

MMBTA42-AU

NPN HIGH VOLTAGE TRANSISTOR

VOLTAGE 300 Volt **POWER** 250 mWatt

FEATURES

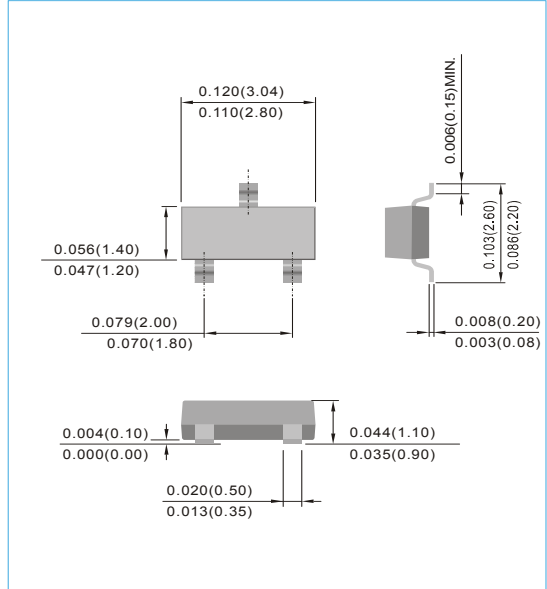
- NPN silicon, planar design
- Collector-emitter voltage $V_{CE} = 300V$
- Collector current $I_C = 500mA$
- AEC-Q101 qualified
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

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)



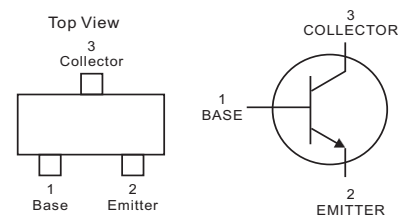
ABSOLUTE MAXIMUM RATINGS

PARAMETER	Symbol	Value	Unit
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	Unit
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



