



**THE DATASHEET OF  
MMBTA42\_R1\_00001**





# MMBTA42

## NPN HIGH VOLTAGE TRANSISTOR

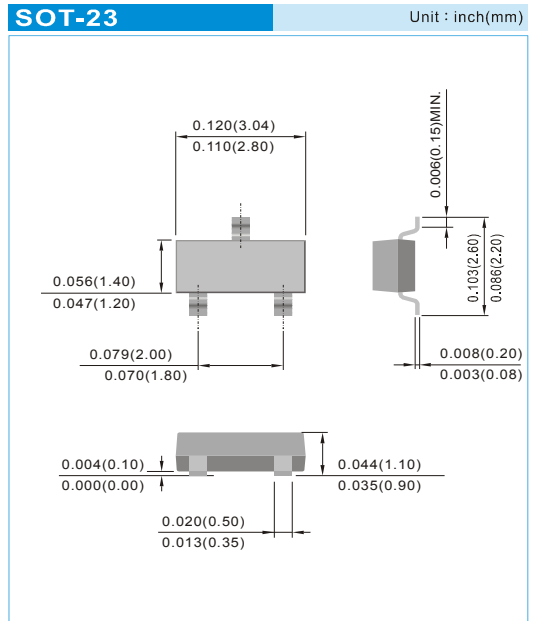
**VOLTAGE** 300 Volt **POWER** 250 mWatt

### 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-23, Plastic
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx weight: 0.0003 ounces, 0.0084 grams
- Marking: A42



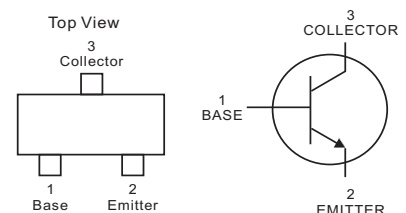
### ABSOLUTE MAXIMUM RATINGS

PARAMETER	Symbol	Value	Units
Collector - Emitter Voltage	$V_{CEO}$	300	V
Collector - Base Voltage	$V_{CBO}$	300	V
Emitter - Base Voltage	$V_{EBO}$	6	V
Collector Current Continuous	$I_C$	500	mA

### THERMAL CHARACTERISTICS

PARAMETER	Symbol	Value	Units
Max Power Dissipation (Note 1)	$P_{TOT}$	250	mW
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	500	$^{\circ}C/W$
Junction Temperature	$T_J$	-55 to 150	$^{\circ}C$
Storage Temperature	$T_{STG}$	-55 to 150	$^{\circ}C$

Note 1 : Mounted on a FR4 PCB, single-sided copper, standard footprint





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## ELECTRICAL CHARACTERISTICS

PARAMETER	Symbol	Test Condition	MIN.	TYP.	MAX.	Units
Collector - Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=1\text{mA}, I_B=0$	300	-	-	V
Collector - Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=100\mu\text{A}, I_E=0$	300	-	-	V
Emitter - Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=100\mu\text{A}, I_C=0$	6	-	-	V
Collector Cut-off Current	$I_{CBO}$	$V_{CB}=200\text{V}, I_E=0\text{V}$	-	-	100	nA
Emitter Cut-off Current	$I_{EBO}$	$V_{EB}=6\text{V}, I_C=0$	-	-	100	nA
DC Current Gain	$h_{FE}$	$V_{CE}=10\text{V}, I_C=1.0\text{mA}$ $V_{CE}=10\text{V}, I_C=10\text{mA}$ $V_{CE}=10\text{V}, I_C=30\text{mA}$	25 40 40	- - -	- - -	-
Collector - Emitter Saturation Voltage	$V_{CE(SAT)}$	$I_C=20\text{mA}, I_B=2\text{mA}$	-	-	0.5	V
Base - Emitter Satruation Voltage	$V_{BE(SAT)}$	$I_C=20\text{mA}, I_B=2\text{mA}$	-	-	0.9	V
Collector-Base Capacitance	$C_{CBO}$	$V_{CB}=20\text{V}, I_E=0, f=1\text{MHz}$	-	-	3	pF
Collector Gain - Bandwidth Product	$F_T$	$I_C=10\text{mA}, V_{CE}=20\text{V}, f=100\text{MHz}$	50	-	-	$\text{MHz}$



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## ELECTRICAL CHARACTERISTICS CURVE

