



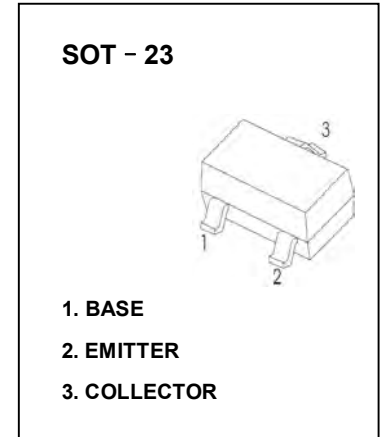
## TRANSISTOR (NPN)

**FEATURES**

- High Collector-Emitter Voltage
- Complement to MMBTA94

**MARKING: 3D****MAXIMUM RATINGS (T<sub>a</sub>=25°C unless otherwise noted)**

Symbol	Parameter	Value	Unit
V <sub>CBO</sub>	Collector-Base Voltage	400	V
V <sub>CEO</sub>	Collector-Emitter Voltage	400	V
V <sub>EBO</sub>	Emitter-Base Voltage	6	V
I <sub>C</sub>	Collector Current-Continuous	200	mA
I <sub>CA</sub>	Collector Current -Pulsed	300	mA
P <sub>C</sub>	Collector Power Dissipation	350	mW
R <sub>θJA</sub>	Thermal Resistance From Junction To Ambient	357	°C/W
T <sub>J</sub>	Junction Temperature	150	°C
T <sub>stg</sub>	Storage Temperature	-55~+150	°C

