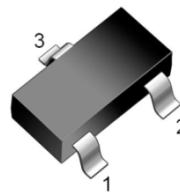


REPLACEMENT TYPE :2SB709A
FEATURES

- 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

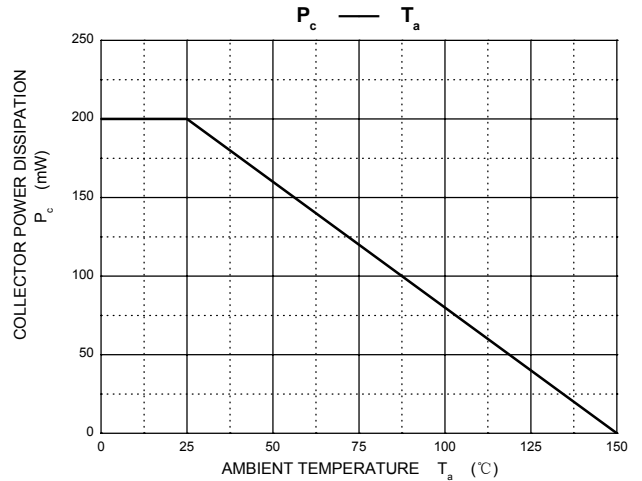
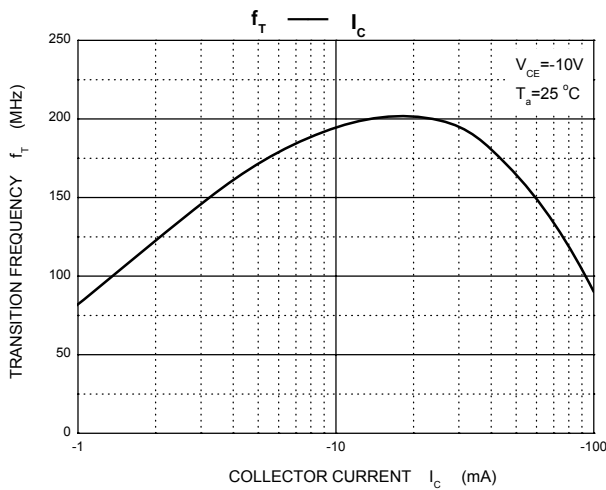
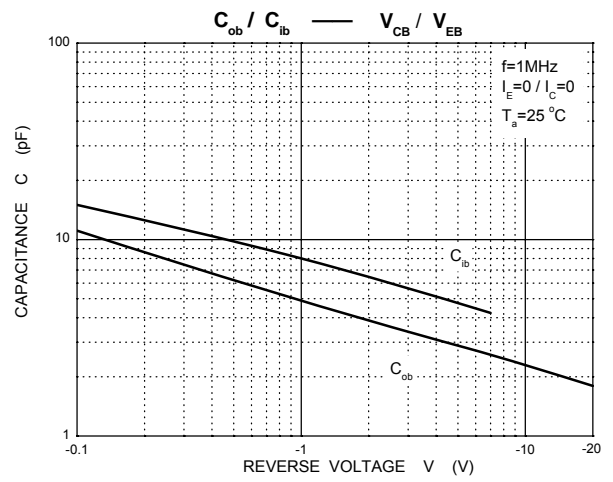
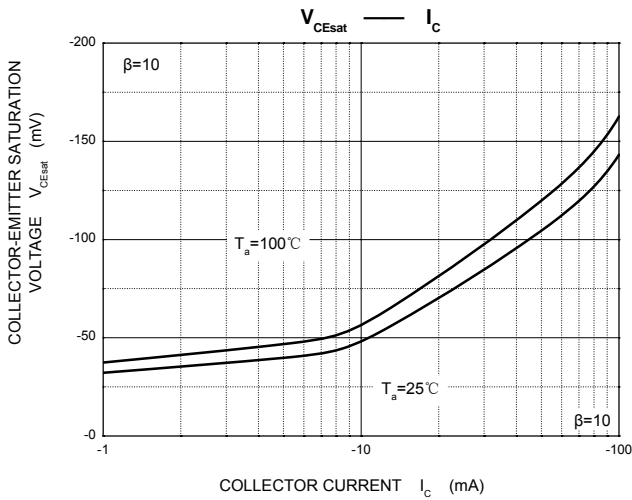
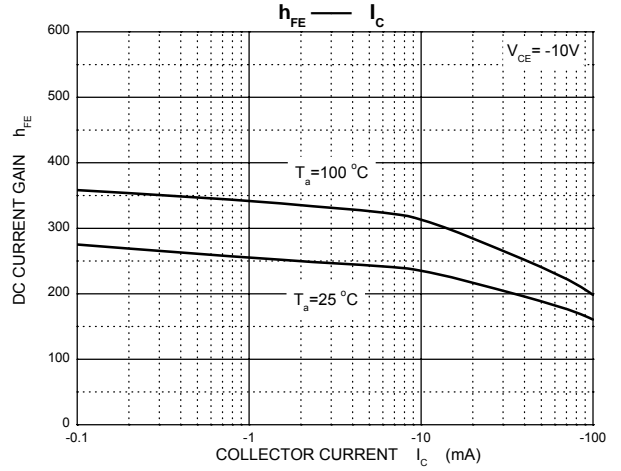
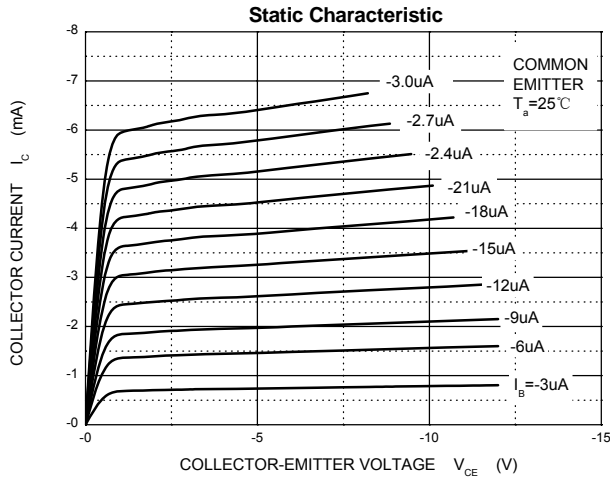
ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

