

TRANSISTOR (PNP)

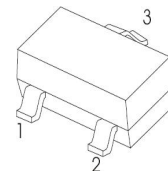
Features

- Complementary Type The NPN Transistor MMBT3904 is Recommended
- Epitaxial Planar Die Construction

MAXIMUM RATINGS (Ta=25°C unless otherwise noted)

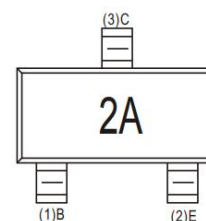
Symbol	Parameter	Value	Unit
V _{CBO}	Collector-Base Voltage	-40	V
V _{CEO}	Collector-Emitter Voltage	-40	V
V _{EBO}	Emitter-Base Voltage	-5	V
I _C	Collector Current	-200	mA
P _C	Collector Power Dissipation	200	mW
R _{θJA}	Thermal Resistance From Junction To Ambient	625	°C/W
T _j	Junction Temperature	150	°C
T _{stg}	Storage Temperature	-55~+150	°C

SOT-23



1. BASE
2. EMITTER
3. COLLECTOR

MARKING: 2A



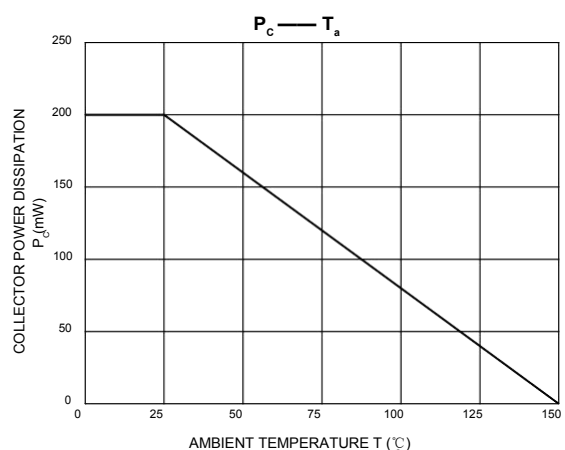
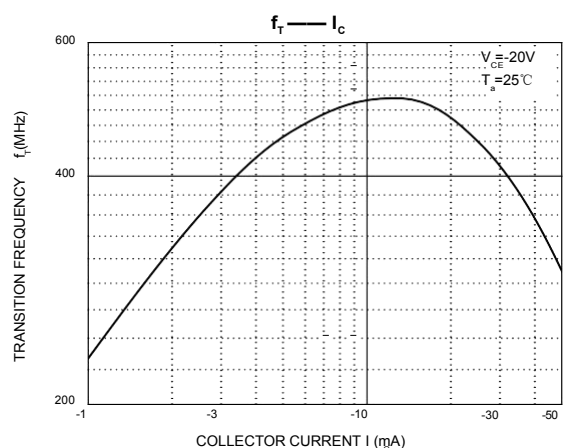
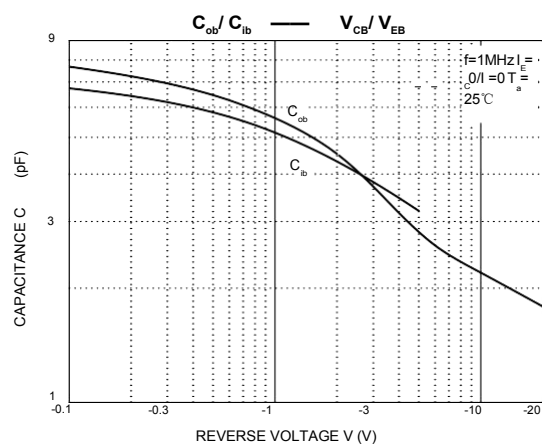
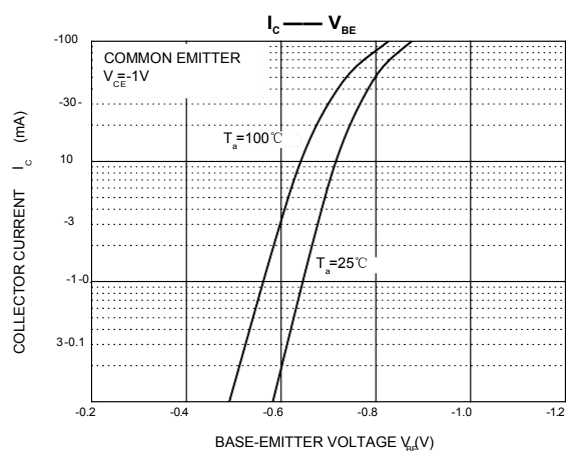
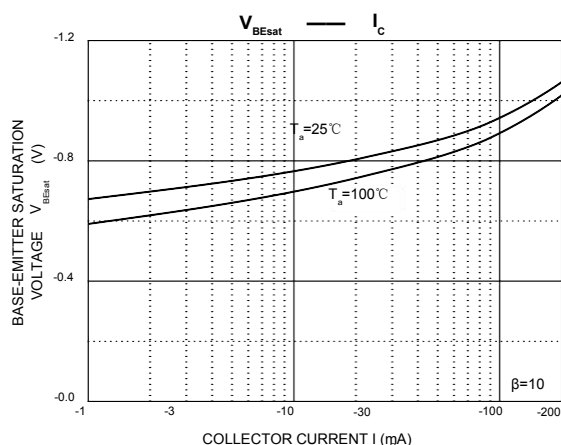
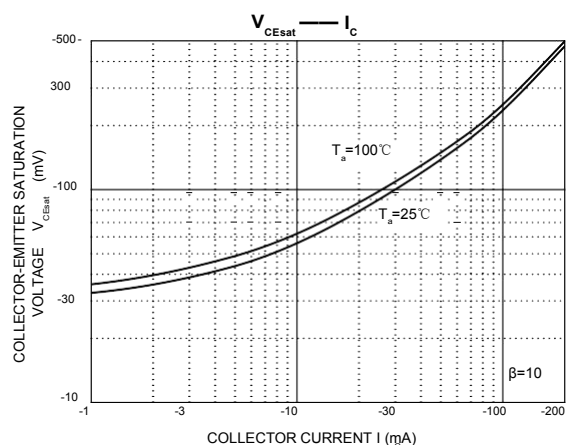
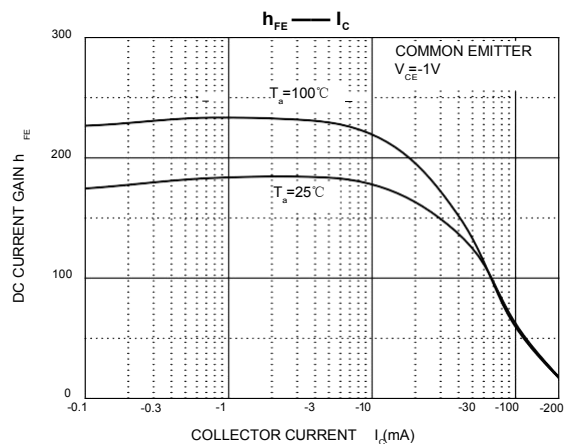
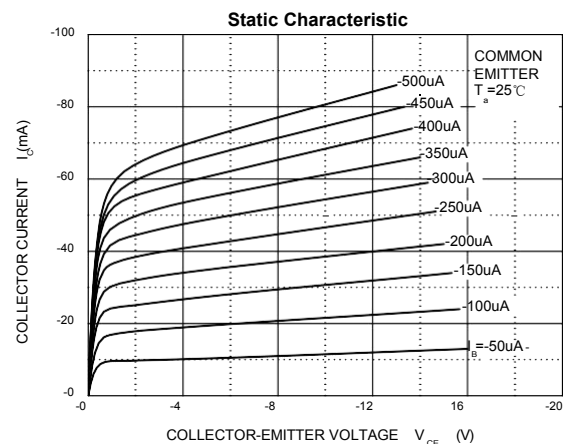
ELECTRICAL CHARACTERISTICS (Ta=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	V _{(BR)CBO}	I _C = -10μA, I _E =0	-40			V
