

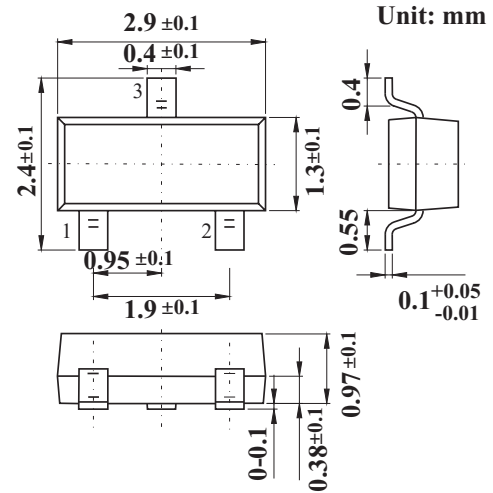
SOT-23 Plastic-Encapsulate Transistors

Features

- Low current (max. 100 mA).
- Low voltage (max. 65 V).
- PNP General Purpose Transistor

MECHANICAL DATA

- Case style: SOT-23 molded plastic
- Mounting position: any



MAXIMUM RATINGS AND CHARACTERISTICS

@ 25°C Ambient Temperature (unless otherwise noted)

Parameter	Symbol	BC856	BC857	BC858	Unit
Collector-base voltage	V_{CB0}	-80	-50	-30	V
Collector-emitter voltage	V_{CE0}	-65	-45	-30	V
Emitter-base voltage	V_{EB0}	-5			V
Collector current	I_C	-100			mA
Peak collector current	I_{CM}	-200			mA
Peak base current	I_{BM}	-200			mA
Total power dissipation *	P_{tot}	250			mW
Junction temperature	T_J	150			°C
Storage temperature	T_{stg}	-65 to +150			°C
Operating ambient temperature	R_{amb}	-65 to +150			°C
Thermal resistance from junction to ambient *	R_{th-j-a}	500			K/W

* Transistor mounted on an FR4 printed-circuit board, standard footprint.

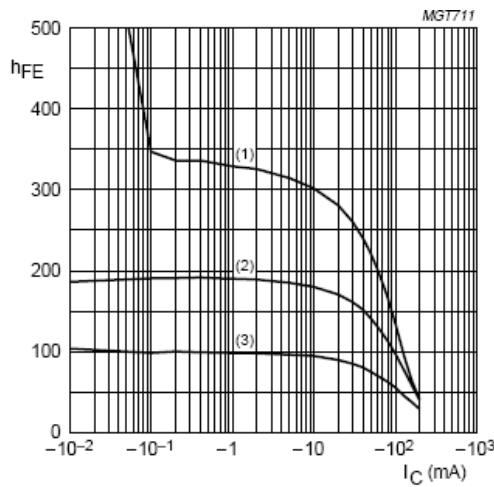
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector cutoff current	I_{CBO}	$V_{CB} = -30\text{ V}, I_E = 0$		-1	-15	nA
	I_{CBO}	$V_{CB} = -30\text{ V}, I_E = 0, T_J = 150\text{ °C}$			-4	μA
Emitter cutoff current	I_{EBO}	$V_{EB} = -5\text{ V}, I_C = 0$			-100	nA
DC current gain	BC856	$I_C = -2\text{ mA}; V_{CE} = -5\text{ V}$	125		475	
	BC857		125		800	
	BC856A, BC857A		125		250	
	BC856B, BC857B, BC858B		220		475	
	BC857C		420		800	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -10\text{ mA}; I_B = -0.5\text{ mA}$		-75	-300	mV
		$I_C = -100\text{ mA}; I_B = -5\text{ mA}$		-250	-650	mV
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = -10\text{ mA}; I_B = -0.5\text{ mA}$		-700		mV
		$I_C = -100\text{ mA}; I_B = -5\text{ mA}$		-850		mV
Base-emitter voltage	V_{BE}	$I_C = -2\text{ mA}; V_{CE} = -5\text{ V}$	-600	-650	-750	mV
		$I_C = -10\text{ mA}; V_{CE} = -5\text{ V}$			-820	mV
Collector capacitance	C_C	$V_{CB} = -10\text{ V}; I_E = I_C = 0; f = 1\text{ MHz}$		4.5		pF
Transition frequency	f_T	$V_{CE} = -5\text{ V}; I_C = -10\text{ mA}; f = 100\text{ MHz}$	100			MHz
Noise figure	NF	$I_C = -200\text{ μA}; V_{CE} = -5\text{ V}; R_S = 2\text{ K}\Omega; f = 1\text{ kHz}; B = 200\text{ Hz}$		2	10	dB

