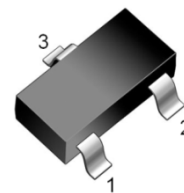


REPLACEMENT TYPE : MMBT2222A

SWITCHING TRANSISTOR

FEATURES

- Epitaxial Planar Die Construction
- Complementary PNP Type available(HABT2907A)



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}	75	V
Collector-Emitter Voltage	V _{CEO}	40	V
Emitter-Base Voltage	V _{EBO}	6	V
Collector Current-Continuous	I _C	600	mA
Collector Power Dissipation	P _C	300	mW
Thermal Resistance Junction to Ambient	R _{θJA}	417	°C /W
Junction Temperature	T _J	150	°C
Storage Temperature	T _{stg}	-55 to +150	°C

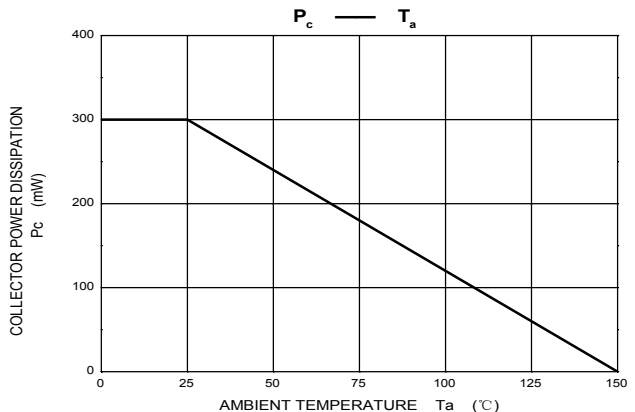
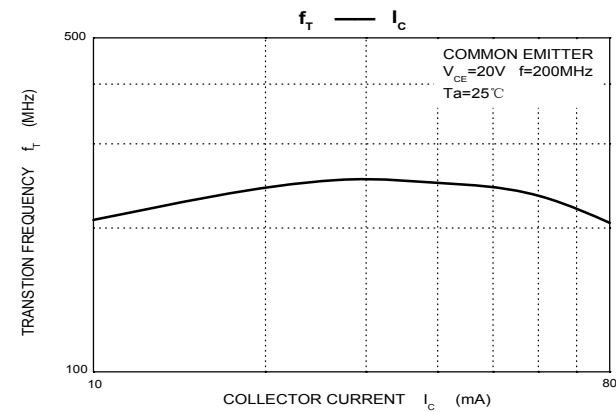
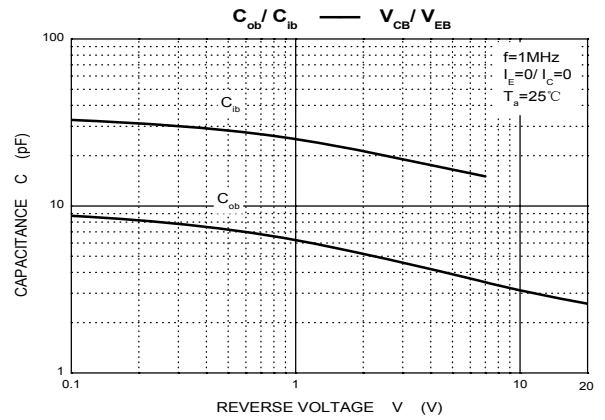
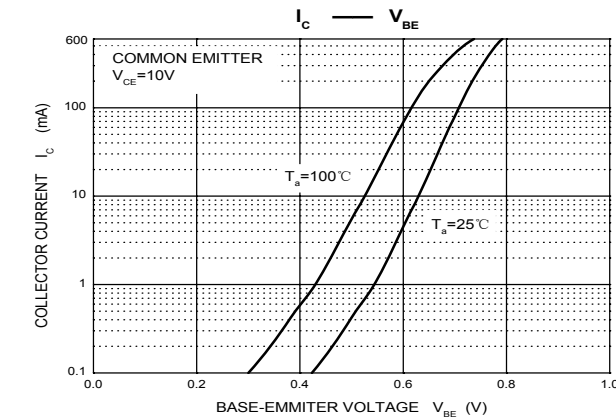
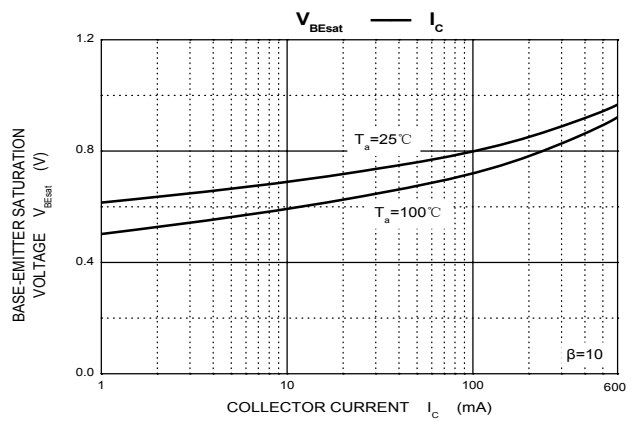
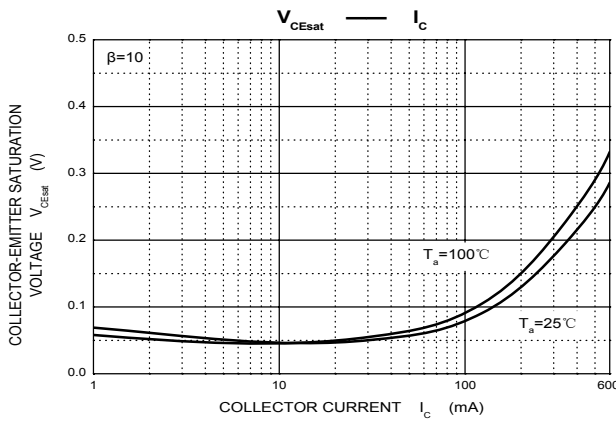
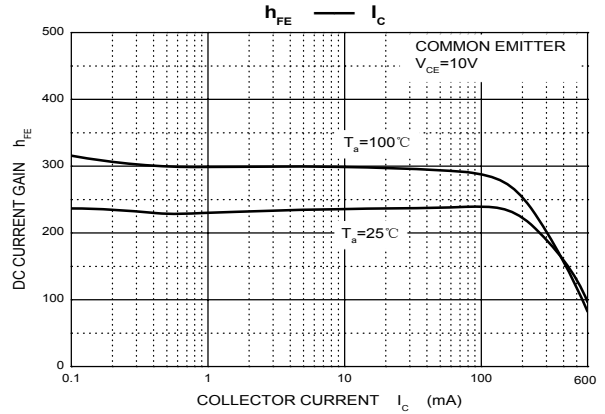
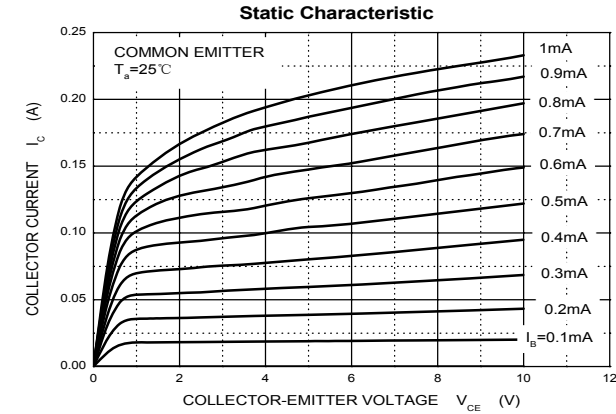
ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