Collector-emitter breakdown voltage	V _{(BR)CEO}	I _C = -1mA, I _B =0	-40			V
Emitter-base breakdown voltage	V _{(BR)EBO}	I _E = -10μA, I _C =0	-5			V
Collector cut-off current	I _{CEX}	V _{CE} = -30V, V _{BE(off)} = -3V			-50	nA
Collector cut-off current	I _{CBO}	V _{CB} = -40V, I _E =0			-100	nA
Emitter cut-off current	I _{EBO}	V _{EB} = -5V, I _C =0			-100	nA
DC current gain	h _{FE(1)}	V _{CE} = -1V, I _C = -10mA	100		300	
	h _{FE(2)}	V _{CE} = -1V, I _C = -50mA	60			
	h _{FE(3)}	V _{CE} = -2V, I _C = -100mA	30			
Collector-emitter saturation voltage	V _{CE(sat)}	I _C = -50mA, I _B = -5mA			-0.3	V
Base-emitter saturation voltage	V _{BE(sat)}	I _C = -50mA, I _B = -5mA			-0.95	V
Transition frequency	f _T	V _{CE} = -20V, I _C = -10mA, f=100MHz	300			MHz
Delay time	t _d	V _{CC} = -3V, V _{BE} = -0.5V I _C = -10mA, I _{B1} =I _{B2} = -1mA			35	ns
Rise time	t _r	V _{CC} = -3V, V _{BE} = -0.5V I _C = -10mA, I _{B1} =I _{B2} = -1mA			35	ns
Storage time	t _s	V _{CC} = -3V, I _C = -10mA, I _{B1} =I _{B2} = -1mA			225	ns
Fall time	t _f	V _{CC} = -3V, I _C = -10mA, I _{B1} =I _{B2} = -1mA			75	ns

