

# FMMT549TA Datasheet



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DiGi Electronics Part Number	FMMT549TA-DG
Manufacturer	<a href="#">Diodes Incorporated</a>
Manufacturer Product Number	FMMT549TA
Description	TRANS PNP 30V 1A SOT23-3
Detailed Description	Bipolar (BJT) Transistor PNP 30 V 1 A 100MHz 500 mW Surface Mount SOT-23-3



Tel: +00 852-30501935

RFQ Email: [Info@DiGi-Electronics.com](mailto:Info@DiGi-Electronics.com)

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## Purchase and inquiry

Manufacturer Product Number:

FMMT549TA

Series:

-

Transistor Type:

PNP

Voltage - Collector Emitter Breakdown (Max):

30 V

Current - Collector Cutoff (Max):

100nA (ICBO)

Power - Max:

500 mW

Operating Temperature:

-55°C ~ 150°C (TJ)

Package / Case:

TO-236-3, SC-59, SOT-23-3

Base Product Number:

FMMT549

Manufacturer:

Diodes Incorporated

Product Status:

Active

Current - Collector (Ic) (Max):

1 A

Vce Saturation (Max) @ Ib, Ic:

750mV @ 200mA, 2A

DC Current Gain (hFE) (Min) @ Ic, Vce:

100 @ 500mA, 2V

Frequency - Transition:

100MHz

Mounting Type:

Surface Mount

Supplier Device Package:

SOT-23-3

## Environmental & Export classification

RoHS Status:

ROHS3 Compliant

REACH Status:

REACH Unaffected

HTSUS:

8541.21.0075

Moisture Sensitivity Level (MSL):

1 (Unlimited)

ECCN:

EAR99



**30V PNP SILICON PLANAR HIGH VOLTAGE TRANSISTOR IN SOT23**
**Features and Benefits**

- $BV_{CEO} > -30V$
- Maximum Continuous Collector Current  $I_C = -1A$
- 500mW power dissipation
- Complementary type:
  - FMMT549 – FMMT449
  - FMMT549A – N/A
- **Lead Free, RoHS Compliant (Note 1)**
- **Halogen and Antimony Free "Green" Device (Note 2)**
- **Qualified to AEC-Q101 Standards for High Reliability**

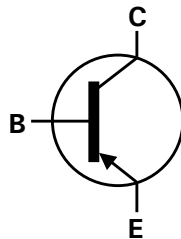
**Mechanical Data**

- Case: SOT23
- UL Flammability Rating 94V-0
- Case material: molded Plastic.
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish; Solderable per MIL-STD-202, Method 208
- Weight: 0.008 grams (Approximate)

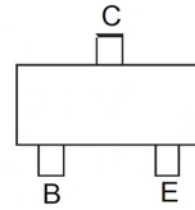
SOT23



Top View



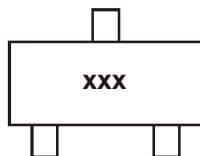
Device Symbol


 Top View  
Pin-Out

**Ordering Information** (Note 3)

Product	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
FMMT549TA	549	7	8	3,000
FMMT549ATA	59A	7	8	3,000

- Notes:
1. No purposefully added lead.
  2. Diodes Inc.'s "Green" Policy can be found on our website at <http://www.diodes.com>
  3. For Packaging Details, go to our website at <http://www.diodes.com>.