**ELECTRICAL CHARACTERISTICS (T<sub>a</sub>=25°C unless otherwise specified)**

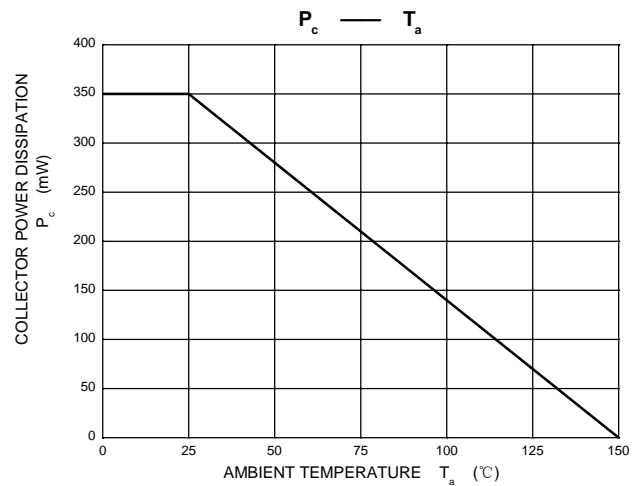
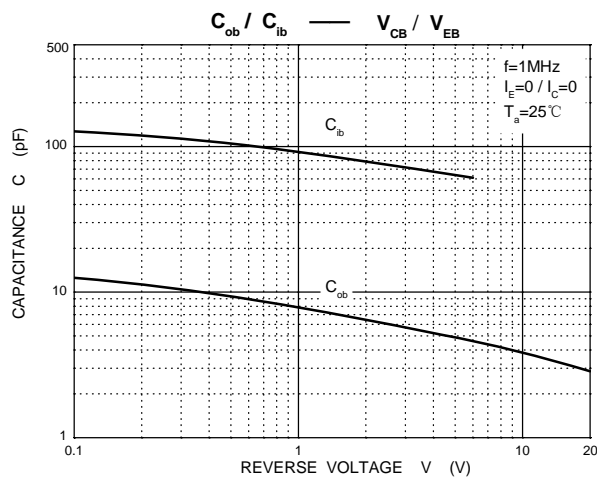
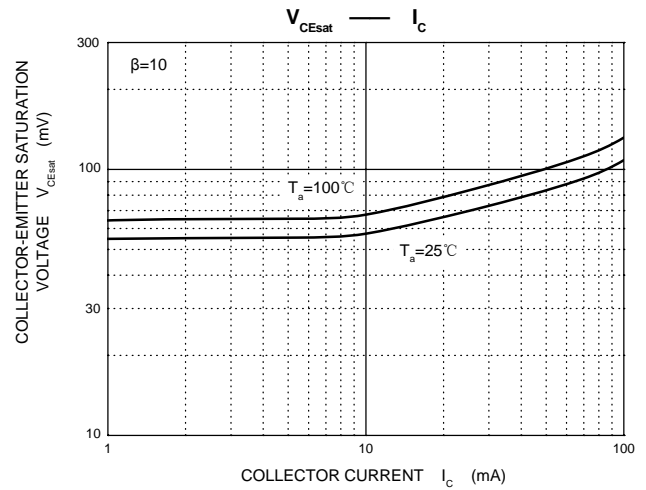
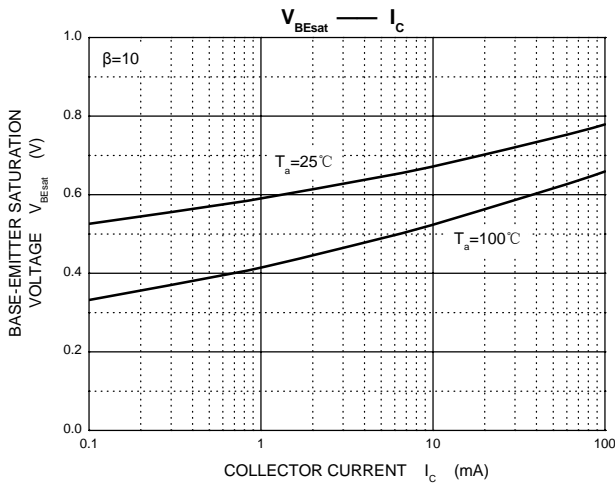
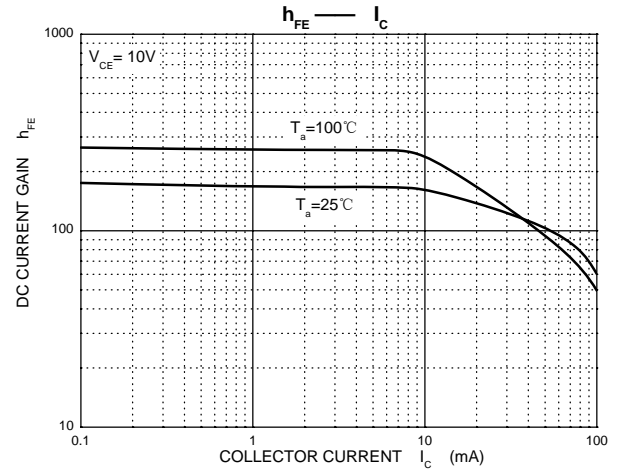
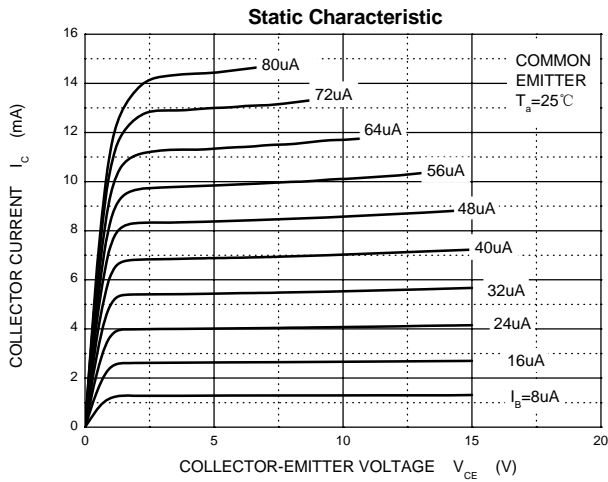
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	V <sub>(BR)CBO</sub>	I <sub>C</sub> =100μA, I <sub>E</sub> =0	400			V
Collector-emitter breakdown voltage	V <sub>(BR)CEO</sub> *	I <sub>C</sub> =1mA, I <sub>B</sub> =0	400			V
Emitter-base breakdown voltage	V <sub>(BR)EBO</sub>	I <sub>E</sub> =10μA, I <sub>C</sub> =0	6			V
Collector cut-off current	I <sub>CBO</sub>	V <sub>CB</sub> =400V, I <sub>E</sub> =0			0.1	μA
Emitter cut-off current	I <sub>EBO</sub>	V <sub>EB</sub> =4V, I <sub>C</sub> =0			0.1	μA
DC current gain	h <sub>FE(1)</sub> *	V <sub>CE</sub> =10V, I <sub>C</sub> =1mA	40			
	h <sub>FE(2)</sub> *	V <sub>CE</sub> =10V, I <sub>C</sub> =10mA	50		200	
	h <sub>FE(3)</sub> *	V <sub>CE</sub> =10V, I <sub>C</sub> =50mA	45			
	h <sub>FE(4)</sub> *	V <sub>CE</sub> =10V, I <sub>C</sub> =100mA	40			
Collector-emitter saturation voltage	V <sub>CE(sat)1</sub> *	I <sub>C</sub> =1mA, I <sub>B</sub> =0.1mA			0.4	V
	V <sub>CE(sat)2</sub> *	I <sub>C</sub> =10mA, I <sub>B</sub> =1mA			0.5	V
	V <sub>CE(sat)3</sub> *	I <sub>C</sub> =50mA, I <sub>B</sub> =5mA			0.75	V
Base-emitter saturation voltage	V <sub>BE(sat)</sub> *	I <sub>C</sub> =10mA, I <sub>B</sub> =1mA			0.75	V
Collector output capacitance	C <sub>ob</sub>	V <sub>CB</sub> =20V, I <sub>E</sub> =0, f=1MHz			7	pF
Emitter input capacitance	C <sub>ib</sub>	V <sub>EB</sub> =0.5V, I <sub>C</sub> =0, f=1MHz			130	pF

