

# MMBTA42

## SOT-23 Plastic-Encapsulate Transistors(NPN)

### General description

SOT-23 Plastic-Encapsulate Transistors(NPN)

### FEATURES

- Complementary to MMBTA92
- Power Dissipation of 350mW
- High Stability and High Reliability
- SOT-23 Small Outline Plastic Package
- Epoxy UL: 94V-0



### DEVICE MARKING CODE:

Device Type	Device Marking
MMBTA42	1D

### Maximum Ratings & Thermal Characteristics (Ratings at 25°C ambient temperature unless otherwise specified.)

Parameters	Symbol	Value	Unit
Collector-Base Voltage	$V_{CB0}$	300	V
Collector-Emitter Voltage	$V_{CE0}$	300	V
Emitter -Base Voltage	$V_{EB0}$	5	V
Collector Current-Continuous	$I_C$	300	mA
Collector Power Dissipation	$P_C$	350	mW
Junction Temperature	$T_j$	150	°C
Storage Temperature	$T_{stg}$	-55-+150	°C
Thermal resistance From junction to ambient	$R_{\theta JA}$	357	°C/W

### Electrical Characteristics (Ratings at 25°C ambient temperature unless otherwise specified).

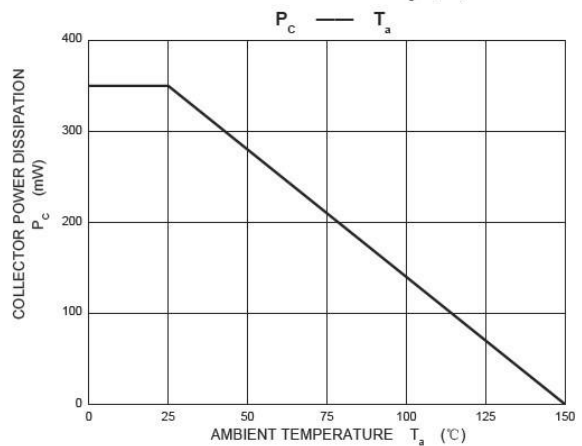
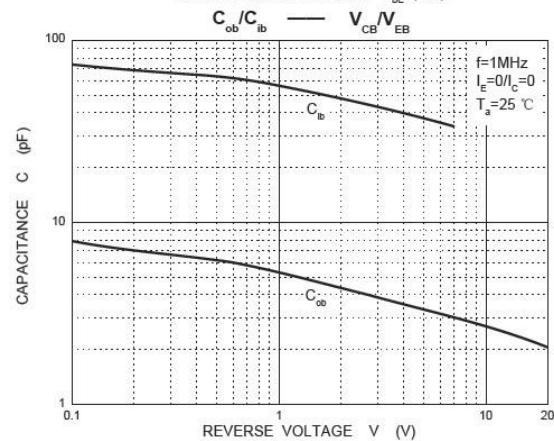
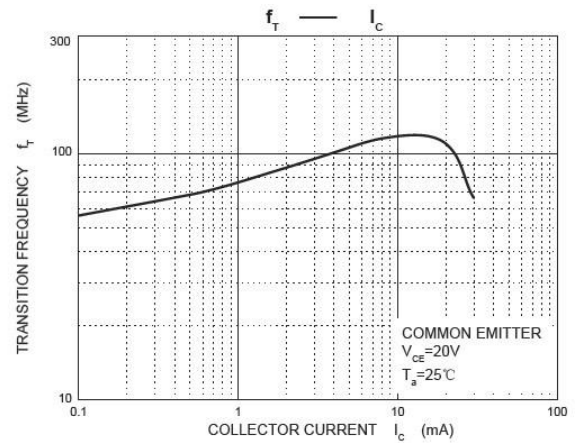
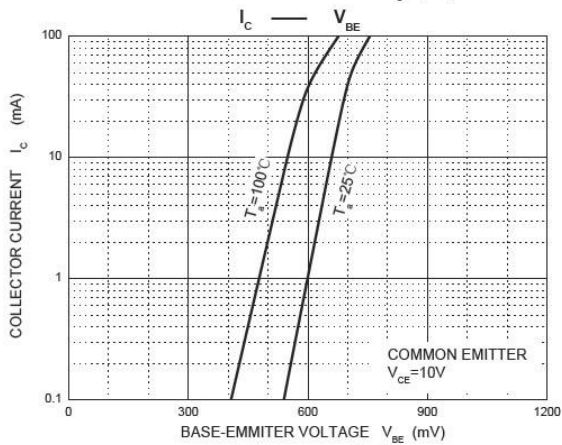
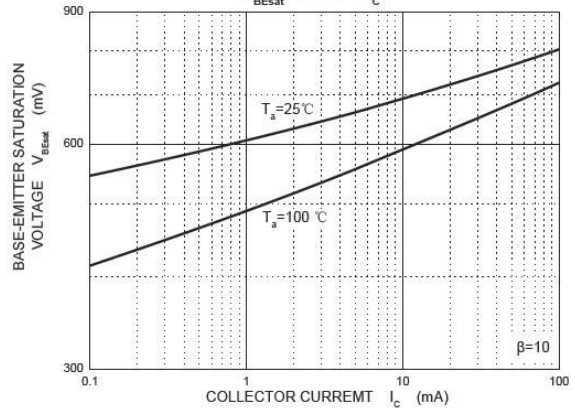
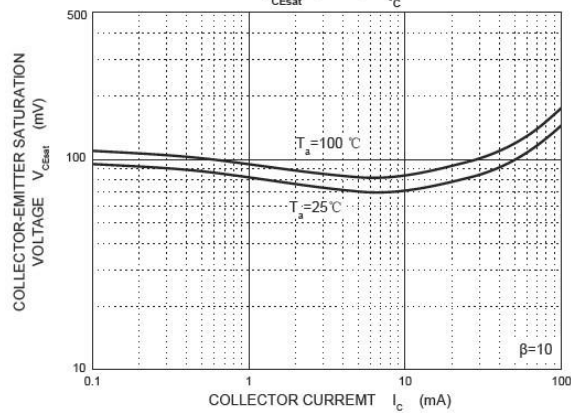
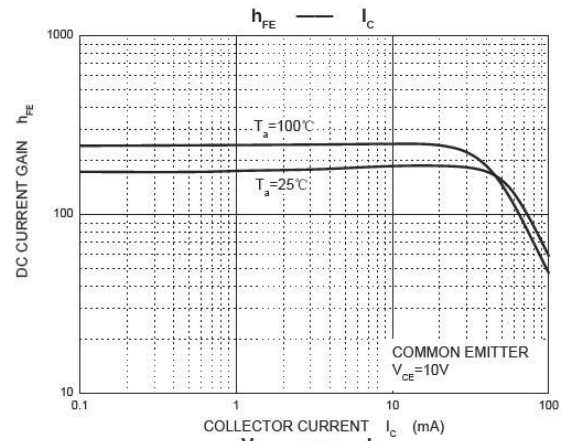
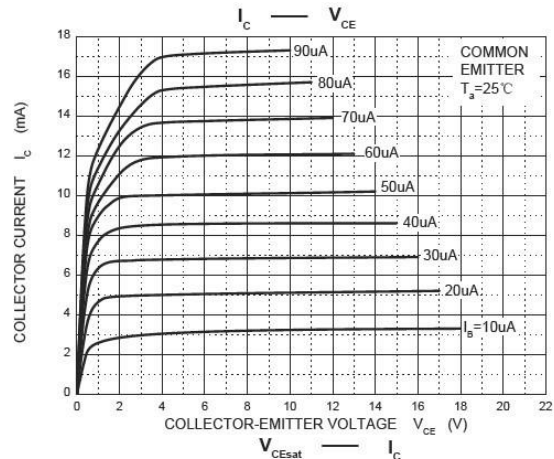
Parameter	Symbols	Test Condition	Limits		Unit
			Min	Max	
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=100\mu A, I_E=0$	300		V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=1mA, I_B=0$	300		V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=10\mu A, I_C=0$	5		V
Collector cut-off current	$I_{CBO}$	$V_{CB}=200V, I_E=0$		250	nA
Emitter cut-off current	$I_{EBO}$	$V_{EB}=5V, I_C=0$		100	nA
DC current gain	$h_{FE(1)*}$	$V_{CE}=10V, I_C=1mA$	60		
	$h_{FE(2)*}$	$V_{CE}=10V, I_C=10mA$	100	200	
	$h_{FE(3)*}$	$V_{CE}=10V, I_C=30mA$	65		
Collector-emitter saturation voltage	$V_{CE(sat)*}$	$I_C=20mA, I_B=2mA$		0.20	V
Base -emitter saturation voltage	$V_{BE(sat)*}$	$I_C=20mA, I_B=2mA$		0.90	V
Transition frequency	$f_T$	$V_{CE}=20V, I_C=100mA; f=30MHz$	50		MHz

