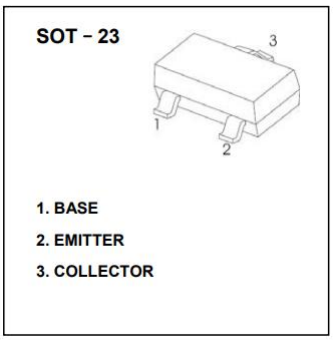
JIANGSU CHANGJING ELECTRONICS TECHNOLOGY CO., LTD.

AD-MMBT5551* Series Plastic-Encapsulated Transistor

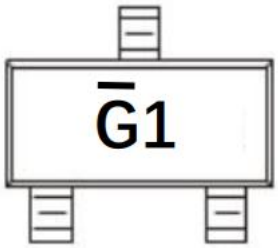
AD-MMBT5551* series Transistor (NPN)



FEATURES

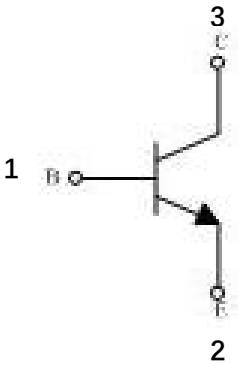
- Complementary to AD-MMBT5401* series
- Ideal for medium power amplification and switching
- AEC-Q101 qualified

MARKING



$\bar{G}$1 = Device code

EQUIVALENT CIRCUIT



MAXIMUM RATINGS (T_a = 25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Collector-base voltage	V_{CBO}	180	V
Collector-emitter voltage	V_{CEO}	160	V
Emitter-base voltage	V_{EBO}	6	V
Collector continuous current	I_C	600	mA
Collector power dissipation	P_C	300	mW
Thermal resistance from junction to ambient	$R_{\theta JA}$ 1)	416	°C/W
Operating junction and storage temperature range	T_j, T_{stg}	-55 ~ 150	°C

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

Parameter	Symbol	Test condition	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	I_C = 100μA, I_E = 0A	180	-	-	V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$ 2)	I_C = 1mA, I_B = 0A	160	-	-	V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E = 10μA, I_C = 0A	6	-	-	V
Collector cut-off current	I_{CBO}	V_{CB} = 120V, I_E = 0A	-	-	50	nA
Emitter-base cut-off current	I_{EBO}	V_{EB} = 4V, I_C = 0A	-	-	50	nA
DC current gain	$h_{FE(1)}$ 2)	V_{CE} = 5V, I_C = 1mA	80	-	-	-
	$h_{FE(2)}$ 2)	V_{CE} = 5V, I_C = 10mA	100	-	300	
	$h_{FE(3)}$ 2)	V_{CE} = 5V, I_C = 50mA	50	-	-	
Collector-emitter saturation voltage	$V_{CE(sat)1}$ 2)	I_C = 10mA, I_B = 1mA	-	-	0.15	V
	$V_{CE(sat)2}$ 2)	I_C = 50mA, I_B = 5mA	-	-	0.2	V
Base-emitter saturation voltage	$V_{BE(sat)1}$ 2)	I_C = 10mA, I_B = 1mA	-	-	1	V
	$V_{BE(sat)2}$ 2)	I_C = 50mA, I_B = 5mA	-	-	1	V
Transition frequency	f_T	V_{CE} = 10V, I_C = 10mA, f = 100MHz	100	-	300	MHz
Collector output capacitance	C_{ob}	V_{CB} = 10V, I_E = 0, f = 1MHz	-	-	6	pF

