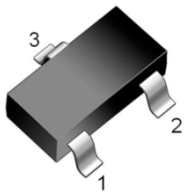
HAB709A(PNP)

GENERAL PURPOSE TRANSISTOR

REPLACEMENT TYPE :2SB709A

FEATURES

- For General Amplification
- Complementary to HAD601A



SOT-23

1: BASE 2:EMITTER 3: COLLECTOR

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

Parameter	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	-45	V
Collector-Emitter Voltage	V_{CEO}	-45	V
Emitter-Base Voltage	V_{EBO}	-7	V
Collector Current-Continuous	I_C	-100	mA
Collector Power Dissipation	P_C	200	mW
Junction Temperature	T_J	150	°C
Storage Temperature	T_{stg}	-55-150	°C

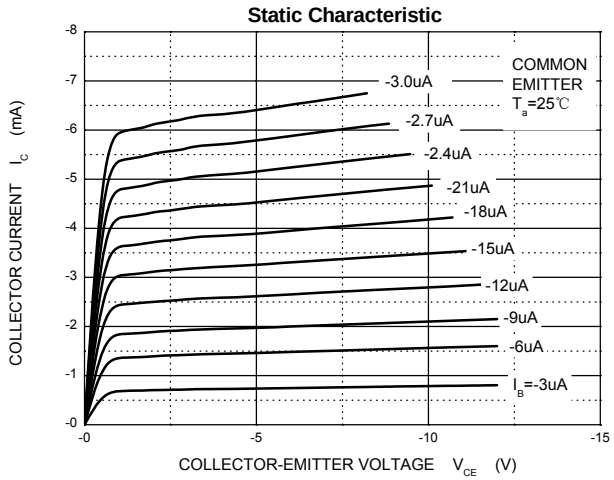
ELECTRICAL CHARACTERISTICS (T_A= 25°C unless otherwise noted)

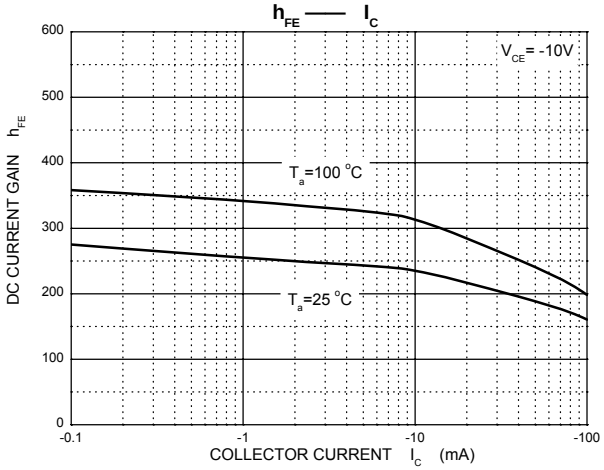
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage	V_{CBO}	I_C=-10μA,I_E=0	-45			V
Collector-Emitter Breakdown Voltage	V_{CEO}	I_C=-2mA,I_B=0	-45			V
Emitter-Base Breakdown Voltage	V_{EBO}	I_E=-10uA,I_C=0	-7			V
Collector Cut-off Current	I_{CBO}	V_{CB}=-20V,I_E=0			-0.1	μA
Collector Cut-off Current	I_{CEO}	$V_{CE=}$-10V, I_B=0			-100	μA
DC Current Gain	h_{FE}	V_{CE}=-10V,I_C=-2mA	160		460	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C=-100mA,I_B=-10mA			-0.5	V
Transition Frequency	f_T	V_{CE}=-10V,I_C=-1mA,f=200MHz	60			MHz
Collector Output Capacitance	C_{OB}	V_{CB}=-10V, I_E=0,f=1MHz			2.7	pF

