# FMMT493

NPN Silicon Epitaxial Planar Transistors

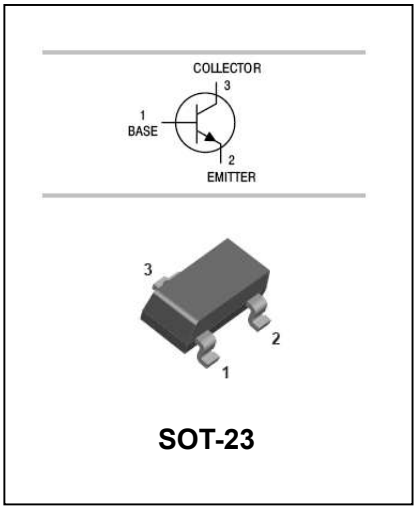
RoHS COMPLIANT

## FEATURES

- Medium power transistor.
- Complementary To FMMT593.
- MSL 1

Lead-free

HF




**SOT-23**

## ORDERING INFORMATION

| Type No. | Marking | Package Code |
|---|---|---|
| FMMT493□ | 493 | SOT-23 |

□: none is for Lead Free package;
"G" is for Halogen Free package.

## MAXIMUM RATING @ Ta=25℃ unless otherwise specified

| Symbol | Parameter | Value | Units |
|---|---|---|---|
| $V_{CBO}$ | Collector-Base Voltage | 120 | V |
| $V_{CEO}$ | Collector-Emitter Voltage | 100 | V |
| $V_{EBO}$ | Emitter-Base Voltage | 5 | V |
| $I_C$ | Collector Current -Continuous | 1 | A |
| $I_{CM}$ | Peak Pulse Current | 2 | A |
| $P_C$ | Collector Dissipation | 500 | mW |
| $T_j$, $T_{stg}$ | Junction and Storage Temperature | -55 to +150 | ℃ |

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## ELECTRICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified

| Parameter | Symbol | Test conditions | MIN | TYP | MAX | UNIT |
|---|---|---|---|---|---|---|
| Collector-base breakdown voltage | $V_{(BR)CBO}$ | $I_C$=100μA,$I_E$=0 | 120 | | | V |
| Collector-emitter breakdown voltage | $V_{(BR)CEO}$ | $I_C$=10mA,$I_B$=0 | 100 | | | V |
| Emitter-base breakdown voltage | $V_{(BR)EBO}$ | $I_E$=100μA,$I_C$=0 | 5 | | | V |
| Collector cut-off current | $I_{CBO}$ | $V_{CB}$=100V,$I_E$=0 | | | 0.1 | μA |
| Collector cut-off current | $I_{CES}$ | $V_{CES}$=100V | | | 0.1 | μA |
| Emitter cut-off current | $I_{EBO}$ | $V_{EB}$=4V,$I_C$=0 | | | 0.1 | μA |
| DC current gain | $h_{FE}$ | $V_{CE}$=10V,$I_C$=1mA | 100 | | | |
| | | $V_{CE}$=10V,$I_C$=250mA | 100 | | 300 | |
| | | $V_{CE}$=10V,$I_C$=500mA | 60 | | | |
| | | $V_{CE}$=10V,$I_C$=1A | 20 | | | |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C$=500mA, $I_B$= 50mA<br>$I_C$=1A, $I_B$= 100mA | | | 0.3<br>0.6 | V |
| Base-emitter saturation voltage | $V_{BE(sat)}$ | $I_C$=1A, $I_B$= 100mA | | | 1.15 | V |
| Base-emitter voltage | $V_{BE(on)}$ | $I_C$=1A,$V_{CE}$=10V | | | 1.0 | V |
| Transition frequency | $f_T$ | $V_{CE}$=10V, $I_C$= 50mA<br>f=100MHz | 150 | | | MHz |
| Collector output capacitance | $C_{ob}$ | $V_{CB}$=10V,f=1MHz | | | 10 | pF |

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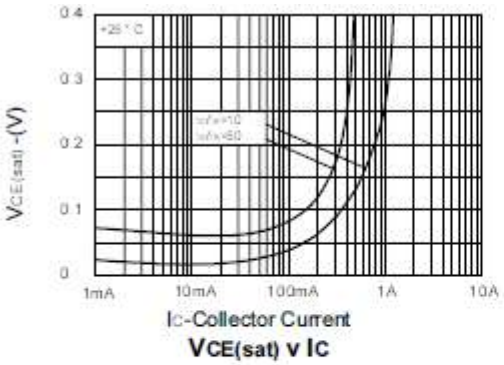
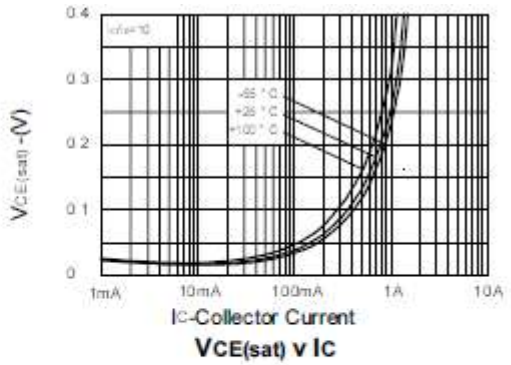
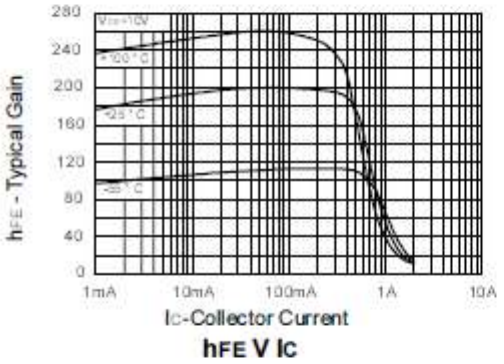
## TYPICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified