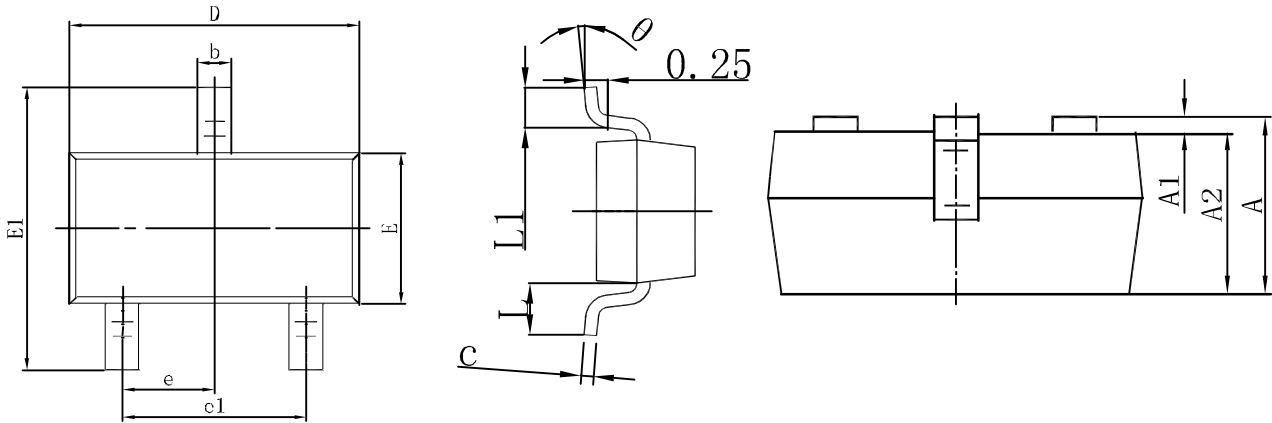
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage	V _{CBO}	I _C =10μA, I _E =0	75			V
Collector-Emitter Breakdown Voltage	V _{CEO}	I _C =10mA, I _B =0	40			V
Emitter-Base Breakdown Voltage	V _{EBO}	I _E =10uA, I _C =0	6			V
Collector Cut-off Current	I _{CBO}	V _{CB} =60V, I _E =0			0.01	μA
Collector cut-off current	I _{CEX}	V _{CE} =30V, V _{BE(off)} =3V			0.01	μA
Emitter Cut-off Current	I _{EBO}	V _{EB} =3V, I _C =0			0.1	μA
DC Current Gain	h _{FE(1)}	V _{CE} =10V, I _C =150mA	100		300	
	h _{FE(2)}	V _{CE} =10V, I _C =0.1mA	40			
	h _{FE(3)}	V _{CE} =10V, I _C =500mA	42			
Collector-Emitter Saturation Voltage	V _{CE(sat)}	I _C =500mA, I _B =50mA I _C =150mA, I _B =15mA			1 0.3	V
Base-Emitter Saturation Voltage	V _{BE(sat)}	I _C =500 mA, I _B =50mA I _C =150mA, I _B =15mA			2.0 1.2	V
Transition Frequency	f _T	V _{CE} =20V, I _C =-20mA f=100MHz	300			MHz
Delay Time	t _D	V _{CC} =30V, V _{BE(off)} =-0.5V			10	nS
Rise Time	t _R	I _C =150mA, I _{B1} = 15mA			25	nS
Storage Time	t _S	V _{CC} =30V, I _C =150mA			225	nS
Fall Time	t _F	I _{B1} =-I _{B2} =15mA			60	nS

