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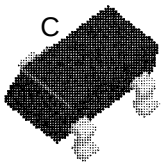
SEMICONDUCTOR TM

# FMMT449




**SuperSOT™-3**

## NPN Low Saturation Transistor

These devices are designed with high current gain and low saturation voltage with collector currents up to 2A continuous. Sourced from Process NB.

## Absolute Maximum Ratings*

$T_A$ = 25°C unless otherwise noted

| Symbol | Parameter | FMMT449 | Units |
|---|---|---|---|
| $V_{CEO}$ | Collector-Emitter Voltage | 30 | V |
| $V_{CBO}$ | Collector-Base Voltage | 50 | V |
| $V_{EBO}$ | Emitter-Base Voltage | 5 | V |
| $I_C$ | Collector Current - Continuous<br>- Peak Pulse Current | 1<br>2 | A |
| $T_J$, $T_{stg}$ | Operating and Storage Junction Temperature Range | -55 to +150 | °C |

*These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

NOTES:
1) These ratings are based on a maximum junction temperature of 150°C.
2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

## Thermal Characteristics

$T_A$ = 25°C unless otherwise noted

| Symbol | Characteristic | Max | Units |
|---|---|---|---|
| | | FMMT449 | |
| $P_D$ | Total Device Dissipation*<br>Derate above 25°C | 500<br>4 | mW<br>mW/°C |
| $R_{\theta JA}$ | Thermal Resistance, Junction to Ambient | 250 | °C/W |

*Device mounted on FR-4 PCB 4.5" X 5"; mounting pad 0.02 $in^2$ of 2oz copper.

## NPN Low Saturation Transistor
(continued)

## Electrical Characteristics
$T_{A = 25°C}$ unless otherwise noted

| Symbol | Parameter | Test Conditions | Min | Max | Units |
|---|---|---|---|---|---|
| **OFF CHARACTERISTICS** | | | | | |
| $BV_{CEO}$ | Collector-Emitter Breakdown Voltage | $I_C$ = 10 mA | 30 | | V |
| $BV_{CBO}$ | Collector-Base Breakdown Voltage | $I_C$ = 1mA | 50 | | V |
| $BV_{EBO}$ | Emitter-Base Breakdown Voltage | $I_E$ = 100 µA | 5 | | V |
| $I_{CBO}$ | Collector Cutoff Current | $V_{CB}$ = 40 V<br>$V_{CB}$ = 40 V, Ta=100°C | | 100<br>10 | nA<br>uA |
| $I_{EBO}$ | Emitter Cutoff Current | $V_{EB}$ = 4V | | 100 | nA |
| **ON CHARACTERISTICS*** | | | | | |
| $h_{FE}$ | DC Current Gain | $I_C$ = 50 mA, $V_{CE}$ = 2V<br>$I_C$ = 500 mA, $V_{CE}$ = 2V<br>$I_C$ = 1A, $V_{CE}$ = 2V<br>$I_C$ = 2A, $V_{CE}$ = 2V | 70<br>100<br>80<br>40 | 300 | - |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | $I_C$ = 1 A, $I_B$ = 100 mA<br>$I_C$ = 2 A, $I_B$ = 200 mA | | 500<br>1.0 | mV<br>V |
| $V_{BE(sat)}$ | Base-Emitter Saturation Voltage | $I_C$ = 1 A, $I_B$ = 100 mA | | 1.25 | V |
| $V_{BE(on)}$ | Base-Emitter On Voltage | $I_C$ = 1 A, $V_{CE}$ = 2 V | | 1 | V |
| **SMALL SIGNAL CHARACTERISTICS** | | | | | |
| $C_{obo}$ | Output Capacitance | $V_{CB}$ = 10 V, $I_E$ = 0, f = 1MHz | | 15 | pF |
| $f_T$ | Transition Frequency | $I_C$ = 50mA,$V_{CE}$ = 10 V, f=100MHz | 150 | | MHz |

*Pulse Test: Pulse Width ≤ 300 µs, Duty Cycle ≤ 2.0%

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