



## NPN Silicon Epitaxial Planar Transistor

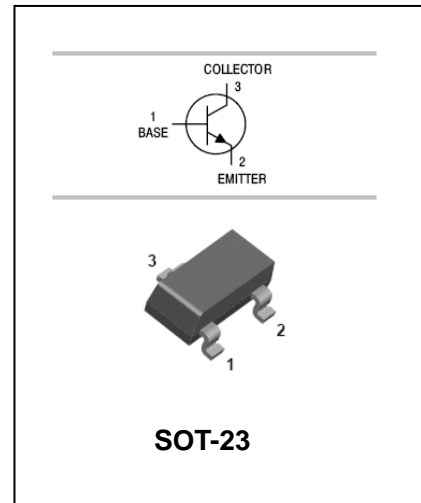
## FMMT458

### FEATURES

- High voltage.
- Complementary To FMMT558.



Lead-free



### ORDERING INFORMATION

| Type No. | Marking | Package Code |
|----------|---------|--------------|
| FMMT458  | 458     | SOT-23       |

### MAXIMUM RATING @ Ta=25°C unless otherwise specified

| Symbol                            | Parameter                        | Value       | Units |
|-----------------------------------|----------------------------------|-------------|-------|
| V <sub>CBO</sub>                  | Collector-Base Voltage           | 400         | V     |
| V <sub>CEO</sub>                  | Collector-Emitter Voltage        | 400         | V     |
| V <sub>EBO</sub>                  | Emitter-Base Voltage             | 5           | V     |
| I <sub>C</sub>                    | Collector Current -Continuous    | 225         | mA    |
| I <sub>CM</sub>                   | Peak Pulse Current               | 1           | A     |
| I <sub>B</sub>                    | Base Current                     | 200         | mA    |
| P <sub>tot</sub>                  | Power Dissipation                | 500         | mW    |
| T <sub>j</sub> , T <sub>stg</sub> | Junction and Storage Temperature | -55 to +150 | °C    |



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**FMMT458**

**ELECTRICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified**

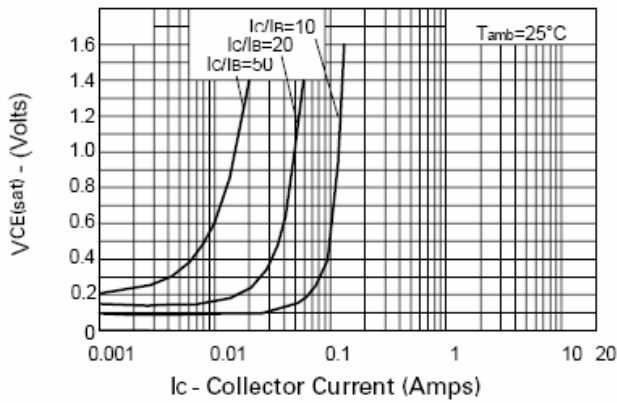
| Parameter                            | Symbol        | Test conditions                            | MIN | TYP  | MAX        | UNIT    |
|--------------------------------------|---------------|--|-----|------|------------|---------|
| Collector-base breakdown voltage     | $V_{(BR)CBO}$ | $I_C=100\mu A, I_E=0$                      | 400 |      |            | V       |
| Collector-emitter breakdown voltage  | $V_{(BR)CEO}$ | $I_C=10mA, I_B=0$                          | 400 |      |            | V       |
| Emitter-base breakdown voltage       | $V_{(BR)EBO}$ | $I_E=100\mu A, I_C=0$                      | 5   |      |            | V       |
| Collector cut-off current            | $I_{CBO}$     | $V_{CB}=320V, I_E=0$                       |     |      | 0.1        | $\mu A$ |
| Collector cut-off current            | $I_{CEO}$     | $V_{CE}=320V, I_B=0$                       |     |      | 0.1        | $\mu A$ |
| Emitter cut-off current              | $I_{EBO}$     | $V_{EB}=4V, I_C=0$                         |     |      | 0.1        | $\mu A$ |
| DC current gain                      | $h_{FE}$      | $V_{CE}=10V, I_C=1mA$                      | 100 |      |            |         |
|                                      |               | $V_{CE}=10V, I_C=50mA$                     | 100 |      | 300        |         |
|                                      |               | $V_{CE}=10V, I_C=100mA$                    | 15  |      |            |         |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C=20mA, I_B=2mA$<br>$I_C=50mA, I_B=6mA$ |     |      | 0.2<br>0.5 | V       |
| Base-emitter saturation voltage      | $V_{BE(sat)}$ | $I_C=50mA, I_B=5mA$                        |     |      | 0.9        | V       |
| Base-emitter turn on voltage         | $V_{BE(on)}$  | $I_C=50mA, V_{CE}=10V$                     |     |      | 0.9        | V       |
| Transition frequency                 | $f_T$         | $V_{CE}=20V, I_C=10mA$<br>$f=20MHz$        | 50  |      |            | MHz     |
| Collector output capacitance         | $C_{ob}$      | $V_{CB}=20V, f=1MHz$                       |     |      | 5          | pF      |
| Switching times                      | $t_{on}$      | $I_C=50mA, V_{CC}=100V$                    |     | 135  |            | nS      |
|                                      | $t_{off}$     | $I_{B1}=5mA, I_{B2}=10mA$                  |     | 2260 |            |         |



