

MMBTA42

NPN HIGH VOLTAGE TRANSISTOR

VOLTAGE 300 Volts **POWER** 225 mWatts

FEATURES

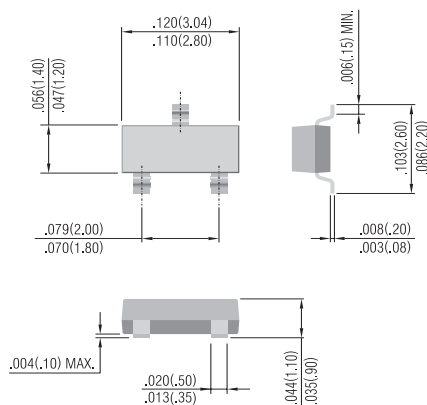
- NPN silicon, planar design
- Collector-emitter voltage $V_{CE} = 300V$
- Collector current $I_C = 500mA$
- In compliance with EU RoHS 2002/95/EC directives

MECHANICAL DATA

- Case: SOT-23, Plastic
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 0.008 gram
- Marking: A42

SOT-23

Unit: inch (mm)



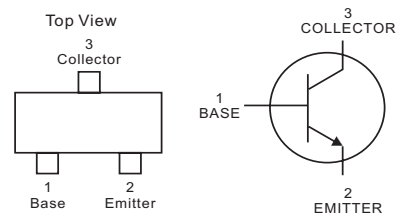
ABSOLUTE MAXIMUM RATINGS

PARAMETER	Symbol	Value	Units
Collector - Emitter Voltage	V_{CEO}	300	V
Collector - Base Voltage	V_{CBO}	300	V
Emitter - Base Voltage	V_{EBO}	6.0	V
Collector Current Continuous	I_C	500	mA

THERMAL CHARACTERISTICS

PARAMETER	Symbol	Value	Units
Max Power Dissipation (Note 1)	P_{TOT}	225	mW
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	556	$^{\circ}C/W$
Junction Temperature	T_J	-55 to 150	$^{\circ}C$
Storage Temperature	T_{STG}	-55 to 150	$^{\circ}C$

Note 1: Transistor mounted on FR-5 board 1.0 x 0.75 x 0.062 in.





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ELECTRICAL CHARACTERISTICS

PARAMETER	Symbol	Test Condition	MIN.	TYP.	MAX.	Units
Collector - Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=1.0mA, I_B=0$	300	-	-	V
Collector - Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=100\mu A, I_E=0$	300	-	-	V
Emitter - Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=100\mu A, I_C=0$	6.0	-	-	V
Collector Cut-off Current	I_{CBO}	$V_{CB}=200V, I_E=0V$	-	-	100	nA
Emitter Cut-off Current	I_{EBO}	$V_{CE}=6.0V, I_C=0$	-	-	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	$V_{CE(SAT)}$	$I_C=20mA, I_B=2.0mA$	-	-	0.5	V
Base - Emitter Satruation Voltage	$V_{BE(SAT)}$	$I_C=20mA, I_B=2.0mA$	-	-	0.9	V
Collector-Base Capacitance	C_{CBO}	$V_{CB}=20V, I_E=0, f=1MHz$	-	-	3.0	pF
Collector Gain - Bandwidth Product	F_T	$I_C=10mA, V_{CE}=20V$ $f=100MHz$	50	-	-	MHz

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ELECTRICAL CHARACTERISTICS CURVE

