

SOT-23 Plastic-Encapsulate Transistors

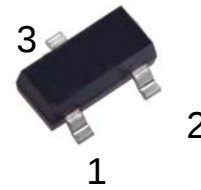
MMBTA42 (NPN)

Features:

- ☐ High breakdown voltage
- ☐ Low collector-emitter saturation voltage
- ☐ Complementary to MMBTA92 (PNP)

Marking:497

SOT-23



- 1.Base (B)
- 2. Emitter (E)
- 3.Collector (C)

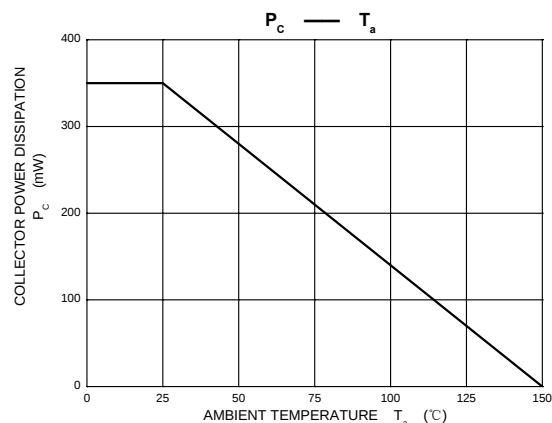
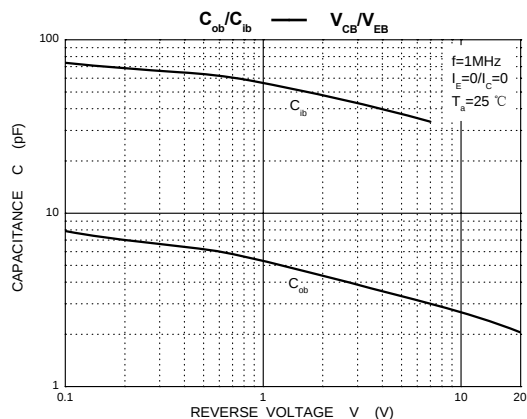
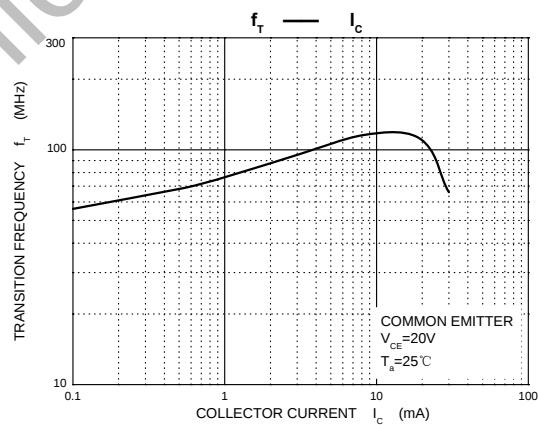
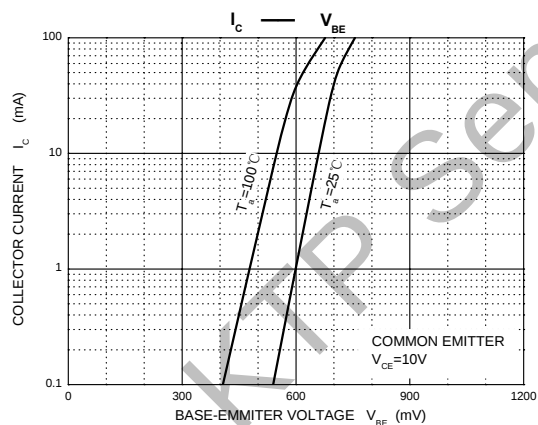
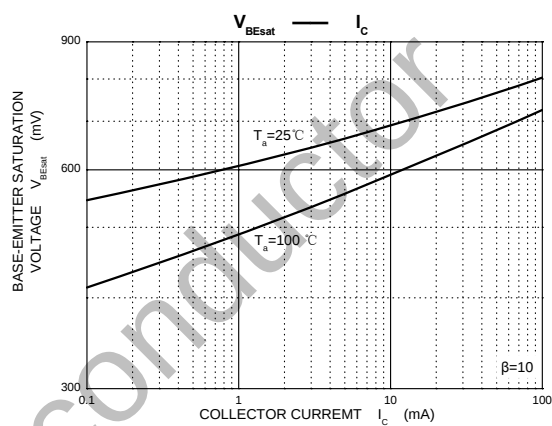
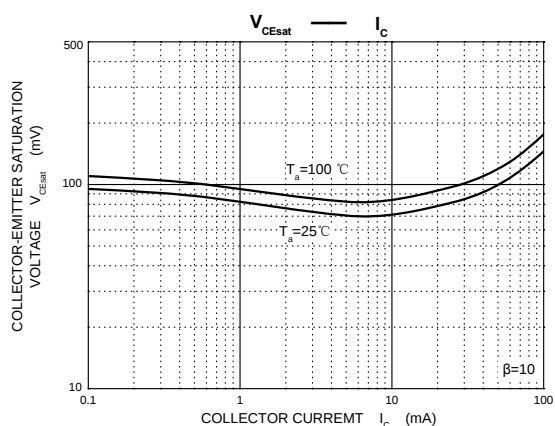
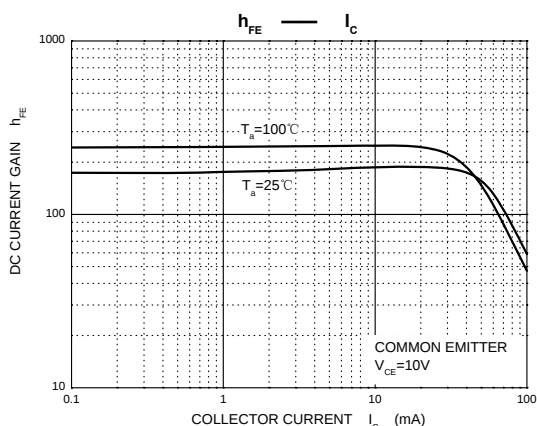
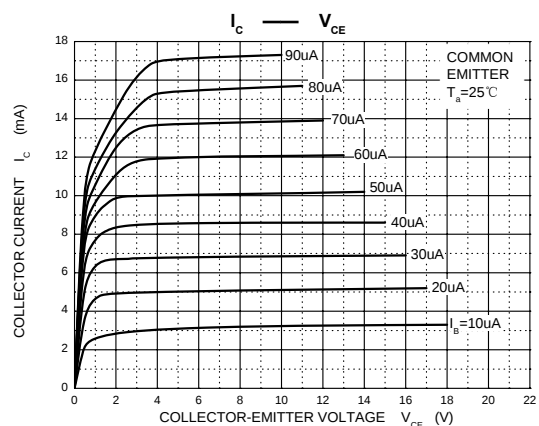
MAXIMUM RATINGS (T_a=25°C unless otherwise noted)