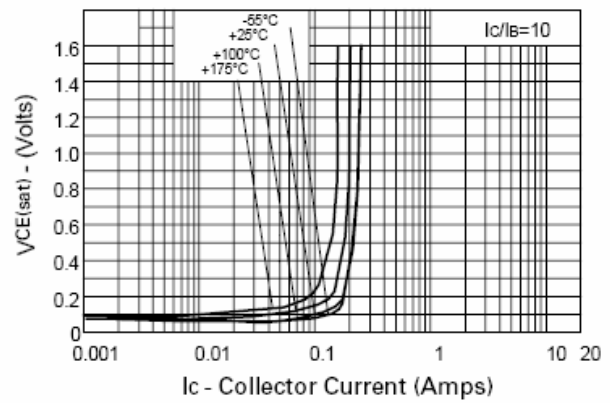
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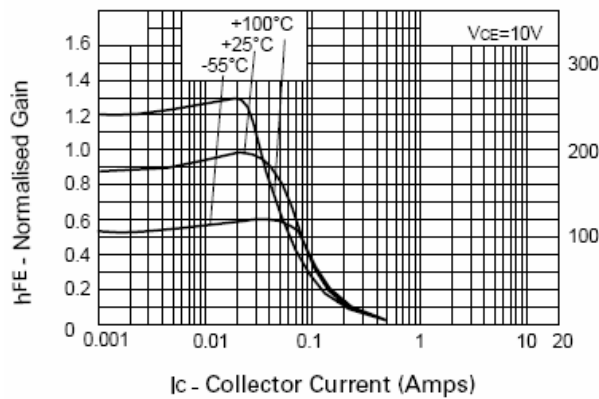
TYPICAL CHARACTERISTICS @  $T_a=25^\circ\text{C}$  unless otherwise specified