* Pulse test: $t_p \leq 300\text{ μs}, \delta \leq 0.02$.

hFE Classification

TYPE	BC856	BC856A	BC856B	BC857	BC857A	BC857B	BC857C	BC858B
Marking	3D	3A	3B	3H	3E	3F	3G	3K

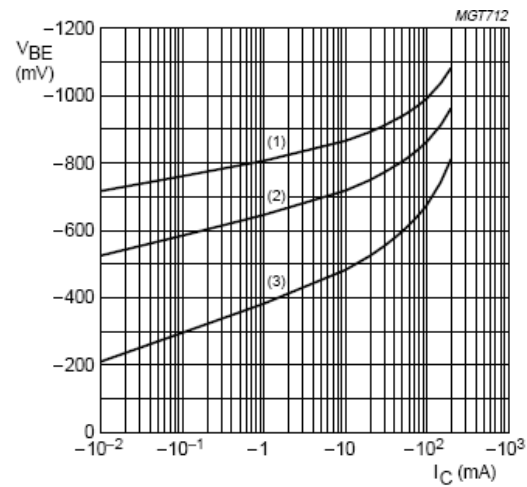
RATINGS AND CHARACTERISTIC CURVES



BC857A; $V_{CE} = -5$ V.

- (1) $T_{amb} = 150$ °C.
- (2) $T_{amb} = 25$ °C.
- (3) $T_{amb} = -55$ °C.

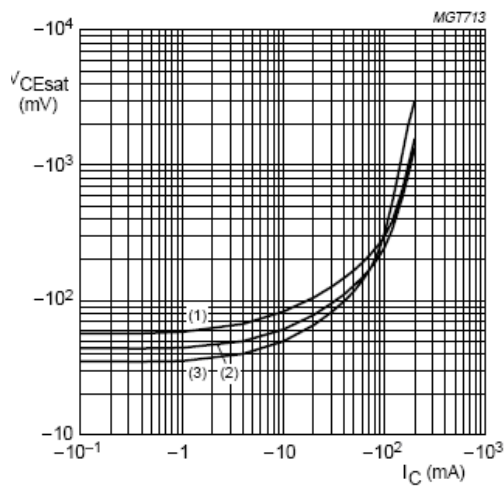
Fig.1 DC current gain as a function of collector current; typical values.



BC857A; $V_{CE} = -5$ V.

- (1) $T_{amb} = -55$ °C.
- (2) $T_{amb} = 25$ °C.
- (3) $T_{amb} = 150$ °C.

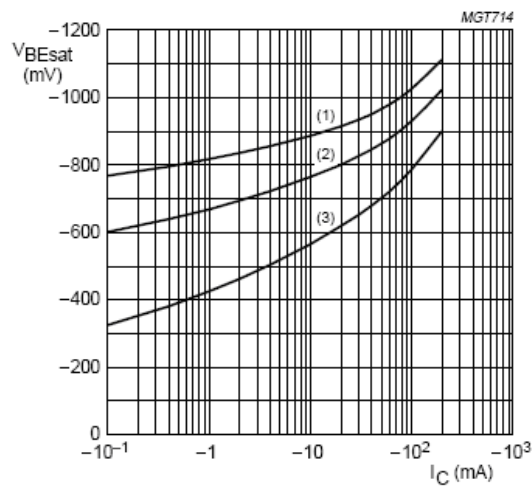
Fig.2 Base-emitter voltage as a function of collector current; typical values.



BC857A; $I_C/I_B = 20$.

- (1) $T_{amb} = 150$ °C.
- (2) $T_{amb} = 25$ °C.
- (3) $T_{amb} = -55$ °C.

Fig.3 Collector-emitter saturation voltage as a function of collector current; typical values.

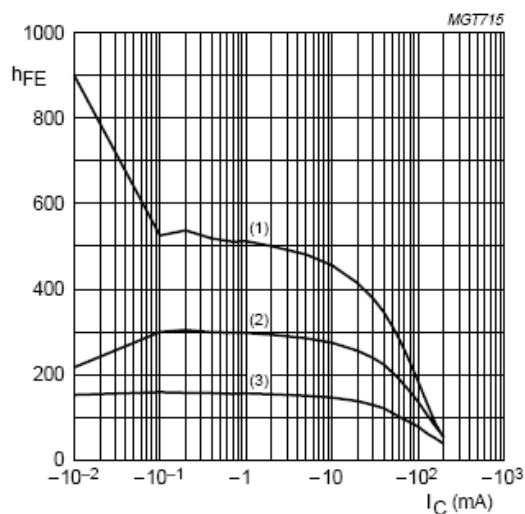


BC857A; $I_C/I_B = 20$.

