FMMT549 / FMMT549A

30V PNP SILICON PLANAR HIGH VOLTAGE TRANSISTOR IN SOT23

Features and Benefits

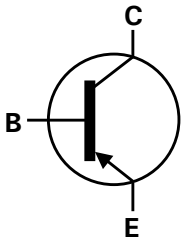
- BV_{CEO} > -30V
- Maximum Continuous Collector Current I_C = -1A
- 500mW power dissipation
- Complementary type:
  - FMMT549 – FMMT449
  - FMMT549A – N/A
- **Lead Free, RoHS Compliant (Note 1)**
- **Halogen and Antimony Free "Green" Device (Note 2)**
- **Qualified to AEC-Q101 Standards for High Reliability**

Mechanical Data

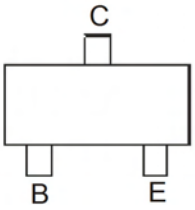
- Case: SOT23
- UL Flammability Rating 94V-0
- Case material: molded Plastic.
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish; Solderable per MIL-STD-202, Method 208
- Weight: 0.008 grams (Approximate)

SOT23

Top View



Device Symbol



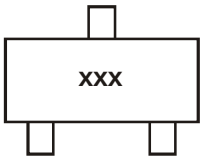
Top View
Pin-Out

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°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	-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°C unless otherwise specified

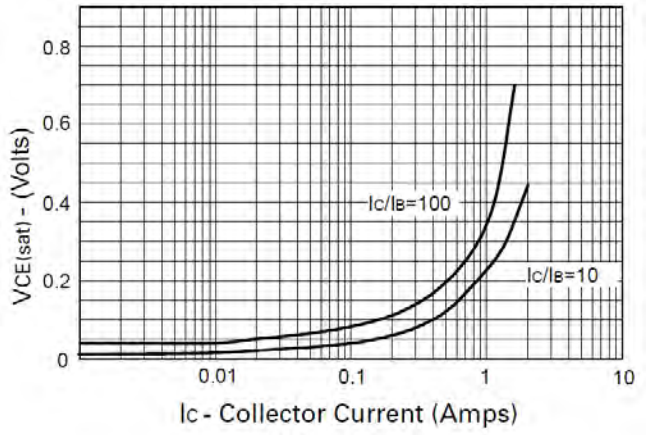
Characteristic		Symbol	Value	Unit
Power Dissipation	(Note 4)	P_D	500	mW
Thermal Resistance, Junction to Ambient	(Note 4)	$R_{\theta JA}$	250	°C/W
Thermal Resistance, Junction to Lead	(Note 5)	$R_{\theta JL}$	197	°C/W
Operating and Storage Temperature Range		T_J, T_{STG}	-55 to +150	°C

Electrical Characteristics @T_A = 25°C unless otherwise specified

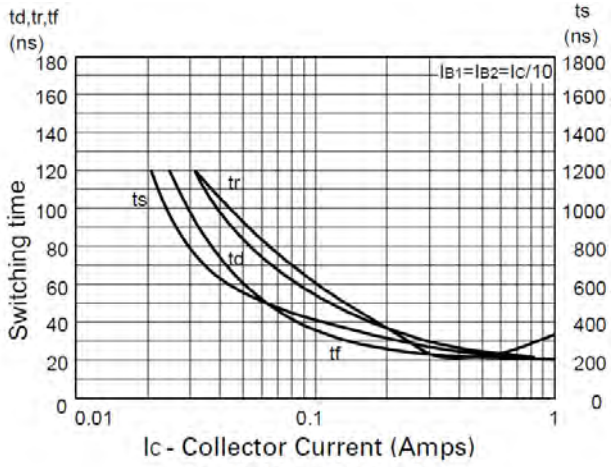
Characteristic		Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage		BV_{CBO}	-35	-	-	V	I_C = -100µA
Collector-Emitter Breakdown Voltage (Note 6)		BV_{CEO}	-30	-	-	V	I_C = -10mA
Emitter-Base Breakdown Voltage		BV_{EBO}	-5	-	-	V	I_E = -100µA
Collector Cutoff Current		I_{CBO}	-	-	-0.1	µA	V_{CB} = -30V
			-	-	-10		V_{CB} = -30V, T_A = 100°C
Emitter Cutoff Current		I_{EBO}	-	-	-0.1	µA	V_{EB} = -4V
Static Forward Current Transfer Ratio (Note 6)		h_{FE}	70	200	-	-	I_C = -50mA, V_{CE} = -2V
			80	130	-		I_C = -1A, V_{CE} = -2V
			40	80	-		I_C = -2A, V_{CE} = -2V
	FMMT549		100	160	300	-	I_C = -500mA, V_{CE} = -2V
	FMMT549A		150	200	500	-	I_C = -500mA, V_{CE} = -2V
Collector-Emitter Saturation Voltage		$V_{CE(sat)}$	-	-250	-500	mV	I_C = - 1A, I_B = -100mA
			-	-500	-750		I_C = - 2A, I_B = -200mA
	FMMT549A		-	-	-300	mV	I_C = -100mA, I_B = -1mA
Base-Emitter Saturation Voltage (Note 6)		$V_{BE(sat)}$	-	-900	-1250	mV	I_C = -1A, I_B = -100mA
Base-Emitter Turn-On Voltage (Note 6)		$V_{BE(on)}$	-	-850	-1000	mV	I_C = -1A, V_{CE} = -2V
Output Capacitance		C_{obo}	-	-	25	pF	V_{CB} = -10V, f = 1MHz
Transition Frequency		f_T	100	-	-	MHz	V_{CE} = -5V, I_C = -100mA, f = 100MHz
Switching Times		t_{on}	-	50	-	ns	I_C = -500mA, V_{CC} = -10V
		t_{off}	-	300	-	ns	I_{B1} = I_{B2} = -50mA