**Marking Information**


xxx = Product Type Marking Code  
 FMMT549: xxx = 549  
 FMMT549A: xxx = 59A

**Maximum Ratings** @ $T_A = 25^\circ\text{C}$  unless otherwise specified

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	$V_{CB0}$	-35	V
Collector-Emitter Voltage	$V_{CEO}$	-30	V
Emitter-Base Voltage	$V_{EBO}$	-5	V
Continuous Collector Current	$I_C$	-1	A
Peak Pulse Current	$I_{CM}$	-2	A
Base Current	$I_B$	-200	mA

**Thermal Characteristics** @ $T_A = 25^\circ\text{C}$  unless otherwise specified

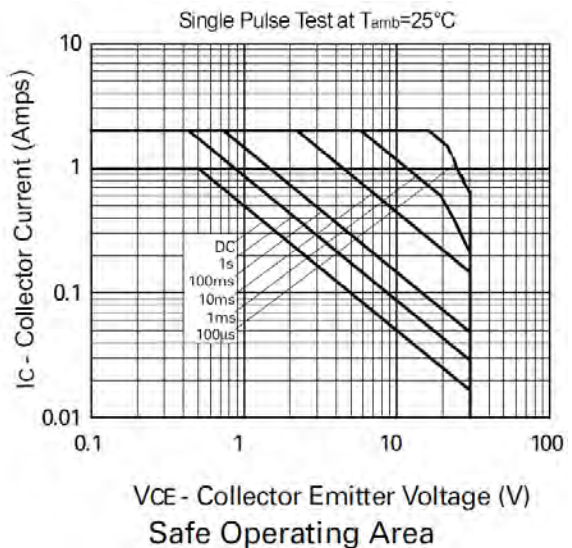
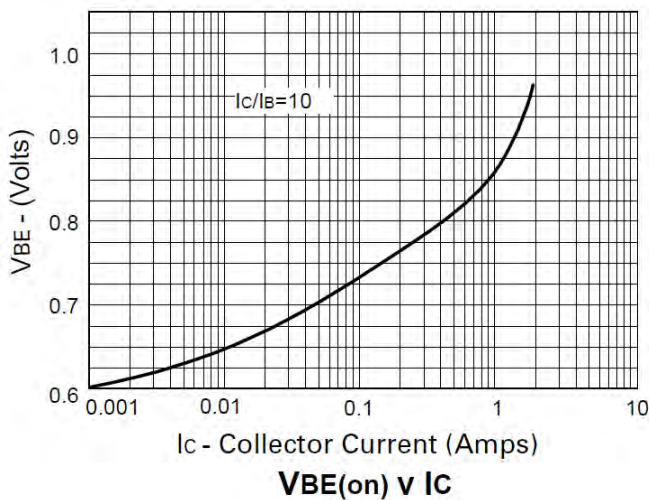
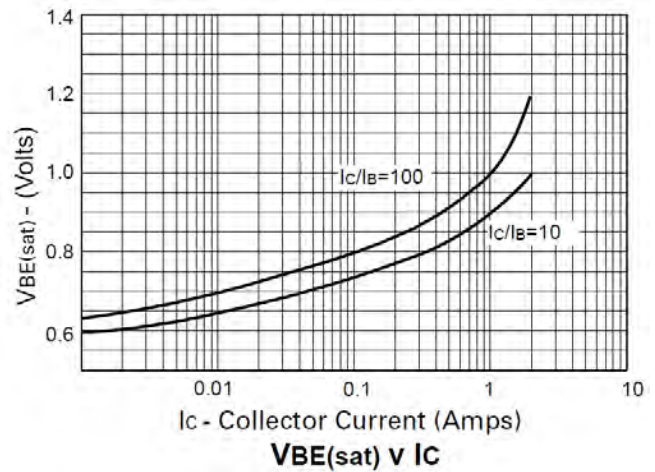
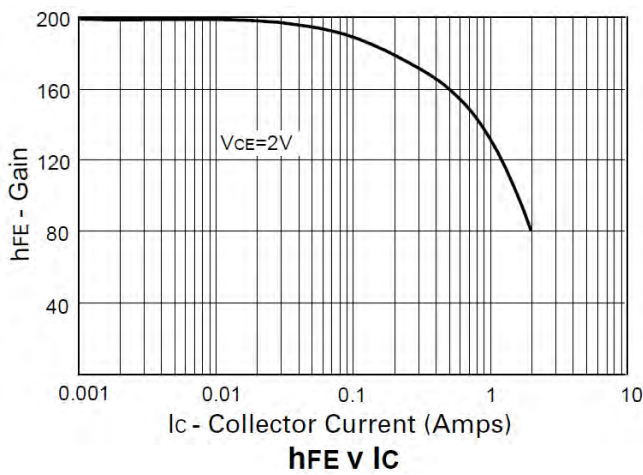
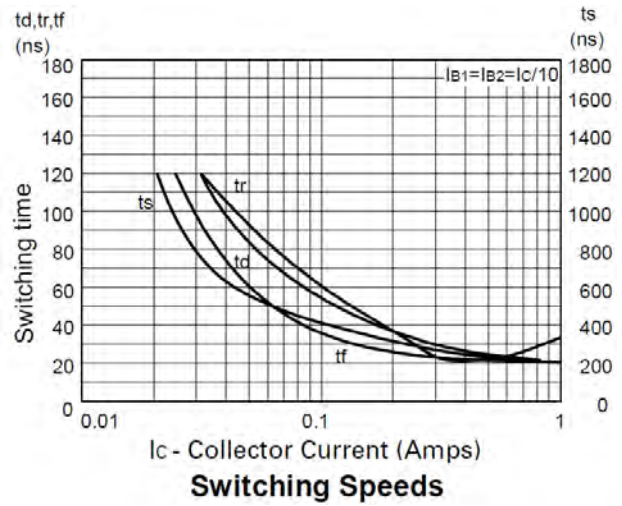
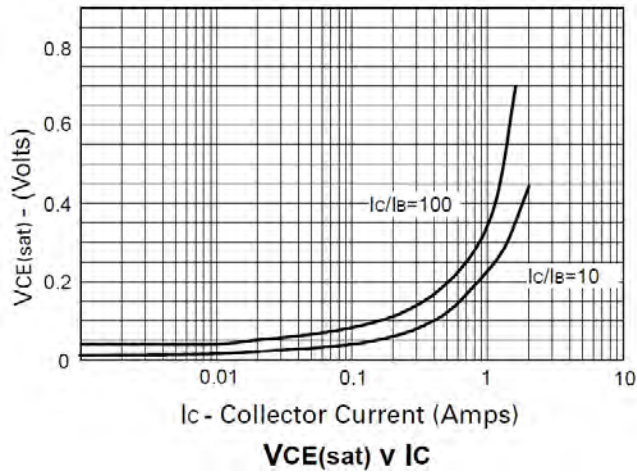
Characteristic	Symbol	Value	Unit
Power Dissipation (Note 4)	$P_D$	500	mW
Thermal Resistance, Junction to Ambient (Note 4)	$R_{\theta JA}$	250	$^\circ\text{C}/\text{W}$
Thermal Resistance, Junction to Lead (Note 5)	$R_{\theta JL}$	197	$^\circ\text{C}/\text{W}$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-55 to +150	$^\circ\text{C}$

