

HMBT591

High Current PNP Silicon Transistor

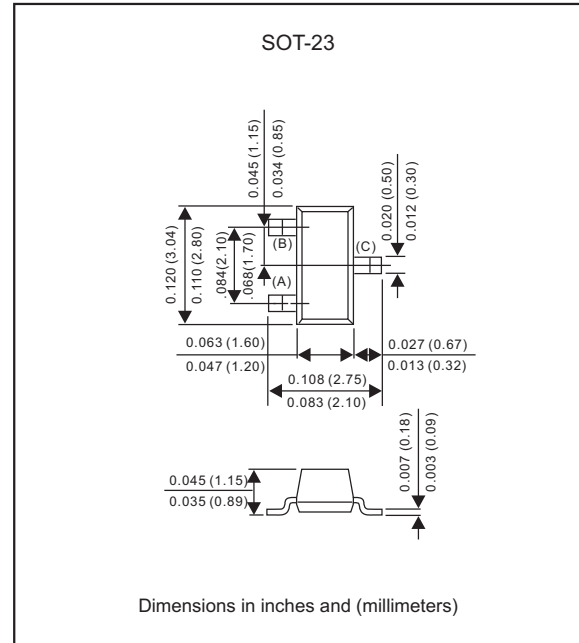
Features

- High current surface mount PNP silicon switching transistor for Load management in portable applications.
- Low equivalent on-resistance
- Lead-free parts for green partner, exceeds environmental standards of MIL-STD-19500 /228
- Suffix "-H" dinicates Halogen-free part, ex.HMBT591-H.

Mechanical data

- Epoxy:UL94-V0 rated flame retardant
- Case : Molded plastic, SOT-23
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Mounting Position : Any
- Weight : Approximated 0.008 gram

Package outline



Maximum ratings (AT $T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Collector-base voltage	V_{CBO}	-80	V
Collector-emitter voltage	V_{CEO}	-60	V
Emitter-base voltage	V_{EBO}	-5.0	V
Collector current	I_C	-1	A
Peak pulse current	I_{CM}	-2	A
Collector power dissipation	P_C	250	mW
Thermal resistance junction to ambient	$R_{\theta JA}$	500	$^{\circ}\text{C}/\text{W}$
Operating junction temperature range	T_J	-55 to +150	$^{\circ}\text{C}$
Storage temperature range	T_{STG}	-55 to +150	$^{\circ}\text{C}$

