



# MMBT1116

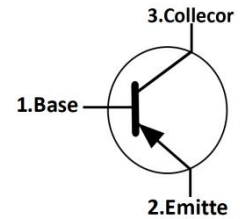
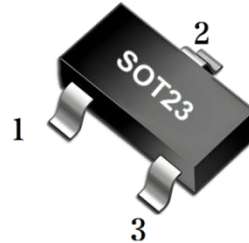
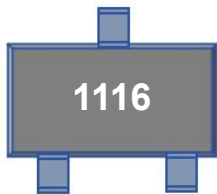
## PNP SILICON TRANSISTOR

### FEATURES

- \* High Collector Power Dissipation
- \* Complementary to MMBT1616

### MARKING

Type Code: Marking: 1116



### ABSOLUTE MAXIMUM RATINGS (TC=25°C, unless otherwise specified)

SYMBOL	PARAMETER	VALUE	UNIT
V <sub>CB0</sub>	Collector-base voltage	-60	V
V <sub>CE0</sub>	Collector-emitter voltage	-50	V
V <sub>EB0</sub>	Emitter-base voltage	-6	V
I <sub>c</sub>	Collector current	-1	A
P <sub>c</sub>	Collector Power Dissipation	0.35	W
T <sub>j</sub>	Junction Temperature	150	°C
T <sub>stg</sub>	Storage Temperature	-60~150	°C

Note:1. Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress ratings only and functional device operation is not implied.

### ELECTRICAL CHARACTERISTICS (Tc=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	V <sub>(BR)CBO</sub>	I <sub>C</sub> =-100μA, I <sub>E</sub> =0	-60			V
Collector-emitter breakdown voltage	V <sub>(BR)CEO</sub>	I <sub>C</sub> =-1mA, I <sub>B</sub> =0	-50			V
Emitter-base breakdown voltage	V <sub>(BR)EBO</sub>	I <sub>E</sub> =-100μA, I <sub>C</sub> =0	-6			V
Collector cutoff current	I <sub>CBO</sub>	V <sub>CB</sub> =-60V, I <sub>E</sub> =0			-0.1	μA
Emitter cut-off current	I <sub>EBO</sub>	V <sub>EB</sub> =-6V, I <sub>C</sub> =0			-0.1	μA
DC Current Gain (CLASSIFICATION OF h <sub>FE1</sub> )	h <sub>FE1</sub>	V <sub>CE</sub> =-2V, I <sub>C</sub> =-0.1A	A	135	270	
			B	200	400	
	h <sub>FE2</sub>	V <sub>CE</sub> =-2V, I <sub>C</sub> =-1A	81			
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> =-1A, I <sub>B</sub> =-50mA			-0.3	V
Base-Emitter Saturation Voltage	V <sub>BE(sat)</sub>	I <sub>C</sub> =-1A, I <sub>B</sub> =-50mA			-1.2	V
Base-emitter voltage	V <sub>BE</sub>	V <sub>CE</sub> =-2V, I <sub>C</sub> =-0.05A	-0.6		-0.7	V
Transition frequency	f <sub>T</sub>	V <sub>CE</sub> =-2V, I <sub>C</sub> =-0.1A	70			MHz

