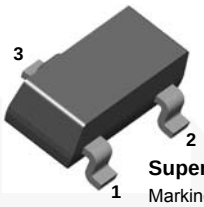
October 2014

# FMMT549
# PNP Low-Saturation Transistor

## Features

- This device is designed with high-current gain and low-saturation voltage with collector currents up to 2 A continuous.
- Sourced from process PB.




**SuperSOT-23**
Marking : 549

1. Base 2. Emitter 3. Collector

## Ordering Information

| Part Number | Marking | Package | Packing Method |
|---|---|---|---|
| FMMT549 | 549 | SSOT 3L | Tape and Reel |

## Absolute Maximum Ratings(1),(2)

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at $T_A$ = 25°C unless otherwise noted.

| Symbol | Parameter | | Value | Unit |
|---|---|---|---|---|
| $V_{CEO}$ | Collector-Emitter Voltage | | -30 | V |
| $V_{CBO}$ | Collector-Base Voltage | | -35 | V |
| $V_{EBO}$ | Emitter-Base Voltage | | -5 | V |
| $I_C$ | Collector Current | Continuous | -1 | A |
| | | Peak Pulse Current | -2 | |
| $T_J$ | Junction Temperature | | 150 | °C |
| $T_{STG}$ | Storage Temperature Range | | -55 to +150 | °C |

**Notes:**

1. These ratings are based on a maximum junction temperature of 150°C.
2. These are steady-state limits. Fairchild Semiconductor should be consulted on applications involving pulsed or low-duty-cycle operations.

## Thermal Characteristics

Values are at $T_A$ = 25°C unless otherwise noted.

| Symbol | Parameter | Max. | Unit |
|---|---|---|---|
| $P_D$ | Total Device Dissipation, by $R_{\theta JA}$ | 500 | mW |
| | Derate Above 25°C | 4 | mW/°C |
| $R_{\theta JA}$ | Thermal Resistance, Junction-to-Ambient | 250 | °C/W |

**Note:**

3. Device is mounted on FR-4 PCB 4.5 inch X 5 inch, mounting pad 0.02 $in^2$ of 2 oz copper.

## Electrical Characteristics

Values are at $T_A$ = 25°C unless otherwise noted.

| Symbol | Parameter | Conditions | Min. | Max. | Unit |
|---|---|---|---|---|---|
| $BV_{CEO}$ | Collector-Emitter Breakdown Voltage | $I_C$ = -10 mA, $I_B$ = 0 | -30 | | V |
| $BV_{CBO}$ | Collector-Base Breakdown Voltage | $I_C$ = -100 μA, $I_E$ = 0 | -35 | | V |
| $BV_{EBO}$ | Emitter-Base Breakdown Voltage | $I_E$ = -100 μA, $I_C$ = 0 | -5.0 | | V |
| $I_{CBO}$ | Collector Cut-Off Current | $V_{CB}$ = -30 V, $I_E$ = 0 | | -100 | nA |
| | | $V_{CB}$ = -30 V, $I_E$ = 0, $T_A$ = 100°C | | -10 | μA |
| $I_{EBO}$ | Emitter Cut-Off Current | $V_{EB}$ = -4.0 V, $I_C$ = 0 | | -100 | nA |
| $h_{FE}$ | DC Current Gain(4) | $V_{CE}$ = -2.0 V, $I_C$ = -50 mA | 70 | | |
| | | $V_{CE}$ = -2.0 V, $I_C$ = -500 mA | 100 | 300 | |
| | | $V_{CE}$ = -2.0 V, $I_C$ = -1 A | 80 | | |
| | | $V_{CE}$ = -2.0 V, $I_C$ = -2 A | 40 | | |
| $V_{CE}$(sat) | Collector-Emitter Saturation Voltage(4) | $I_C$ = -1 A, $I_B$ = -100 mA | | -500 | mV |
| | | $I_C$ = -2 A, $I_B$ = -200 mA | | -750 | |
| $V_{BE}$(sat) | Base-Emitter Saturation Voltage(4) | $I_C$ = -1 A, $I_B$ = -100 mA | | -1.25 | V |
| $V_{BE}$(on) | Base-Emitter On Voltage(4) | $I_C$ = -1 A, $V_{CE}$ = -2.0 V | | -1.0 | V |
| $f_T$ | Current Gain Bandwidth Product | $I_C$ = -100 mA, $V_{CE}$ = -5 V, f = 100 MHz | 100 | | MHz |
| $C_{obo}$ | Output Capacitance | $V_{CB}$ = -10 V, $I_E$ = 0, f = 1 MHz | | 25 | pF |