**Electrical Characteristics** @ $T_A = 25^\circ\text{C}$  unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	$BV_{CB0}$	-35	-	-	V	$I_C = -100\mu\text{A}$
Collector-Emitter Breakdown Voltage (Note 6)	$BV_{CEO}$	-30	-	-	V	$I_C = -10\text{mA}$
Emitter-Base Breakdown Voltage	$BV_{EBO}$	-5	-	-	V	$I_E = -100\mu\text{A}$
Collector Cutoff Current	$I_{CBO}$	-	-	-0.1	$\mu\text{A}$	$V_{CB} = -30\text{V}$
Emitter Cutoff Current	$I_{EBO}$	-	-	-0.1	$\mu\text{A}$	$V_{EB} = -4\text{V}$
Static Forward Current Transfer Ratio (Note 6)	$h_{FE}$	70	200	-	-	$I_C = -50\text{mA}, V_{CE} = -2\text{V}$
		80	130	-	-	$I_C = -1\text{A}, V_{CE} = -2\text{V}$
		40	80	-	-	$I_C = -2\text{A}, V_{CE} = -2\text{V}$
		100	160	300	-	$I_C = -500\text{mA}, V_{CE} = -2\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	-	-250	-500	mV	$I_C = -1\text{A}, I_B = -100\text{mA}$
		-	-500	-750	mV	$I_C = -2\text{A}, I_B = -200\text{mA}$
		-	-	-300	mV	$I_C = -100\text{mA}, I_B = -1\text{mA}$
Base-Emitter Saturation Voltage (Note 6)	$V_{BE(sat)}$	-	-900	-1250	mV	$I_C = -1\text{A}, I_B = -100\text{mA}$
Base-Emitter Turn-On Voltage (Note 6)	$V_{BE(on)}$	-	-850	-1000	mV	$I_C = -1\text{A}, V_{CE} = -2\text{V}$
Output Capacitance	$C_{obo}$	-	-	25	pF	$V_{CB} = -10\text{V}, f = 1\text{MHz}$
Transition Frequency	$f_T$	100	-	-	MHz	$V_{CE} = -5\text{V}, I_C = -100\text{mA}, f = 100\text{MHz}$
Switching Times	$t_{on}$	-	50	-	ns	$I_C = -500\text{mA}, V_{CC} = -10\text{V}$
	$t_{off}$	-	300	-	ns	$I_{B1} = I_{B2} = -50\text{mA}$