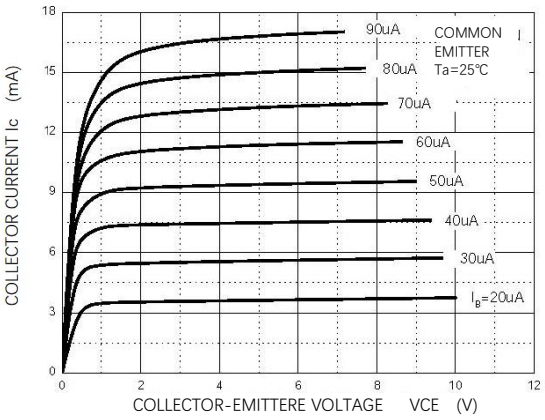
CLASSIFICATION OF $h_{FE(2)}$

RANK	AD-MMBT5551-L	AD-MMBT5551-H
RANGE	100 ~ 200	200 ~ 300

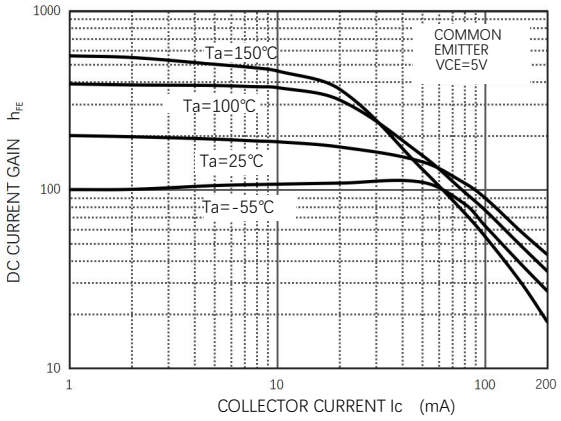
1) Measured with the device mounted on 1 inch² FR-4 board with no copper, in a still air environment with T_a = 25℃.
2) Pulse test: pulse width ≤ 300μs, duty cycle ≤ 2.0%.

