



MMBTA42-AU

NPN HIGH VOLTAGE TRANSISTOR

VOLTAGE 300 Volt **POWER** 250 mWatt

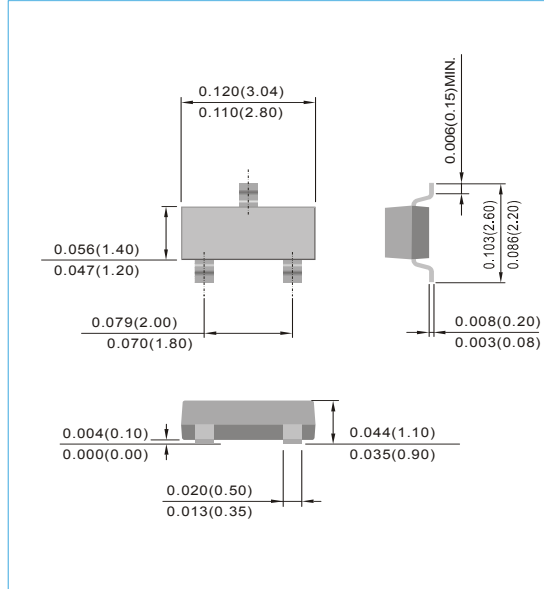
FEATURES

- NPN silicon, planar design
- Collector-emitter voltage $V_{CE} = 300V$
- Collector current $I_C = 500mA$
- AEC-Q101 qualified
- 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

SOT-23 Unit : inch(mm)



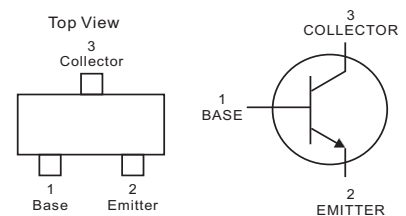
ABSOLUTE MAXIMUM RATINGS

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	-	-	MHz



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ELECTRICAL CHARACTERISTICS CURVE