- (1) $T_{amb} = -55$ °C.
- (2) $T_{amb} = 25$ °C.
- (3) $T_{amb} = 150$ °C.

Fig.4 Base-emitter saturation voltage as a function of collector current; typical values.

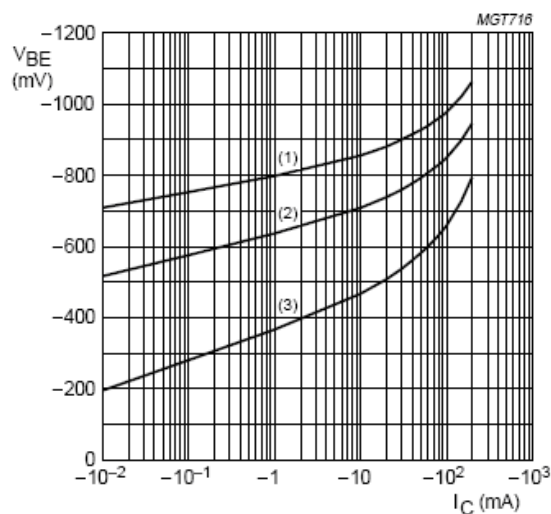
RATINGS AND CHARACTERISTIC CURVES



BC857B; $V_{CE} = -5$ V.

- (1) $T_{amb} = 150$ °C.
- (2) $T_{amb} = 25$ °C.
- (3) $T_{amb} = -55$ °C.

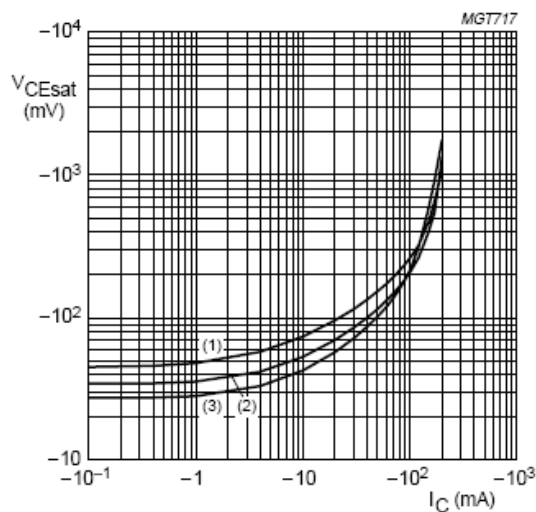
Fig.5 DC current gain as a function of collector current; typical values.



BC857B; $V_{CE} = -5$ V.

- (1) $T_{amb} = -55$ °C.
- (2) $T_{amb} = 25$ °C.
- (3) $T_{amb} = 150$ °C.

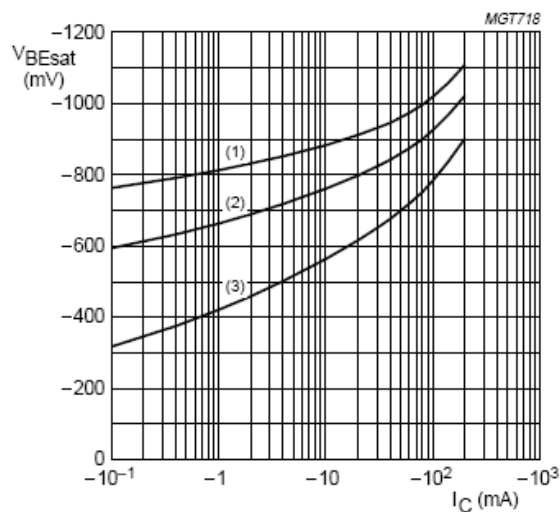
Fig.6 Base-emitter voltage as a function of collector current; typical values.



BC857B; $I_C/I_B = 20$.

- (1) $T_{amb} = 150$ °C.
- (2) $T_{amb} = 25$ °C.
- (3) $T_{amb} = -55$ °C.

Fig.7 Collector-emitter saturation voltage as a

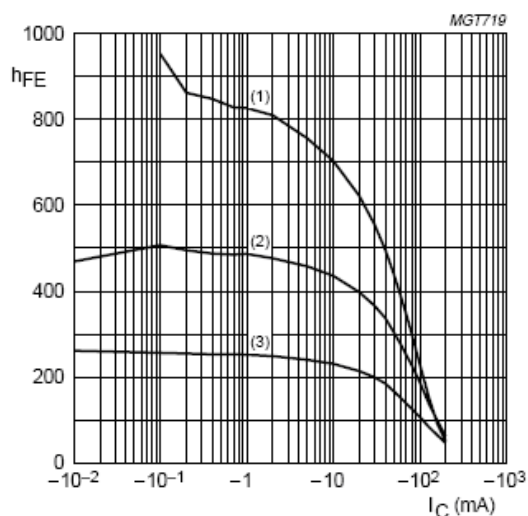


BC857B; $I_C/I_B = 20$.

