

MMBTSA1036 PNP Silicon Epitaxial Planar Transistor

For switching and general purpose applications.

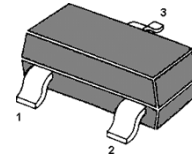
The transistor is subdivided into three groups

P, Q and R, according to its DC current gain.

FEATURES Low $V_{CE(sat)}$ $I_{CMax} = -500\text{ mA}$

• Large $I_{C-CE(sat)}$. Ideal for low-voltage operation.

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



1.Base 2.Emitter 3.Collector
SOT-23 Plastic Package

Parameter	Symbol	Value	Unit
Collector Base Voltage	$-V_{CBO}$	40	V
Collector Emitter Voltage	$-V_{CEO}$	32	V
Emitter Base Voltage	$-V_{EBO}$	5	V
Collector Current	$-I_C$	500	mA
Power Dissipation	P_{tot}	200	mW
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature Range	T_s	-55 to +150	$^\circ\text{C}$

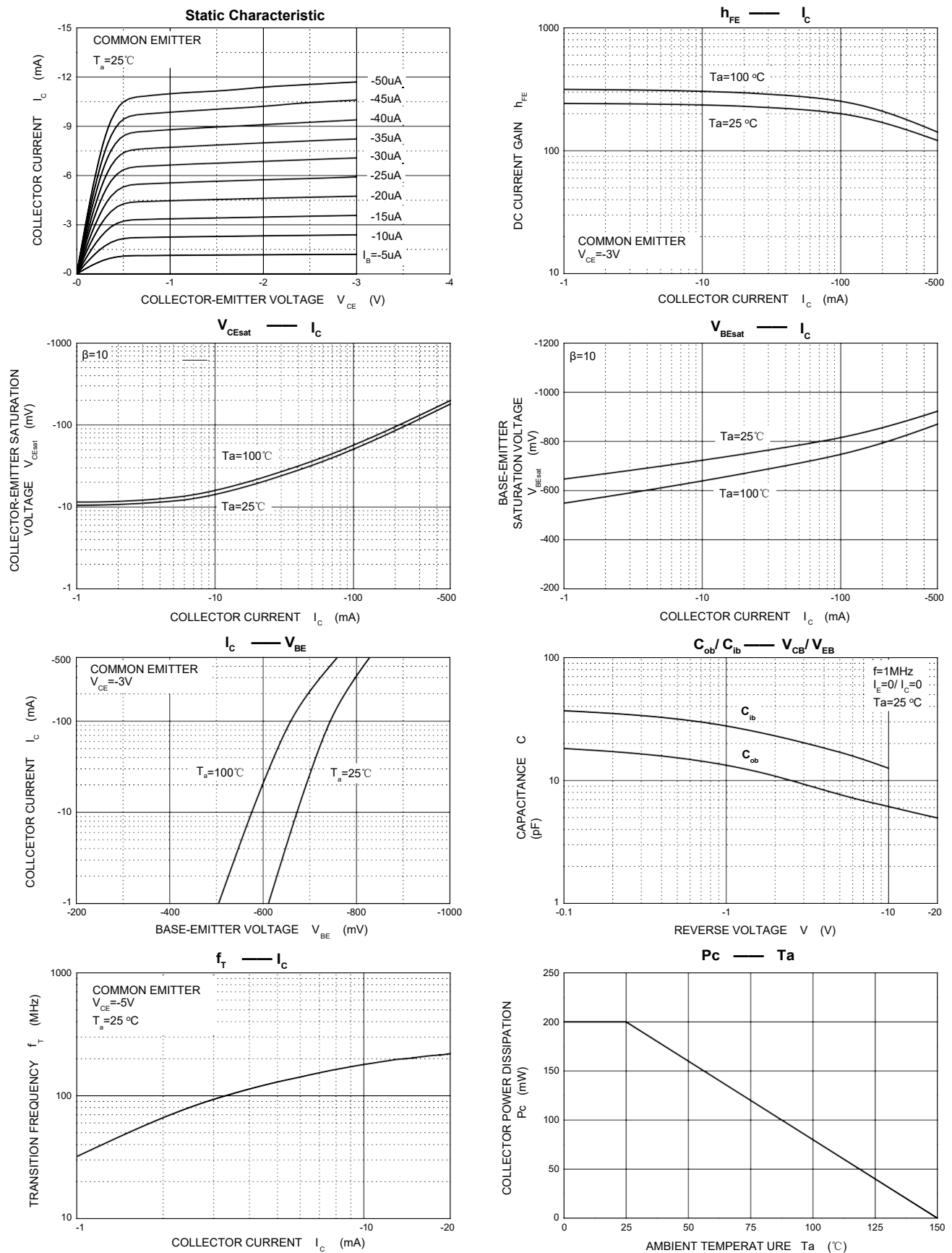
ELECTRICAL CHARACTERISTICS ($T_a=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = -100\mu\text{A}, I_E = 0$	-40			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = -1\text{mA}, I_B = 0$	-32			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = -100\mu\text{A}, I_C = 0$	-5			V
Collector cut-off current	I_{CBO}	$V_{CB} = -20\text{V}, I_E = 0$			-1	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = -4\text{V}, I_C = 0$			-1	μA
DC current gain	h_{FE}	$V_{CE} = -3\text{V}, I_C = -100\text{mA}$	82		390	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -300\text{mA}, I_B = -30\text{mA}$			-0.6	V
Transition frequency	f_T	$V_{CE} = -5\text{V}, I_C = -20\text{mA}, f = 100\text{MHz}$		200		MHz
Collector output capacitance	C_{ob}	$V_{CB} = -10\text{V}, I_E = 0, f = 1\text{MHz}$		7		pF

