

# MMBTA92

## PNP HIGH VOLTAGE TRANSISTOR

**VOLTAGE** 300 Volts **POWER** 225 mWatts

**SOT-23** Unit: inch ( mm )

### FEATURES

- PNP silicon, planar design
- High voltage (max. 300V)
- 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: A92

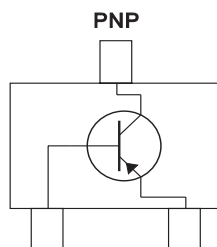
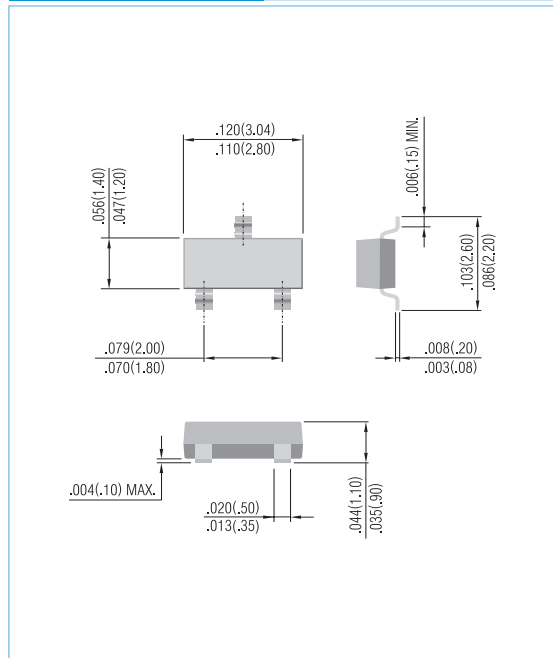


Fig.35



### ABSOLUTE RATINGS

| PARAMETER                     | CONDITIONS                      | SYMBOL    | MIN. | MAX. | UNIT        |
|-------------------------------|---------------------------------|-----------|------|------|-------------|
| Collector-base voltage        | open emitter                    | $V_{CBO}$ | -    | -300 | V           |
| Collector-emitter voltage     | open base                       | $V_{CEO}$ | -    | -300 | V           |
| Emitter-base voltage          | open collector                  | $V_{EBO}$ | -    | -5   | V           |
| Collector current (DC)        |                                 | $I_C$     | -    | -500 | mA          |
| Peak collector current        |                                 | $I_{CM}$  | -    | -600 | mA          |
| Peak base current             |                                 | $I_{BM}$  | -    | -100 | mA          |
| Total power dissipation       | $T_{AMB} < 25^{\circ}C$ ; note1 | $P_{TOT}$ | -    | 225  | mW          |
| Storage temperature           |                                 | $T_{STG}$ | -65  | +150 | $^{\circ}C$ |
| Junction temperature          |                                 | $T_J$     | -    | 150  | $^{\circ}C$ |
| Operating ambient temperature |                                 | $T_{AMB}$ | -65  | +150 | $^{\circ}C$ |

Note 1: Transistor mounted on FR-4 board 70 x 60 x 1mm.



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## THERMAL CHARACTERISTICS

| PARAMETER                                   | CONDITIONS | SYMBOL          | VALUE | UNIT |
|---------------------------------------------|------------|-----------------|-------|------|
| Thermal resistance from junction to ambient | note 1     | $R_{\theta JA}$ | 500   | K/W  |

Note 1: Transistor mounted on FR-4 board 70 x 60 x 1mm.

## CHARACTERISTICS

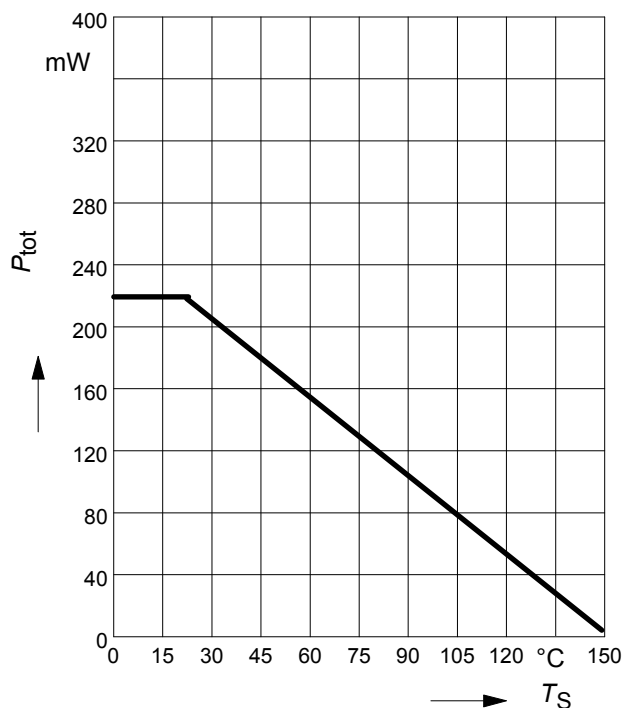
$T_{AMB}=25^{\circ}C$  unless otherwise specified

