



FMMT718

20V PNP SILICON LOW SATURATION TRANSISTOR IN SOT23

Features

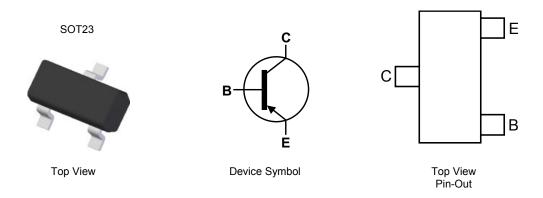
- BV_{CEO} > -20V
- I_C = -1.5A Continuous Collector Current
- I_{CM} = -6A Peak Pulse Current
- Low Saturation Voltage V_{CE(sat)} < -200mV @ -1A
- $R_{CE(SAT)} = 97m\Omega$ for a low equivalent on-resistance
- 625mW power dissipation
- h_{FE} characterized up to -6A for high current gain hold-up
- Complementary NPN Type: FMMT618
- Totally Lead-Free & Fully RoHS compliant (Notes 1 & 2)
- Halogen- and Antimony-Free. "Green" Device (Note 3)
- For automotive applications requiring specific change control (i.e. parts qualified to AEC-Q100/101/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please <u>contact us</u> or your local Diodes representative. https://www.diodes.com/quality/product-definitions/
- An Automotive-Compliant Part Is Available Under Separate Datasheet (FMMT718Q)

Mechanical Data

- Case: SOT23
- Case Material: molded plastic, "Green" molding compound
- UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208 (3)
- Weight 0.008 grams (Approximate)

Applications

- Gate Driving MOSFETs and IGBTs
- DC-DC Converters
- Charging circuit
- Power switches



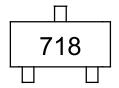
Ordering Information (Note 4)

Product	Compliance	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
FMMT718TA	Standard	718	7	8	3,000
FMMT718TC	Standard	718	13	8	10,000

Notes:

- 1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
- 2. See https://www.diodes.com/quality/lead-free/ for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
- 3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
- 4. For packaging details, go to our website at https://www.diodes.com/design/support/packaging/diodes-packaging/

Marking Information



718 = Product Type Marking Code



Absolute 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}	-7	V
Continuous Collector Current	Ic	-1.5	Α
Peak Pulse Current	Ісм	-6	Α
Base Current	lΒ	-500	mA

Thermal Characteristics (@ $T_A = +25$ °C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P _D	625	mW
Power Dissipation (Note 6)	P _D	806	mW
Thermal Resistance, Junction to Ambient (Note 5)	$R_{ heta JA}$	200	°C/W
Thermal Resistance, Junction to Ambient (Note 6)	$R_{ heta JA}$	155	°C/W
Thermal Resistance, Junction to Leads (Note 7)	$R_{ heta JL}$	194	°C/W
Operating and Storage Temperature Range	T _{J,} T _{STG}	-55 to +150	°C

ESD Ratings (Note 8)

Characteristic	Symbol	Value	Unit	JEDEC Class
Electrostatic Discharge - Human Body Model	ESD HBM	4,000	V	3A
Electrostatic Discharge - Machine Model	ESD MM	≥ 400	V	С

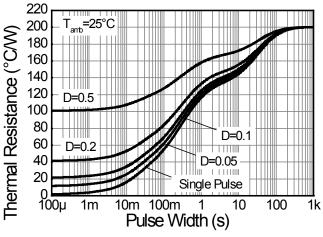
Notes:

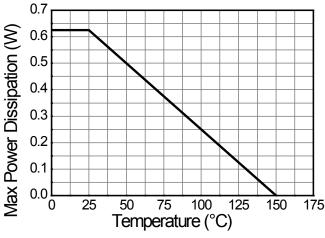
- 5. For a device surface mounted on 25mm x 25mm FR4 PCB with high coverage of single sided 1 oz copper, in still air conditions; the device is measured when operating in a steady-state condition.
- 6. Same as note 5, except the device is measured at $t \le 5$ sec.
- 7. Thermal resistance from junction to solder-point (at the end of the collector lead).

