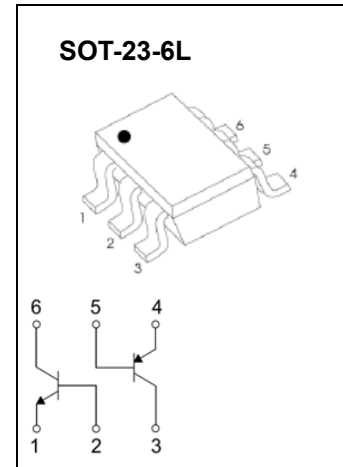# SOT-23-6L

MMBTA06FPN

Plastic-Encapsulate Transistors

DUAL TRANSISTOR (NPN+PNP)

FEATURES

- High breakdown voltage

- Low collector-emitter saturation voltage

- Two (galvanic) internal isolated NPN/PNP
  Transistor in one package

MAKING: S2P

SOT-23-6L

MAXIMUM RATINGS(T_a=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Collector-emitter voltage	V_{CEO}	80	V
Collector-base voltage	V_{CBO}	80	
Emitter-base voltage	V_{EBO}	4	
Collector current	I_C	500	mA
Peak collector current, $t_p \leq 10$ ms	I_{CM}	1	A
Base current	I_B	100	mA
Peak base current	I_{BM}	200	
Total power dissipation- $T_S \leq 115$ °C	P_{tot}	330	mW
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	-65 ... 150	

Thermal Resistance

Parameter	Symbol	Value	Unit
Junction - soldering point[1]	R_{thJS}	≤ 105	K/W

Electrical Characteristics at T_A = 25°C, unless otherwise specified

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC Characteristics					
Collector-emitter breakdown voltage I_C = 1 mA, I_B = 0	$V_{(BR)CEO}$	80	-	-	V
Collector-base breakdown voltage I_C = 100 µA, I_E = 0	$V_{(BR)CBO}$	80	-	-	
Emitter-base breakdown voltage I_E = 10 µA, I_C = 0	$V_{(BR)EBO}$	4	-	-	
Collector-base cutoff current V_{CB} = 80 V, I_E = 0 V_{CB} = 80 V, I_E = 0 , T_A = 150 °C	I_{CBO}	- -	- -	0.1 20	µA
Collector-emitter cutoff current V_{CE} = 60 V, I_B = 0	I_{CEO}	-	-	100	nA
DC current gain [2] I_C = 10 mA, V_{CE} = 1 V I_C = 100 mA, V_{CE} = 1 V	h_{FE}	100 100	- -	- -	-
Collector-emitter saturation voltage[2] I_C = 100 mA, I_B = 10 mA	V_{CEsat}	-	-	0.25	V
Base-emitter voltage [2] I_C = 100 mA, V_{CE} = 1 V	$V_{BE(ON)}$	-	-	1.2	

AC Characteristics

Parameter	Symbol	min.	typ.	max.	Unit
Transition frequency I_C = 20 mA, V_{CE} = 5 V, f = 20 MHz	f_T	-	100	-	MHz
Collector-base capacitance V_{CB} = 10 V, f = 1 MHz	C_{cb}	-	7	-	pF

[1]For calculation of R_{thJA} please refer to Application Note AN077 (Thermal Resistance Calculation)

[2]Pulse test: t < 300µs; D < 2%

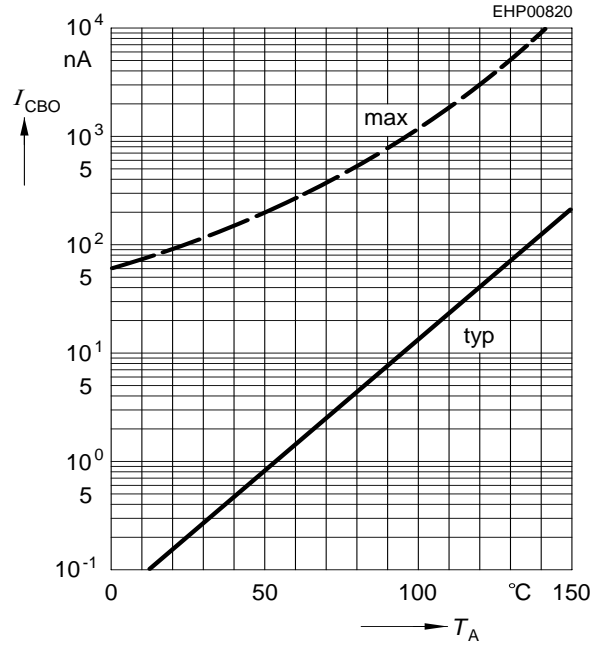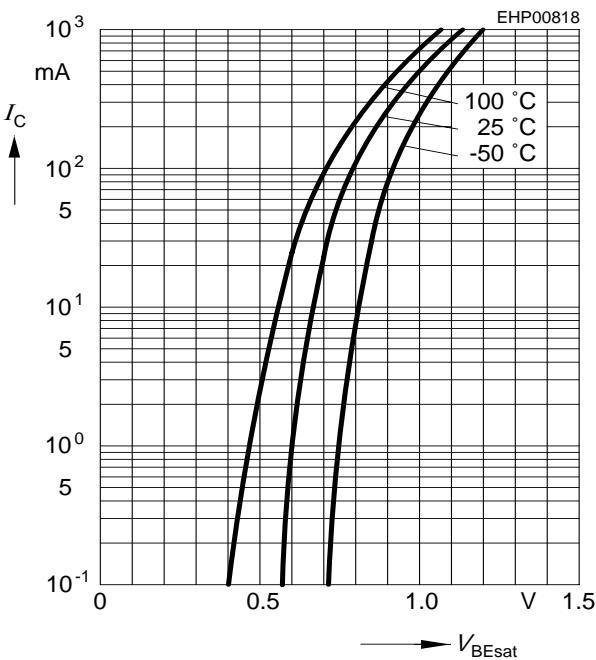**DC current gain** $h_{FE} = f(I_C)$

