

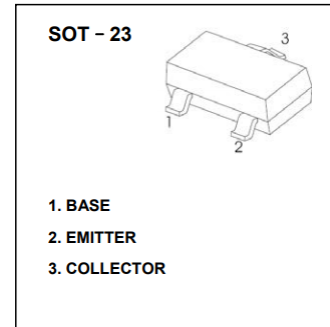


## AD-MMBT5551 Series Plastic-Encapsulated Transistor

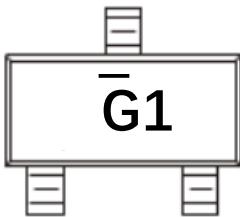
### AD-MMBT5551 series Transistor (NPN)

#### FEATURES

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

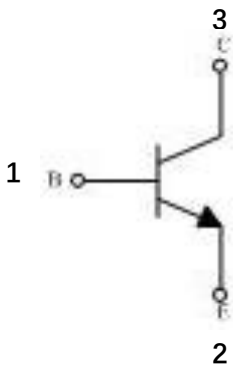


#### MARKING



$\bar{G}1$  = Device code

#### EQUIVALENT CIRCUIT



**MAXIMUM RATINGS ( $T_j = 25^\circ\text{C}$  unless otherwise specified)**

Parameter	Symbol	Value	Unit
Collector-base voltage	$V_{\text{CBO}}$	180	V
Collector-emitter voltage	$V_{\text{CEO}}$	160	V
Emitter-base voltage	$V_{\text{EBO}}$	6	V
Collector continuous current	$I_{\text{C}}^{1)}$	600	mA
Collector power dissipation	$P_{\text{C}}^{1)}$	300	mW
Thermal resistance from junction to ambient	$R_{\theta\text{JA}}^{2)}$	416	$^\circ\text{C}/\text{W}$
Operating junction and storage temperature range	$T_j, T_{\text{stg}}$	-55 ~ 150	$^\circ\text{C}$

