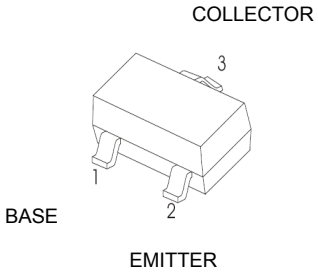
迈拓电子
MAITUO ELECTRONIC

MMBTA42W **Plastic-Encapsulate Transistors**



SOT-323

FEATURES

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

Marking: 1D

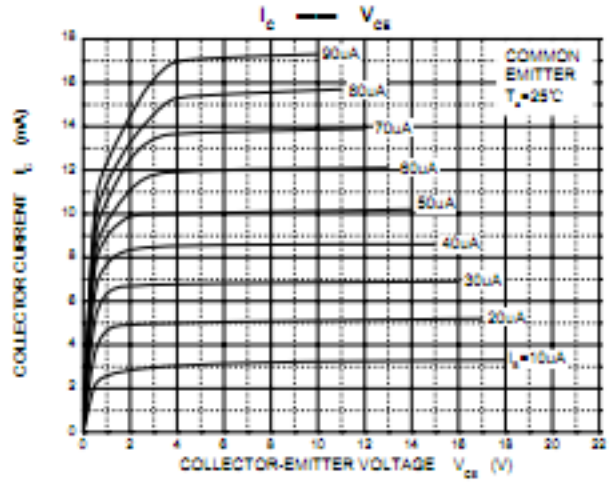
MAXIMUM RATINGS (T_a=25℃ unless otherwise noted)

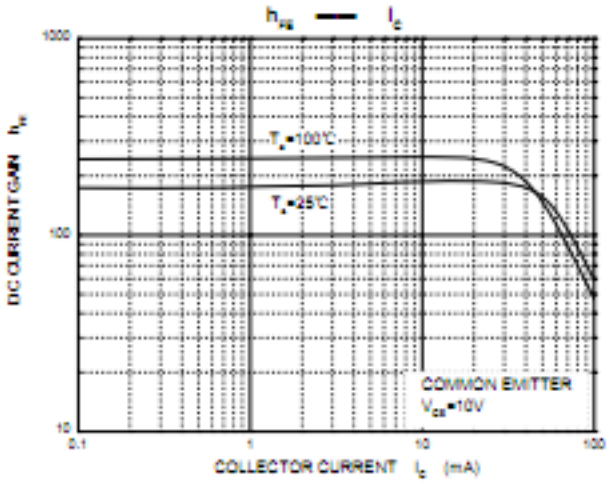
Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	300	V
V_{CEO}	Collector-Emitter Voltage	300	V
V_{EBO}	Emitter-Base Voltage	5	V
I_C	Collector Current -Continuous	0.3	A
I_{CM}	Collector Current-Peak	0.5	A
P_C	Collector Power dissipation	0.35	W
$R_{\theta JA}$	Thermal Resistance, junction to Ambient	357	℃/W
T_J	Junction Temperature	150	℃
T_{stg}	Storage Temperature	-55~+150	℃

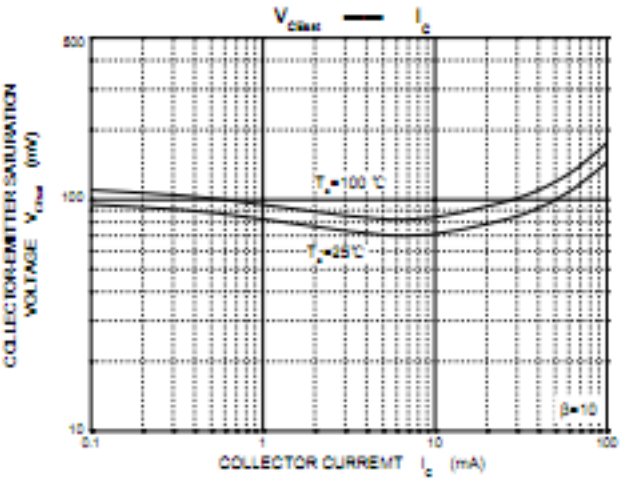
ELECTRICAL CHARACTERISTICS (T_a=25℃ unless otherwise specified)