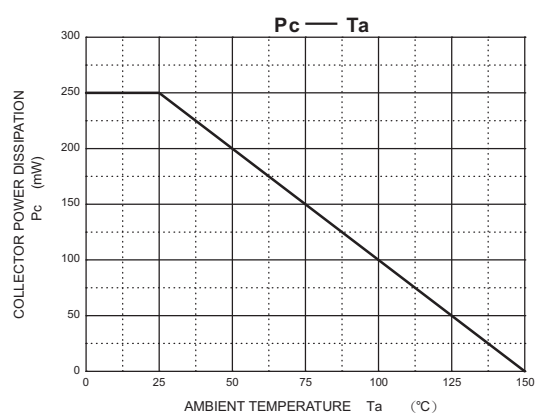
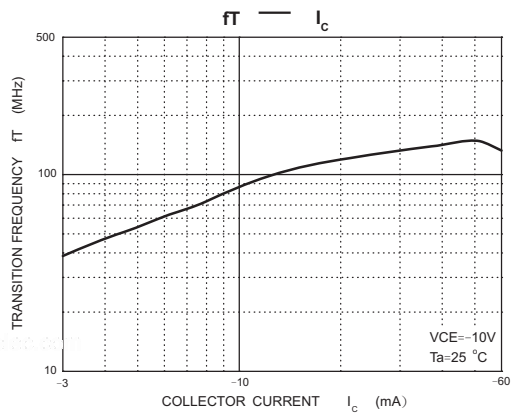
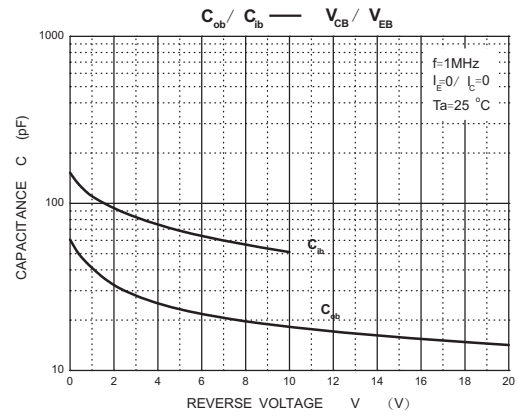
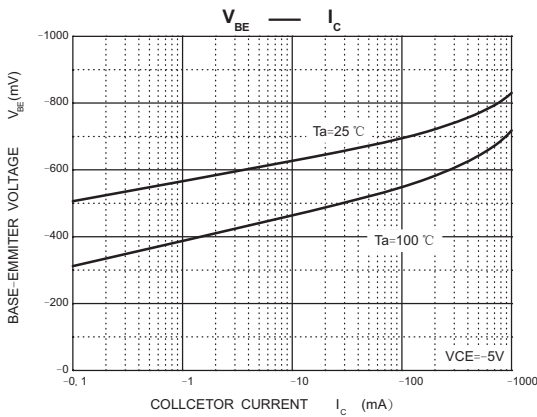
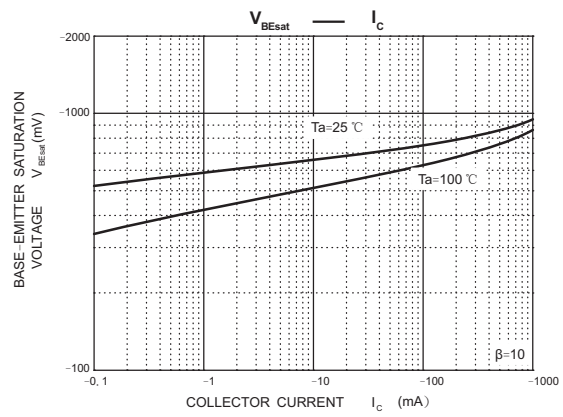
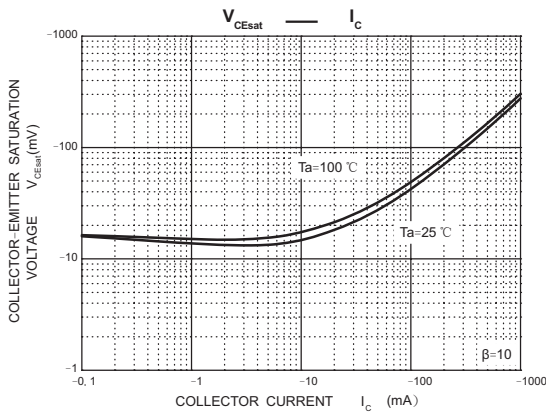
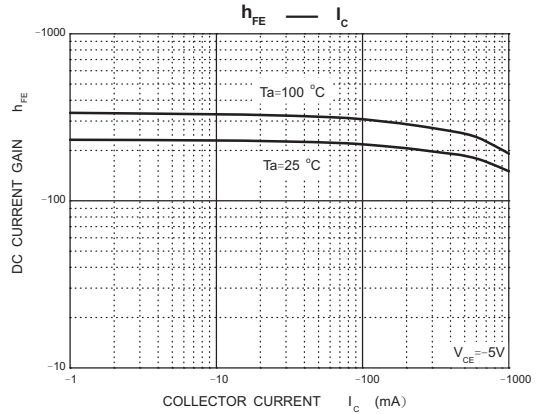
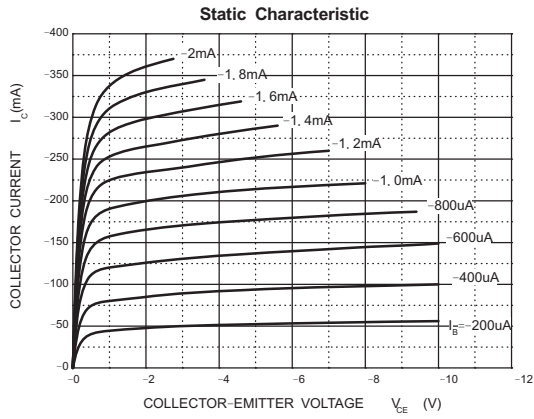
HMBT591