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

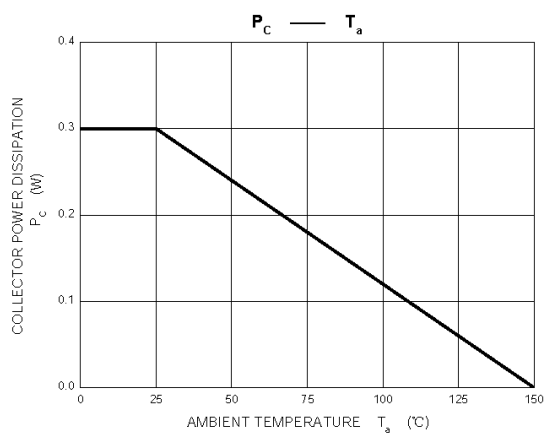
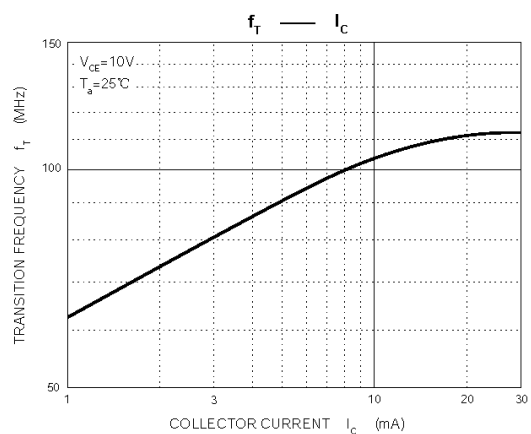
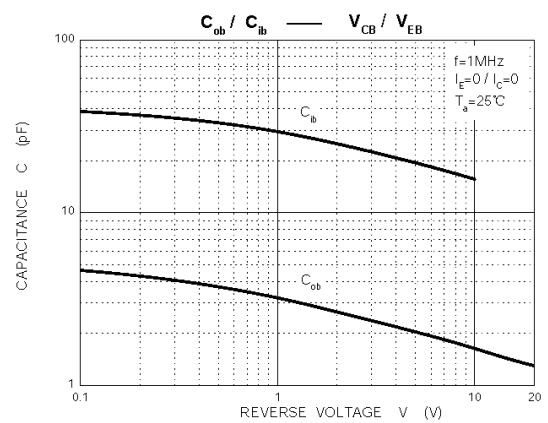
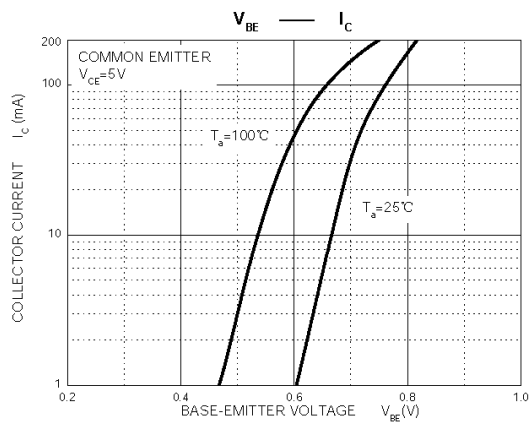
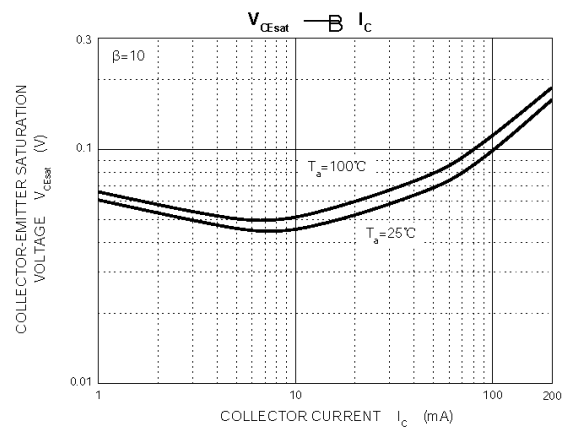
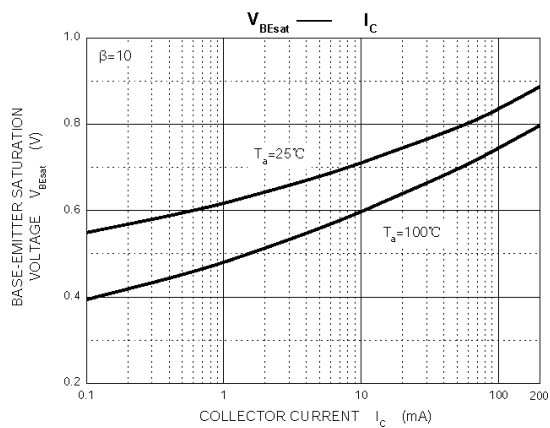
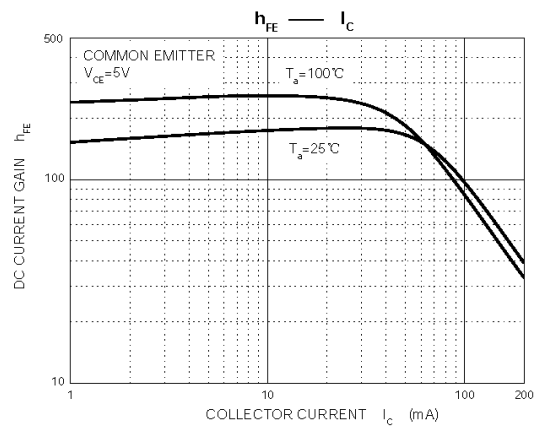
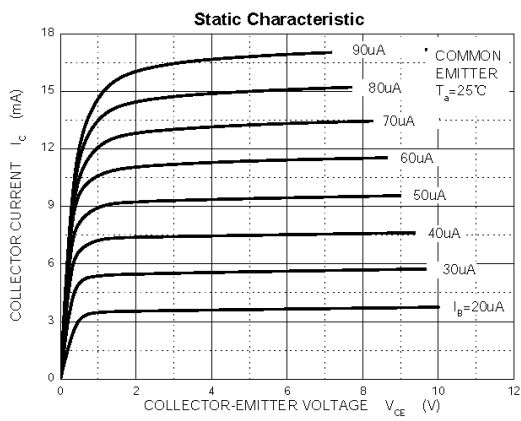
Parameter	Symbol	Test condition	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(\text{BR})\text{CBO}}$	$I_{\text{C}} = 100\mu\text{A}, I_{\text{E}} = 0\text{A}$	180	-	-	V
Collector-emitter breakdown voltage	$V_{(\text{BR})\text{CEO}}^{3)}$	$I_{\text{C}} = 1\text{mA}, I_{\text{B}} = 0\text{A}$	160	-	-	V
Emitter-base breakdown voltage	$V_{(\text{BR})\text{EBO}}$	$I_{\text{E}} = 10\mu\text{A}, I_{\text{C}} = 0\text{A}$	6	-	-	V
Collector-emitter cut-off current	$I_{\text{CEX}}$	$V_{\text{CE}} = 120\text{V}, I_{\text{E}} = 0\text{A}$	-	-	50	nA
Emitter-base cut-off current	$I_{\text{EBO}}$	$V_{\text{EB}} = 4\text{V}, I_{\text{C}} = 0\text{A}$	-	-	50	nA
DC current gain	$h_{\text{FE}(1)}^{3)}$	$V_{\text{CE}} = 5\text{V}, I_{\text{C}} = 1\text{mA}$	80	-	-	-
	$h_{\text{FE}(2)}^{3)}$	$V_{\text{CE}} = 5\text{V}, I_{\text{C}} = 10\text{mA}$	100	-	300	
	$h_{\text{FE}(3)}^{3)}$	$V_{\text{CE}} = 5\text{V}, I_{\text{C}} = 50\text{mA}$	50	-	-	
Collector-emitter saturation voltage	$V_{\text{CE}(\text{sat})1}^{3)}$	$I_{\text{C}} = 10\text{mA}, I_{\text{B}} = 1\text{mA}$	-	-	-0.2	V
	$V_{\text{CE}(\text{sat})2}^{3)}$	$I_{\text{C}} = 50\text{mA}, I_{\text{B}} = 5\text{mA}$	-	-	-0.5	V
Base-emitter saturation voltage	$V_{\text{BE}(\text{sat})1}^{3)}$	$I_{\text{C}} = 10\text{mA}, I_{\text{B}} = 1\text{mA}$	-	-	-1	V
	$V_{\text{BE}(\text{sat})2}^{3)}$	$I_{\text{C}} = 50\text{mA}, I_{\text{B}} = 5\text{mA}$	-	-	-1	V
Transition frequency	$f_{\text{T}}$	$V_{\text{CE}} = 10\text{V}, I_{\text{C}} = 10\text{mA}, f = 100\text{MHz}$	100	-	300	MHz
Collector output capacitance	$C_{\text{ob}}$	$V_{\text{CB}} = 10\text{V}, I_{\text{E}} = 0, f = 1\text{MHz}$	-	-	6	pF

