

# PNP Low-Saturation Transistor

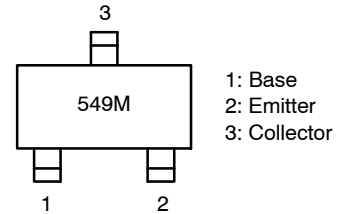
## FMMT549

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



SOT-23/SUPERSOT™ -23  
CASE 527AG

### MARKING DIAGRAM



549 = Specific Device Code  
M = Date Code

### ORDERING INFORMATION

Device	Package	Shipping†
FMMT549	SOT-23 (Pb-Free, Halide Free)	3,000 / Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specification Brochure, BRD8011/D.

### ABSOLUTE MAXIMUM RATINGS

(T<sub>A</sub> = 25°C unless otherwise noted.) (Notes 1, 2)

Symbol	Parameter	Value	Unit
V <sub>CEO</sub>	Collector-Emitter Voltage	-30	V
V <sub>CBO</sub>	Collector-Base Voltage	-35	V
V <sub>EBO</sub>	Emitter-Base Voltage	-5	V
I <sub>C</sub>	Collector Current Continuous Peak Pulse Current	-1 -2	A
T <sub>J</sub>	Junction Temperature	150	°C
T <sub>STG</sub>	Storage Temperature Range	-55 to +150	°C

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

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

### THERMAL CHARACTERISTICS

(T<sub>A</sub> = 25°C unless otherwise noted.) (Note 3)

Symbol	Parameter	Max	Unit
P <sub>D</sub>	Total Device Dissipation, by R <sub>θJA</sub> Derate Above 25°C	500 4	mW mW/°C
R <sub>θJA</sub>	Thermal Resistance, Junction to Ambient	250	°C/W

- Device is mounted on FR-4 PCB 4.5 inch x 5 inch, mounting pad 0.02 in<sup>2</sup> of 2 oz copper.

## FMMT549

### ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise noted.)

Symbol	Parameter	Test 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	$I_C = -100\ \mu\text{A}, I_E = 0$	-35	-	V
$BV_{EBO}$	Emitter–Base Breakdown Voltage	$I_E = -100\ \mu\text{A}, I_C = 0$	-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 (Note 4)	$V_{CE} = -2.0\text{ V}, I_C = -50\text{ mA}$	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 (Note 4)	$I_C = -1\text{ A}, I_B = -100\text{ mA}$	-	-500	mV
		$I_C = -2\text{ A}, I_B = -200\text{ mA}$	-	-750	
$V_{BE(sat)}$	Base–Emitter Saturation Voltage (Note 4)	$I_C = -1\text{ A}, I_B = -100\text{ mA}$	-	-1.25	V
$V_{BE(on)}$	Base–Emitter On Voltage (Note 4)	$I_C = -1\text{ A}, V_{CE} = -2.0\text{ V}$	-	-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

