



# MMBTA42W

## NPN HIGH VOLTAGE TRANSISTOR

**VOLTAGE** 300 Volt **POWER** 150 mWatt

### FEATURES

- NPN silicon, planar design
- Collector-emitter voltage  $V_{CE} = 300V$
- Collector current  $I_C = 500mA$
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

### MECHANICAL DATA

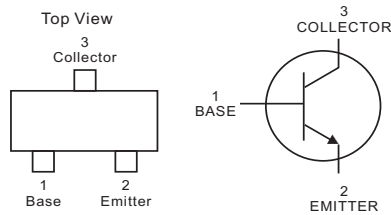
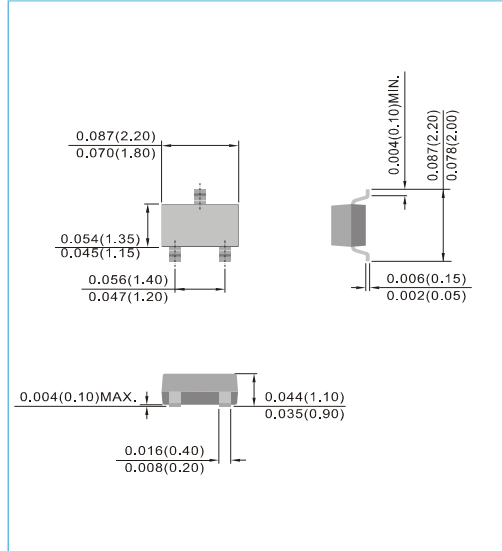
Case: SOT-323, Plastic

Terminals: Solderable per MIL-STD-750, Method 2026

Approx. Weight: 0.005 gram

Marking: A4W

**SOT-323** Unit : inch(mm)



### ABSOLUTE RATINGS

PARAMETER	SYMBOL	LIMIT	UNIT
Collector-base voltage	$V_{CBO}$	300	V
Collector-emitter voltage	$V_{CEO}$	300	V
Emitter-base voltage	$V_{EBO}$	6	V
Collector current (DC)	$I_C$	500	mA
Maximum power dissipation (note1)	$P_D$	150	mW
Operating junction and storage temperature range	$T_J, T_{STG}$	-55 to +150	°C

Note : 1.Mounted on an FR4 PCB, single-sided copper, mini pad.



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## THERMAL CHARACTERISTICS

PARAMETER	CONDITIONS	SYMBOL	VALUE	UNIT
Thermal resistance from junction to ambient	note 1	$R_{\theta JA}$	550	$^{\circ}\text{C}/\text{W}$

Note : 1. Mounted on an FR4 PCB, single-sided copper, mini pad.

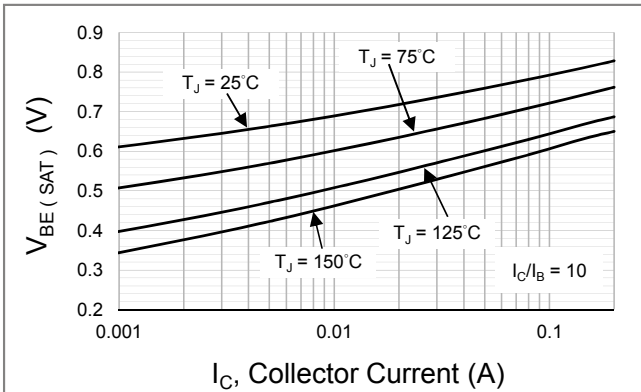
## CHARACTERISTICS

$T_{AMB}=25^{\circ}\text{C}$  unless otherwise specified

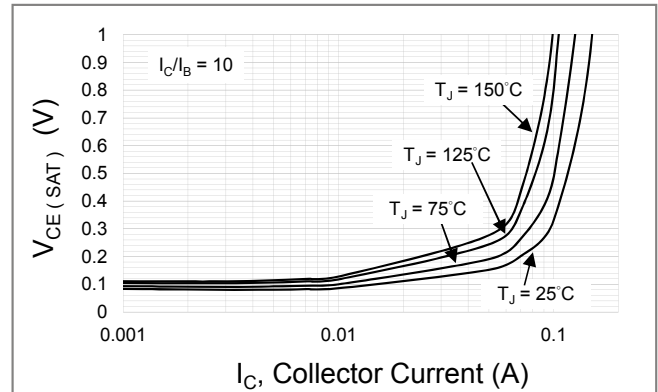
PARAMETER	CONDITIONS	SYMBOL	MIN.	MAX.	UNIT
Collector-emitter breakdown voltage	$I_C=1\text{mA}; I_B=0$	$V_{(BR)CEO}$	300	-	V
Collector-base breakdown voltage	$I_C=100\mu\text{A}; I_E=0$	$V_{(BR)CBO}$	300	-	V
Emitter-base breakdown voltage	$I_E=100\mu\text{A}; I_C=0$	$V_{(BR)EBO}$	6	-	V
Collector cut-off current	$I_E=0; V_{CB}=300\text{V}$	$I_{CBO}$	-	100	nA
Emitter cut-off current	$I_C=0; V_{EB}=6\text{V}$	$I_{EBO}$	-	100	nA
DC current gain	$V_{CE}=10\text{V};$ $I_C=1\text{mA}$ $I_C=10\text{mA}$ $I_C=30\text{mA}$	$h_{FE}$	25 40 40	- - -	- - -
Collector-emitter saturation voltage	$I_C=20\text{mA}; I_B=2\text{mA}$	$V_{CE(SAT)}$	-	0.5	V
Base-emitter saturation voltage	$I_C=20\text{mA}; I_B=2\text{mA}$	$V_{BE(SAT)}$	-	0.9	V
Collector capacitance	$I_E=0; V_{CB}=20\text{V};$ $f=1\text{MHz}$	$C_{CB}$	-	3	pF
Transition frequency	$I_C=10\text{mA}; V_{CE}=20\text{V};$ $f=100\text{MHz}$	$f_T$	50	-	MHz