**CLASSIFICATION OF  $h_{\text{FE}(2)}$** 

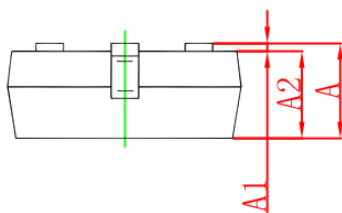
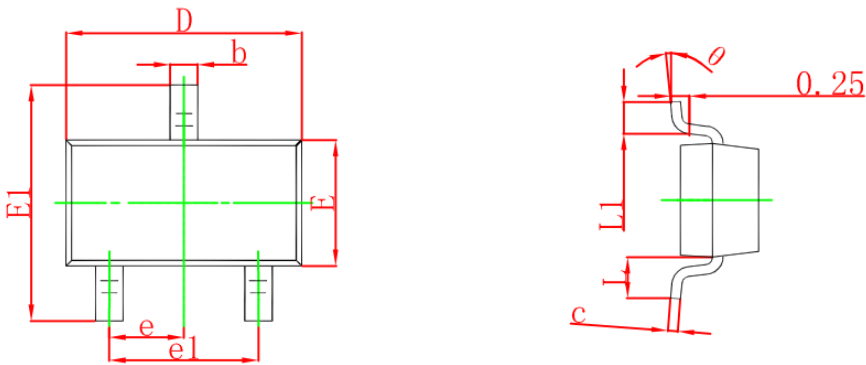
RANK	AD-MMBT5551-L	AD-MMBT5551-H
RANGE	100 ~ 200	200 ~ 300

1) Maximum allowed temperature  $T_j = 25^\circ\text{C}$ .2) Measured with the device mounted on 1 inch<sup>2</sup> FR-4 board with 1oz. copper, in a still air environment with  $T_a = 25^\circ\text{C}$ .3) Pulse test: pulse width  $\leq 300\mu\text{s}$ , duty cycle  $\leq 2.0\%$ .

