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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.



### Ordering Information

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

### Absolute Maximum Ratings<sup>(1),(2)</sup>

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  $T_A = 25^\circ\text{C}$  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	A
		Peak Pulse Current	
$T_J$	Junction Temperature	150	$^\circ\text{C}$
$T_{STG}$	Storage Temperature Range	-55 to +150	$^\circ\text{C}$

#### Notes:

1. These ratings are based on a maximum junction temperature of  $150^\circ\text{C}$ .
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  $T_A = 25^\circ\text{C}$  unless otherwise noted.

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

### Note:

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

## Electrical Characteristics

Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

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

### Note:

4. Pulse test: pulse width  $\leq 300\text{ }\mu\text{s}$ , duty cycle  $\leq 2.0\%$

## Typical Performance Characteristics

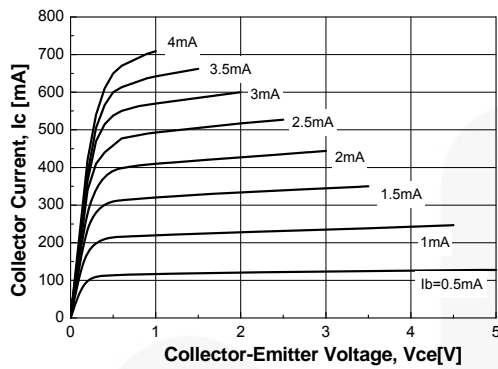


Figure 1. Collector-Emitter Voltage vs. Collector Current

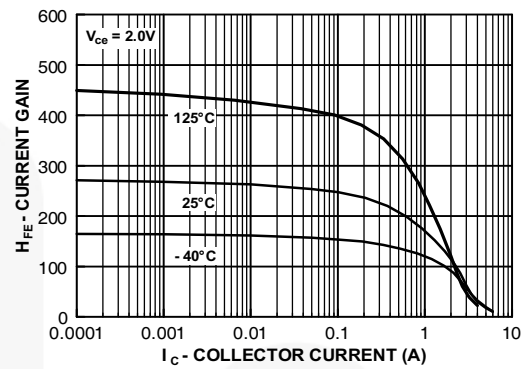


Figure 2. Current Gain vs. Collector Current

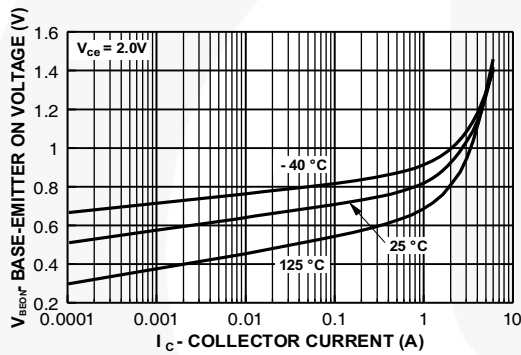


Figure 4. Base-Emitter On Voltage vs. Collector Current

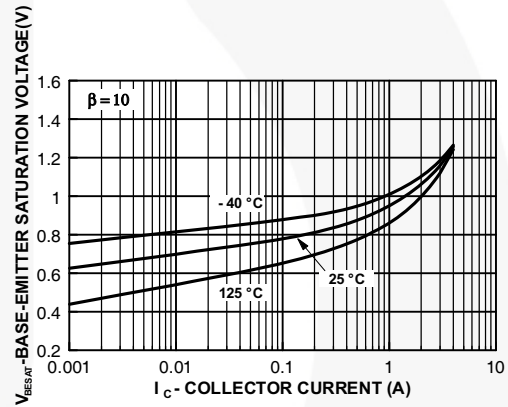


Figure 5. Base-Emitter Saturation Voltage vs. Collector Current

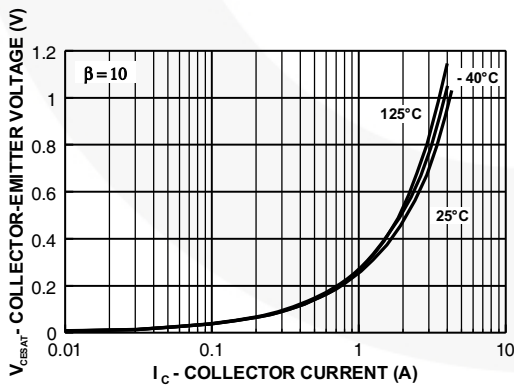


Figure 5. Collector-Emitter Saturation Voltage vs. Collector Current

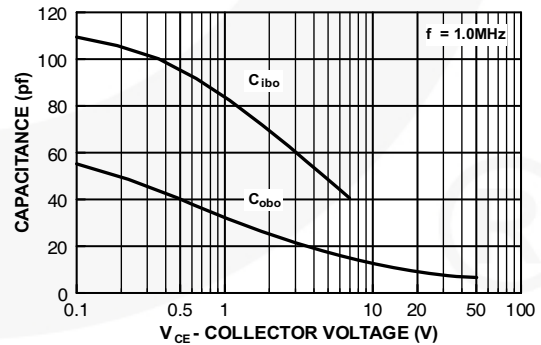
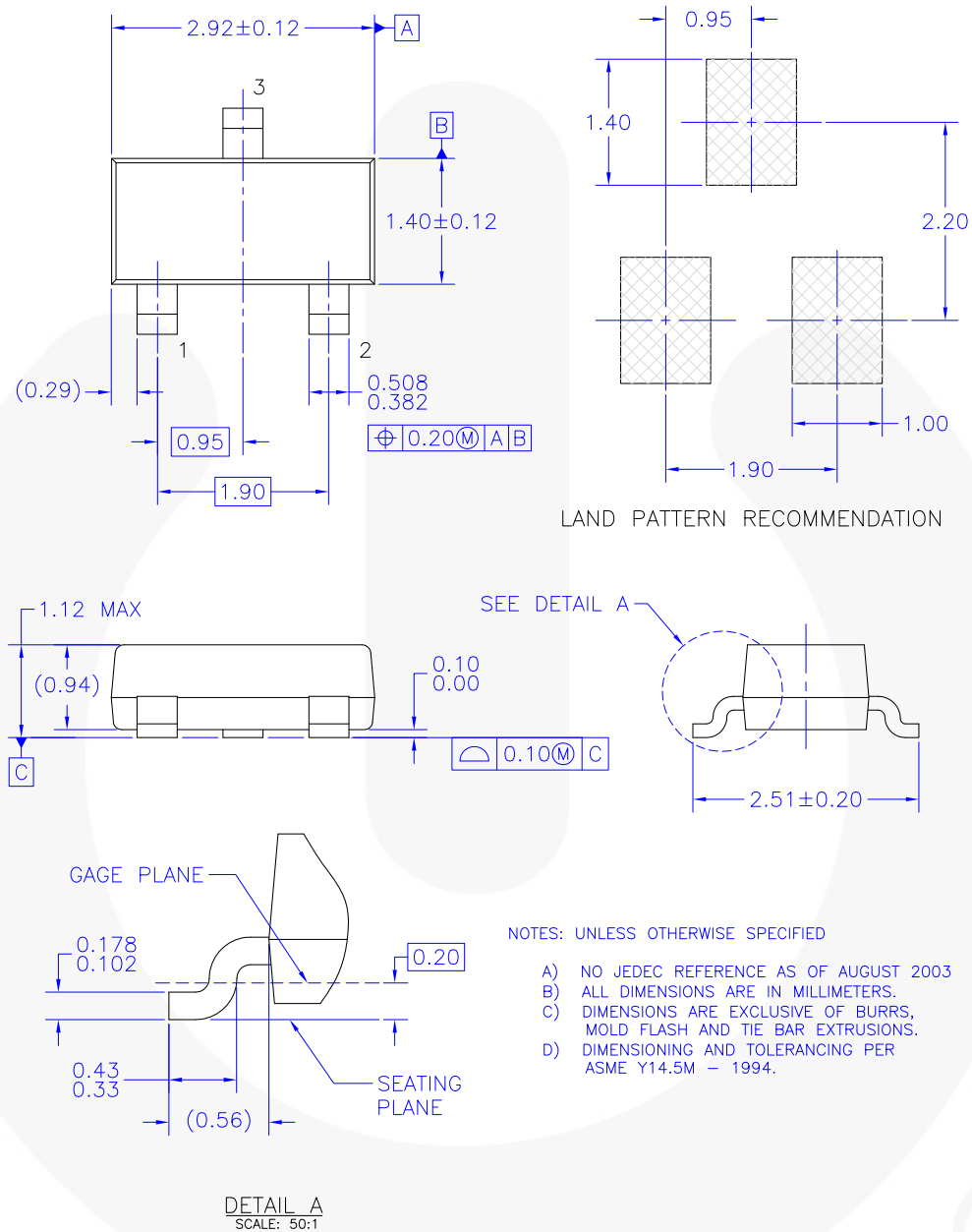


Figure 6. Input / Output Capacitance vs. Reverse Bias Voltage

# Physical Dimensions



MA03BREV B

Figure 7. MOLDED PACKAGE, SUPERSOT, 3-LEAD



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**Телефон:** 8 (812) 309 58 32 (многоканальный)

**Факс:** 8 (812) 320-02-42

**Электронная почта:** [org@eplast1.ru](mailto:org@eplast1.ru)

**Адрес:** 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.