


FMMT624
150V NPN SILICON LOW SATURATION TRANSISTOR IN SOT-23
Features

- $V_{CE0} = 125V$
- $I_C = 1A$
- 625mW Power dissipation
- Low Equivalent On Resistance
- Low Saturation Voltage
- h_{FE} characterised up to 3.0A
- **"Lead Free", RoHS Compliant (Note 1)**
- **Halogen and Antimony Free, "Green" Devices (Note 2)**

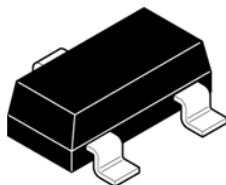
Mechanical Data

- Case: SOT-23
- Case material: "Green" molding Compound. (Note 2)
- UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish
- Weight: 0.008 grams (Approximate)

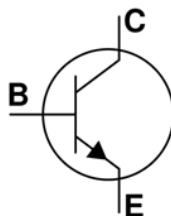
Applications

- DC-DC / DC-AC Modules
- Regulator
- LED driver

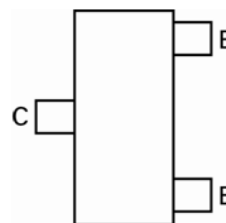
SOT-23



Top View



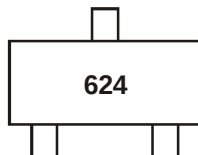
Device Symbol


Top View
Pin Configuration

Ordering Information (Note 3)

Product	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
FMMT624TA	624	7	8mm embossed	3000 units

- Notes:
1. No purposefully added lead.
 2. Devices with the PID number starting from PID0155145 are 'Green' products. Halogen and Antimony Free. 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


624 = Product Type Marking Code

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

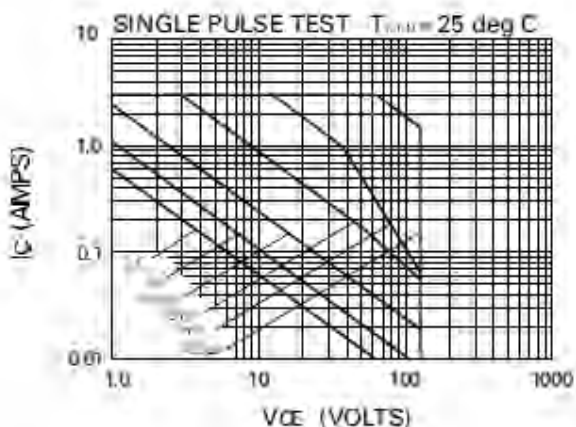
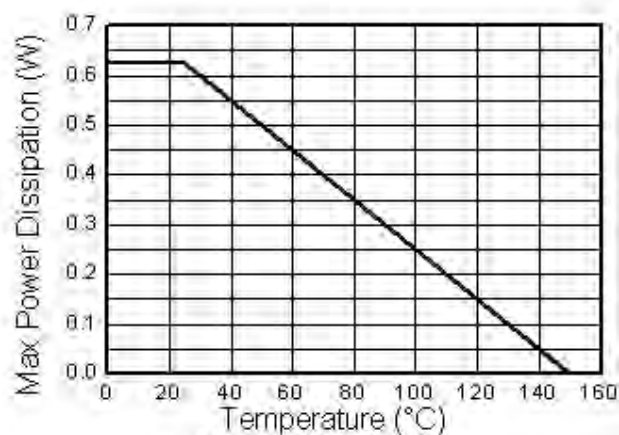
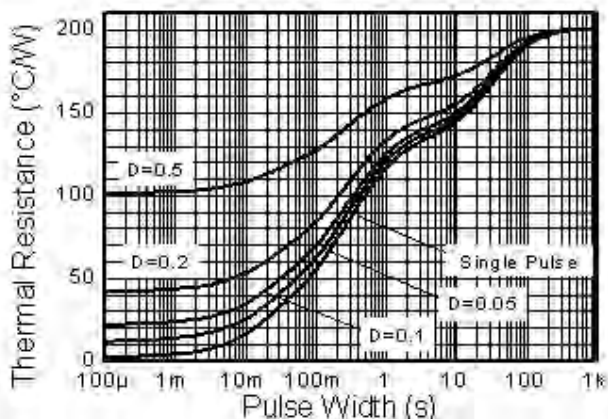
Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CB0}	125	V
Collector-Emitter Voltage	V_{CE0}	125	V
Emitter-Base Voltage	V_{EB0}	5	V
Continuous Collector Current	I_C	1	A
Peak Pulse Current (Note 4)	I_{CM}	3	A
Base Current	I_B	500	mA

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation at $T_A = 25^\circ\text{C}$ (Note 5)	P_D	625	mW
Thermal Resistance, Junction to Ambient Air (Note 4) @ $T_A = 25^\circ\text{C}$	$R_{\theta JA}$	200	$^\circ\text{C/W}$
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

 Notes: 4. Measured under pulsed conditions. Pulse width = 300 μs . Duty cycle $\leq 2\%$.