$V_{CE} = 1\ V$

EHP00821
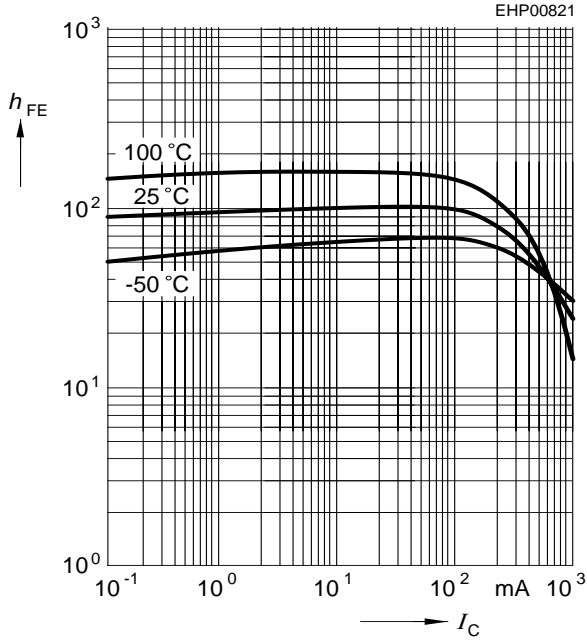
Collector cutoff current $I_{CBO} = f(T_A)$
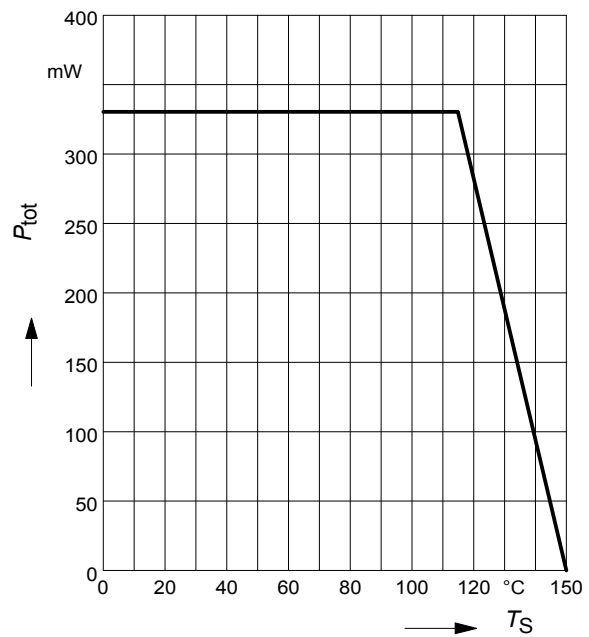
$V_{CBO} = 80\ V$

EHP00820

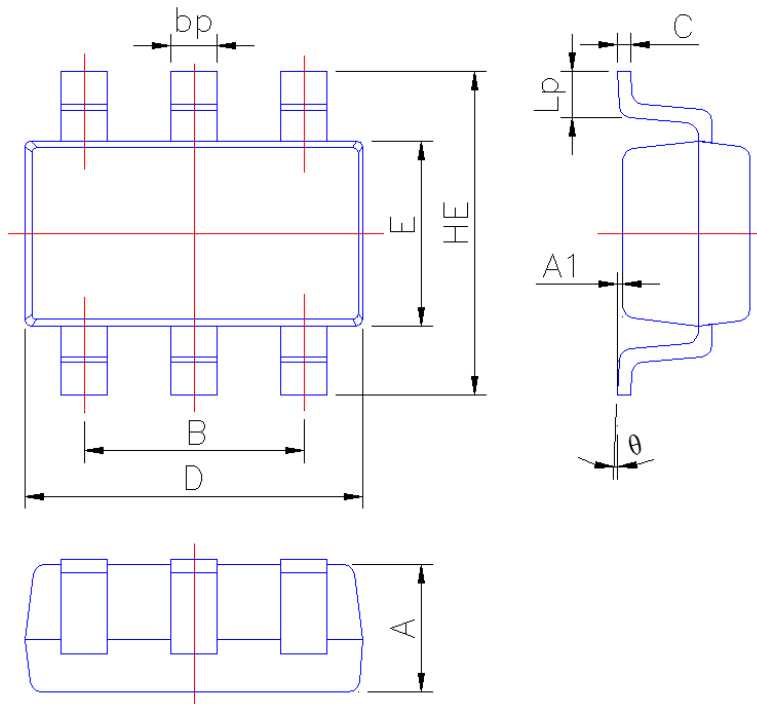**Base-emitter saturation voltage**

$I_C = f(V_{BEsat}),\ h_{FE} = 10$

EHP00818

Total power dissipation $P_{tot} = f(T_S)$

SOT-23-6L PACKAGE OUTLINE

Symbol	Dimension in Millimeters	
	Min	Max
A	1.05	1.20
A1	0.010	0.100
B	1.80	2.00
bp	0.35	0.50
C	0.12	0.20
D	2.80	3.00
E	1.50	1.70
HE	2.60	3.00
Lp	0.25	0.55
θ	2º	6º