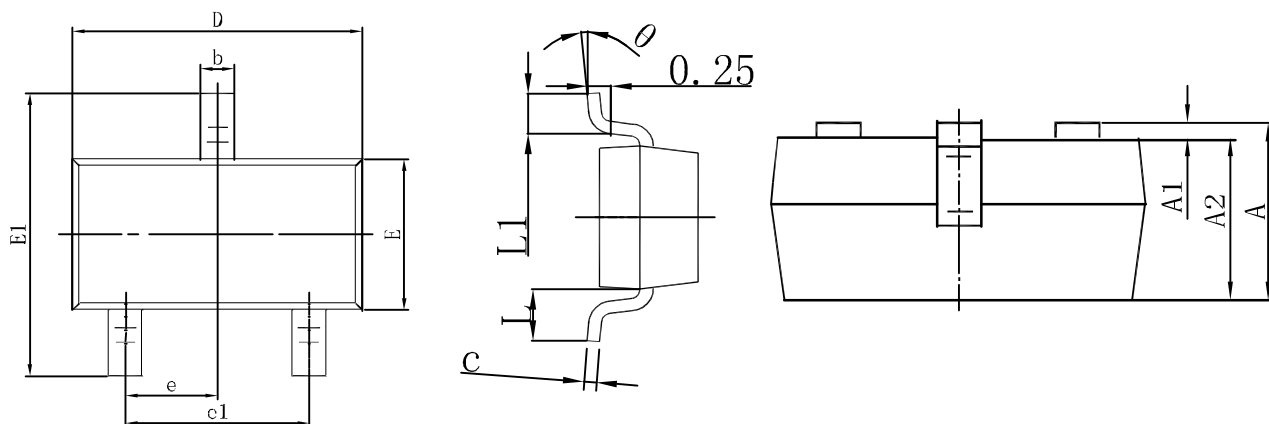
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage	V _{CBO}	I _C =-10μA, I _E =0	-45			V
Collector-Emitter Breakdown Voltage	V _{CEO}	I _C =-2mA, I _B =0	-45			V
Emitter-Base Breakdown Voltage	V _{EBO}	I _E =-10μA, I _C =0	-7			V
Collector Cut-off Current	I _{CBO}	V _{CB} =-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