**Note:**

4. Pulse test: pulse width ≤ 300 μs, duty cycle ≤ 2.0%

## Typical Performance Characteristics

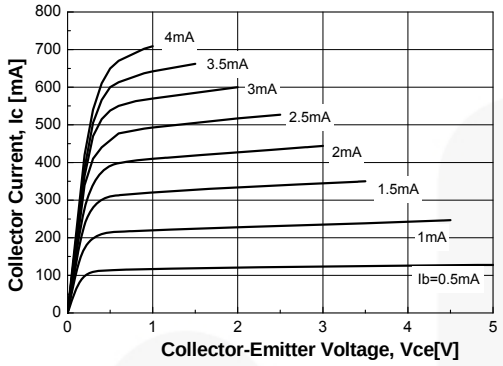



**Figure 1. Collector-Emitter Voltage vs. Collector Current**

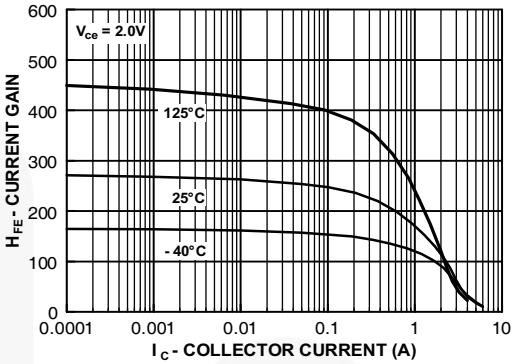



**Figure 2. Current Gain vs. Collector Current**

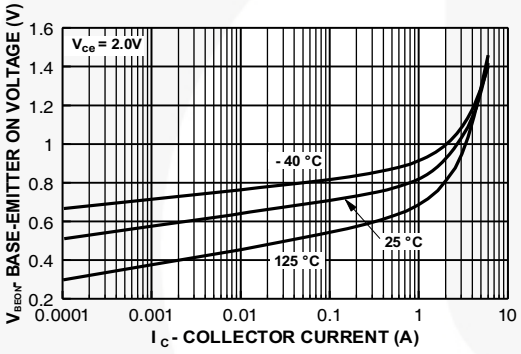



