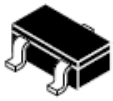
PNP Low-Saturation Transistor

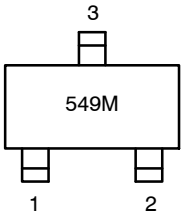
FMMT549

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



1: Base
2: Emitter
3: Collector

549 = Specific Device Code
M = Date Code

ABSOLUTE MAXIMUM RATINGS

(T_A = 25°C unless otherwise noted.) (Notes 1, 2)

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 Peak Pulse Current	 −1 −2	A
T_J	Junction Temperature	150	°C
T_{STG}	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.

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

THERMAL CHARACTERISTICS

(T_A = 25°C unless otherwise noted.) (Note 3)

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

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

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.

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted.)

Symbol	Parameter	Test 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 (Note 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 (Note 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 (Note 4)	I_C = −1 A, I_B = −100 mA	–	−1.25	V
V_{BE}(on)	Base−Emitter On Voltage (Note 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

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 ≤ 300 μs, duty cycle ≤ 2.0%.

TYPICAL PERFORMANCE CHARACTERISTICS

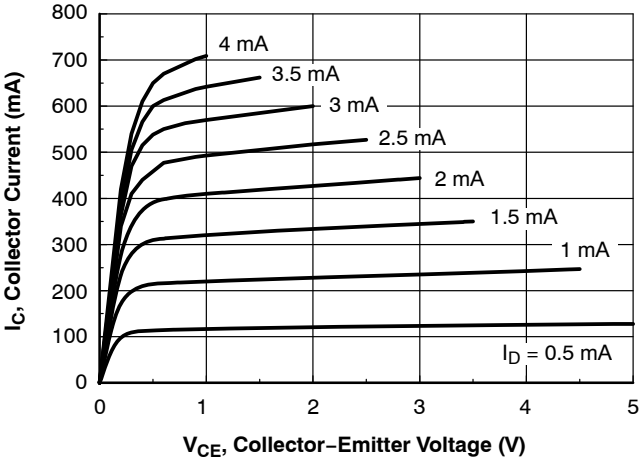


Figure 1. Collector−Emitter Voltage vs. Collector Current

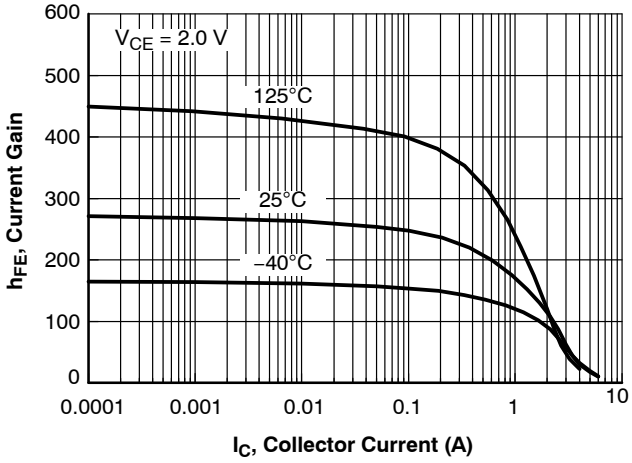


Figure 2. Current Gain vs. Collector Current

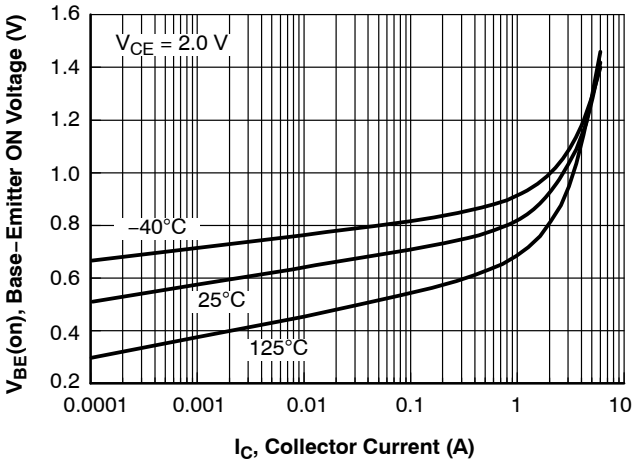


Figure 3. Base−Emitter On Voltage vs. Collector Current