Electrical characteristics (AT $T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter	Conditions	Symbol	MIN.	TYP.	MAX.	UNIT
Collector-base breakdown voltage	$I_c = -100\mu\text{A}, I_E = 0$	$V_{(BR)CBO}$	-80			V
Collector-emitter breakdown voltage	$I_c = -10\text{mA}, I_B = 0$ (note 1)	$V_{(BR)CEO}$	-60			V
Emitter-base breakdown voltage	$I_E = -100\mu\text{A}, I_C = 0$	$V_{(BR)EBO}$	-5.0			V
Collector cut-off current	$V_{CB} = -60\text{V}, I_E = 0$	I_{CBO}			-0.1	μA
Emitter cut-off current	$V_{EB} = -4\text{V}, I_C = 0$	I_{EBO}			-0.1	μA
DC current gain	$I_c = -1.0\text{mA}, V_{CE} = -5.0\text{V}$ (note 1)	h_{FE}	100			
	$I_c = -500\text{mA}, V_{CE} = -5.0\text{V}$ (note 1)		100		300	
	$I_c = -1.0\text{A}, V_{CE} = -5.0\text{V}$ (note 1)		80			
	$I_c = -2.0\text{A}, V_{CE} = -5.0\text{V}$ (note 1)		15			
Collector-emitter saturation voltage	$I_c = -500\text{mA}, I_B = -50\text{mA}$ (note 1)	$V_{CE(sat)}$			-0.3	V
	$I_c = -1.0\text{A}, I_B = -100\text{mA}$ (note 1)				-0.6	V
Base-emitter saturation voltage	$I_c = -1.0\text{A}, I_B = -100\text{mA}$ (note 1)	$V_{BE(sat)}$			-1.2	V
Base-emitter voltage	$I_c = -1.0\text{A}, V_{CE} = -5.0\text{V}$ (note 1)	V_{BE}			-1.0	V
Transition frequency	$I_c = -50\text{mA}, V_{CE} = -10\text{V}, f = 100\text{MHz}$	f_T	150			MHz
Collector output capacitance	$f = 1.0\text{MHz}, V_{CB} = -10\text{V}$	C_{ob}			10	pF

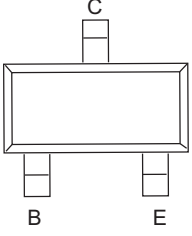
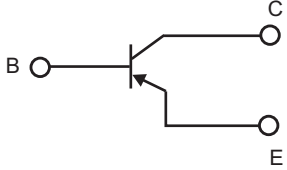
Note 1: Measured under pulsed conditions, Pulse width=300 μs , Duty cycle \leq 2%.

Rating and characteristic curves (HMBT591)



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Pinning information

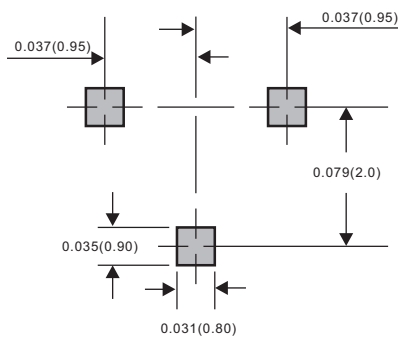
Pin	Simplified outline	Symbol
PinB Base PinC Collector PinE Emitter		

Marking

Type number	Marking code
HMBT591	591

Suggested solder pad layout

SOT-23



Dimensions in inches and (millimeters)