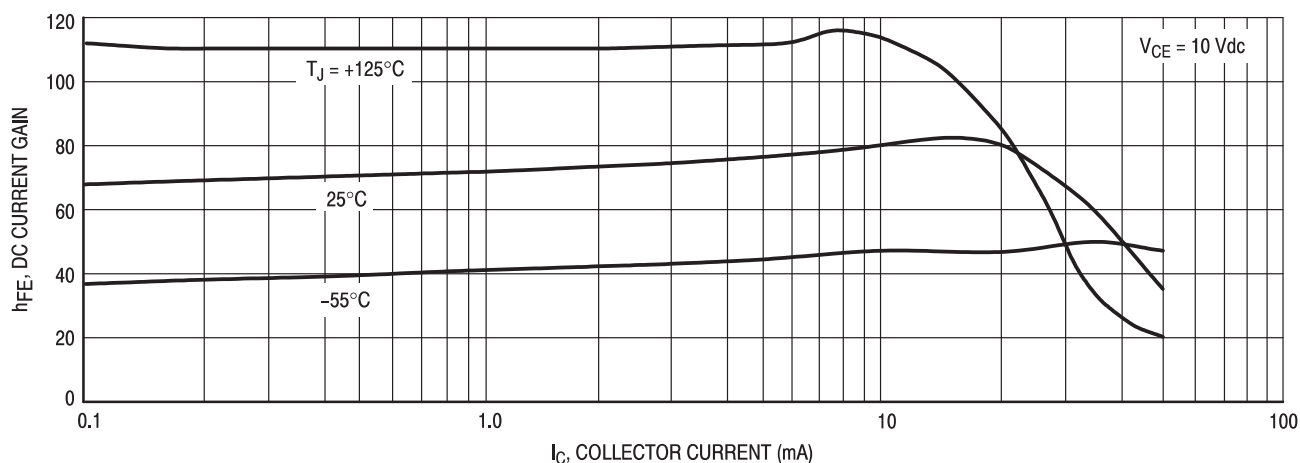


Figure 1. DC Current Gain

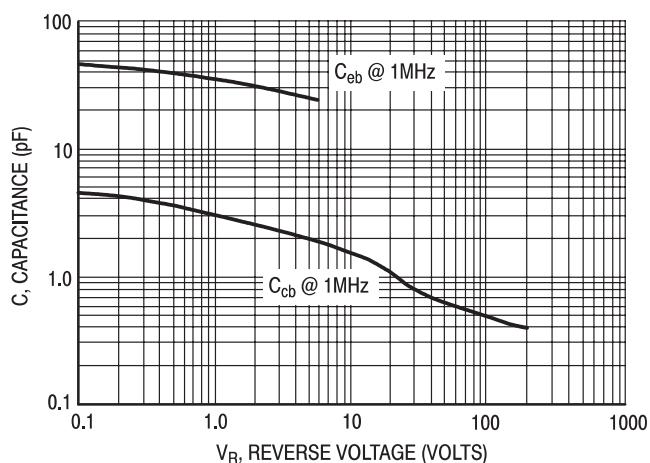


Figure 2. Capacitance

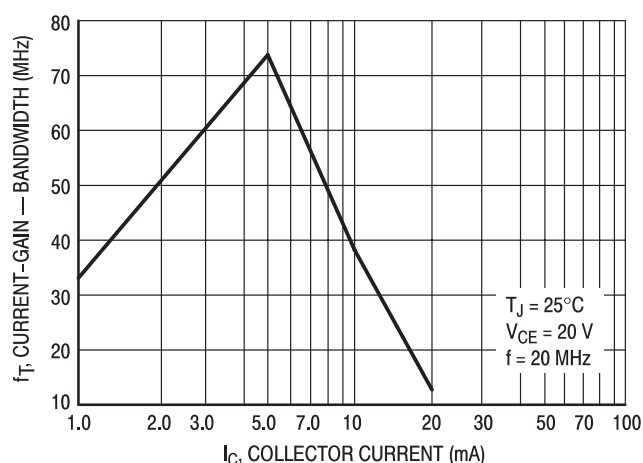


Figure 3. Current-Gain – Bandwidth

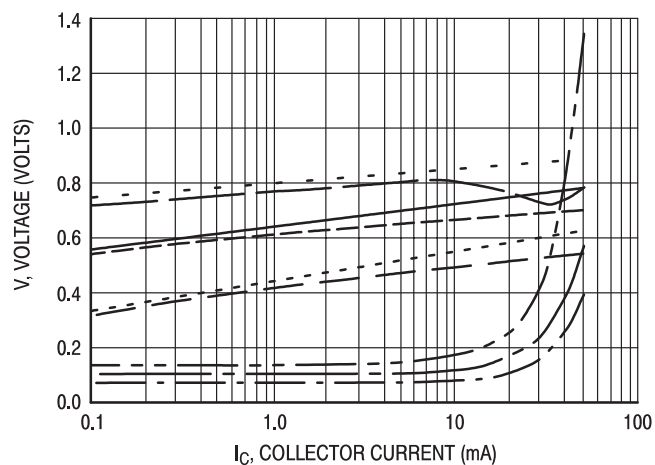


Figure 4. ON Voltages

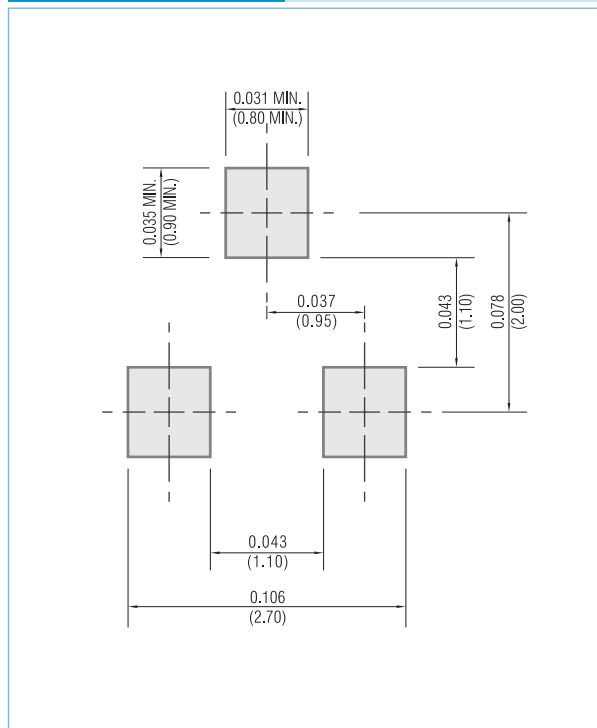
- $V_{CE(sat)}$ @ 25°C , $I_C/I_B = 10$
- $V_{CE(sat)}$ @ 125°C , $I_C/I_B = 10$
- $V_{CE(sat)}$ @ -55°C , $I_C/I_B = 10$
- $V_{BE(sat)}$ @ 25°C , $I_C/I_B = 10$
- $V_{BE(sat)}$ @ 125°C , $I_C/I_B = 10$
- $V_{BE(sat)}$ @ -55°C , $I_C/I_B = 10$
- $V_{BE(on)}$ @ 25°C , $V_{CE} = 10 \text{ V}$
- $V_{BE(on)}$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

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MOUNTING PAD LAYOUT

SOT-23

Unit: inch (mm)



ORDER INFORMATION

- Packing information

T/R - 12K per 13" plastic Reel

T/R - 3K per 7" plastic Reel

LEGAL STATEMENT

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