5. For a device surface mounted on 25mm X 25mm FR4 PCB with high coverage of single sided 1 oz copper, in still air conditions.

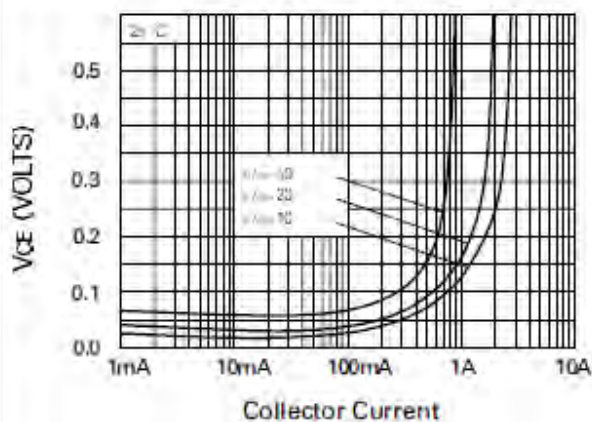
Thermal Characteristics and Derating information

Safe Operating Area

Derating Curve

Transient Thermal Impedance

Electrical Characteristics @T_A = 25°C unless otherwise specified

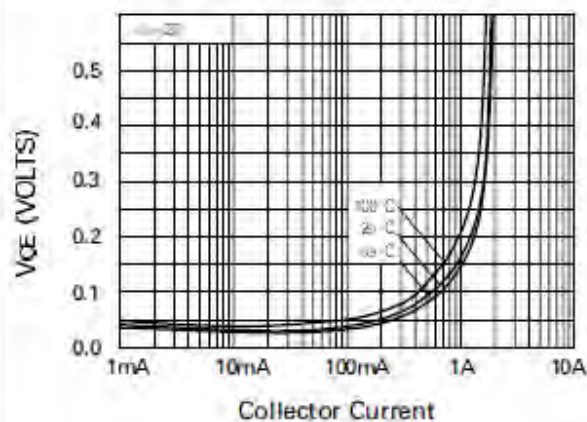
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV _{CBO}	125	250	-	V	I _C = 100μA
Collector-Emitter Breakdown Voltage (Note 6)	BV _{CEO}	125	160	-	V	I _C = 10mA
Emitter-Base Breakdown Voltage	BV _{EBO}	5	8.3	-	V	I _E = 100μA
Collector Cut-off Current	I _{CBO}	-	-	100	nA	V _{CB} = 100V
Emitter Cut-off Current	I _{EBO}	-	-	100	nA	V _{EB} = 4V
Collector Emitter Cut-off Current	I _{CES}	-	-	100	nA	V _{CES} = 100V
Static Forward Current Transfer Ratio (Note 6)	h _{FE}	200 300 100 -	400 450 140 18	- - - -	-	I _C = 10mA, V _{CE} = 10V I _C = 200mA, V _{CE} = 10V I _C = 1A, V _{CE} = 10V I _C = 3A, V _{CE} = 10V
Collector-Emitter Saturation Voltage (Note 6)	V _{CE(sat)}	- - - -	26 70 160 165	50 150 220 250	mV	I _C = 0.1A, I _B = 10mA I _C = 0.5A, I _B = 1mA I _C = 0.5A, I _B = 50mA I _C = 1A, I _B = 50mA
Base-Emitter Saturation Voltage (Note 6)	V _{BE(sat)}	-	0.85	1.0	V	I _C = 1A, I _B = 50mA
Base-Emitter Saturation Voltage (Note 6)	V _{BE(on)}	-	0.70	1.0	V	I _C = 1A, V _{CE} = 10V
Transition Frequency	f _T	100	155	-	MHz	I _C = 50mA, V _{CE} = 10V, f = 100MHz
Collector Output Capacitance	C _{obo}	-	7	15	pF	V _{CB} = 10V, f = 1MHz
Turn-On Time	t _(on)	-	60	-	ns	V _{CC} = 50V, I _C = 0.5A,
Turn-Off Time	t _(off)	-	1300	-	ns	I _{B1} = -I _{B2} = 50mA