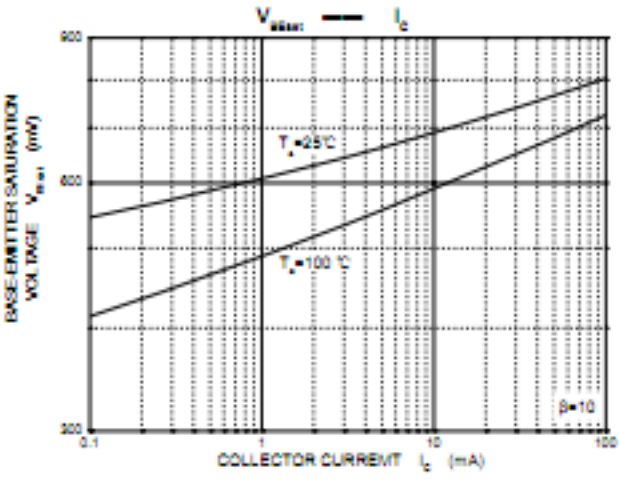
Parameter	Symbol	Test conditions	Min	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	I_C= 100μA,I_E=0	300		V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	I_C= 1mA, I_B=0	300		V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E= 100μA, I_C=0	5		V
Collector cut-off current	I_{CBO}	V_{CB}=200V, 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