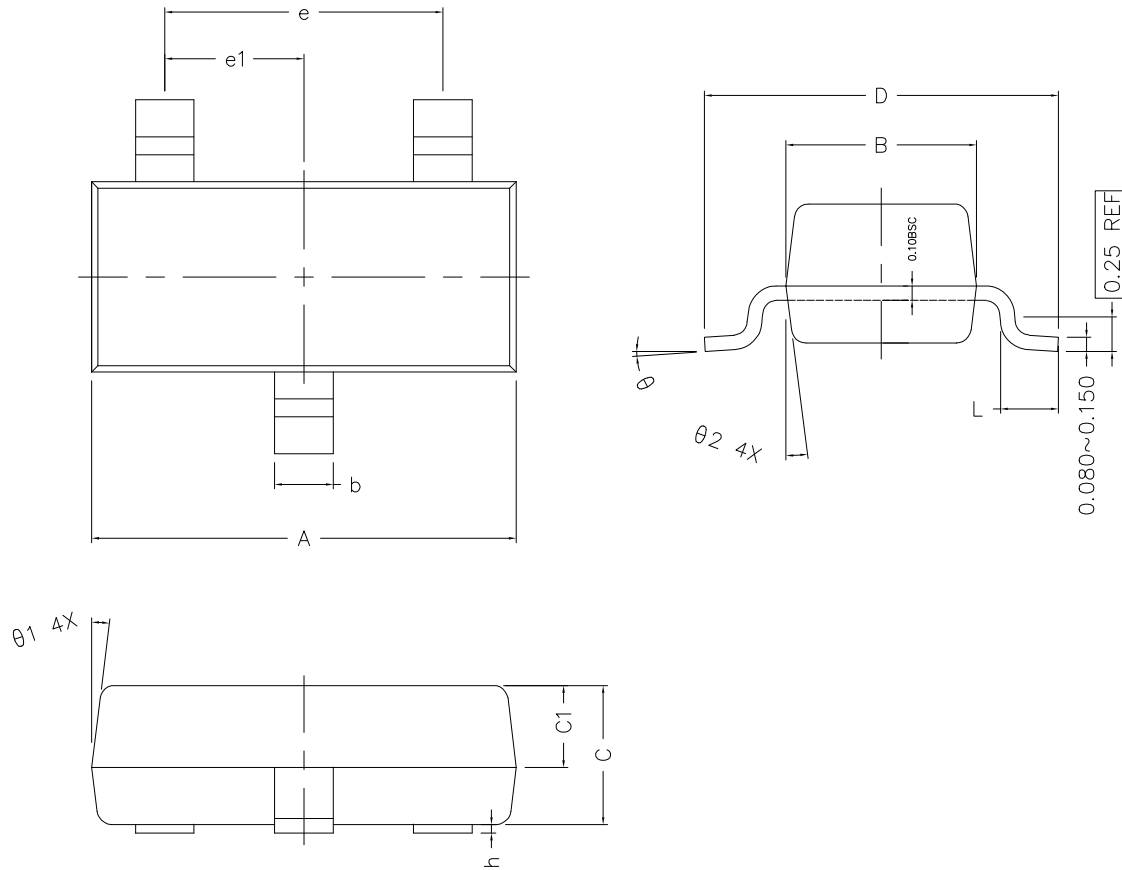
\*Pulse test: pulse width ≤300μs, duty cycle ≤ 2.0%.