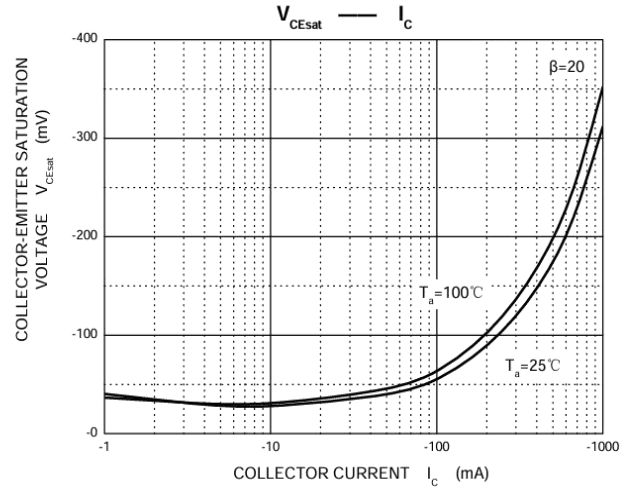
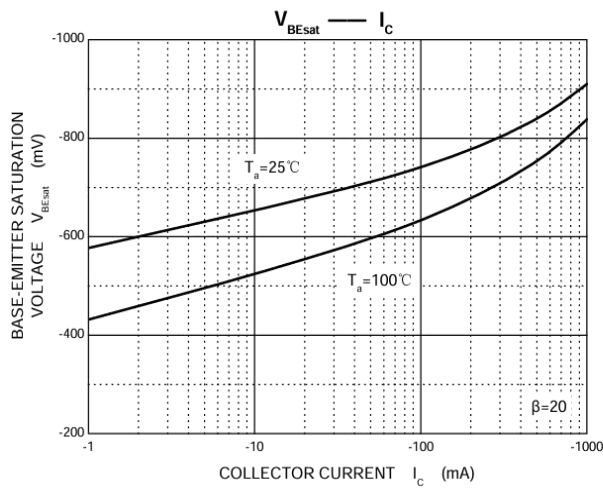
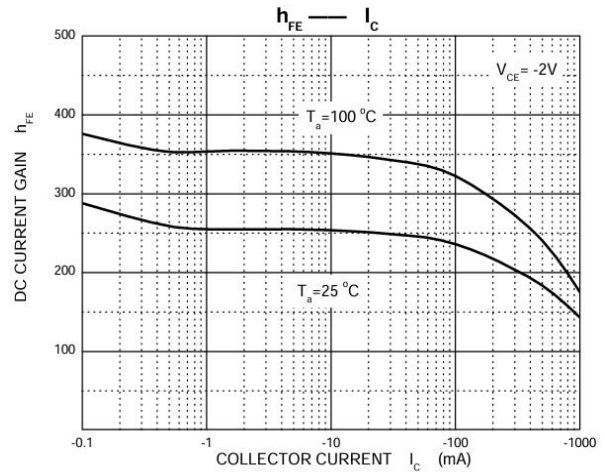
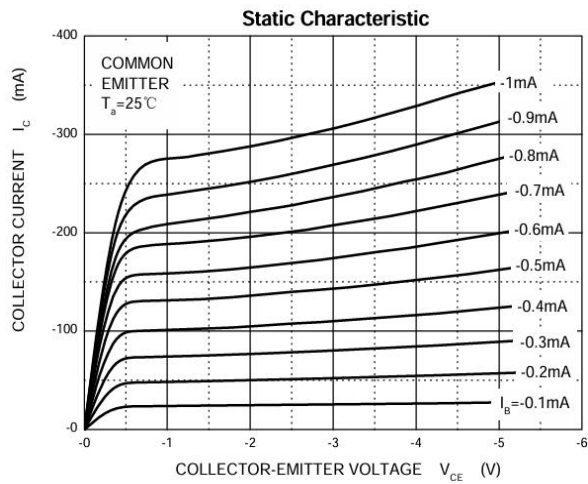


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## PNP SILICON TRANSISTOR

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector output capacitance	$C_{ob}$	$V_{CB}=-10V, I_E=0, f=1MHz$		25		pF
Turn-on time	$t_{on}$	$V_{CC}=-10V, I_C=-0.1A$		0.07		us
Storage time	$t_s$	$I_{B1}=-I_{B2}=-0.01A,$		0.7		us
Fall time	$t_f$	$V_{BE(off)}=2to3V$		0.07		us