TYPICAL CHARACTERISTICS

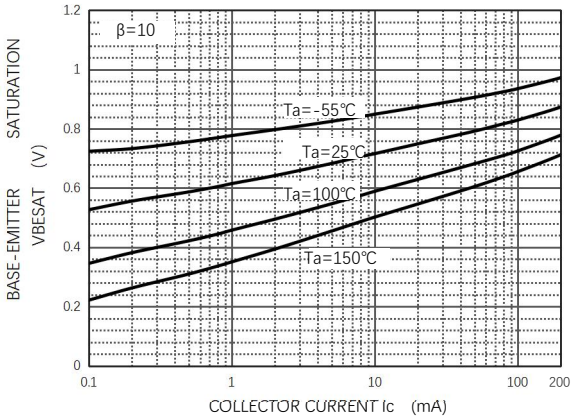
Static Characteristics



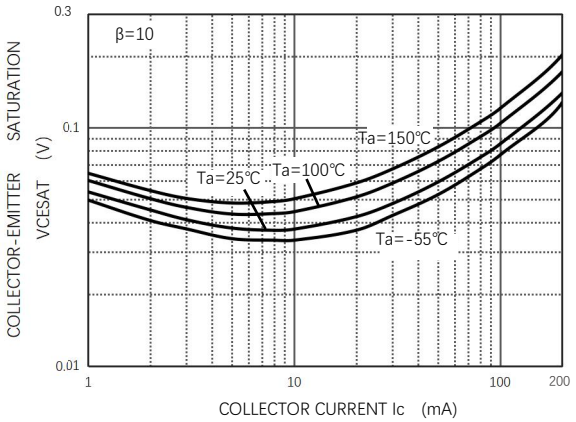
h_{FE}——I_C



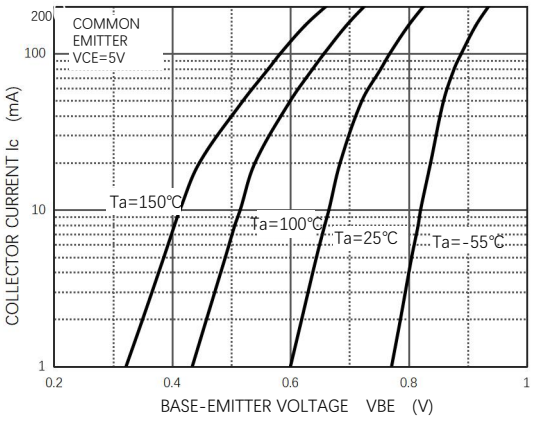
V_{BEsat} ——I_C



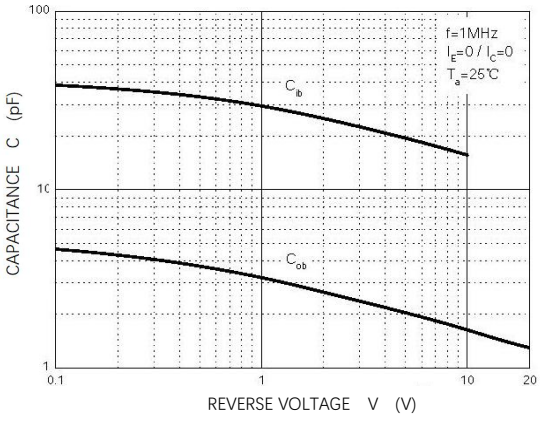
V_{CEsat} ——I_C



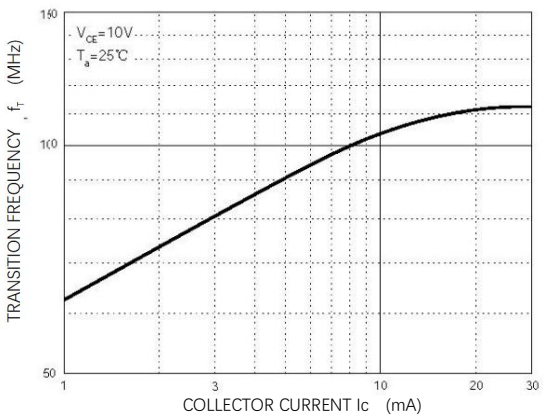
V_{BE}——I_C



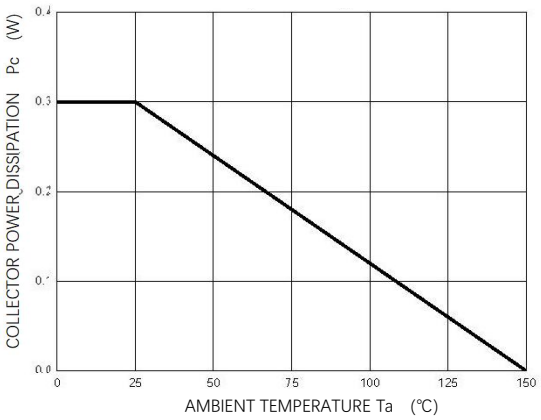
C_{ob}/C_{ib} —— V_{CB}/V_{EB}



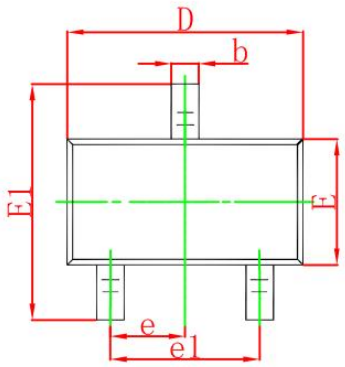
f_T——I_C

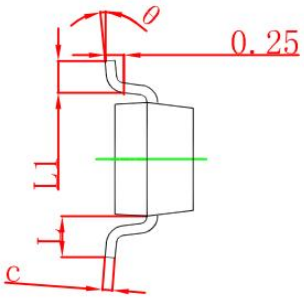


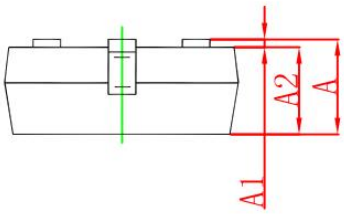
P_C——T_a



SOT-23 PACKAGE OUTLINE DIMENSIONS

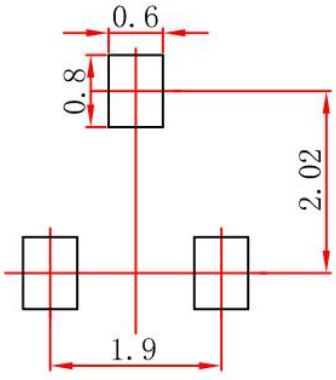






Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 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°