**Figure 4. Base-Emitter On Voltage vs. Collector Current**

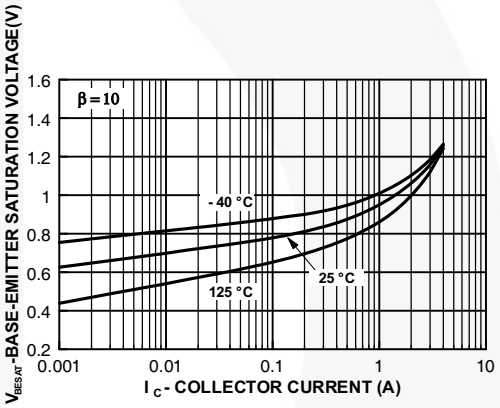



**Figure 5. Base-Emitter Saturation Voltage vs. Collector Current**

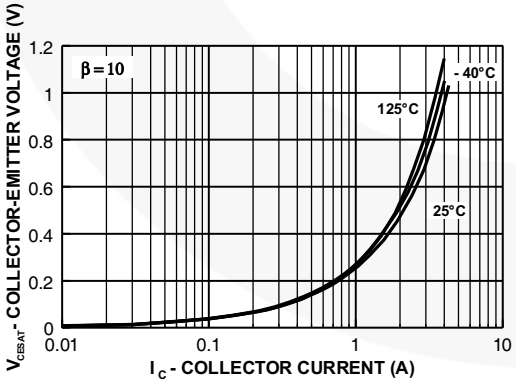



**Figure 5. Collector-Emitter Saturation Voltage vs. Collector Current**

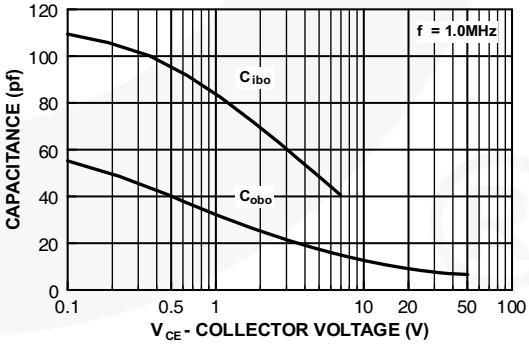
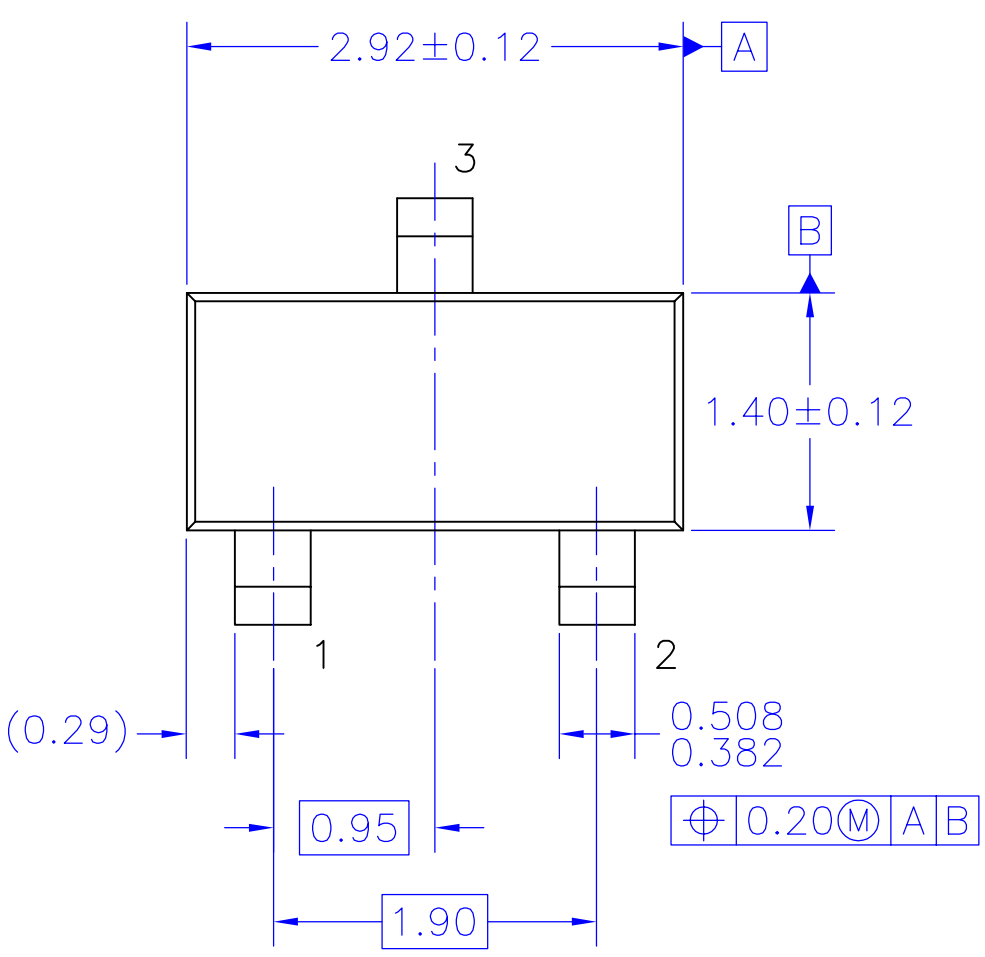
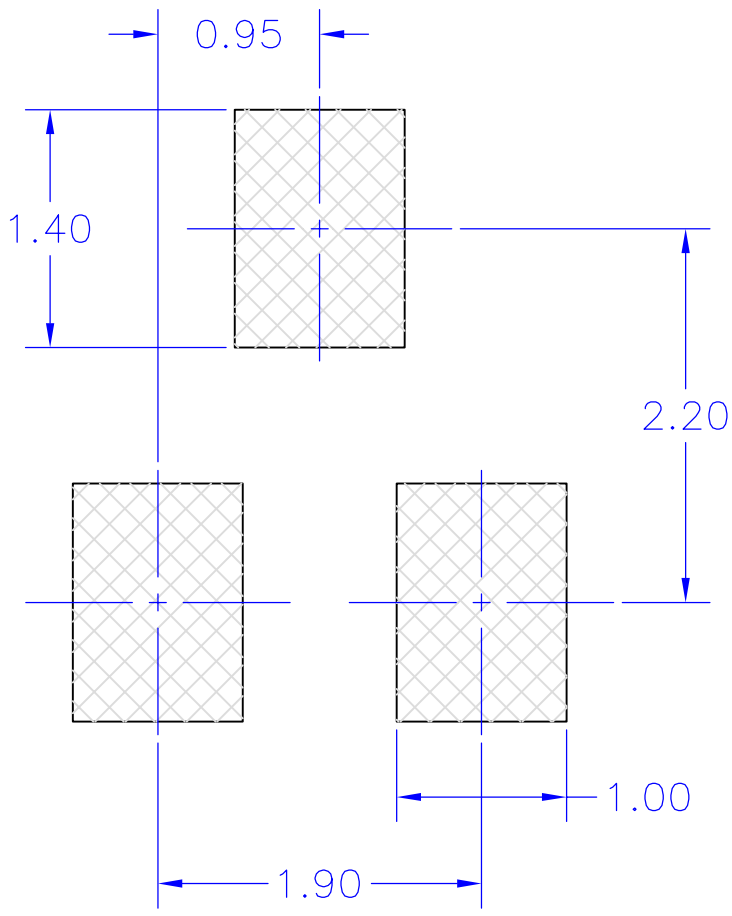