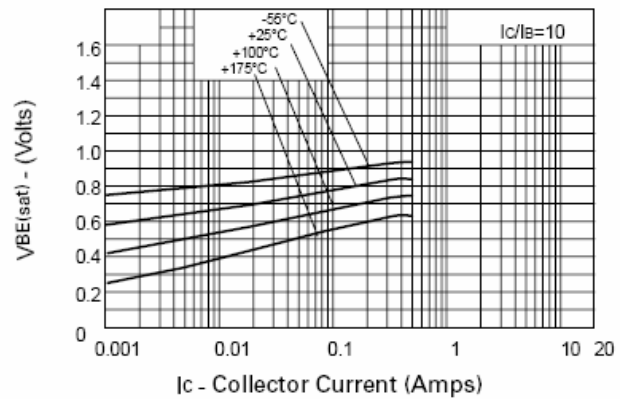
**$V_{CE(sat)}$  v  $I_C$**



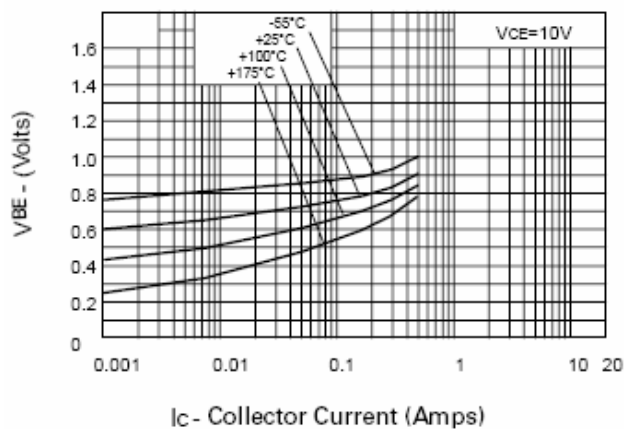
**$V_{CE(sat)}$  v  $I_C$**



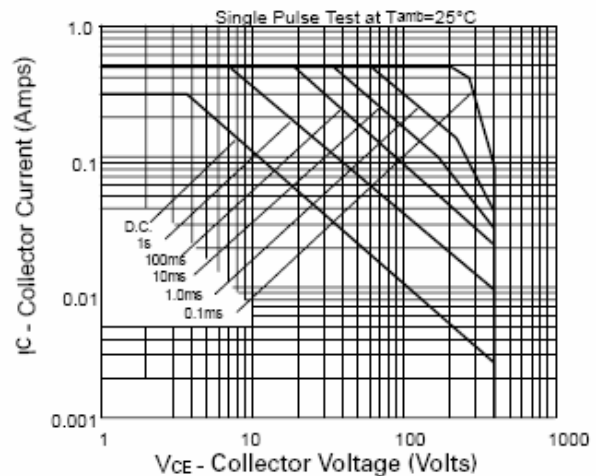
**$h_{FE}$  v  $I_C$**



**$V_{BE(sat)}$  v  $I_C$**



**$V_{BE(on)}$  v  $I_C$**



**Safe Operating Area**

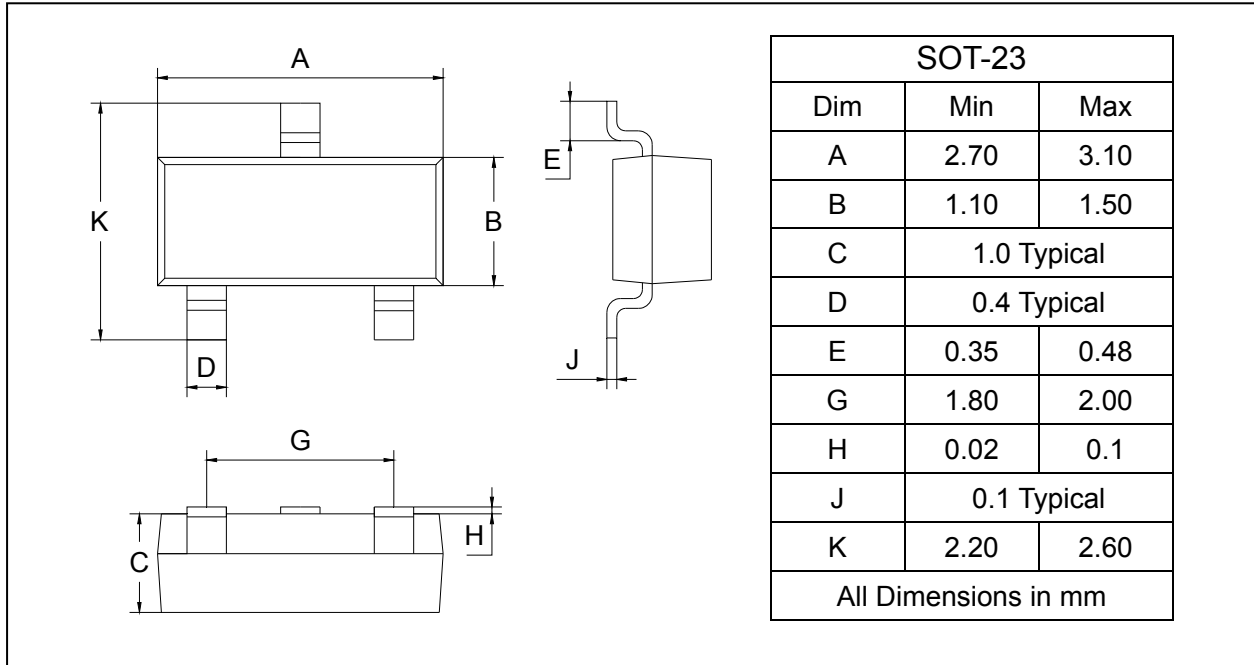
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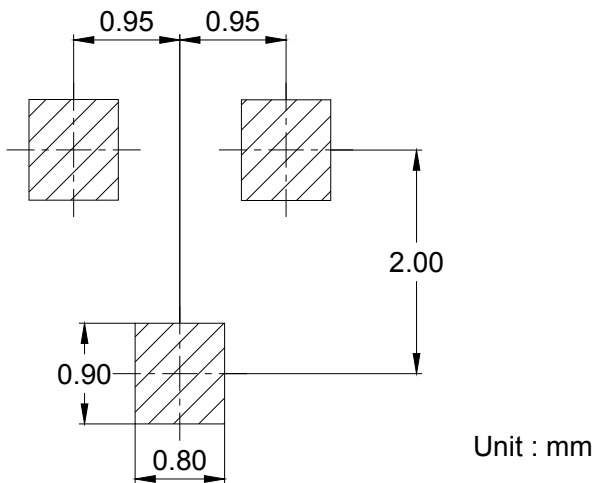
**PACKAGE OUTLINE**

Plastic surface mounted package

SOT-23



**SOLDERING FOOTPRINT**



**PACKAGE INFORMATION**

| Device  | Package | Shipping       |
|---------|---------|----------------|
| FMMT458 | SOT-23  | 3000/Tape&Reel |