### TYPICAL CHARACTERISTICS

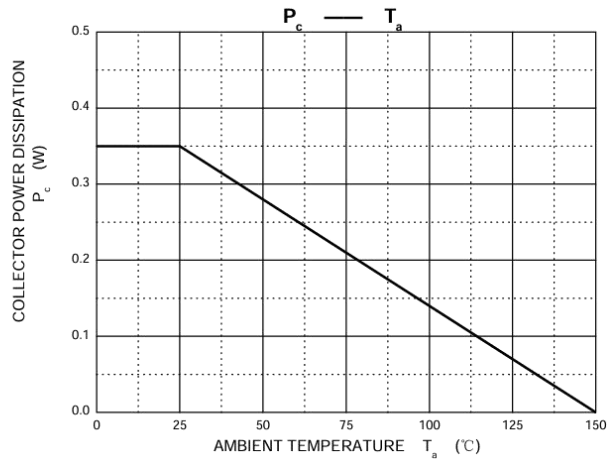
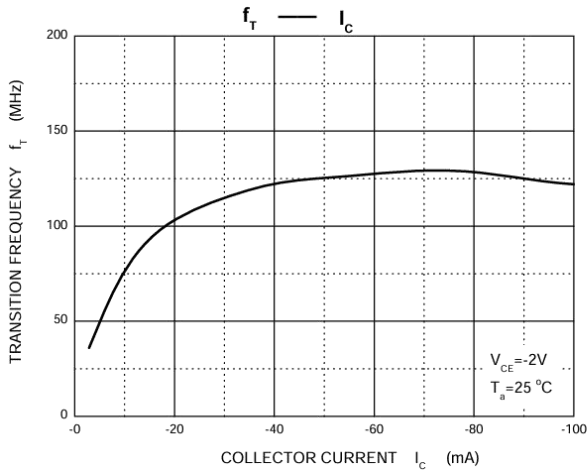
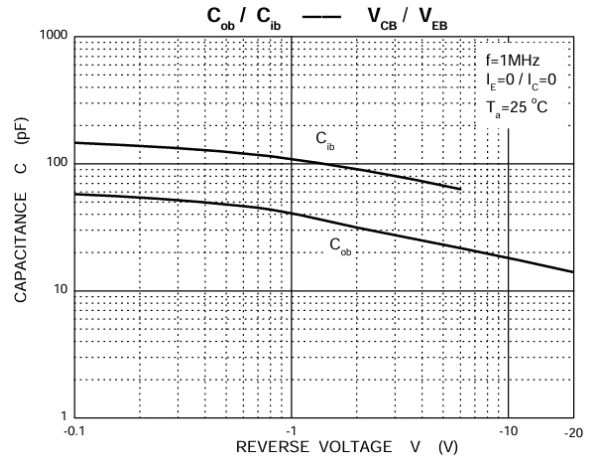
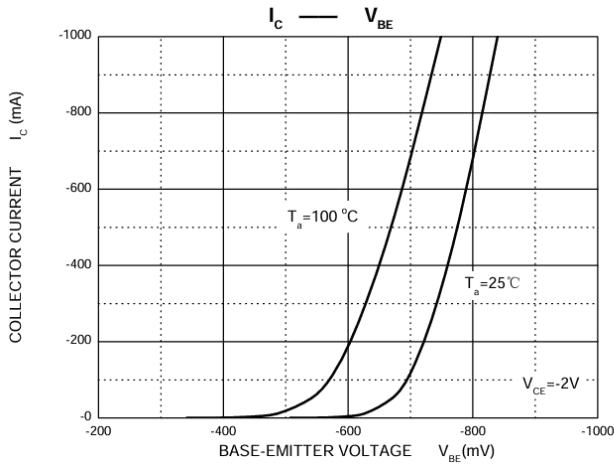




# MMBT1116

## PNP SILICON TRANSISTOR

### TYPICAL CHARACTERISTICS(Con.t)





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# PNP SILICON TRANSISTOR

## SOT23 PACKAGE OUTLINE DIMENSIONS

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

Note:  
1. Controlling dimension: in millimeters.  
2. General tolerance: ±0.05mm.  
3. The pad layout is for reference purposes only.

## REEL PACKING

Top cover tape thickness  
0.10 mm (0.004") max. thick

Embossed carrier tape

Trailer Tape  
50±2 Empty Pockets

Components

Leader Tape  
100±2 Empty Pockets

Dimensions: P0, P1, P, A, W, B, C, D, H, L, W1, W2

Dimensions are in millimeter										
PKG TYPE	A	B	C	d	E	F	Po	P	P1	W
SOT-23	3.15	2.77	1.22	Φ1.50	1.75	3.50	4.00	4.00	2.00	8.00
Reel Optiom	D	D1	D2	G	H	I	W1	W2	Q.TY PER REEL	
7" Dia	Φ178.0	54.40	13.00	R78.00	R25.60	R6.50	9.50	12.30	3000PCS	
13" Dia	φ330.0	/	13.00	/	/	R6.50	9.50	12.30	10000PCS	