CLASSIFICATION OF h_{FE}

Rank	P	Q	R
Range	82 - 180	120 - 270	180 - 390
MARKING	HP	HQ	HR

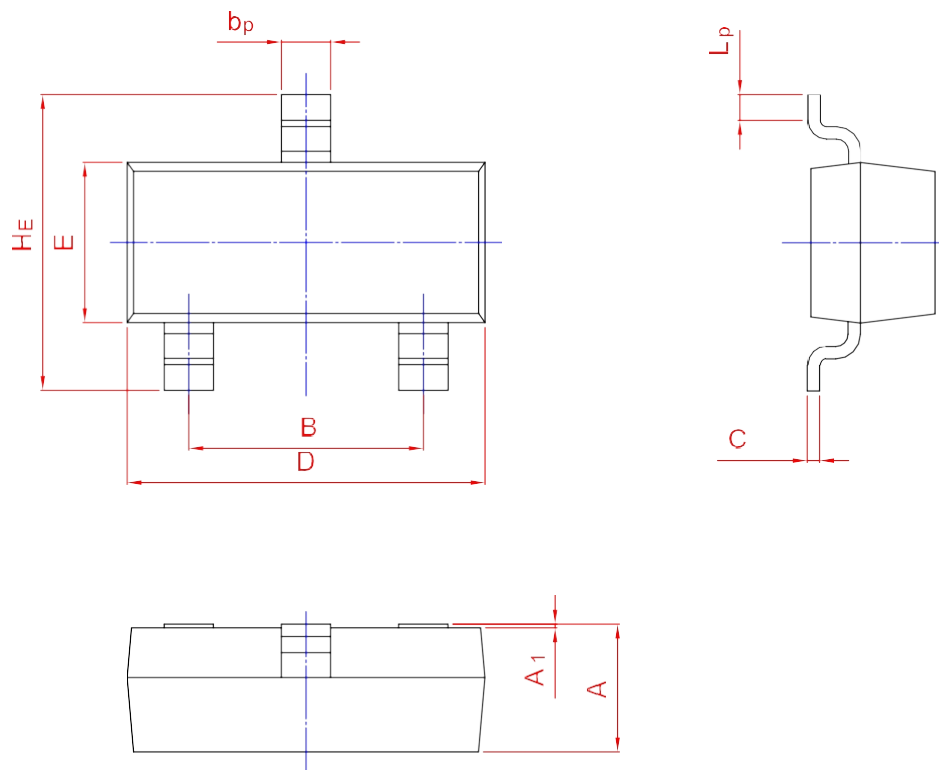
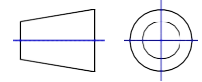
Typical Characteristics



PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT-23



UNIT	A	B	b _p	C	D	E	H _E	A ₁	L _p
mm	1.40 0.95	2.04 1.78	0.50 0.35	0.19 0.08	3.10 2.70	1.65 1.20	3.00 2.20	0.100 0.013	0.50 0.20