

FMMT717

12V PNP SILICON POWER (SWITCHING) TRANSISTOR IN SOT23 PACKAGE

Features

- 625mW Power dissipation
- -2.5A Continuous collector current
- I_C Up to 10A Peak Pulse Current
- Excellent h_{FE} Characteristics Up To -10A (pulsed)
- Low equivalent on-resistance $R_{CE(sat)} = 72m\Omega$ at 2.5A
- Low Saturation Voltage E.g. -17mV Max @ $I_C = -100mA$.
- Complementary part number FMMT617
- **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
- Weight: 0.008 grams (Approximate)

Application

- Load switch
- Battery charging
- DC-DC conversion

SOT23

Top View

Device Symbol

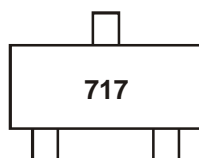
Top View
Pin-Out

Ordering Information (Notes 3 & 4)

Product	Grade	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
FMMT717TA	Commercial	717	7	8	3000
FMMT717QTA	Automotive	717	7	8	3000

- 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>.
 4. Products with Q-suffix are automotive grade. Automotive products are electrical and thermal the same as the commercial, except where specified.

Marking Information



717 = Product type Marking Code

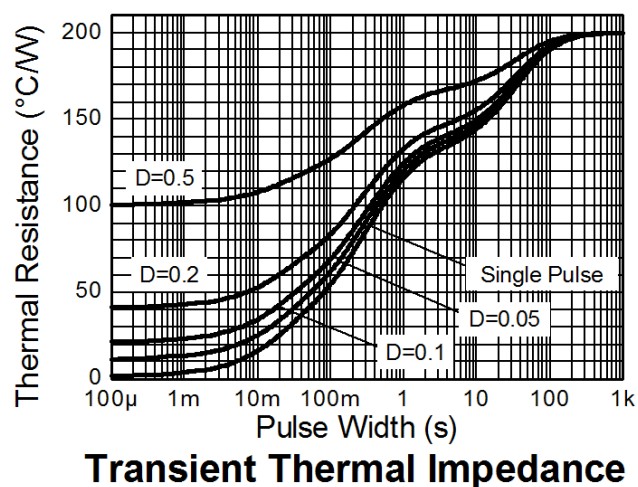
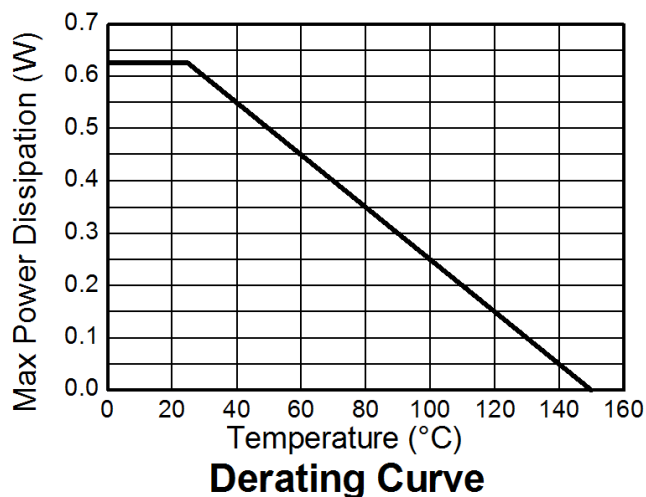
Maximum Ratings @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V _{CBO}	-12	V
Collector-Emitter Voltage	V _{CEO}	-12	V
Emitter-Base Voltage	V _{EBO}	-5	V
Continuous Collector Current	I _C	-2.5	A
Peak Pulse Current (Note 5)	I _{CM}	-10	A
Base Current	I _B	-500	mA

Thermal Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 6)	P _D	625	mW
Thermal Resistance, Junction to Ambient	R _{θJA}	200	°C/W
Thermal Resistance, Junction to Leads (Note 7)	R _{θJL}	194	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

- Notes:
5. Measured under pulse conditions. Pulse width = 300μs. Duty cycle ≤2%
 6. For a device surface mounted on 15mm X 15mm X 1.6mm FR4 PCB with high coverage of single sided 1 oz copper, in still air conditions
 7. Thermal resistance from junction to solder-point (at the end of the collector lead).