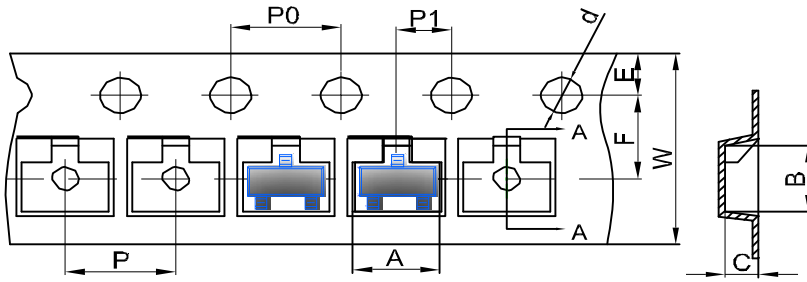
Typical Characteristics



SOT-23 Package Outline Dimensions


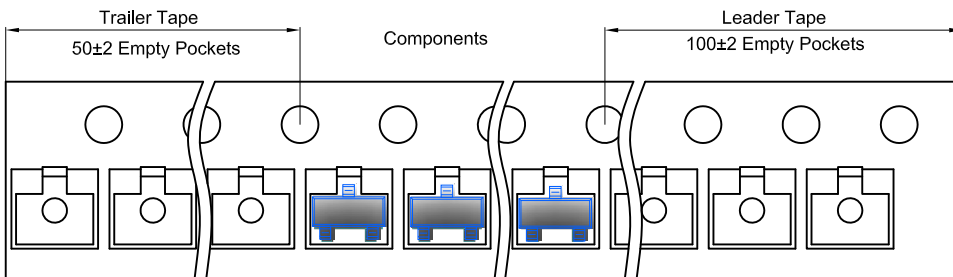
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP	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

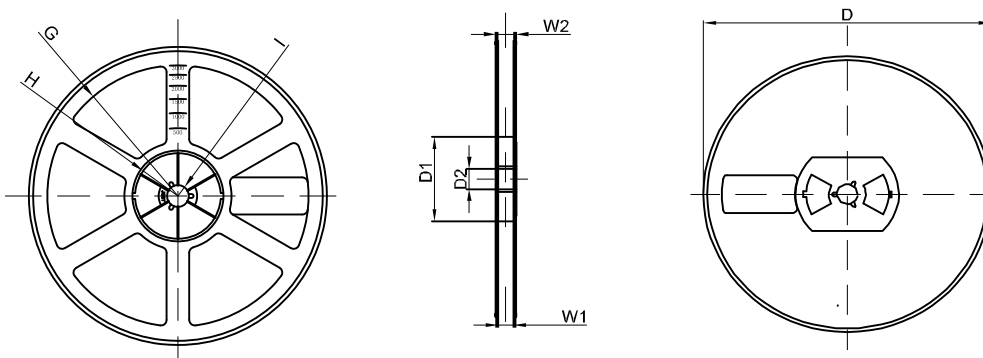


DIMENSIONS ARE IN MILLIMETER										
TYPE	A	B	C	d	E	F	P0	P	P1	W
SOT-23	3.15	2.77	1.22	φ1.50	1.75	3.50	4.00	4.00	2.00	8.00
TOLERANCE	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1

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