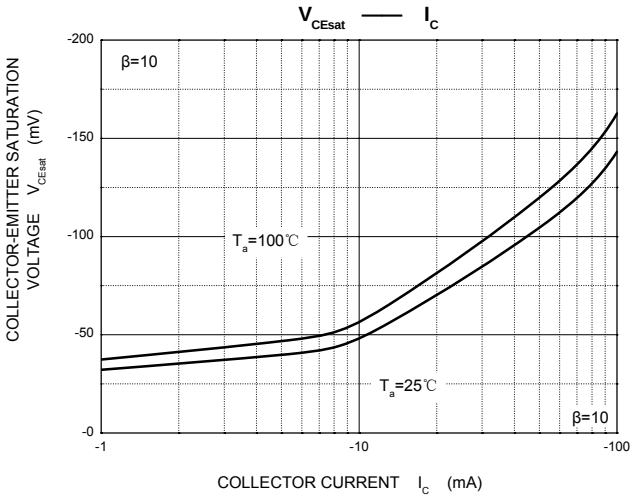
CLASSIFICATION OF h_{FE}

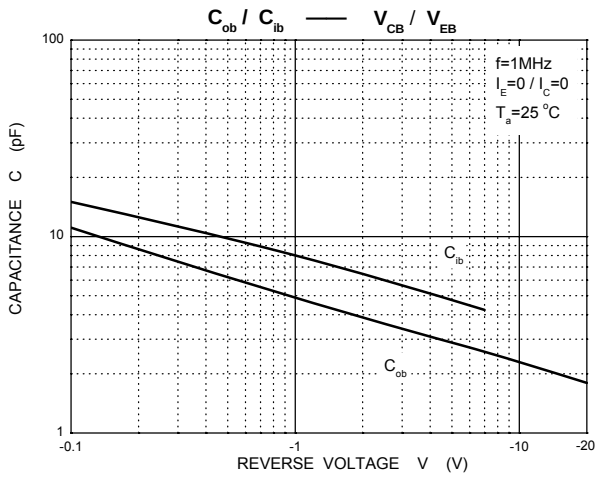
Rank	Q	R	S
Range	160-260	210-340	290-460
Marking	BQ1	BR1	BS1