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

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

TYPICAL PERFORMANCE CHARACTERISTICS

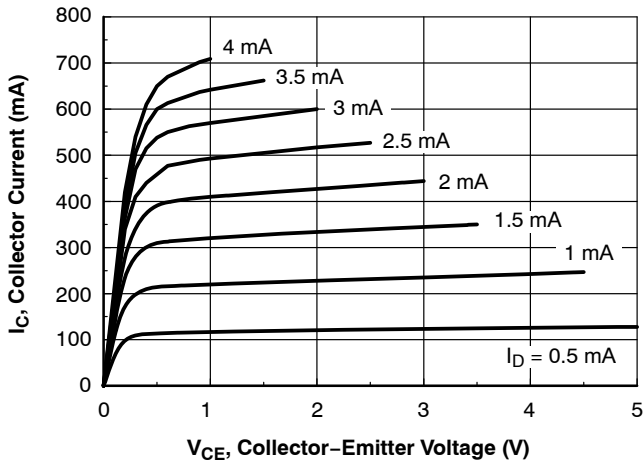


Figure 1. Collector-Emitter Voltage vs. Collector Current

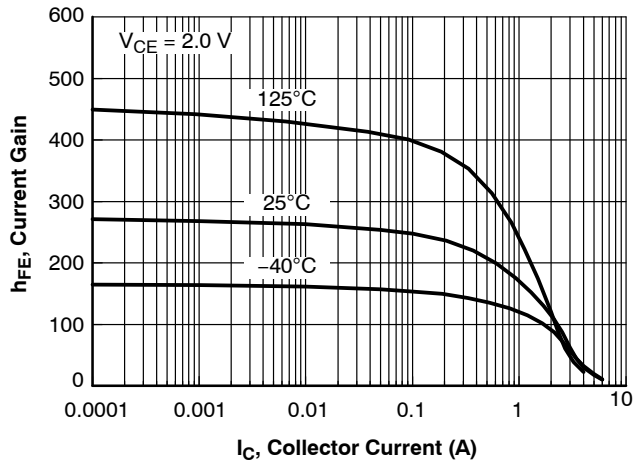


Figure 2. Current Gain vs. Collector Current

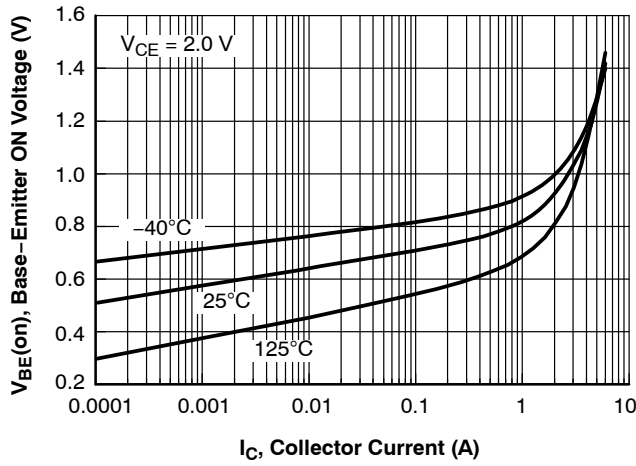


Figure 3. Base-Emitter On Voltage vs. Collector Current

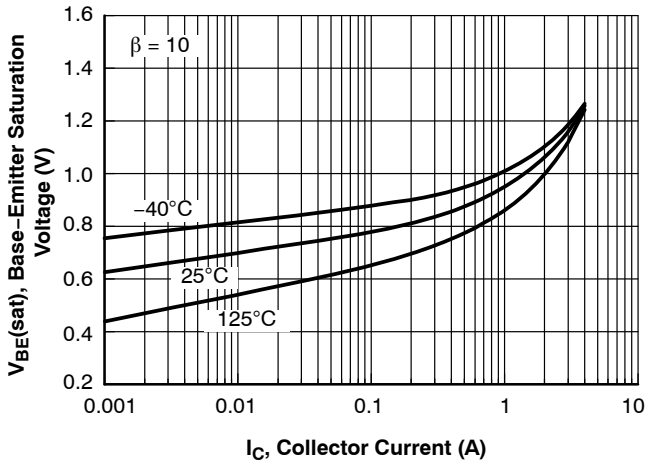


Figure 4. Base-Emitter Saturation Voltage vs. Collector Current

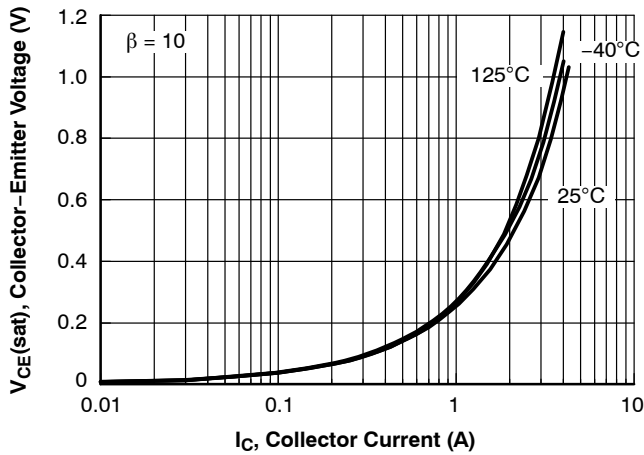


Figure 5. Collector-Emitter Saturation Voltage vs. Collector Current

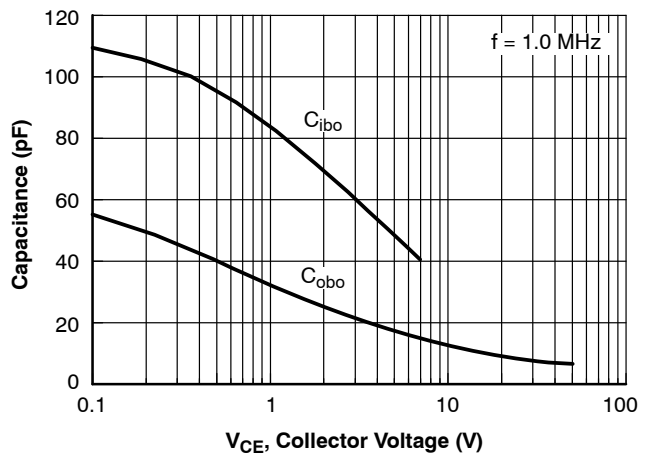


Figure 6. Input / Output Capacitance vs. Reverse Bias Voltage

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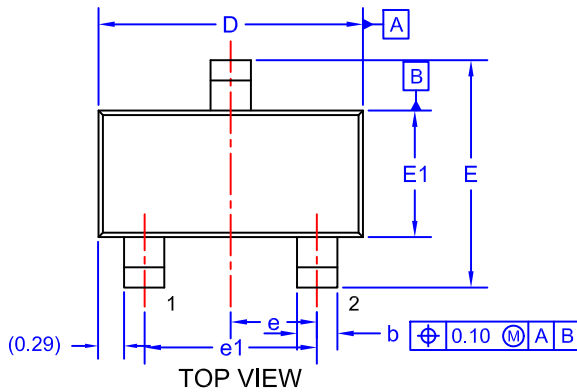
# MECHANICAL CASE OUTLINE

## PACKAGE DIMENSIONS



SOT-23/SUPERSOT™ -23, 3 LEAD, 1.4x2.9  
CASE 527AG  
ISSUE A

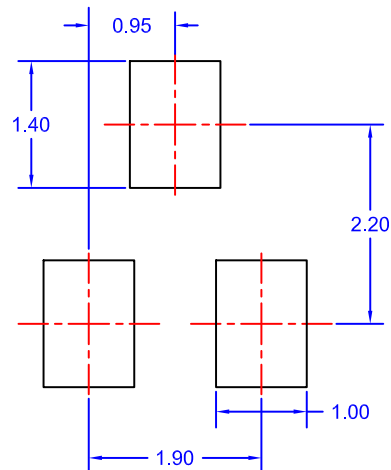
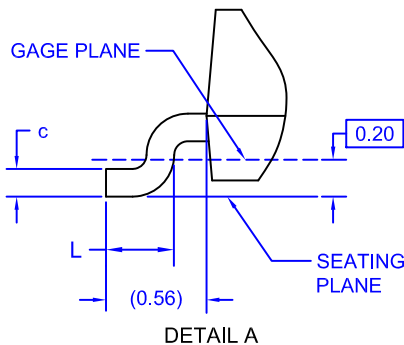
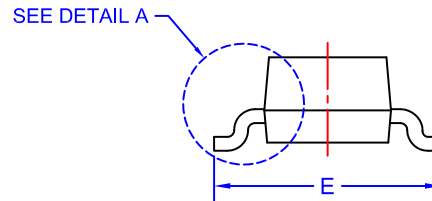
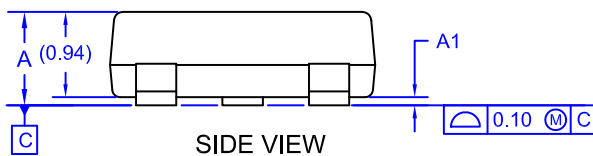