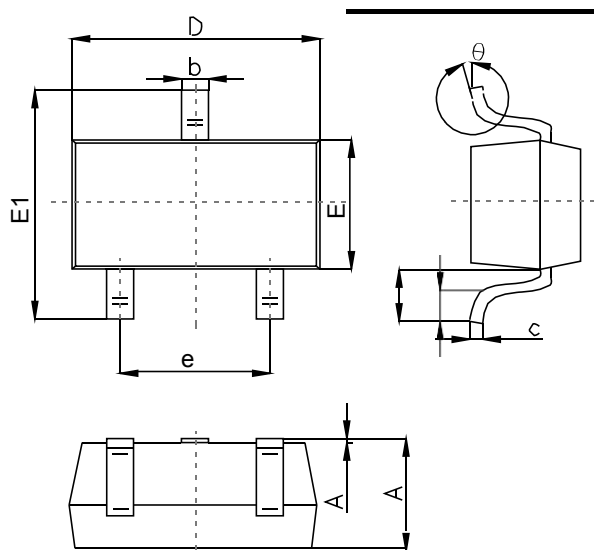
CLASSIFICATION OF h_{FE}

RANK	L	H
RANGE	100 - 200	200 - 300

Typical Characteristics

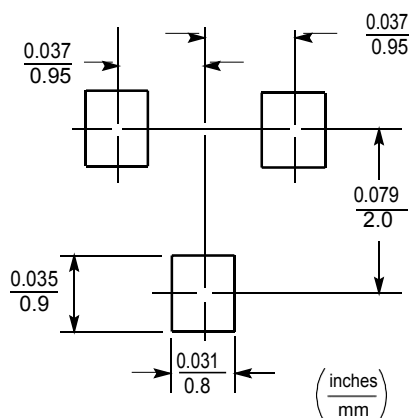


SOT-23 Package Outline Dimensions



Symbol	Dimensions In Millimeters		
	Min	Typ	Max
A	1.00		1.40
A1			0.10
b	0.35		0.50
c	0.10		0.20
D	2.70	2.90	3.10
E	1.40		1.60
E1	2.4		2.80
e		1.90	
L	0.10		0.30
L1	0.4		
θ	0°		10°