MMBTA42-AU

ELECTRICAL CHARACTERISTICS

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

MMBTA42-AU

ELECTRICAL CHARACTERISTICS CURVE

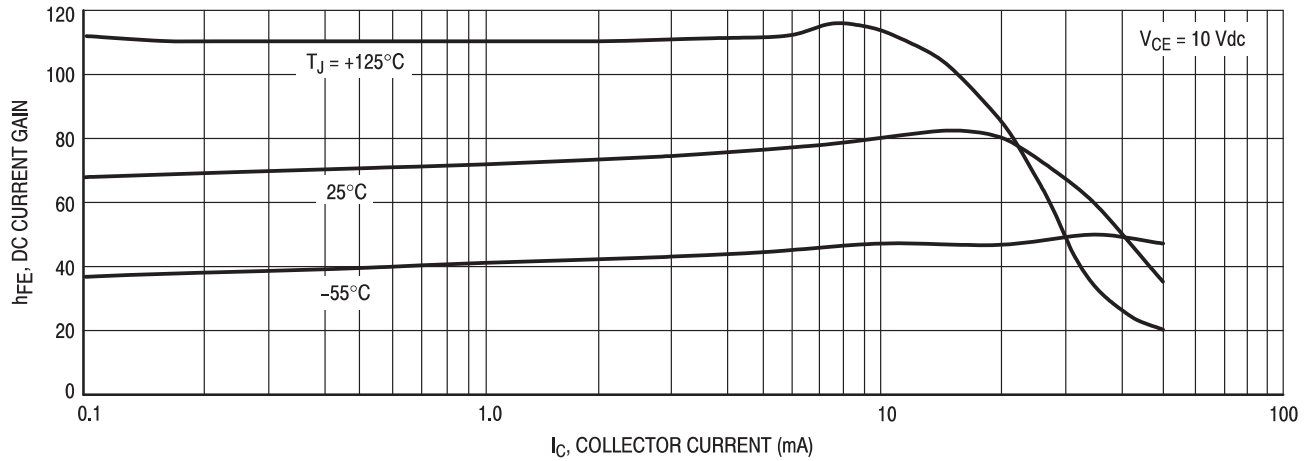


Figure 1. DC Current Gain

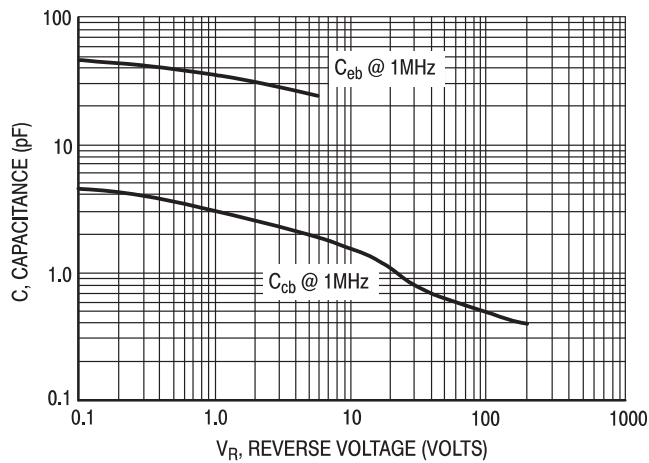


Figure 2. Capacitance

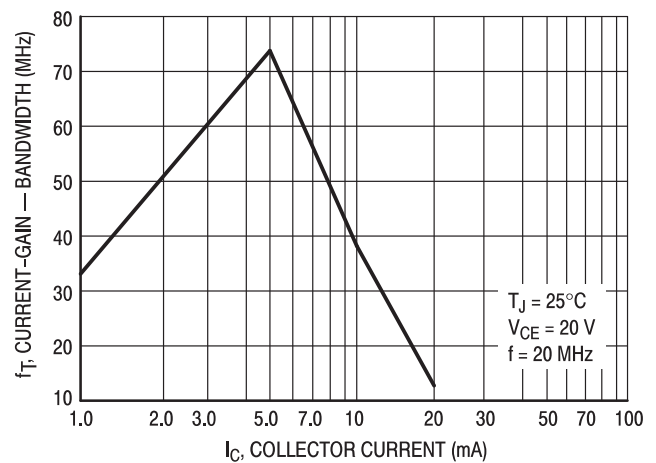


Figure 3. Current-Gain – Bandwidth

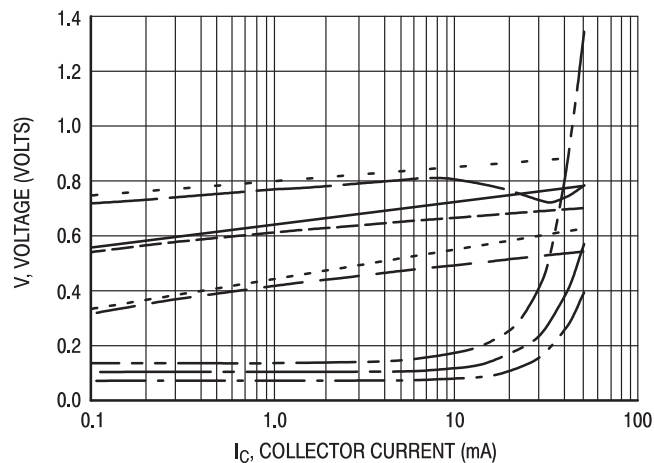


Figure 4. ON Voltages

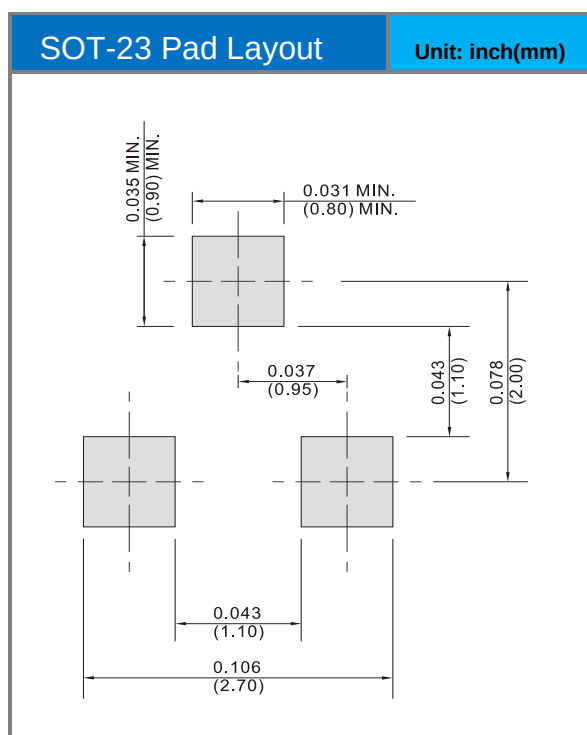
$V_{CE(sat)}$ @ 25°C , $I_C/I_B = 10$
 $V_{CE(sat)}$ @ 125°C , $I_C/I_B = 10$
 $V_{CE(sat)}$ @ -55°C , $I_C/I_B = 10$
 $V_{BE(sat)}$ @ 25°C , $I_C/I_B = 10$
 $V_{BE(sat)}$ @ 125°C , $I_C/I_B = 10$
 $V_{BE(sat)}$ @ -55°C , $I_C/I_B = 10$
 $V_{BE(on)}$ @ 25°C , $V_{CE} = 10 \text{ V}$
 $V_{BE(on)}$ @ 125°C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

MMBTA42-AU

Product and Packing Information

Part No.	Package Type	Packing Type	Marking
MMBTA42-AU	SOT-23	3K pcs / 7" reel	A42
MMBTA42-AU	SOT-23	12K pcs / 13" reel	A42

Mounting Pad Layout



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