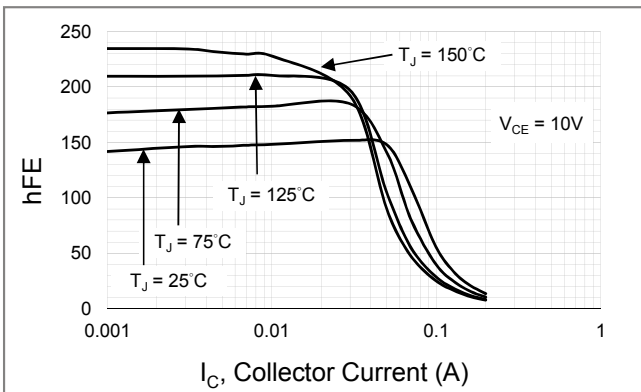
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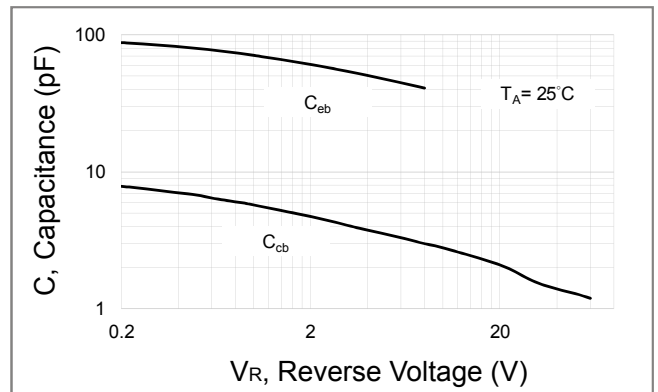
**Fig.1 Typical Base-Emitter Saturation Voltage**



**Fig.2 Typical Collector-Emitter Saturation Voltage**



**Fig.3 Typical DC Current Gain vs Collector Current**

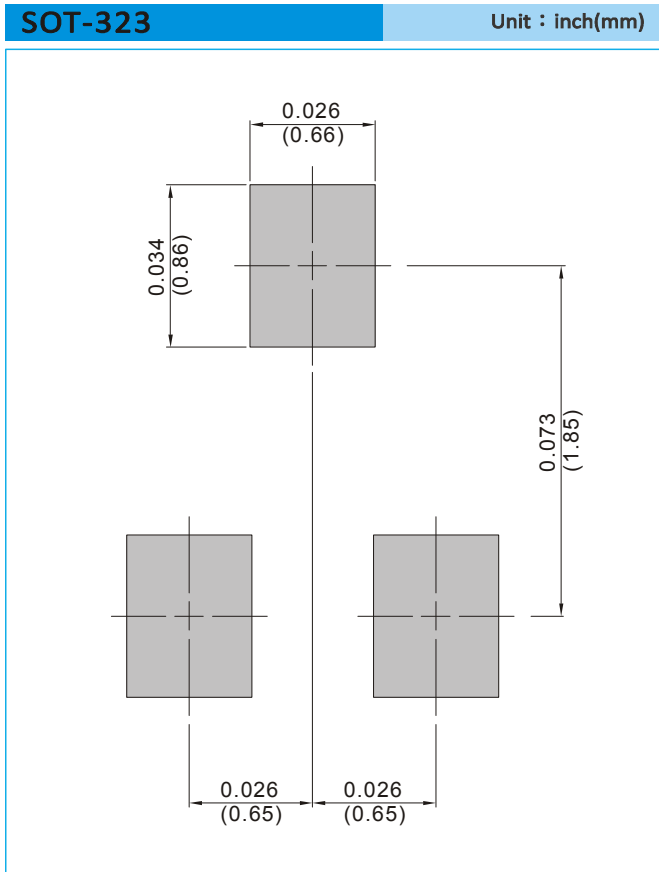


**Fig.4 Typical Capacitance**



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## MOUNTING PAD LAYOUT



## ORDER INFORMATION

- Packing information  
T/R - 12K per 13" plastic Reel  
T/R - 3K per 7" plastic Reel



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## Part No\_packing code\_Version

MMBTA42W\_R1\_00001

MMBTA42W\_R2\_00001

For example :

**RB500V-40\_R2\_00001**



Packing Code <b>XX</b>				Version Code <b>XXXXX</b>		
Packing type	1 <sup>st</sup> Code	Packing size code	2 <sup>nd</sup> Code	HF or RoHS	1 <sup>st</sup> Code	2 <sup>nd</sup> ~5 <sup>th</sup> Code
Tape and Ammunition Box (T/B)	<b>A</b>	N/A	<b>0</b>	<b>HF</b>	<b>0</b>	serial number
Tape and Reel (T/R)	<b>R</b>	7"	<b>1</b>	<b>RoHS</b>	<b>1</b>	serial number
Bulk Packing (B/P)	<b>B</b>	13"	<b>2</b>			
Tube Packing (T/P)	<b>T</b>	26mm	<b>X</b>			
Tape and Reel (Right Oriented) (TRR)	<b>S</b>	52mm	<b>Y</b>			
Tape and Reel (Left Oriented) (TRL)	<b>L</b>	PANASERT T/B CATHODE UP (PBCU)	<b>U</b>			
FORMING	<b>F</b>	PANASERT T/B CATHODE DOWN (PBCD)	<b>D</b>			



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