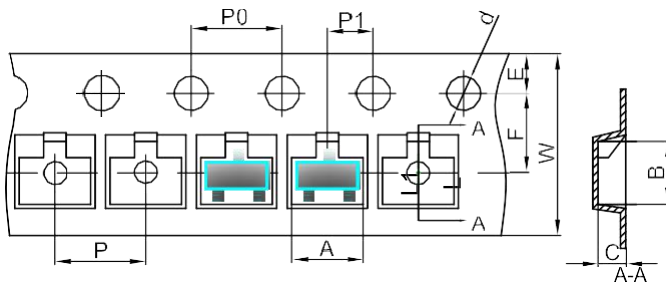
Suggested Pad Layout



Note:

1. Controlling dimension: in/millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purposes only.

SOT-23 Embossed Carrier Tape

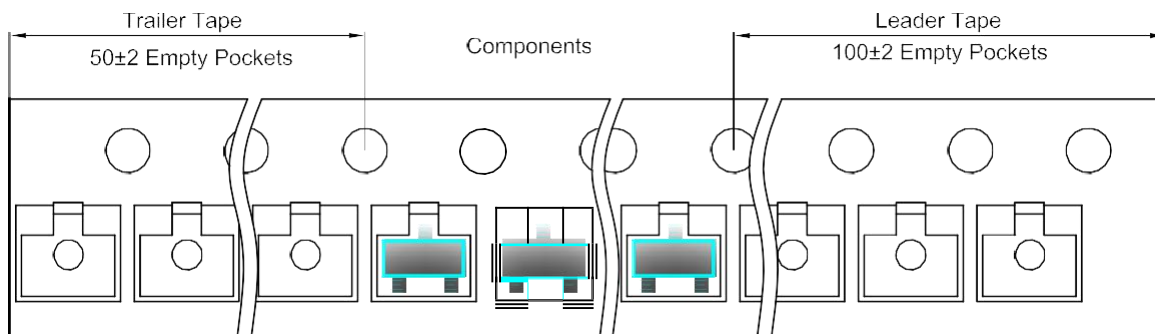


Packaging Description:

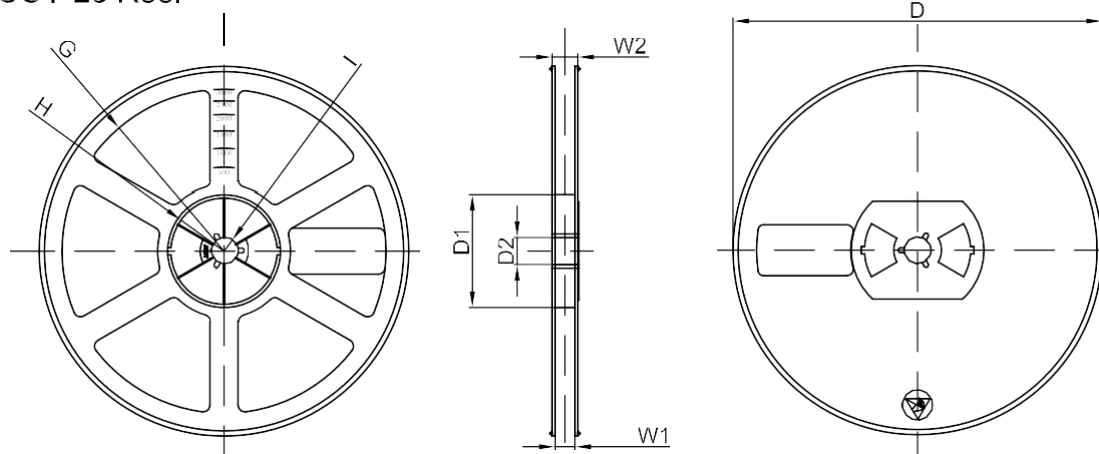
SOT-23 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 3,000 units per 7" or 17.8cm diameter reel. The reels are clear in color and is made of polystyrene plastic (anti-static coated).

Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOT-23	3.15	2.77	1.22	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00

SOT-23 Tape Leader and Trailer



SOT-23 Reel



Dimensions are in millimeter								
Reel Option	D	D1	D2	G	H	I	W1	W2
7"Dia	Ø178.00	54.40	13.00	R78.00	R25.60	R6.50	9.50	12.30

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
3000 pcs	7 Inch	45,000 pcs	203×203×195	180,000 pcs		