| PARAMETER                            | CONDITIONS                                                         | SYMBOL        | MIN.           | MAX.        | UNIT |
|--------------------------------------|--------------------------------------------------------------------|---------------|----------------|-------------|------|
| Collector cut-off current            | $I_E=0; V_{CB}=-200V$                                              | $I_{CBO}$     | -              | -250        | nA   |
| Emitter cut-off current              | $I_C=0; V_{EB}=-3V$                                                | $I_{EBO}$     | -              | -100        | nA   |
| DC current gain                      | $V_{CE}=-10V$ ; note 2<br>$I_C=-1mA$<br>$I_C=-10mA$<br>$I_C=-30mA$ | $h_{FE}$      | 25<br>40<br>25 | -<br>-<br>- | -    |
| Collector-emitter saturation voltage | $I_C=-20mA; I_B=-2mA$                                              | $V_{CE(SAT)}$ | -              | -500        | mV   |
| Base-emitter saturation voltage      | $I_C=-20mA; I_B=-2mA$                                              | $V_{BE(SAT)}$ | -              | -900        | mV   |
| Collector capacitance                | $I_E=i_E=0; V_{CB}=-20V$ ;<br>$f=1MHz$                             | $C_C$         | -              | 6           | pF   |
| Transition frequency                 | $I_C=-10mA; V_{CE}=-20V$ ;<br>$f=100MHz$                           | $f_T$         | 50             | -           | MHz  |

Note 2: Pulse test :  $t_p \leq 300\mu s; \delta < 0.02$

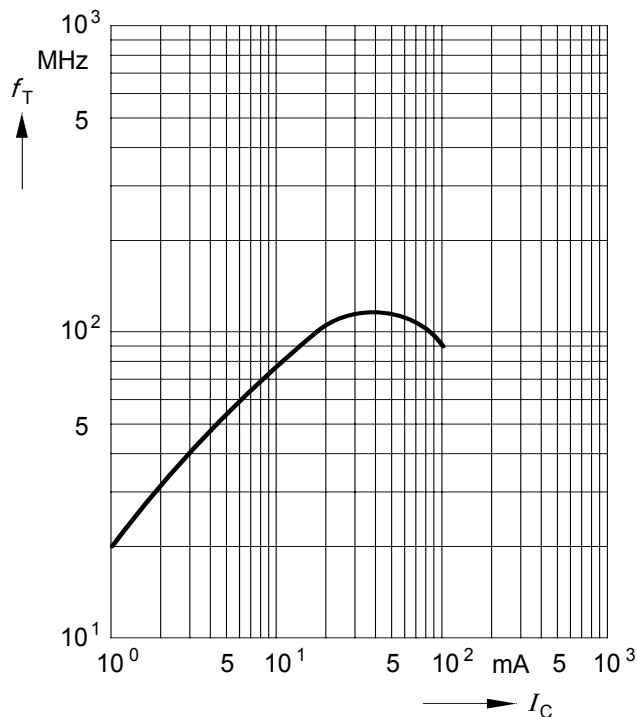
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**Total power dissipation**  $P_{\text{tot}} = f(T_S)$



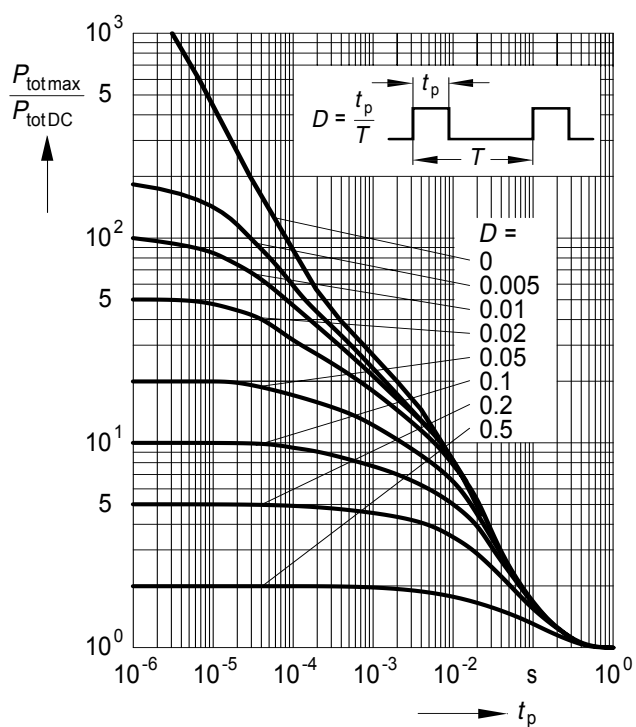
**Transition frequency**  $f_T = f(I_C)$