DATE 09 DEC 2019



NOTES: UNLESS OTHERWISE SPECIFIED

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 2009.
2. ALL DIMENSIONS ARE IN MILLIMETERS.
3. DIMENSIONS ARE EXCLUSIVE OF BURRS, MOLD FLASH AND TIE BAR EXTRUSIONS.

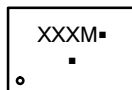
DIM	MIN.	NOM.	MAX.
A	0.85	0.95	1.12
A1	0.00	0.05	0.10
b	0.370	0.435	0.508
c	0.085	0.150	0.180
D	2.80	2.92	3.04
E	2.31	2.51	2.71
E1	1.20	1.40	1.52
e	0.95 BSC		
e1	1.90 BSC		
L	0.33	0.38	0.43



### LAND PATTERN RECOMMENDATION\*

\*FOR ADDITIONAL INFORMATION ON OUR Pb-FREE STRATEGY AND SOLDERING DETAILS, PLEASE DOWNLOAD THE ON SEMICONDUCTOR SOLDERING AND MOUNTING TECHNIQUES REFERENCE MANUAL, SOLDERRM/D.

### GENERIC MARKING DIAGRAM\*



- XXX = Specific Device Code
- M = Month Code
- = Pb-Free Package

(Note: Microdot may be in either location)

\*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "▪", may or may not be present. Some products may not follow the Generic Marking.

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DESCRIPTION:	SOT-23/SUPERSOT-23, 3 LEAD, 1.4X2.9	PAGE 1 OF 1

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