\*Pulse test: pulse width  $\leq 300\mu s$ , duty cycle  $\leq 2.0\%$



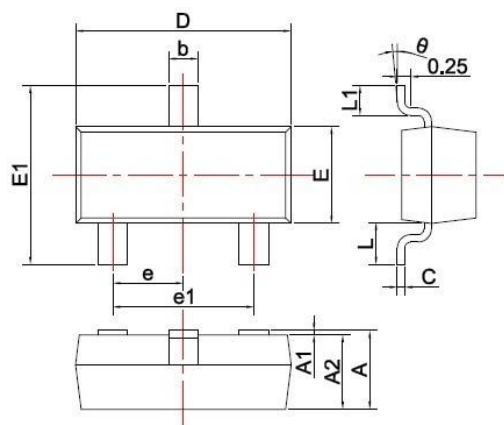
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## TYPICAL CHARACTERISTIC



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## SOT-23 PACKAGE OUTLINE Plastic surface mounted package

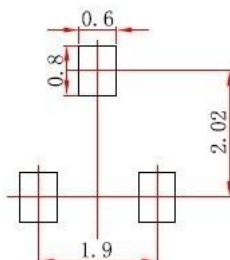


SYMBOL	DIMENSIONS	
	MIN.	MAX.
A	0.900	1.150
A1	0.000	0.100
A2	0.900	1.050
b	0.300	0.500
c	0.080	0.150
D	2.800	3.000
E	1.200	1.400
E1	2.250	2.550
e	0.950TYP	
e1	1.800	2.000
L	0.550REF	
L1	0.300	0.500
θ	0°	8°

Unit: mm

Precautions: PCB Design

Recommended land dimensions for SOT-23 diode. Electrode patterns for PCBs



Note:

1. Controlling dimension: In millimeters.
2. General tolerance:  $\pm 0.05\text{mm}$ .
3. The pad layout is for reference purposes only.

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