$V_{CE} = 20V, f = 100\text{MHz}$



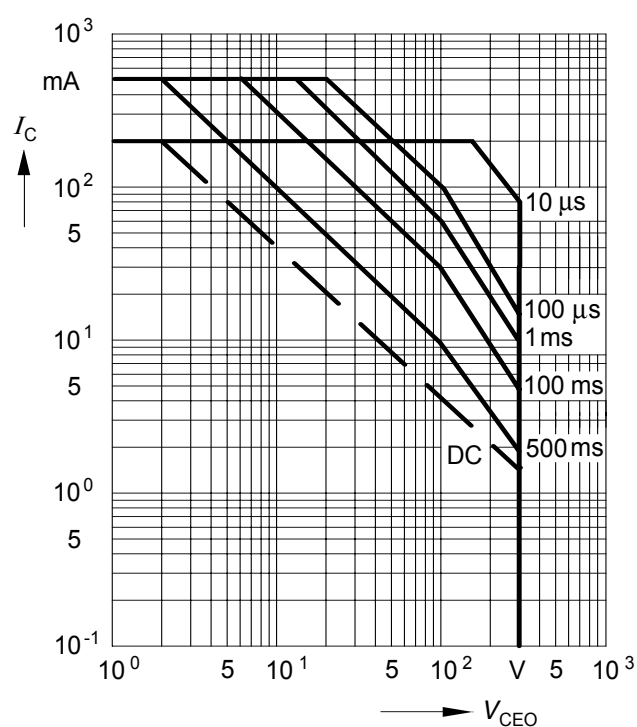
**Permissible pulse load**

$P_{\text{totmax}} / P_{\text{totDC}} = f(t_p)$



**Operating range**  $I_C = f(V_{CE0})$

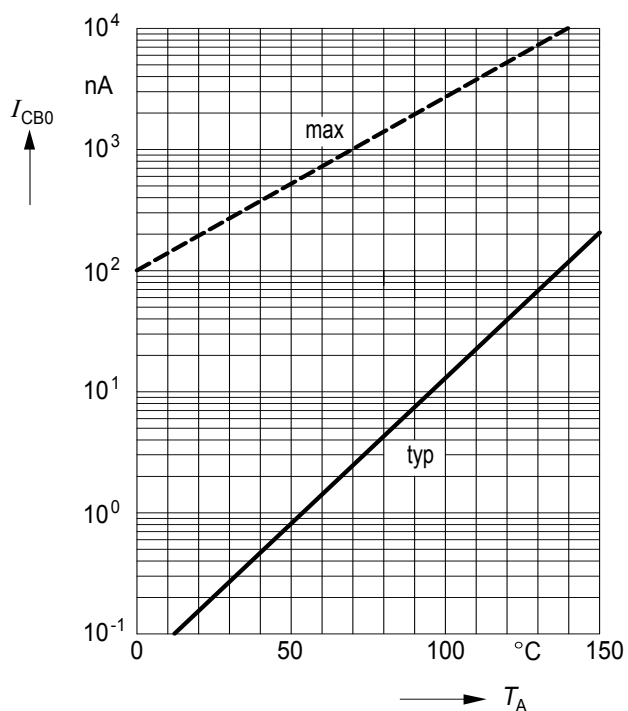
$T_A = 25^\circ\text{C}, D = 0$



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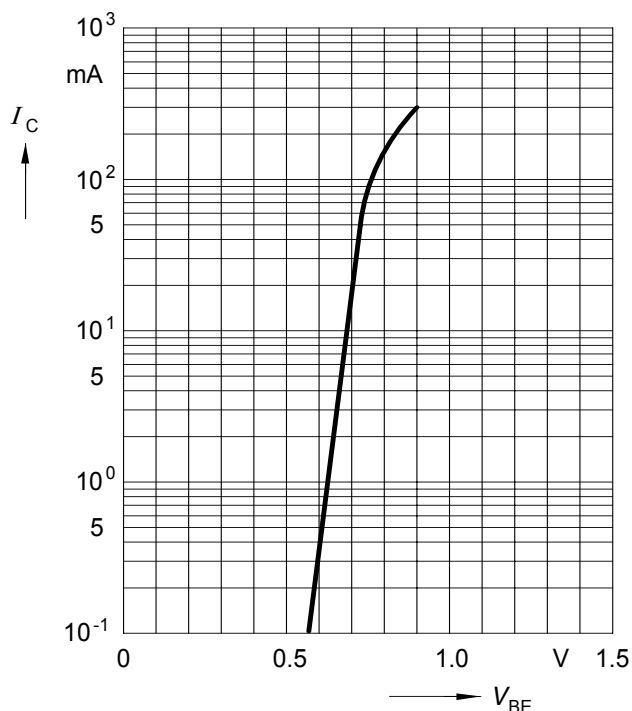
**Collector cutoff current  $I_{CBO} = f(T_A)$**