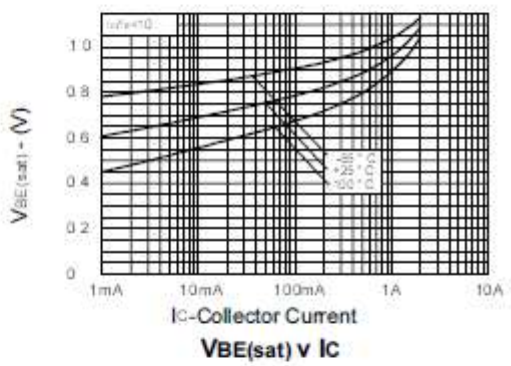

VCE(sat) v IC



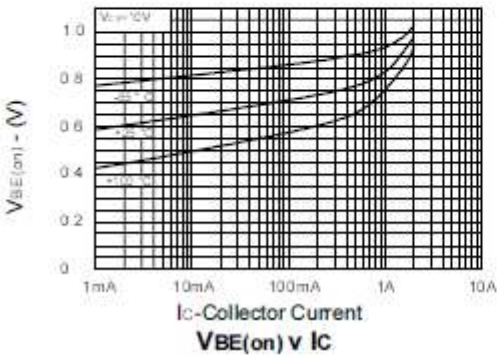

VCE(sat) v IC



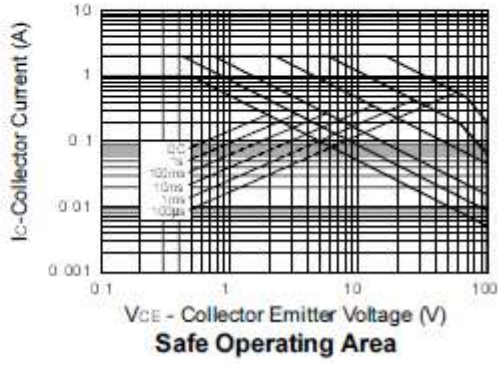

hFE V IC




VBE(sat) v IC




VBE(on) v IC




Safe Operating Area

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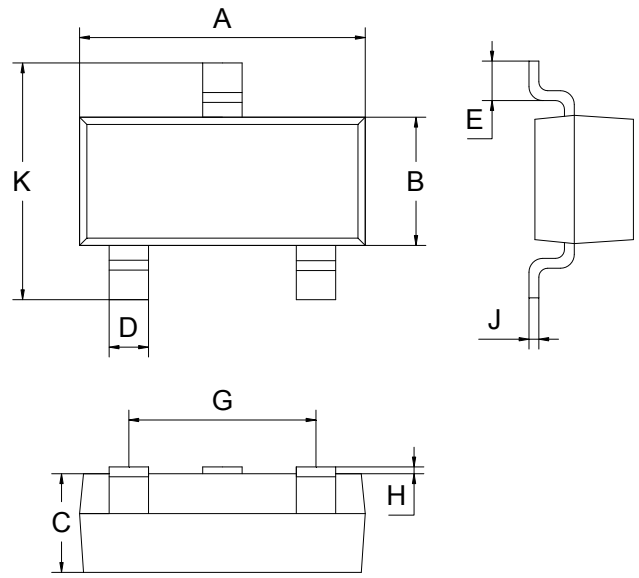
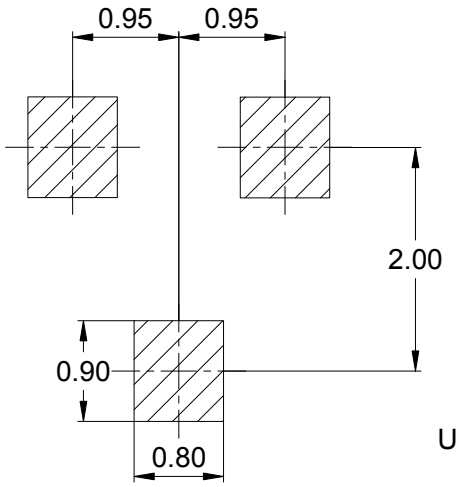
## PACKAGE OUTLINE

Plastic surface mounted package SOT-23




| SOT-23 | | |
|---|---|---|
| Dim | Min | Max |
| A | 2.70 | 3.10 |
| B | 1.10 | 1.50 |
| C | 0.90 | 1.10 |
| D | 0.30 | 0.50 |
| E | 0.35 | 0.48 |
| G | 1.80 | 2.00 |
| H | 0.02 | 0.10 |
| J | 0.05 | 0.15 |
| K | 2.20 | 2.60 |
| All Dimensions in mm | | |

## SOLDERING FOOTPRINT




Unit : mm

## PACKAGE INFORMATION

| Device | Package | Shipping |
|---|---|---|
| FMMT493 | SOT-23 | 3000/Tape&Reel |