TRANSISTOR (NPN)

# Typical Characteristics

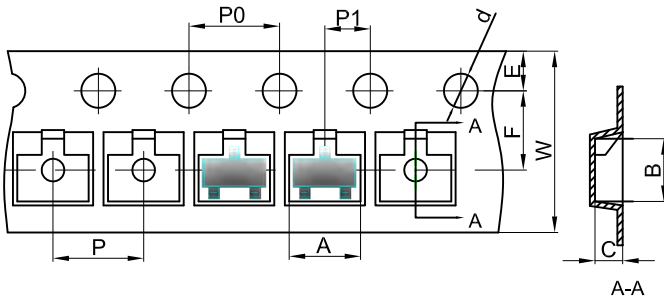


**SOT-23 Package Outline Dimensions (Units: mm)**


COMMON DIMENSIONS (UNITS OF MEASURE IS mm)			
	MIN	NORMAL	MAX
A	2.800	2.900	3.000
B	1.200	1.300	1.400
C	0.900	1.000	1.100
C1	0.500	0.550	0.600
D	2.250	2.400	2.550
L	0.300	0.400	0.500
h	0.010	0.050	0.100
b	0.300	0.400	0.500
e	1.90 TYPE		
e1	0.95 TYPE		
theta1	7° TYPE		
theta2	7° TYPE		
theta	0° ~ 7°		

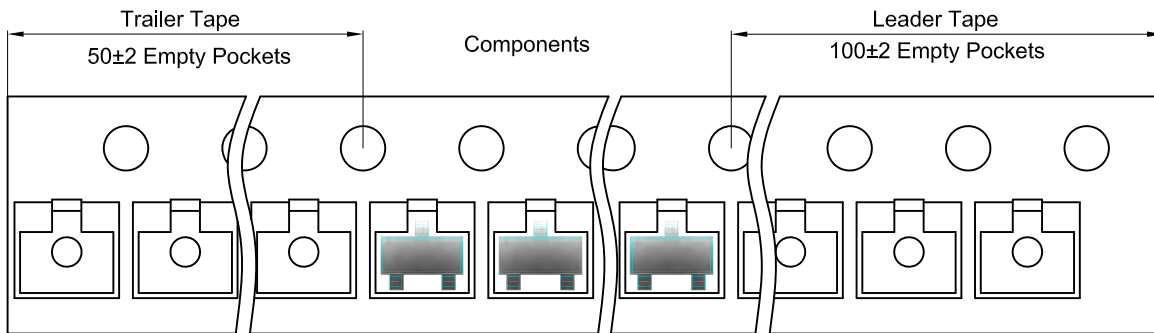
## SOT-23 Tape and Reel

### SOT-23 Embossed Carrier Tape

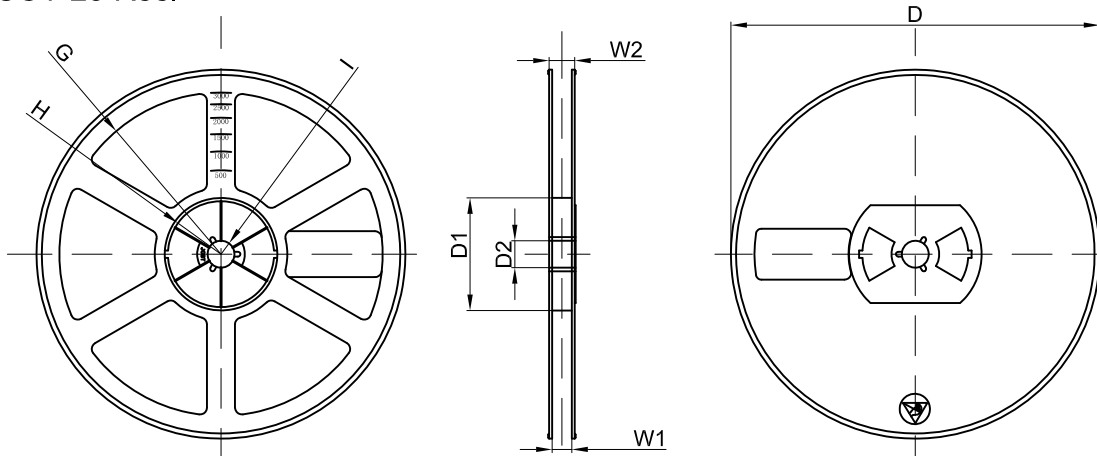


Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOT-23	3.15	2.77	1.22	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00

### 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	192x182x182	180,000 pcs	400x385x205	