$V_{CB} = 200V$



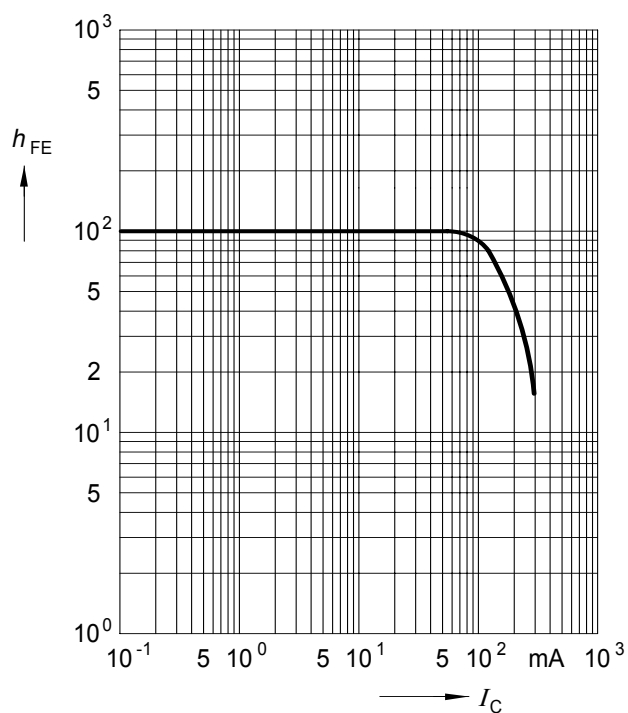
**Collector current  $I_C = f(V_{BE})$**

$V_{CE} = 10V$

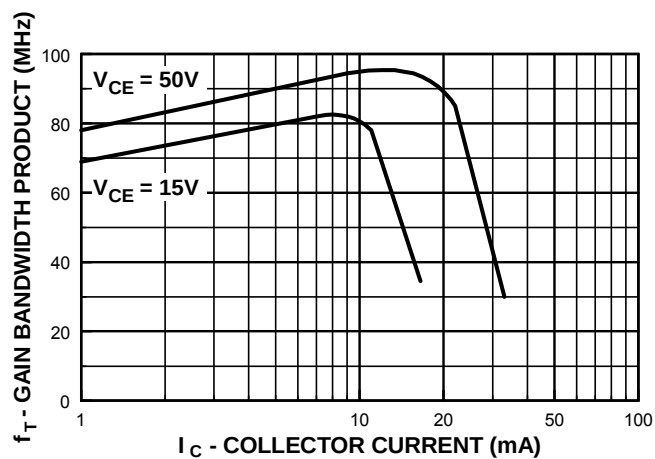


**DC current gain  $h_{FE} = f(I_C)$**

$V_{CE} = 10V$

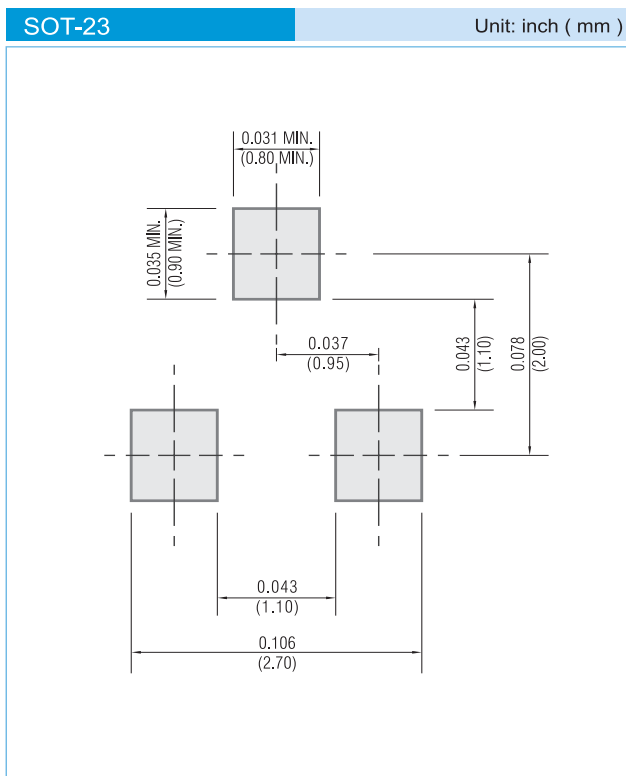


**Gain Bandwidth Product  
vs Collector Current**



# MMBTA92

## MOUNTING PAD LAYOUT



## ORDER INFORMATION

- Packing information

T/R - 12K per 13" plastic Reel

T/R - 3K per 7" plastic Reel

## LEGAL STATEMENT

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