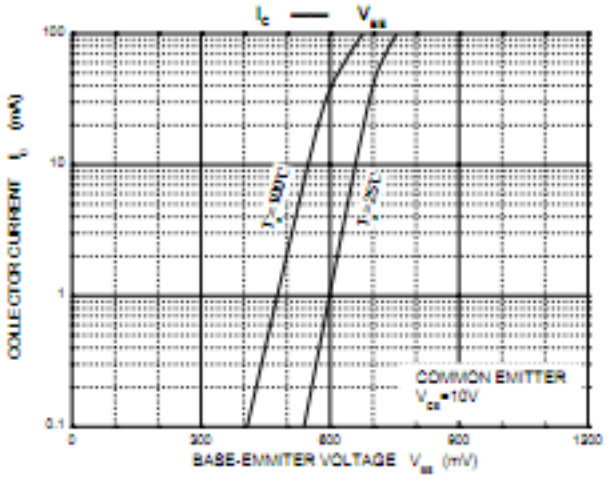
Typical Characteristics

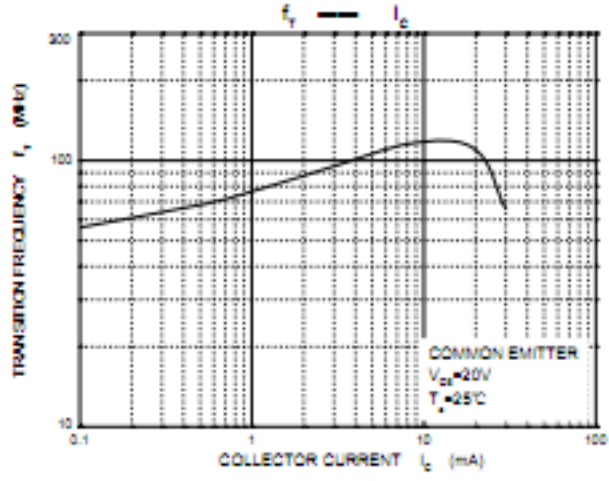


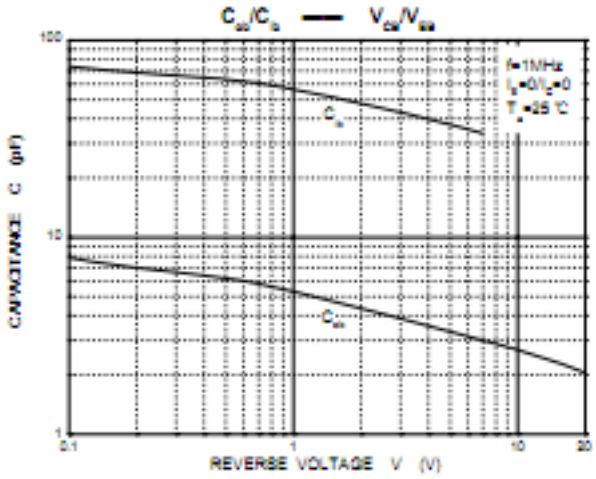


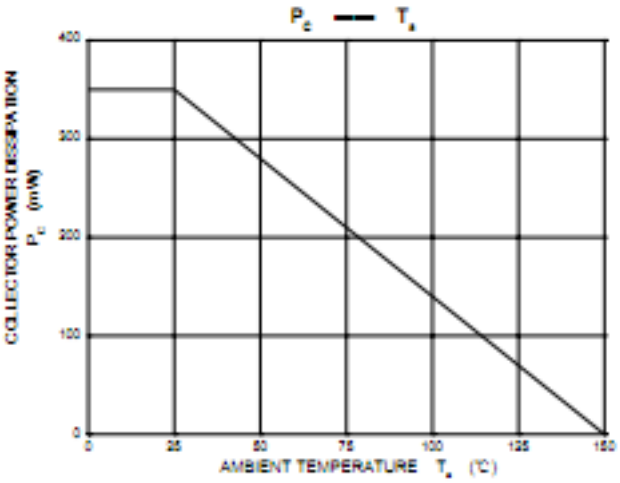









C_{ob}/C_{ib} — V_{cb}/V_{eb}
f=1MHz
I_E=0/I_C=0
T_a=25 ℃
C_{ib}
C_{ob}
CAPACITANCE C (pF)
100
10
1
0.1
1
10
20
REVERSE VOLTAGE V (V)


P_C — T_a
COLLECTOR POWER DISSIPATION
P_C (mW)
400
300
200
100
0
0
25
50
75
100
125
150
AMBIENT TEMPERATURE T_a (℃)

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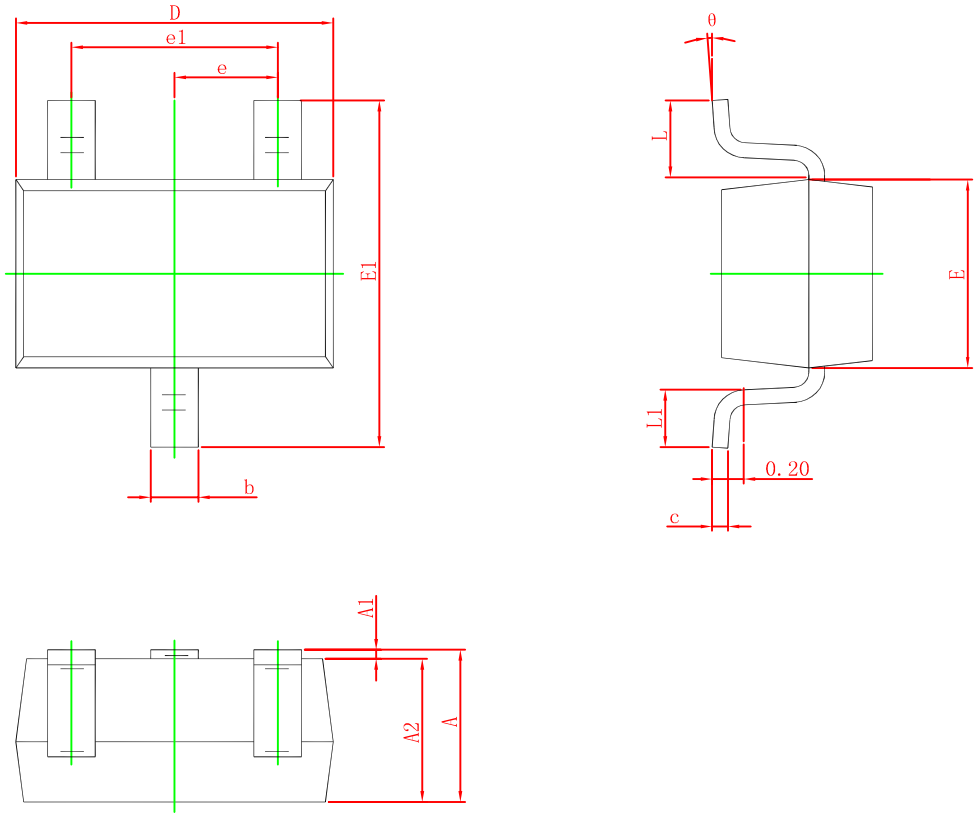
SOT-323 PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.200	0.400	0.008	0.016
c	0.080	0.150	0.003	0.006
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.450	0.085	0.096
e	0.650 TYP.		0.026 TYP.	
e1	1.200	1.400	0.047	0.055
L	0.525 REF.		0.021 REF.	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°