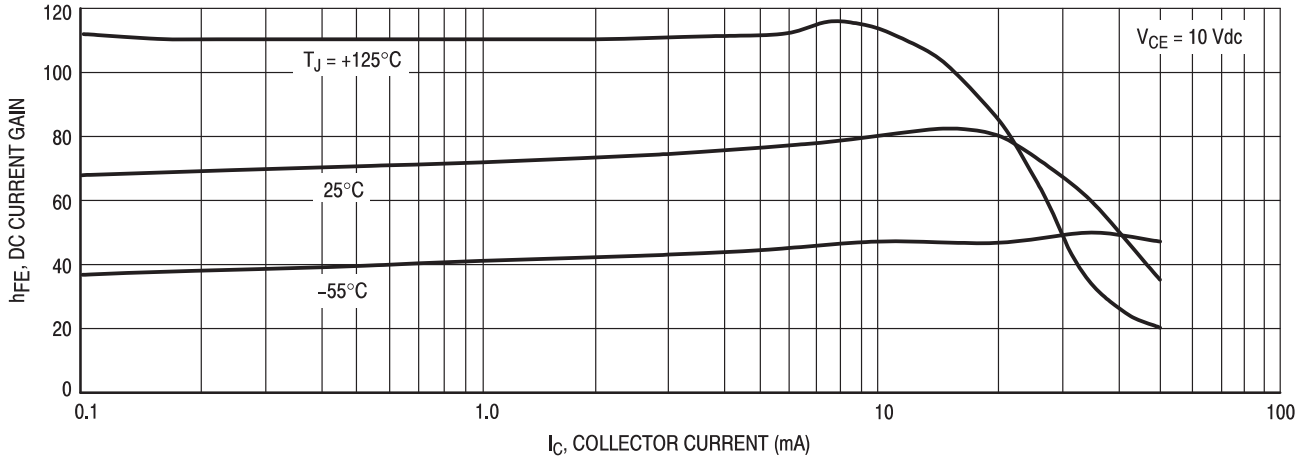


Figure 1. DC Current Gain

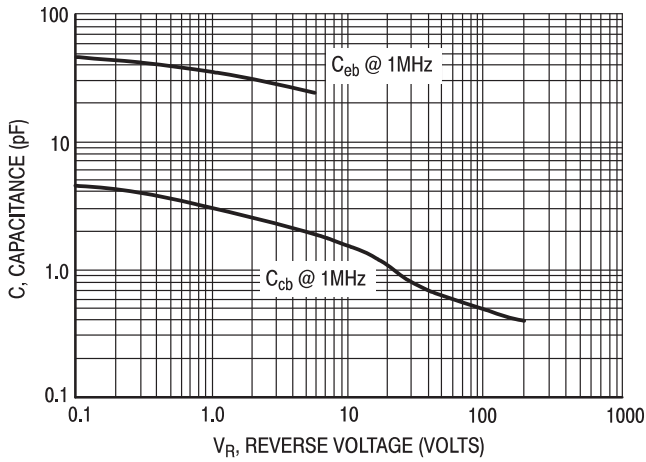


Figure 2. Capacitance

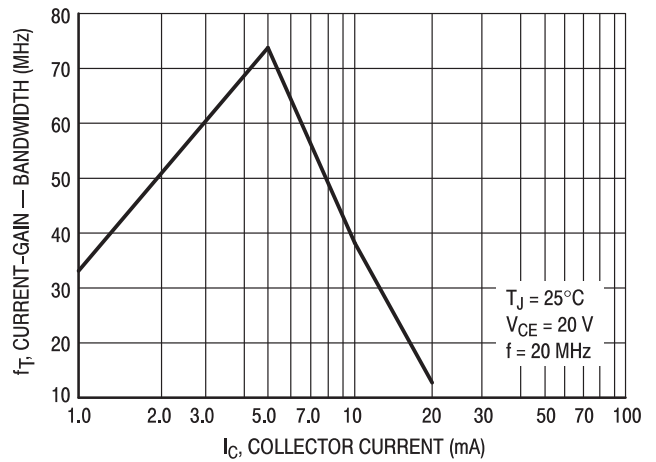


Figure 3. Current-Gain - Bandwidth

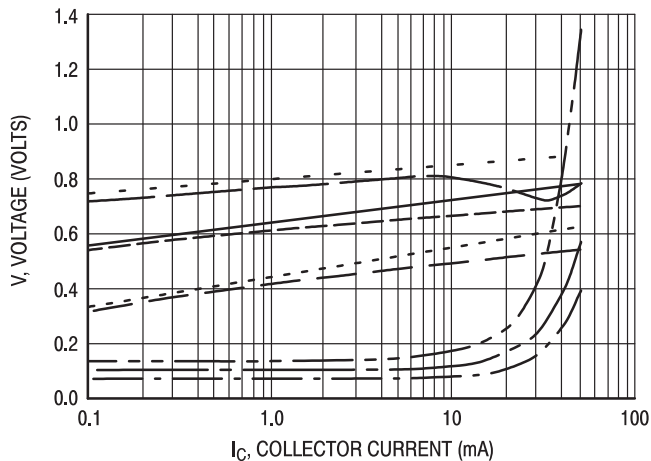


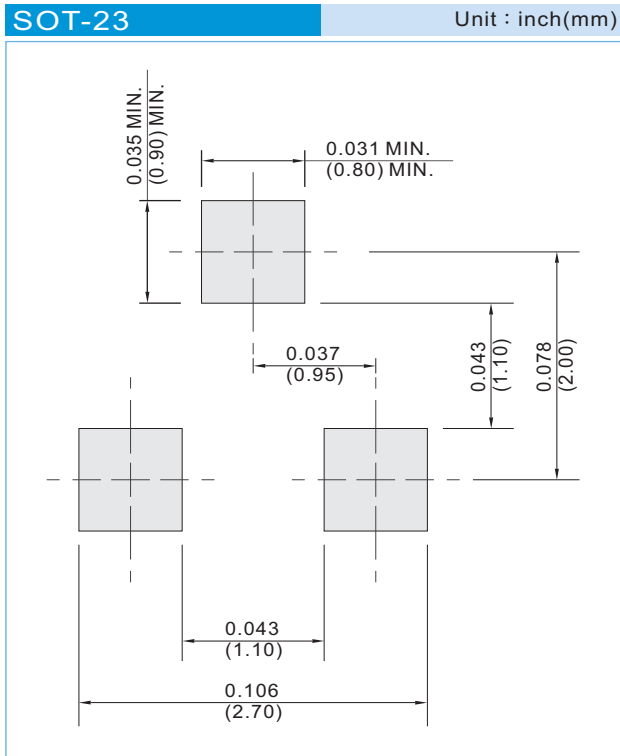
Figure 4. ON Voltages

- $V_{CE(sat)}$ @ 25°C , $I_C/I_B = 10$
- $V_{CE(sat)}$ @ 125°C , $I_C/I_B = 10$
- $V_{CE(sat)}$ @ -55°C , $I_C/I_B = 10$
- $V_{BE(sat)}$ @ 25°C , $I_C/I_B = 10$
- $V_{BE(sat)}$ @ 125°C , $I_C/I_B = 10$
- $V_{BE(sat)}$ @ -55°C , $I_C/I_B = 10$
- $V_{BE(on)}$ @ 25°C , $V_{CE} = 10 \text{ V}$
- $V_{BE(on)}$ @ 125°C , $V_{CE} = 10 \text{ V}$
- $V_{BE(on)}$ @ -55°C , $V_{CE} = 10 \text{ V}$



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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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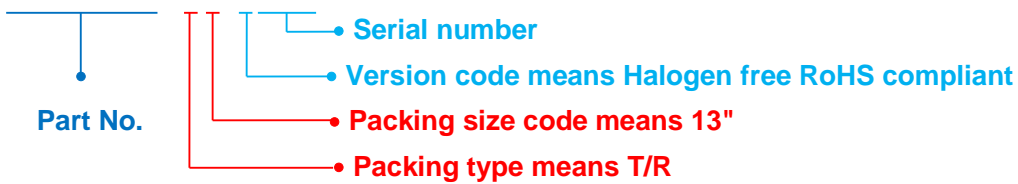
Part No._packing code_Version

MMBTA42-AU_R1_000A1

MMBTA42-AU_R2_000A1

For example :

RB500V-40_R2_00001



Packing Code XX				Version Code X		Serial number XXXX
Packing type	1 st Code	Packing size code	2 nd Code	HSF Level	1 st Code	2 nd ~5 th 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			