



THE DATASHEET OF MMBTA92-TP





Micro Commercial Components



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MMBTA92

PNP Silicon High Voltage Transistor

Features

- Surface Mount SOT-23 Package
- Capable of 300mWatts of Power Dissipation
- Lead Free Finish/RoHS Compliant ("P" Suffix designates RoHS Compliant. See ordering information)
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Marking: 2D
- Halogen free available upon request by adding suffix "-HF"

Electrical Characteristics @ 25°C Unless Otherwise Specified

| Symbol | Parameter | Min | Max | Units |
|--------|-----------|-----|-----|-------|
|--------|-----------|-----|-----|-------|

OFF CHARACTERISTICS

| | | | | |
|---------------|--|------|------|------|
| $V_{(BR)CEO}$ | Collector-Emitter Breakdown Voltage* ($I_C=-1.0mA$, $I_B=0$) | -300 | | Vdc |
| $V_{(BR)CBO}$ | Collector-Base Breakdown Voltage ($I_C=-100\mu A$, $I_E=0$) | -300 | | Vdc |
| $V_{(BR)EBO}$ | Emitter-Base Breakdown Voltage ($I_E=-100\mu A$, $I_C=0$) | -5 | | Vdc |
| I_C | Collector Current-Continuous | -300 | | mAdc |
| I_{CM} | Collector Current-Pulsed | -500 | | mAdc |
| I_{CBO} | Collector Cutoff Current ($V_{CB}=-200V$, $I_E=0$) | | -250 | nAdc |
| I_{EBO} | Emitter Cutoff Current ($V_{EB}=-5V$, $I_C=0$) | | -100 | nAdc |

ON CHARACTERISTICS

| | | | | |
|---------------|--|-----------------|------|-----|
| h_{FE} | DC Current Gain* ($I_C=-1.0mA$, $V_{CE}=-10V$) ($I_C=-10mA$, $V_{CE}=-10V$) ($I_C=-30mA$, $V_{CE}=-10V$) | 60 100 60 | 200 | |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage ($I_C=-20mA$, $I_B=-2.0mA$) | | -0.2 | Vdc |
| $V_{BE(sat)}$ | Base-Emitter Saturation Voltage ($I_C=-20mA$, $I_B=-2.0mA$) | | -0.9 | Vdc |

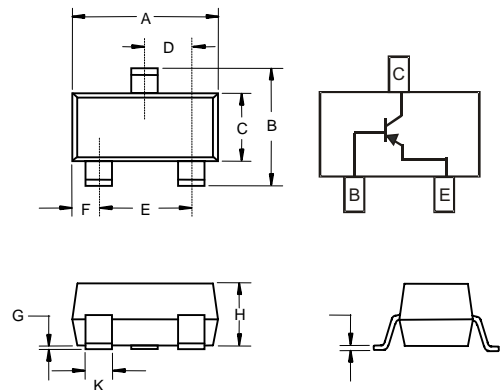
SMALL-SIGNAL CHARACTERISTICS

| | | | | |
|----------|---|----|-----|-----|
| f_T | Current Gain-Bandwidth Product ($I_C=-10mA$, $V_{CE}=-20V$, $f=30MHz$) | 50 | | MHz |
| C_{cb} | Collector-Base Capacitance ($V_{CB}=-20V$, $I_E=0$, $f=1.0MHz$) | | 6.0 | pF |

THERMAL CHARACTERISTICS

| Characteristic | Symbol | Max | Unit |
|---|-----------------|-------------|-------|
| Total Device Dissipation FR-5 Board, ⁽¹⁾ $T_A = 25^\circ C$ Derate above 25°C | P_D | 225 | mW |
| | | 1.8 | mW/°C |
| Thermal Resistance, Junction to Ambient | $R_{\theta JA}$ | 556 | °C/W |
| Total Device Dissipation Alumina Substrate, ⁽²⁾ $T_A = 25^\circ C$ Derate above 25°C | P_D | 300 | mW |
| | | 2.4 | mW/°C |
| Thermal Resistance, Junction to Ambient | $R_{\theta JA}$ | 417 | °C/W |
| Junction and Storage Temperature | T_J, T_{stg} | -55 to +150 | °C |

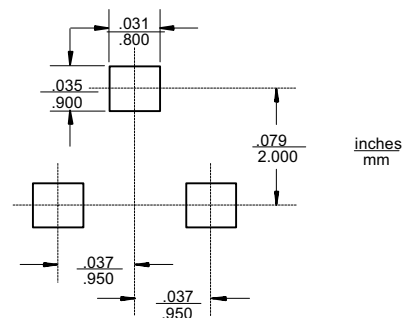
SOT-23



DIMENSIONS

| DIM | INCHES | | MM | | NOTE |
|-----|--------|-------|------|------|------|
| | MIN | MAX | MIN | MAX | |
| A | .110 | .120 | 2.80 | 3.04 | |
| B | .083 | .104 | 2.10 | 2.64 | |
| C | .047 | .055 | 1.20 | 1.40 | |
| D | .035 | .041 | .89 | 1.03 | |
| E | .070 | .081 | 1.78 | 2.05 | |
| F | .018 | .024 | .45 | .60 | |
| G | .0005 | .0039 | .013 | .100 | |
| H | .035 | .044 | .89 | 1.12 | |
| J | .003 | .007 | .085 | .180 | |
| K | .015 | .020 | .37 | .51 | |