Thermal Characteristics and Derating information


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Electrical Characteristics @T_A = 25°C unless otherwise specified

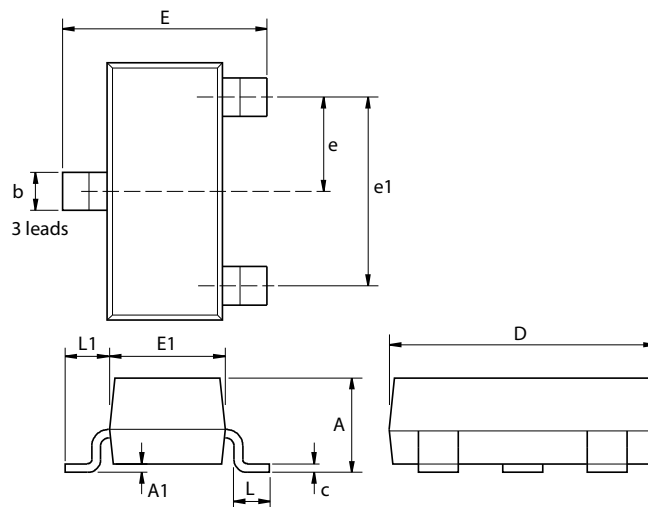
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV _{CBO}	-12	-35	-	V	I _C = -100μA
Collector-Emitter Breakdown Voltage (Note 8)	BV _{CEO}	-12	-25	-	V	I _C = -10mA
Emitter-Base Breakdown Voltage	BV _{EBO}	-5	-8.5	-	V	I _E = -100μA
Collector Cutoff Current	I _{CBO}	-	-	-100	nA	V _{CB} = -10V
Emitter Cutoff Current	I _{EBO}	-	-	-100	nA	V _{EB} = -4V
Collector Emitter Cutoff Current	I _{CES}	-	-	-100	nA	V _{CE} = -10V
Static Forward Current Transfer Ratio (Note 8)	h _{FE}	300	475	-	-	I _C = -10mA, V _{CE} = -2V
		300	450	-		I _C = -100mA, V _{CE} = -2V
		180	275	-		I _C = -2.5A, V _{CE} = -2V
		60	100	-		I _C = -8A, V _{CE} = -2V
		45	70	-		I _C = -10A, V _{CE} = -2V
Collector-Emitter Saturation Voltage (Note 8)	V _{CE(sat)}	-	-10	-17	mV	I _C = -0.1A, I _B = -10mA
		-	-100	-140		I _C = -1A, I _B = -10mA
		-	-110	-170		I _C = -1.5A, I _B = -50mA
		-	-180	-220		I _C = -2.5A, I _B = -50mA
Base-Emitter Turn-On Voltage(Note 8)	V _{BE(on)}	-	-0.8	-1.0	V	I _C = -2.5A, V _{CE} = -2V
Base-Emitter Saturation Voltage(Note 8)	V _{BE(sat)}	-	-0.9	-1.0	V	I _C = -2.5A, I _B = -50mA
Output Capacitance	C _{obo}	-	21	30	pF	V _{CB} = -10V, f = 1MHz
Transition Frequency	f _T	80	110	-	MHz	V _{CE} = -10V, I _C = -50mA, f = 100MHz
Turn-On Time	t _{on}	-	70	-	ns	V _{CC} = -6V, I _C = -2A
Turn-Off Time	t _{off}	-	130	-	ns	I _{B1} = I _{B2} = 50mA

Notes: 8. Measured under pulsed conditions. Pulse width ≤ 300μs. Duty cycle ≤ 2%

Typical Characteristics

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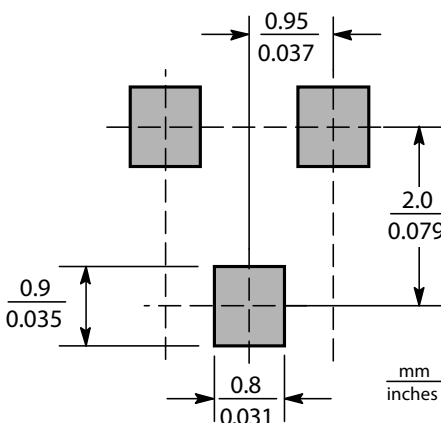
Package Outline Dimensions



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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