SOT-23 SUGGESTED PAD LAYOUT

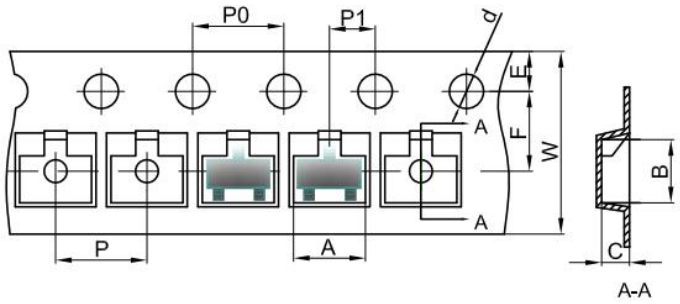


Note:

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

SOT-23 TAPE AND REEL

SOT-23 Embossed Carrier Tape

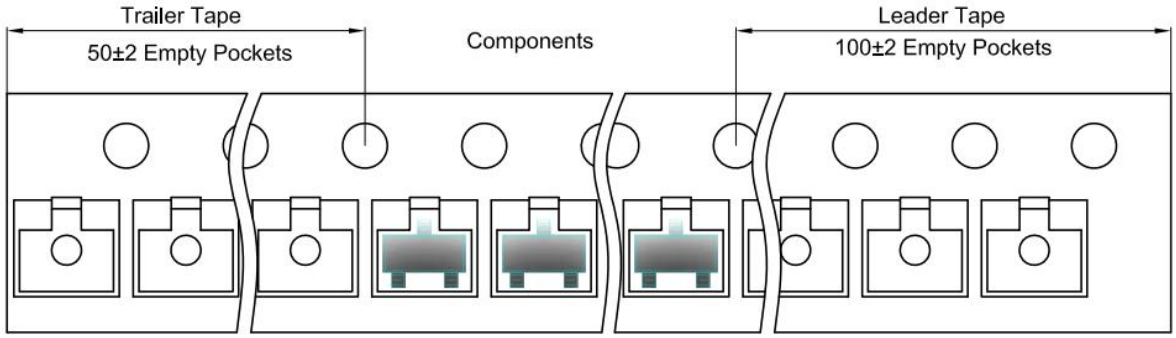


Packaging Description:

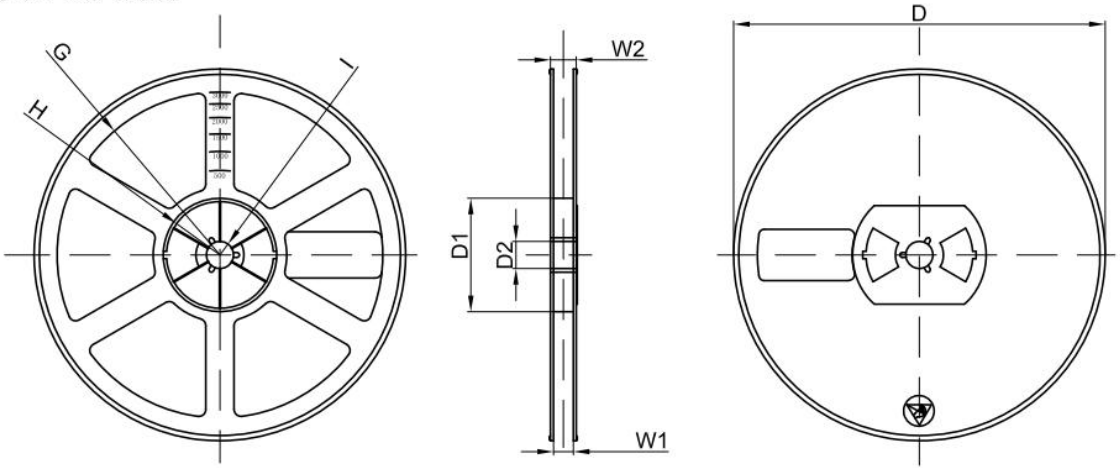
SOT-23 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in 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	438×438×220	

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