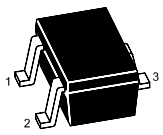
MMBT5140W

PNP Silicon Epitaxial Planar Transistor



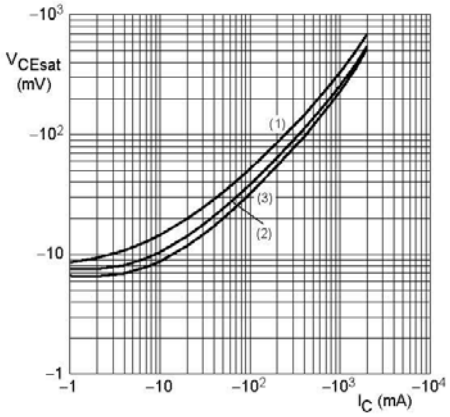
1.Base 2.Emitter 3.Collector
SOT-323 Plastic Package

Absolute Maximum Ratings (T_a = 25 °C)

Parameter	Symbol	Value	Unit
Collector Base Voltage	$-V_{CBO}$	40	V
Collector Emitter Voltage	$-V_{CEO}$	40	V
Emitter Base Voltage	$-V_{EBO}$	5	V
Collector Current	$-I_C$	1	A
Peak Pulse Current	$-I_{CM}$	2	A
Power Dissipation	P_{tot}	350	mW
Junction Temperature	T_j	150	°C
Storage Temperature Range	T_{stg}	- 55 to + 150	°C

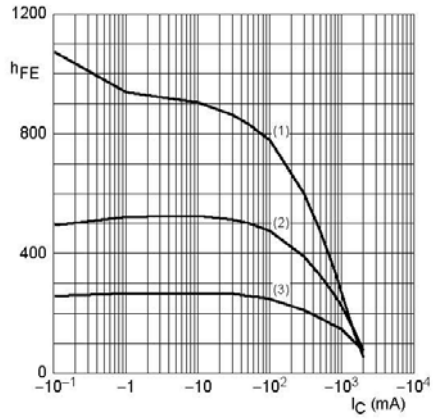
Characteristics at T_a = 25 °C

Parameter	Symbol	Min.	Max.	Unit
DC Current Gain at $-V_{CE}$ = 5 V, $-I_C$ = 1 mA at $-V_{CE}$ = 5 V, $-I_C$ = 100 mA at $-V_{CE}$ = 5 V, $-I_C$ = 500 mA at $-V_{CE}$ = 5 V, $-I_C$ = 1 A	 h_{FE} h_{FE} h_{FE} h_{FE}	 300 300 250 160	 - 800 - -	 - - - -
Collector Base Cutoff Current at $-V_{CB}$ = 40 V	$-I_{CBO}$	-	100	nA
Collector Emitter Cutoff Current at $-V_{CE}$ = 30 V	$-I_{CES}$	-	100	nA
Emitter Base Cutoff Current at $-V_{EB}$ = 5 V	$-I_{EBO}$	-	100	nA
Collector Emitter Saturation Voltage at $-I_C$ = 100 mA, $-I_B$ = 1 mA at $-I_C$ = 500 mA, $-I_B$ = 50 mA at $-I_C$ = 1 A, $-I_B$ = 100 mA	$-V_{CE(sat)}$	 - - -	 0.2 0.25 0.5	V
Base Emitter Saturation Voltage at $-I_C$ = 1 A, $-I_B$ = 50 mA	$-V_{BE(sat)}$	-	1.1	V
Base Emitter Turn-on Voltage at $-I_C$ = 1 A, $-V_{CE}$ = 5 V	$-V_{BE(on)}$	-	1	V
Gain Bandwidth Product at $-V_{CE}$ = 10 V, $-I_C$ = 50 mA, f = 100 MHz	f_T	150	-	MHz
Collector Capacitance at $-V_{CB}$ = 10 V, f = 1 MHz	C_c	-	12	pF



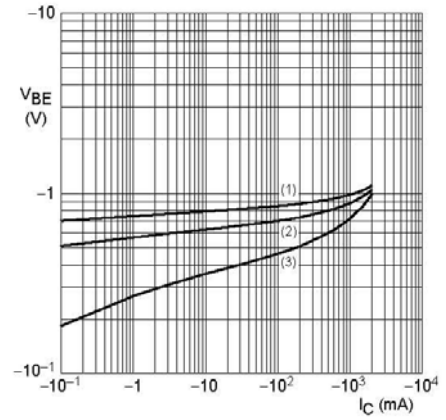
$I_C/I_B = 10$.
(1) $T_{amb} = 150$ °C.
(2) $T_{amb} = 25$ °C.
(3) $T_{amb} = -55$ °C.

Fig.1 Collector-emitter saturation voltage as a function of collector current; typical values.



$V_{CE} = -5$ V.
(1) $T_{amb} = 150$ °C.
(2) $T_{amb} = 25$ °C.
(3) $T_{amb} = -55$ °C.

Fig.2 DC current gain as a function of collector current; typical values.



$V_{CE} = -5$ V.
(1) $T_{amb} = -55$ °C.
(2) $T_{amb} = 25$ °C.
(3) $T_{amb} = 150$ °C.

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