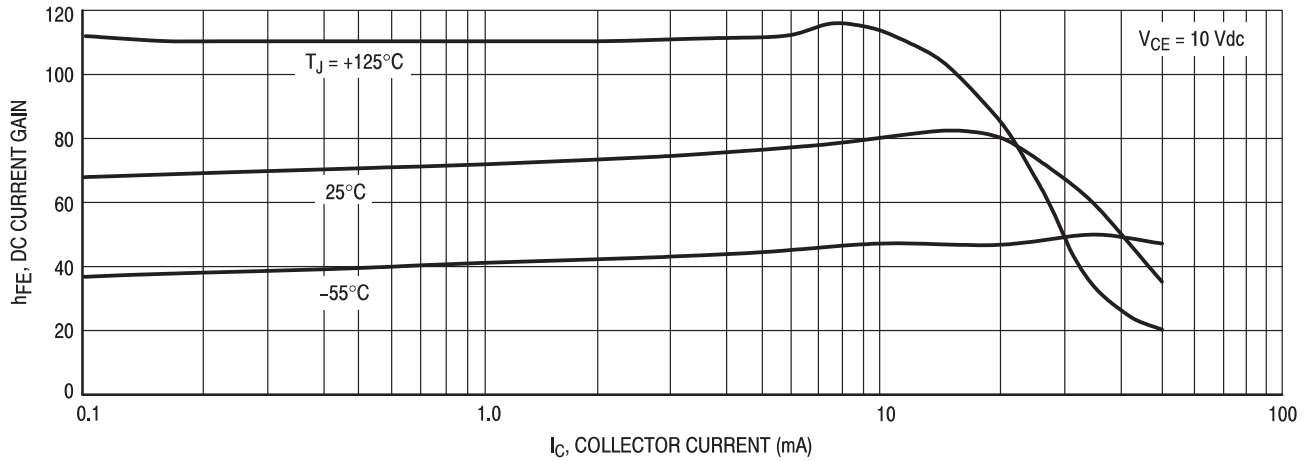


Figure 1. DC Current Gain

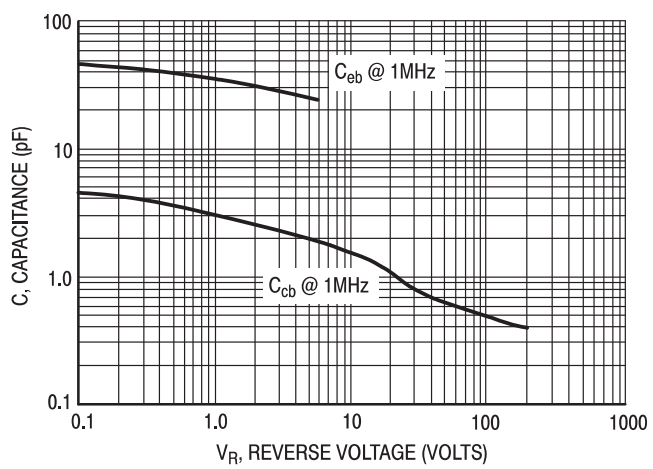


Figure 2. Capacitance

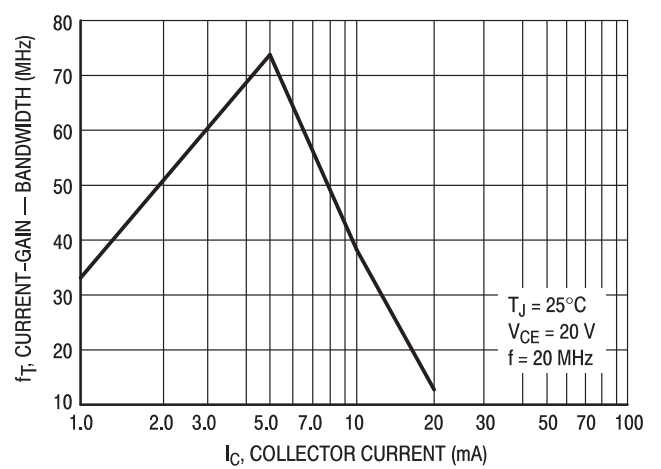


Figure 3. Current-Gain - Bandwidth

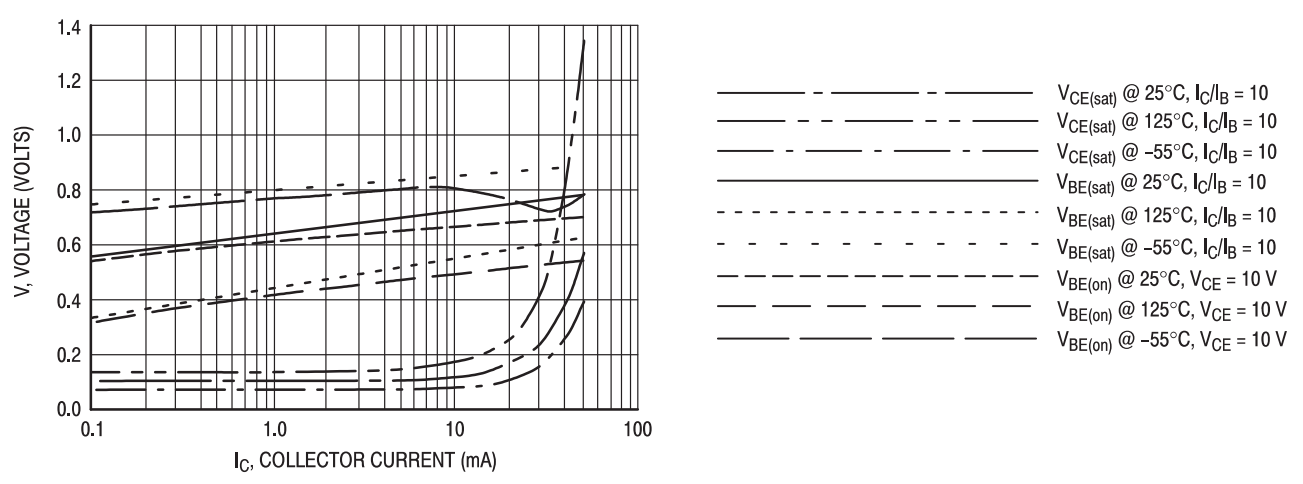
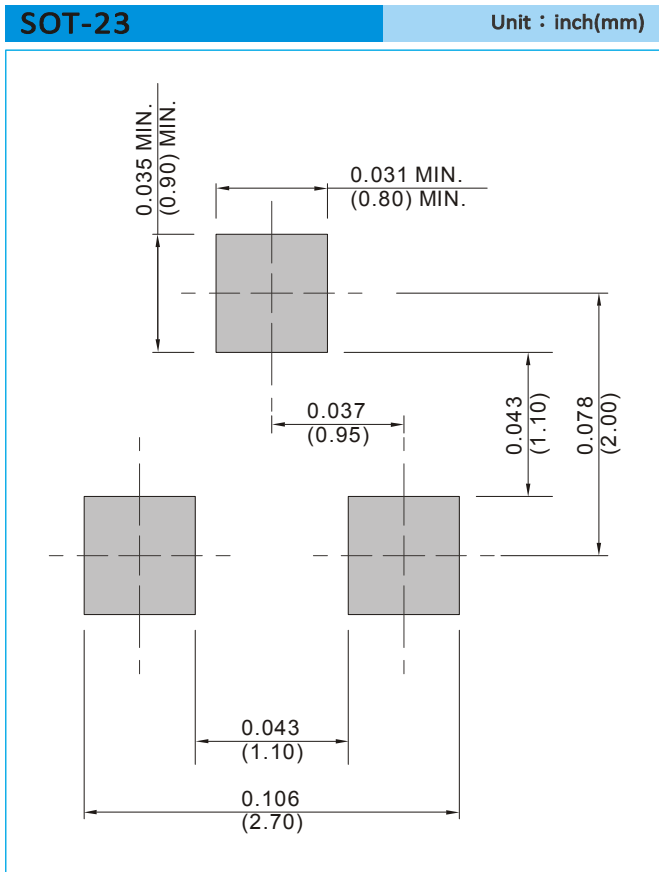


Figure 4. ON Voltages



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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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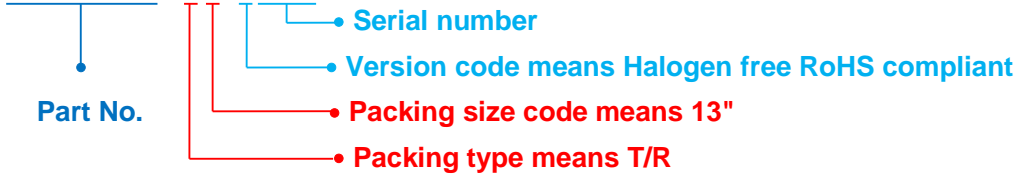
Part No. \_ packing code \_ Version

MMBTA42\_R1\_00001

MMBTA42\_R2\_00001

For example :

RB500V-40\_R2\_00001



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



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