**Figure 6. Input / Output Capacitance vs. Reverse Bias Voltage**

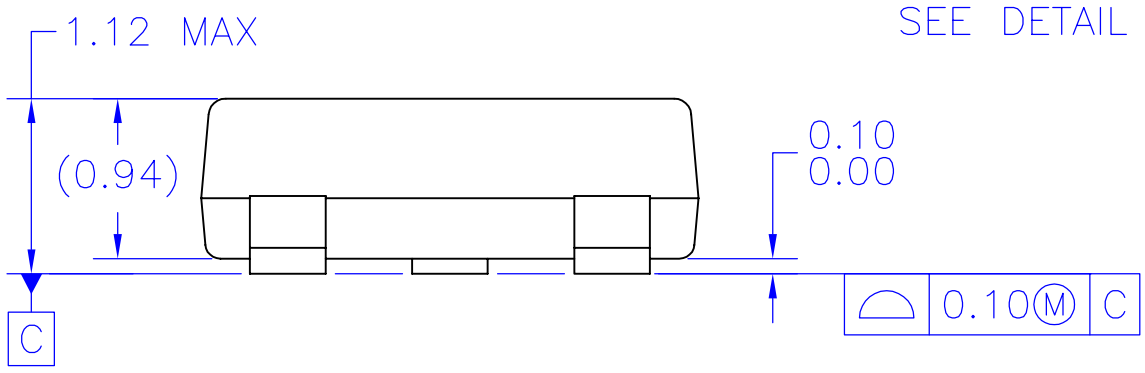
## REVISIONS

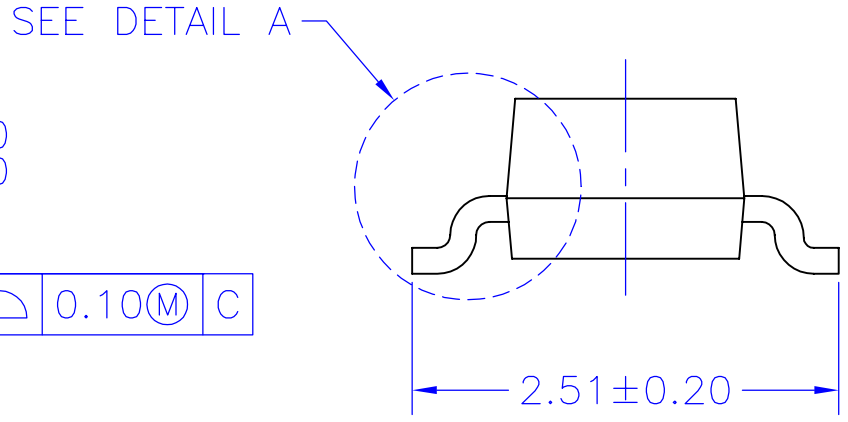
| LTR | DESCRIPTION | E.C.N. | DATE | BY/APP'D |
|---|---|---|---|---|
| A | RELEASE TO DOCUMENT CONTROL | CB/XXX/95 | NOV.30,1995 | TL |
| B | CHG TMPT FR NSC TO FSC; CHG DIM STD FR DUAL (INCH[MM]) TO SINGLE (MM); CHG PKG WID FR 1.40±0.07 TO 1.40±0.12; CHG TOT PKG THICK FR 0.91–0.12 TO 1.12 MAX; CHG PROFILE DIM FR $^{0.10}_{0.03}$ TO $^{0.10}_{0.00}$; CHG LD SPREAD DIM FR 2.51±0.12 TO 2.51±0.20; CHG LD PITCH DIM FR 0.953±.063 TO 0.95 BSC; CHG TOT LD PITCH FR 1.91±0.12 TO 1.90 BSC; CHG LD LNG FR 0.56 $^{+0.05}_{-0.10}$ TO (0.56); ADD DIM (0.29); CHG LAND PTRN DIM FR 0.76 TYP TO 1.00, FR 0.76 TYP TO 1.40, FR 