- (1) $T_{amb} = -55$ °C.
- (2) $T_{amb} = 25$ °C.
- (3) $T_{amb} = 150$ °C.

Fig.8 Base-emitter saturation voltage as a

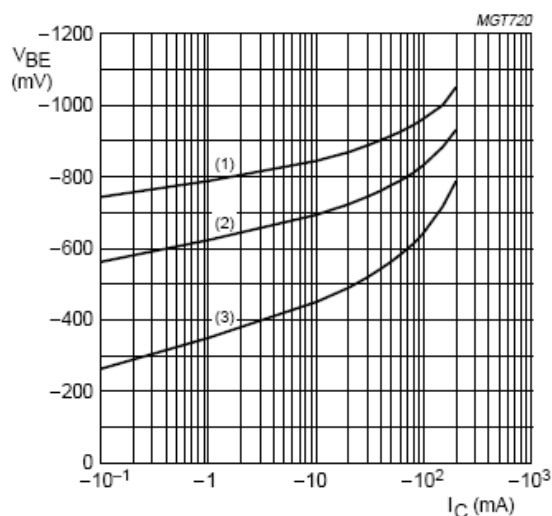
RATINGS AND CHARACTERISTIC CURVES



BC857C; $V_{CE} = -5$ V.

- (1) $T_{amb} = 150$ °C.
- (2) $T_{amb} = 25$ °C.
- (3) $T_{amb} = -55$ °C.

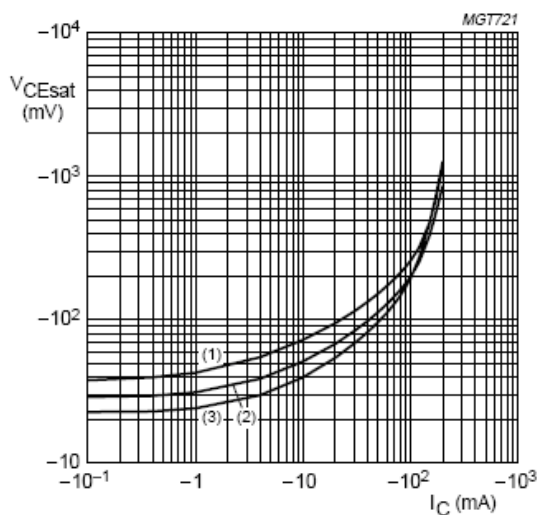
Fig.9 DC current gain as a function of collector current; typical values.



BC857C; $V_{CE} = -5$ V.

- (1) $T_{amb} = -55$ °C.
- (2) $T_{amb} = 25$ °C.
- (3) $T_{amb} = 150$ °C.

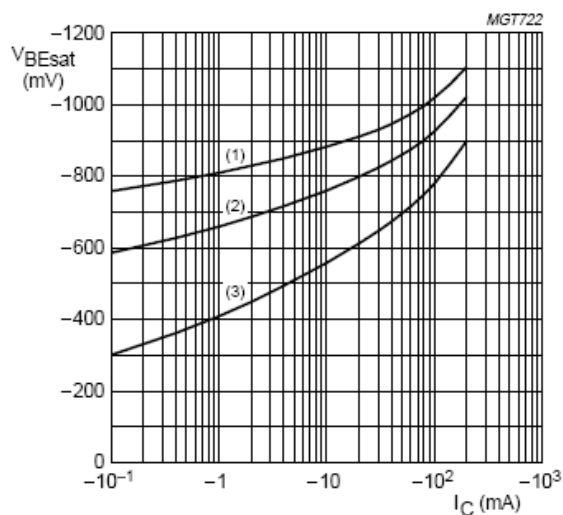
Fig.10 Base-emitter voltage as a function of collector current; typical values.



BC857C; $I_C/I_B = 20$.

- (1) $T_{amb} = 150$ °C.
- (2) $T_{amb} = 25$ °C.
- (3) $T_{amb} = -55$ °C.

Fig.11 Collector-emitter saturation voltage as a function of collector current; typical values.



BC857C; $I_C/I_B = 20$.

- (1) $T_{amb} = -55$ °C.
- (2) $T_{amb} = 25$ °C.
- (3) $T_{amb} = 150$ °C.

Fig.12 Base-emitter saturation voltage as a function of collector current; typical values