Notes: 6. Measured under pulsed conditions. Pulse width = 300μs. Duty cycle ≤ 2%

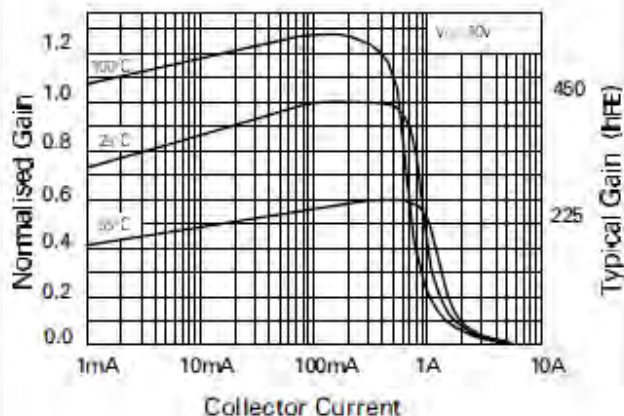
Typical Characteristics



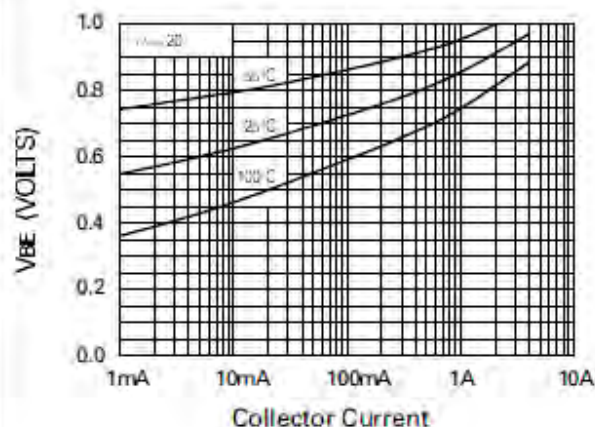
$V_{CE(SAT)}$ vs I_C



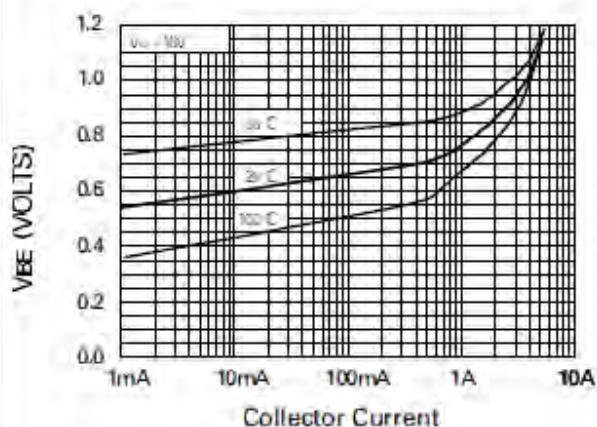
$V_{CE(SAT)}$ vs I_C



h_{FE} vs I_C

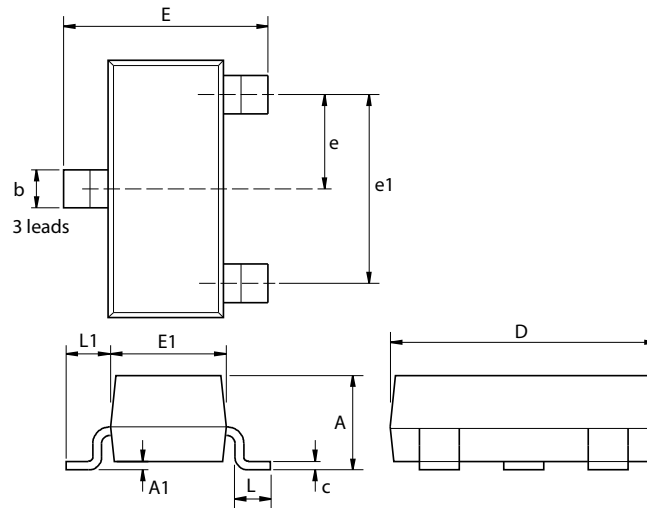


$V_{BE(SAT)}$ vs I_C



$V_{BE(ON)}$ vs I_C

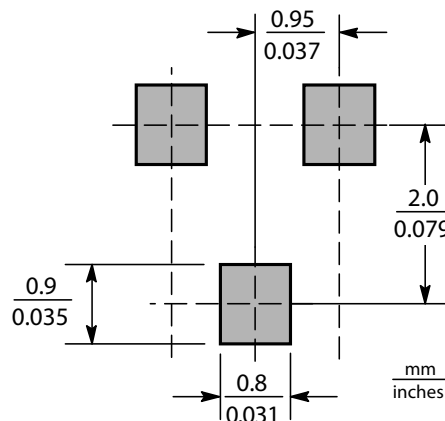
Package Outline Dimensions



Dim.	Millimeters		Inches		Dim.	Millimeters		Inches	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	-	1.12	-	0.044	e1	1.90 NOM		0.075 NOM	
A1	0.01	0.10	0.0004	0.004	E	2.10	2.64	0.083	0.104
b	0.30	0.50	0.012	0.020	E1	1.20	1.40	0.047	0.055
c	0.085	0.20	0.003	0.008	L	0.25	0.60	0.0098	0.0236
D	2.80	3.04	0.110	0.120	L1	0.45	0.62	0.018	0.024
e	0.95 NOM		0.037 NOM		-	-	-	-	-

Note: Controlling dimensions are in millimeters. Approximate dimensions are provided in inches

Suggested Pad Layout



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