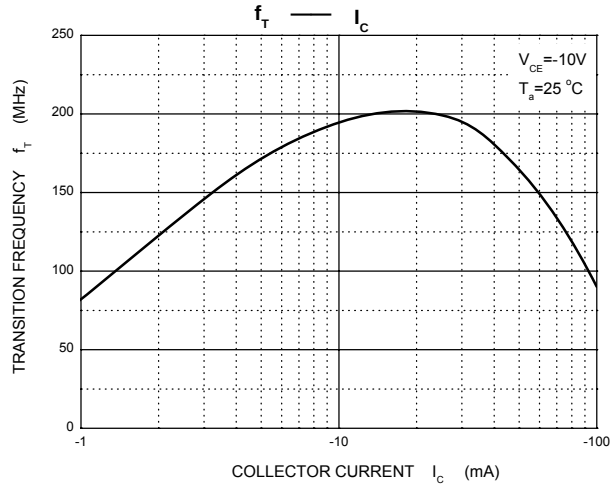
Typical Characteristics

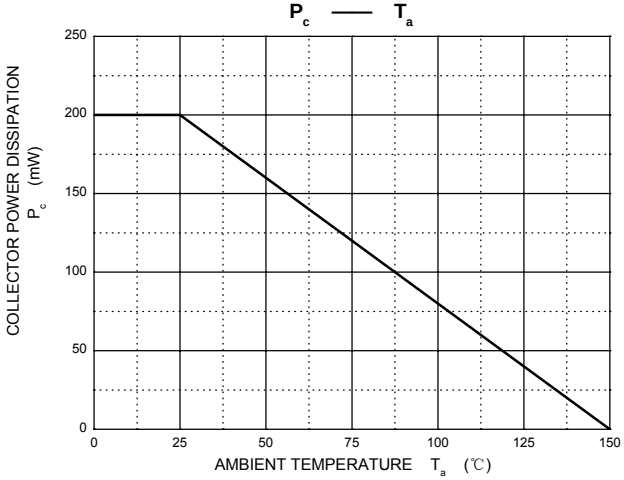




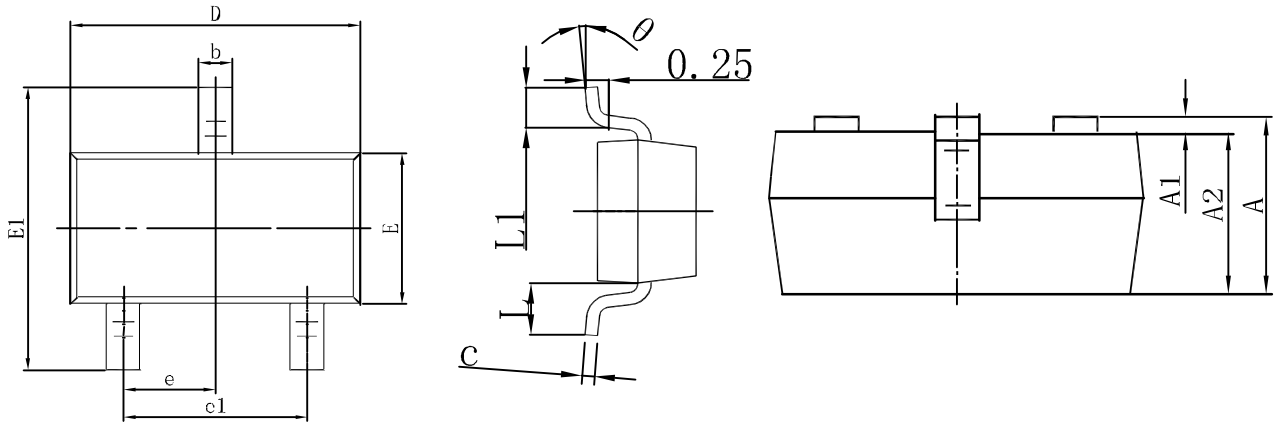






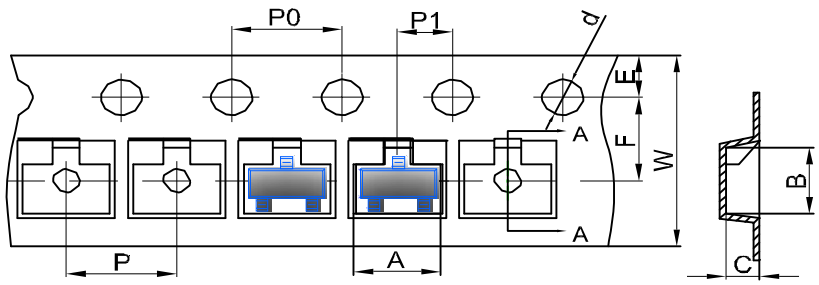


SOT-23 Package Outline Dimensions



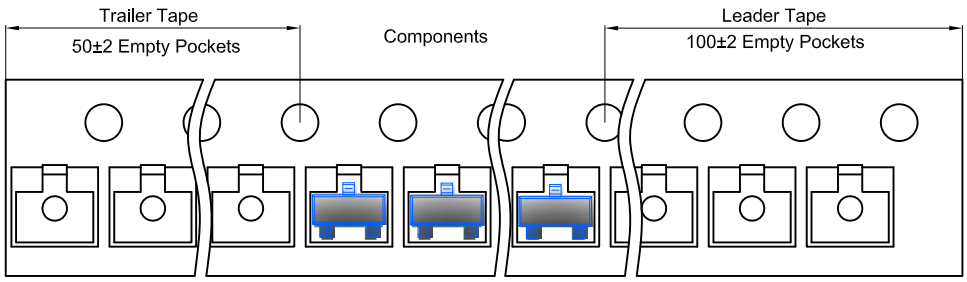
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP	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

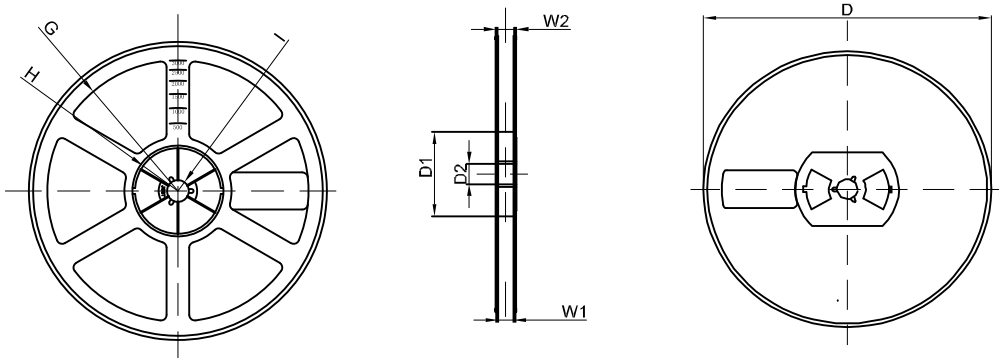


	DIMENSIONS ARE IN MILLIMETER									
TYPE	A	B	C	d	E	F	P0	P	P1	W
SOT-23	3.15	2.77	1.22	φ1.50	1.75	3.50	4.00	4.00	2.00	8.00
TOLERANCE	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1

SOT-23 Tape Leader and Traller



SOT-23 Reel



	DIMENSIONS ARE IN MILLIMETER							
REEL OPTION	D	D1	D2	G	H	I	W1	W2
7” DIA	φ178	54.40	13.00	R78	R25.60	R6.50	9.50	12.30
TOLERANCE	±2	±1	±1	±1	±1	±1	±1	±1