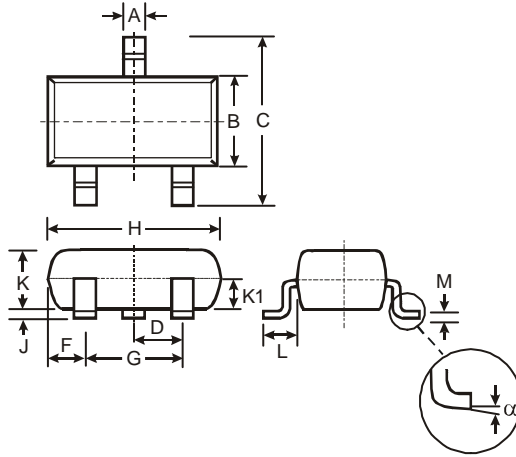
- Notes:
4. For a device surface mounted FR4 PCB with minimum recommended pad layout; high coverage of single sided 1 oz copper, in still air conditions; the device is measured when operating in a steady-state condition.
  5. Thermal resistance from junction to solder-point (at the end of the collector lead).
  6. Measured under pulsed conditions. Pulse width  $\leq 300\mu\text{s}$ . Duty cycle  $\leq 2\%$

**Typical Electrical Characteristics**



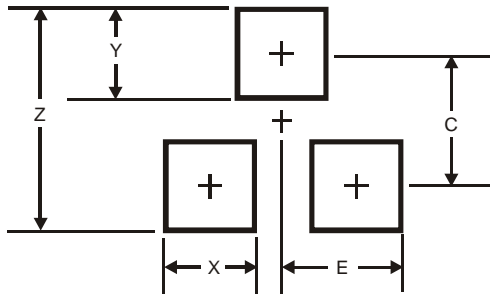
**FMMT549 / FMMT549A**

**Package Outline Dimensions**



SOT23			
Dim	Min	Max	Typ
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	2.30	2.50	2.40
D	0.89	1.03	0.915
F	0.45	0.60	0.535
G	1.78	2.05	1.83
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.903	1.10	1.00
K1	-	-	0.400
L	0.45	0.61	0.55
M	0.085	0.18	0.11
α	0°	8°	-
All Dimensions in mm			

**Suggested Pad Layout**



Dimensions	Value (in mm)
Z	2.9
X	0.8
Y	0.9
C	2.0
E	1.35



<b>FMMT549 / FMMT549A</b>
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