2.29 TO 2.20; CHG FR NOTE-1 "LEAD FINISH SPEC" TO NOTE A) "JEDEC SPEC"; ADD NOTE B,C&D; ADD LD POS TOL; ADD COPLA TOL; CHG COPLA TOL FR 0.038 TO 0.10 | CB/018/04 | 16JAN2004 | MRG |

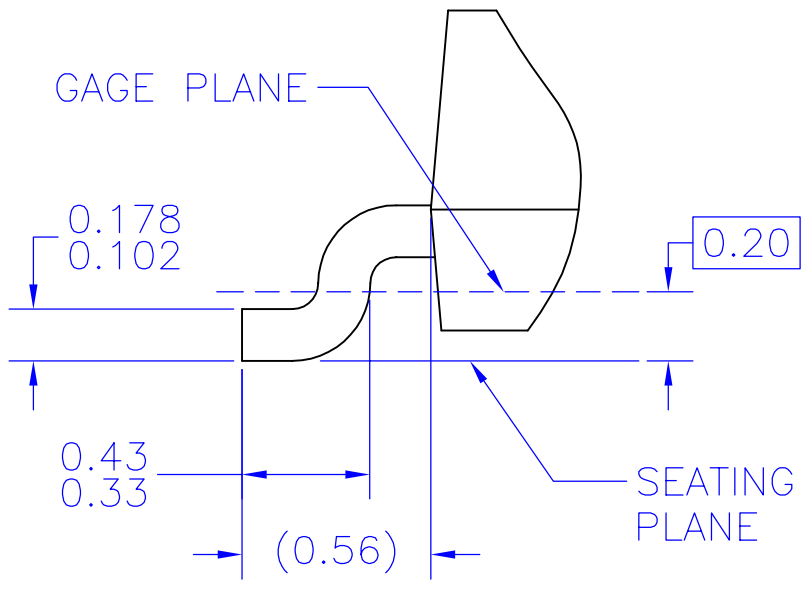



LAND PATTERN RECOMMENDATION

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| APPROVALS | DATE |
|---|---|
| DRAWN: J. GOMEZ | 16JAN2004 |
| CHECKED: R. MANABIT | |
| APPROVED: M. GESTOLE | |
| G.S. BAJE | |

PROJECTION INCH [MM]

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MOLDED PACKAGE, SUPERSOT, 3 LEAD (MARKETING OUTLINE)

| SCALE | | | REV |
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| 25:1 | A3 | MKT–MA03B | B |

FORMERLY: N/A — SHEET : 1 OF 1

MA03BREVB

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