

FMMT618
20V NPN SILICON LOW SATURATION TRANSISTOR IN SOT-23
Features

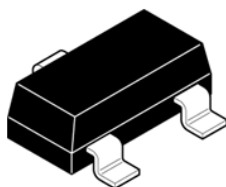
- $V_{CE0} = 20V$
- $I_C = 2.5A$
- 625mW Power dissipation
- Low Equivalent On Resistance
- Low Saturation Voltage
- h_{FE} characterised up to 6.0A
- **"Lead Free", RoHS Compliant (Note 1)**
- **Halogen and Antimony Free, "Green" Devices (Note 2)**

Mechanical Data

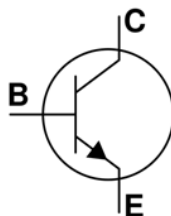
- Case: SOT-23
- Case material: "Green" molding Compound. (Note 2)
- UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish
- Weight: 0.008 grams (Approximate)

Applications

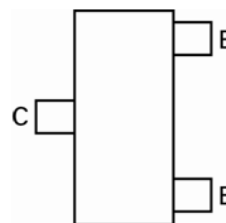
- DC-DC Modules
- Gate driver
- LED driver



SOT-23



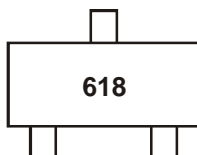
Device Symbol


Top View
Pin Configuration

Ordering Information (Note 3)

Product	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
FMMT618TA	618	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 <https://www.diodes.com/>
 3. For packaging details, go to our website at <http://www.diodes.com>.

Marking Information


618 = Product Type Marking Code

Maximum Ratings @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V _{CBO}	20	V
Collector-Emitter Voltage	V _{CEO}	20	V
Emitter-Base Voltage	V _{EBO}	5	V
Continuous Collector Current	I _C	2.5	A
Peak Pulse Current (Note 4)	I _{CM}	6	A
Base Current	I _B	500	mA

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation at T _A = 25°C (Note 5)	P _D	625	mW
Thermal Resistance, Junction to Ambient Air (Note 4) @ T _A = 25°C	R _{θJA}	200	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

Notes: 4. Measured under pulsed conditions. Pulse width = 300μs. Duty cycle ≤ 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

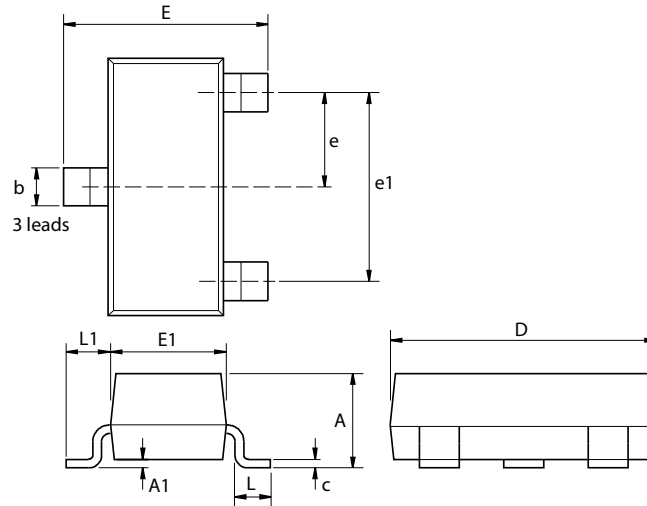
Electrical Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	V _{(BR)CBO}	20	100	-	V	I _C = 100μA
Collector-Emitter Breakdown Voltage (Note 6)	V _{(BR)CEO}	20	27	-	V	I _C = 10mA
Emitter-Base Breakdown Voltage	V _{(BR)EBO}	5	8.3	-	V	I _E = 100μA
Collector Cut-off Current	I _{CBO}	-	-	100	nA	V _{CB} = 16V
Emitter Cut-off Current	I _{EBO}	-	-	100	nA	V _{EB} = 4V
Collector Emitter Cut-off Current	I _{CES}	-	-	100	nA	V _{CES} = 16V
Static Forward Current Transfer Ratio (Note 6)	h _{FE}	200 300 200 100	400 450 360 180	- - - -	-	I _C = 10mA, V _{CE} = 2V I _C = 200mA, V _{CE} = 2V I _C = 2A, V _{CE} = 2V I _C = 6A, V _{CE} = 2V
Collector-Emitter Saturation Voltage (Note 6)	V _{CE(sat)}	- - -	8 70 130	15 150 200	mV	I _C = 0.1A, I _B = 10mA I _C = 1A, I _B = 10mA I _C = 2.5A, I _B = 50mA
Base-Emitter Saturation Voltage (Note 6)	V _{BE(sat)}	-	0.89	1.0	V	I _C = 2.5A, I _B = 50mA
Base-Emitter Saturation Voltage (Note 6)	V _{BE(on)}	-	0.79	1.0	V	I _C = 2.5A, V _{CE} = 2V
Transition Frequency	f _T	100	140	-	MHz	I _C = 50mA, V _{CE} = 10V, f = 100MHz
Collector Output Capacitance	C _{obo}	-	23	30	pF	V _{CB} = 10V, f = 1MHz
Turn-On Time	t _(on)	-	170	-	ns	V _{CC} = 10V, I _C = 1A,
Turn-Off Time	t _(off)	-	400	-	ns	I _{B1} = -I _{B2} = 10mA

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

Typical Characteristics

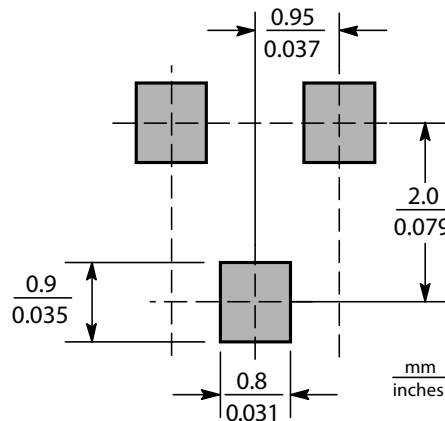
Package Outline Dimensions



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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