CLASSIFICATION OF h_{FE}

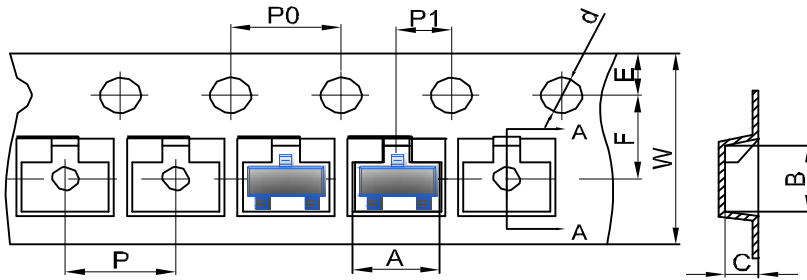
Rank	L	H
Range	100-200	200-300
Marking	1P	

Typical Characteristics

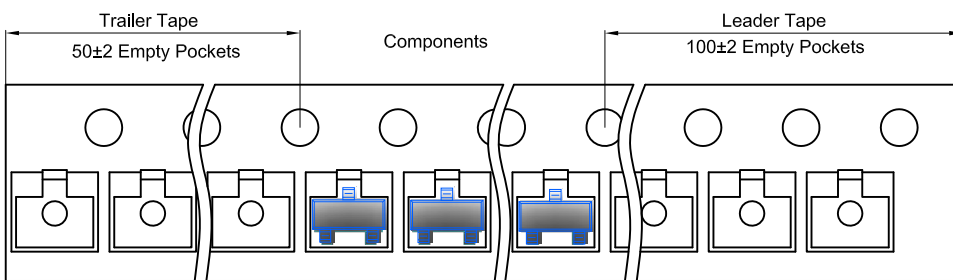
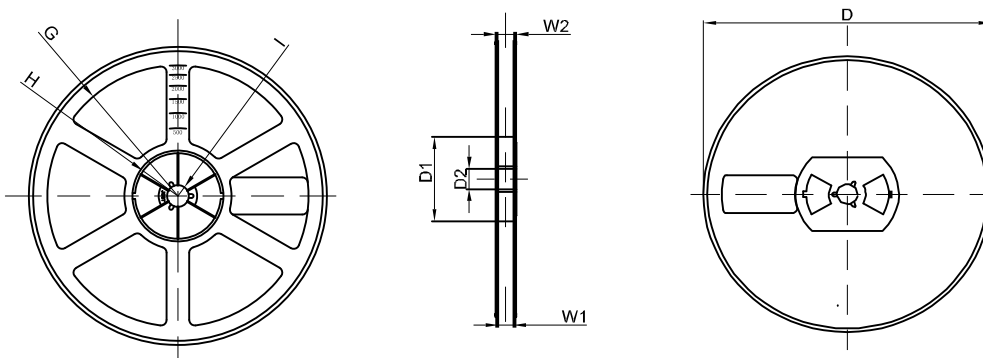


SOT-23 Package Outline Dimensions


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