# TYPICAL CHARACTERISTICS

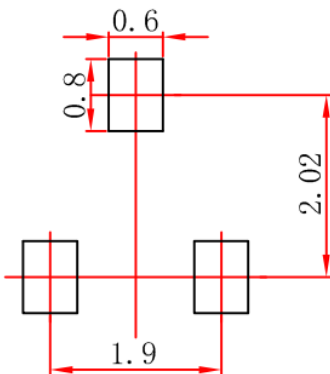


### SOT-23 PACKAGE OUTLINE DIMENSIONS



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

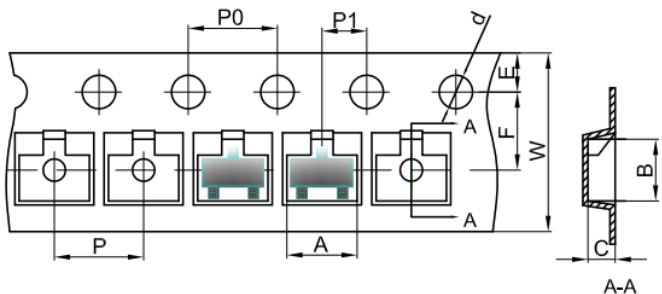


Note:

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

### SOT-23 TAPE AND REEL

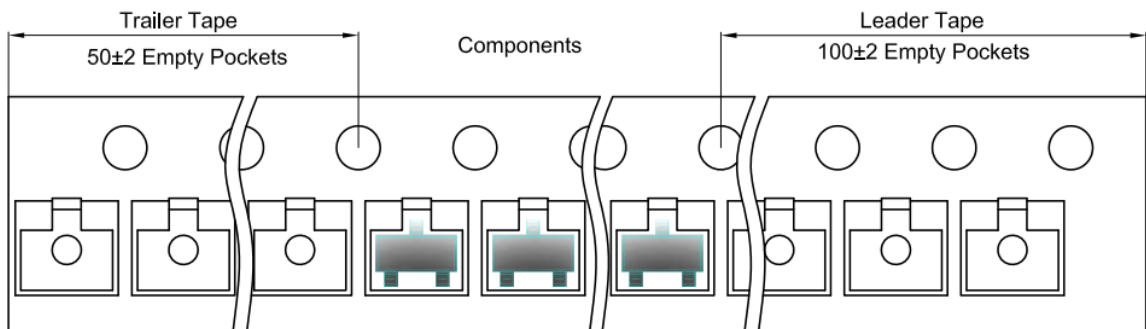
#### SOT-23 Embossed Carrier Tape



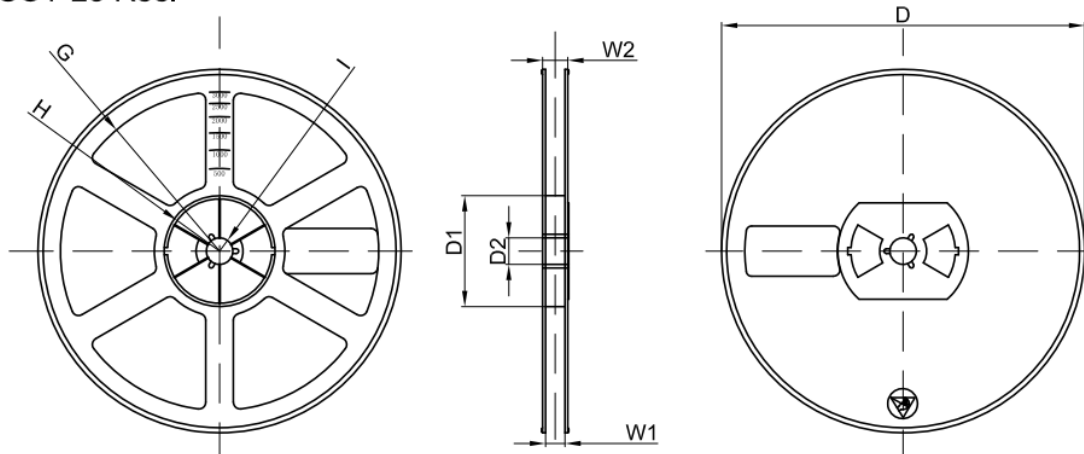
**Packaging Description:**  
 SOT-23 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed 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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**PUBLISHED BY**

**JIANGSU CHANGJING ELECTRONICS TECHNOLOGY CO., LTD.**

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