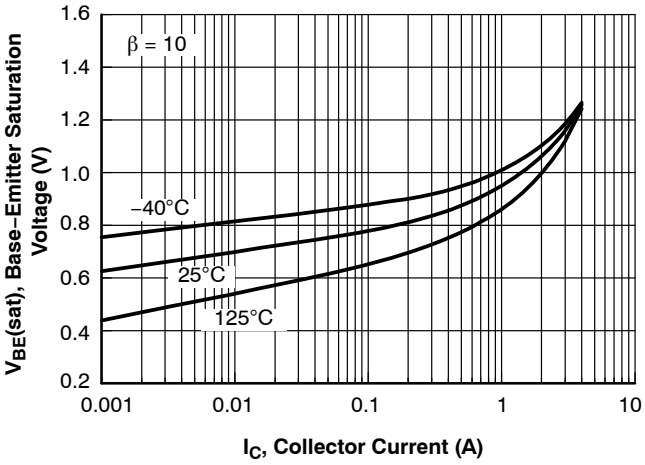


Figure 4. Base−Emitter Saturation Voltage vs. Collector Current

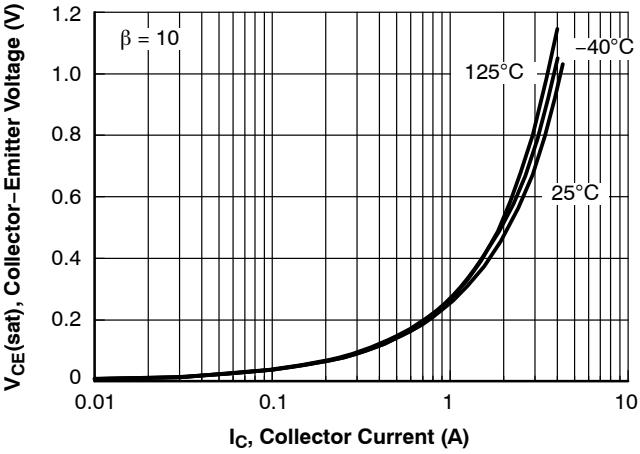


Figure 5. Collector−Emitter Saturation Voltage vs. Collector Current

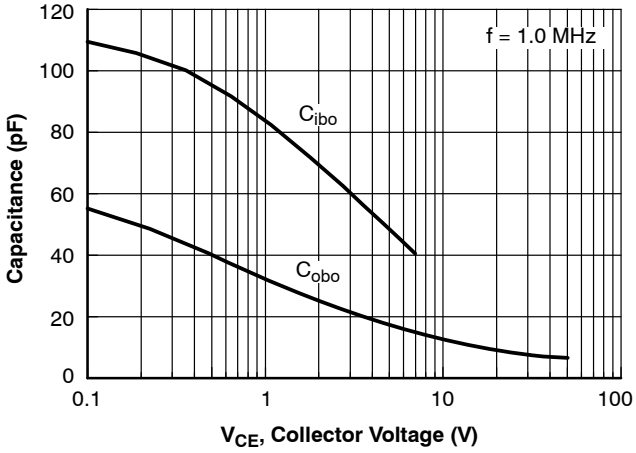
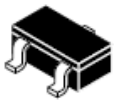
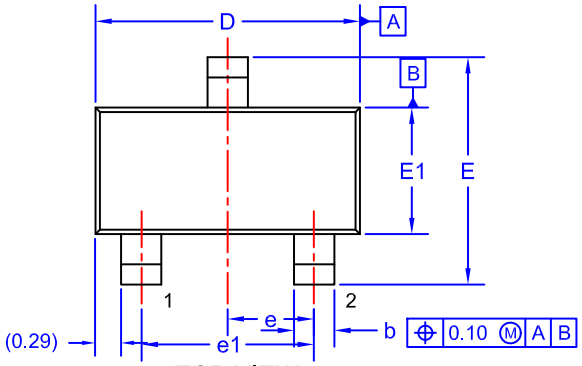


Figure 6. Input / Output Capacitance vs. Reverse Bias Voltage



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

DATE 09 DEC 2019

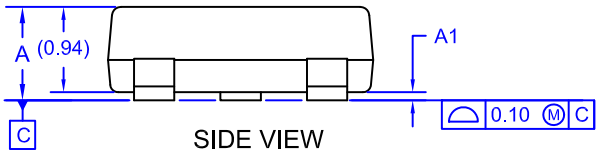


TOP VIEW

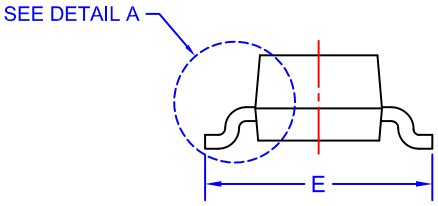
NOTES: UNLESS OTHERWISE SPECIFIED

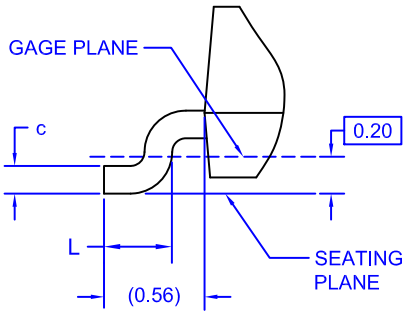
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 2009.
2. ALL DIMENSIONS ARE IN MILLIMETERS.
3. DIMENSIONS ARE EXCLUSIVE OF BURRS, MOLD FLASH AND TIE BAR EXTRUSIONS.

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

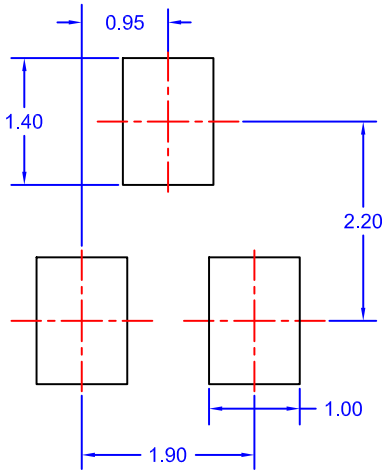


SIDE VIEW





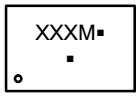
DETAIL A



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.

DOCUMENT NUMBER:	98AON34319E	Electronic versions are uncontrolled except when accessed directly from the Document Repository. Printed versions are uncontrolled except when stamped "CONTROLLED COPY" in red.
DESCRIPTION:	SOT−23/SUPERSOT−23, 3 LEAD, 1.4X2.9	PAGE 1 OF 1

ADDITIONAL INFORMATION

TECHNICAL PUBLICATIONS:
Technical Library: www.onsemi.com/design/resources/technical−documentation
onsemi Website: www.onsemi.com

ONLINE SUPPORT: www.onsemi.com/support
For additional information, please contact your local Sales Representative at
www.onsemi.com/support/sales