Suggested Solder Pad Layout



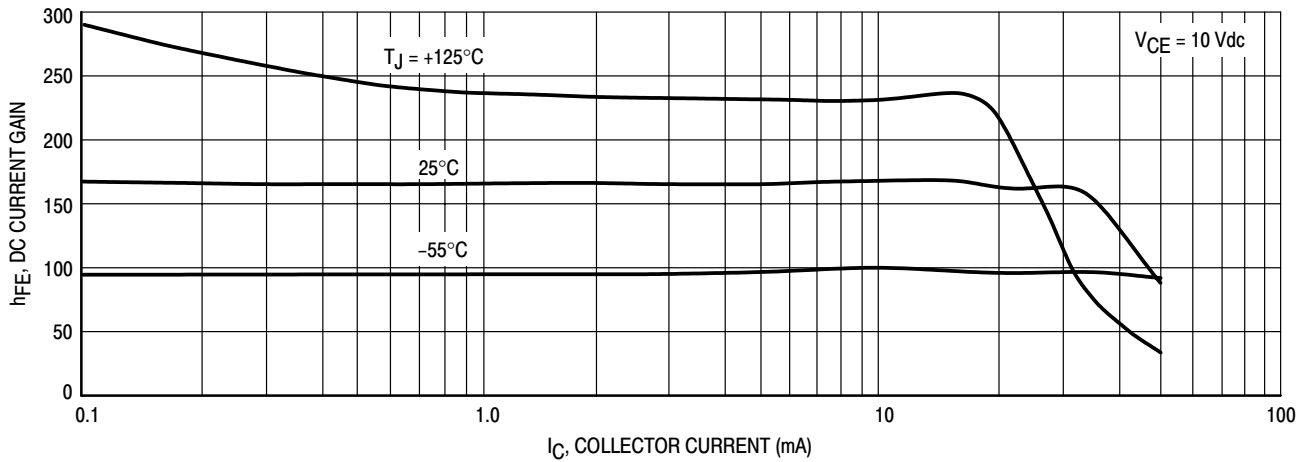


Figure 1. DC Current Gain

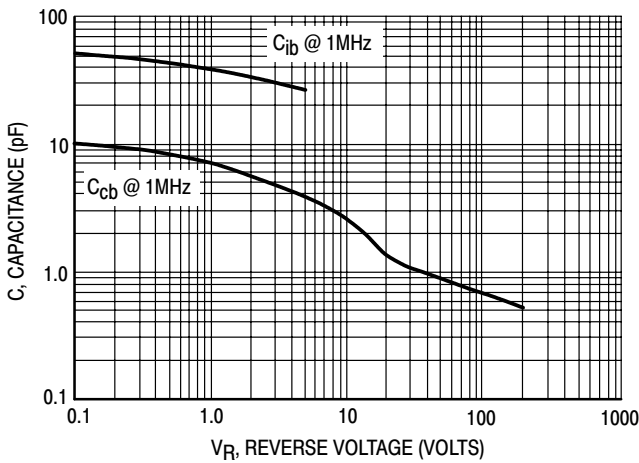


Figure 2. Capacitance

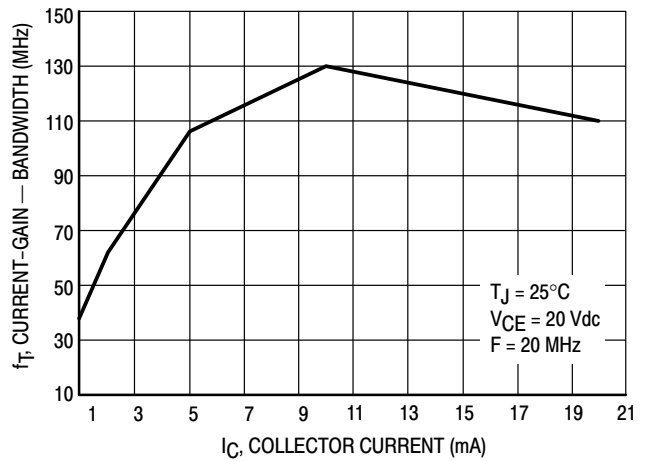
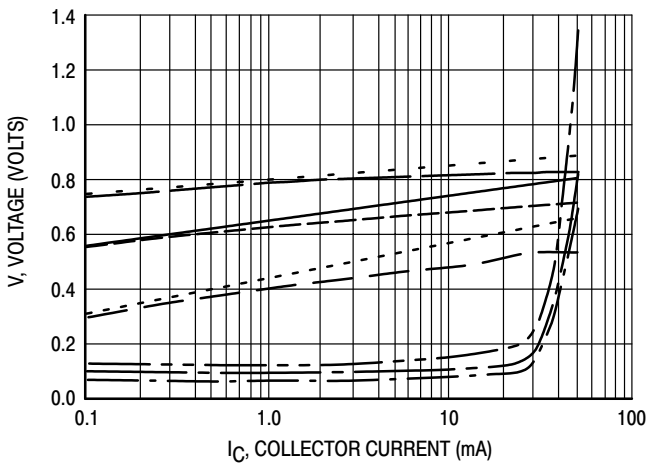


Figure 3. Current-Gain - Bandwidth



- VCE(sat) @ 25°C, IC/IB = 10
- VCE(sat) @ 125°C, IC/IB = 10
- VCE(sat) @ -55°C, IC/IB = 10
- VBE(sat) @ 25°C, IC/IB = 10
- VBE(sat) @ 125°C, IC/IB = 10
- VBE(sat) @ -55°C, IC/IB = 10
- VBE(on) @ 25°C, VCE = 10 V
- VBE(on) @ 125°C, VCE = 10 V
- VBE(on) @ -55°C, VCE = 10 V

Figure 4. "ON" Voltages



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Ordering Information :

| Device | Packing |
|----------------|-----------------------|
| Part Number-TP | Tape&Reel; 3Kpcs/Reel |

Note : Adding "-HF" suffix for halogen free, eg. Part Number-TP-HF

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