Symbol	Parameter	Value	Unit
V _{CBO}	Collector-Base Voltage	300	V
V _{CEO}	Collector-Emitter Voltage	300	V
V _{EBO}	Emitter-Base Voltage	5	V
I _C	Collector Current -Continuous	0.3	A
I _{CM}	Collector Current-Peak	0.5	A
P _C	Collector Power dissipation	0.35	W
R _{θJA}	Thermal Resistance, junction to Ambient	357	°C/W
T _J	Junction Temperature	150	°C
T _{stg}	Storage Temperature	-55~+150	°C

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

Parameter	Symbol	Test conditions	Min	Max	Unit
Collector-base breakdown voltage	V _{(BR)CBO}	I _C = 100μA, I _E =0	300		V
Collector-emitter breakdown voltage	V _{(BR)CEO}	I _C = 1mA, I _B =0	300		V
Emitter-base breakdown voltage	V _{(BR)EBO}	I _E = 100μA, I _C =0	5		V
Collector cut-off current	I _{CBO}	V _{CB} =200V, I _E =0		0.25	μA
Emitter cut-off current	I _{EBO}	V _{EB} = 5V, I _C =0		0.1	μA
DC current gain	h _{FE(1)}	V _{CE} = 10V, I _C = 1mA	60		
	h _{FE(2)}	V _{CE} = 10V, I _C =10mA	100	200	
	h _{FE(3)}	V _{CE} =10V, I _C =30mA	60		
Collector-emitter saturation voltage	V _{CE(sat)}	I _C =20mA, I _B = 2mA		0.2	V
Base-emitter saturation voltage	V _{BE(sat)}	I _C = 20mA, I _B =2mA		0.9	V
Transition frequency	f _T	V _{CE} = 20V, I _C = 10mA, f=30MHz	50		MHz

Typical Characteristics



TEST DATA							
TEST CONDITION	ICBO≤225nA Vcb=200V	IEBO≤90nA Veb=5V	BVCBO≥310V Ic=100uA	BVCEO≥310V Ic=1mA	HFE=80- 300 Vce=10V	Vcesat≤0.19V Vce=3V Ic=20mA	Vbesat≤ 0.89V Vce=3V
NO.	ICBO(nA)	IEBO(nA)	BVCBO(V)	BVCEO(V)	HFE	Vcesat(mV)	Vbesat(V)
1	0.762	0.701	400.500	387.500	148.130	59.500	0.727
2	0.038	0.622	400.500	388.200	146.560	59.500	0.727
3	0.961	0.295	400.500	389.800	144.780	60.200	0.727
4	0.438	1.404	400.500	390.800	142.270	60.300	0.727
5	2.161	0.147	400.500	376.900	154.200	56.700	0.727
6	0.762	0.038	400.500	387.800	145.580	59.600	0.725
7	0.438	1.622	400.500	388.700	143.720	59.600	0.726
8	1.061	1.087	400.500	389.000	146.030	59.700	0.726
9	0.162	0.058	400.600	383.100	152.160	58.500	0.726
10	1.661	0.988	400.500	382.700	150.740	58.100	0.728
11	1.261	0.038	400.500	384.200	149.390	58.700	0.728
12	1.261	0.216	400.500	390.800	142.270	60.100	0.728
13	1.061	0.573	400.500	381.200	151.310	57.800	0.728
14	1.761	0.662	400.600	387.100	149.010	59.100	0.728
15	0.762	0.691	400.400	386.900	147.930	59.500	0.728
16	0.138	1.137	400.500	389.500	144.820	60.100	0.726
17	1.561	0.335	400.500	386.500	148.210	59.400	0.726
18	1.861	0.031	400.500	382.600	151.580	58.400	0.727
19	0.961	0.286	400.500	381.800	152.510	58.200	0.726
20	1.961	0.830	400.500	379.700	154.320	57.400	0.726
MIN	0.038	0.031	400.400	376.900	142.270	56.700	0.725
MAX	2.161	1.622	400.600	390.800	154.320	60.300	0.728
X	1.052	0.588	400.505	385.740	148.276	59.020	0.727