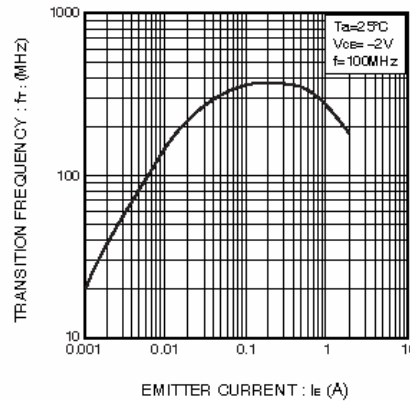


Fig.5 Gain bandwidth product vs. emitter current

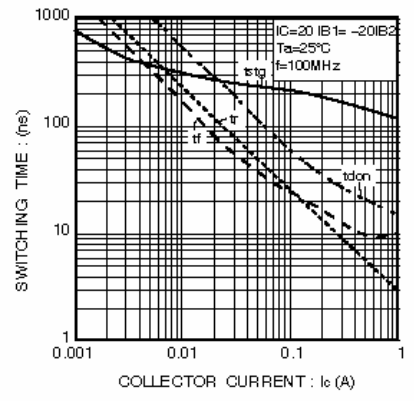


Fig.6 Switching time

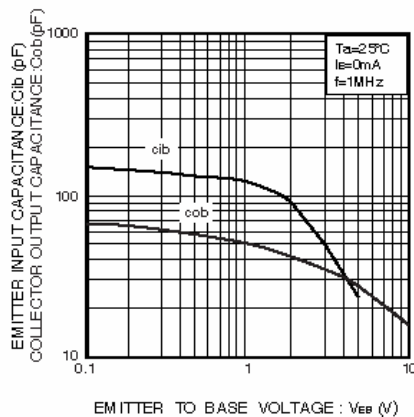
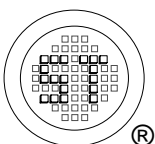


Fig.7 Collector output capacitance vs. collector-base voltage  
Emitter input capacitance vs. emitter-base voltage



**SEMTECH ELECTRONICS LTD.**

(Subsidiary of Sino-Tech International Holdings Limited, a company listed on the Hong Kong Stock Exchange, Stock Code: 724)



ISO/TS 16949 : 2002 Certificate No. 05103  
 ISO 14001:2004 Certificate No. 7116  
 ISO 9001:2000 Certificate No. 0506098