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 ≤ 300 µs. Duty cycle ≤ 2%

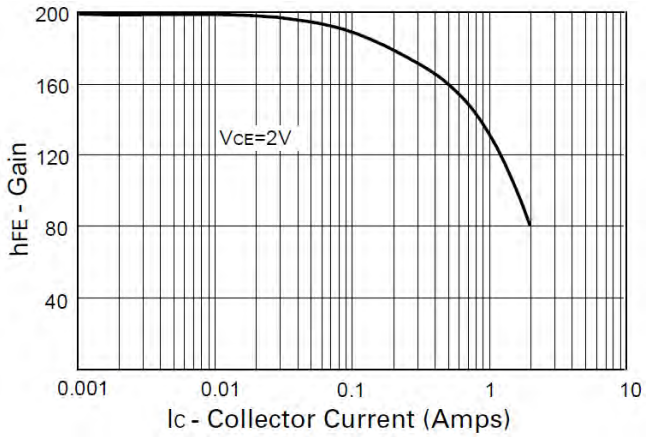
Typical Electrical Characteristics



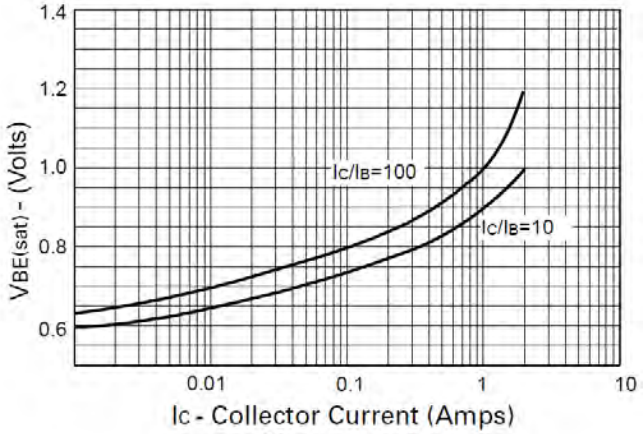
VCE(sat) v IC



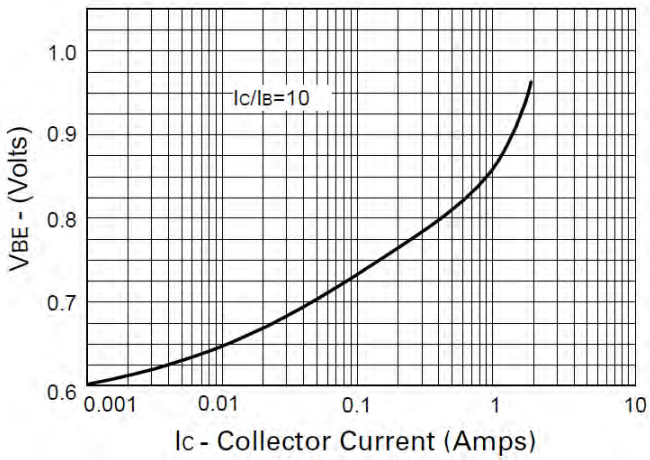
Switching Speeds



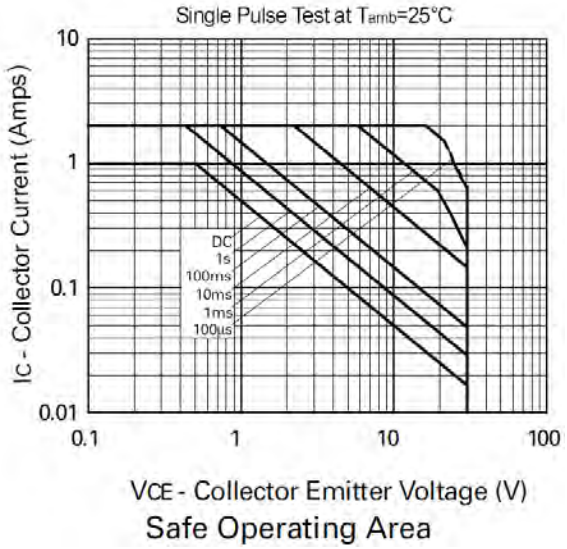
hFE v IC



VBE(sat) v IC

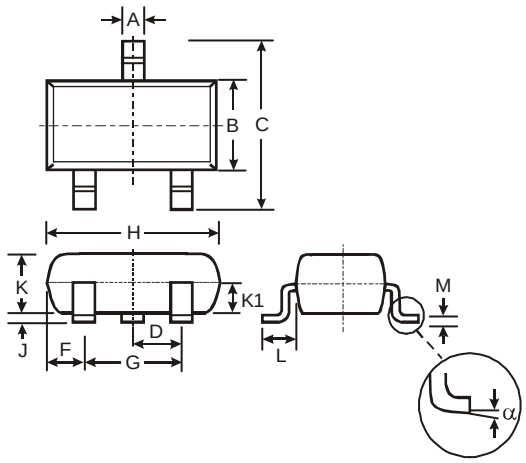


VBE(on) v IC



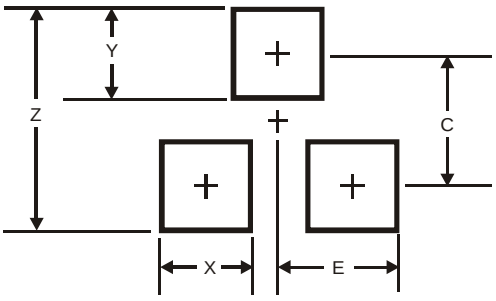
Safe Operating Area

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

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