 8. Refer to JEDEC specification JESD22-A114 and JESD22-A115.



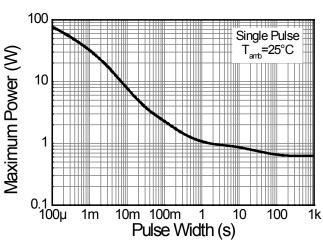
Thermal Characteristics and Derating information

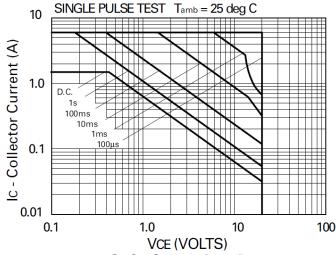




Transient Thermal Impedance







Pulse Power Dissipation

Safe Operating Area



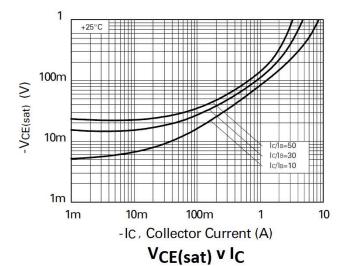
Electrical Characteristics (@ T_A = +25°C, unless otherwise specified.)

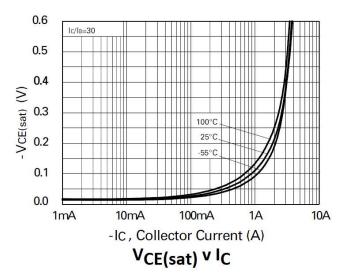
Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV _{CBO}	-20	-65	-	V	I _C = -100μA
Collector-Emitter Breakdown Voltage (Note 9)	BV _{CEO}	-20	-55	-	V	I _C = -10mA
Emitter-Base Breakdown Voltage	BV _{EBO}	-7	-8.8	-	V	I _E = -100μA
Collector Cutoff Current	Ісво	-	-	-100	nA	V _{CB} = -15V
Emitter Cutoff Current	I _{EBO}	-	-	-100	nA	V _{EB} = -4V
Collector Emitter Cutoff Current	I _{CES}	-	-	-100	nA	V _{CE} = -15V
		300	475	-		$I_C = -10 \text{mA}, V_{CE} = -2 \text{V}$
		300	450	-		I _C = -100mA, V _{CE} = -2V
Static Forward Current Transfer Ratio (Note 9)	h _{FE}	150	230	-	-	$I_C = -2A$, $V_{CE} = -2V$
		35	70	-		$I_{C} = -4A$, $V_{CE} = -2V$
		15	30	-		$I_C = -6A$, $V_{CE} = -2V$
		-	-16	-40	mV	I _C =- 0.1A, I _B = -10mA
Collector-Emitter Saturation Voltage (Note 9)	$V_{CE(sat)}$	-	-130	-200	mV	$I_C = -1A$, $I_B = -20mA$
		-	-145	-220	mV	$I_C = -1.5A$, $I_B = -50mA$
Base-Emitter Turn-On Voltage(Note 9)	V _{BE(on)}	-	-0.81	-1.0	V	$I_C = -2A$, $V_{CE} = -2V$
Base-Emitter Saturation Voltage(Note 9)	V _{BE(sat)}	-	-0.87	-1.0	V	$I_C = -1.5A$, $I_B = -50mA$
Output Capacitance	C_{obo}	-	34	43	pF	V _{CB} = -10V, f = 1MHz
Transition Frequency	f⊤	150	180	-	MHz	$V_{CE} = -10V, I_{C} = -50mA,$ f = 100MHz
Turn-On Time	t _{on}	-	68	-	ns	$V_{CC} = -10V, I_C = -1A$
Turn-Off Time	t _{off}	-	270	-	ns	$I_{B1} = I_{B2} = -20 \text{mA}$

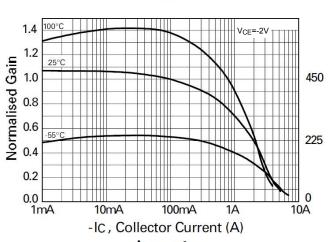
Notes: 9. Measured under pulsed conditions. Pulse width $\leq 300 \mu s$. Duty cycle $\leq 2\%$

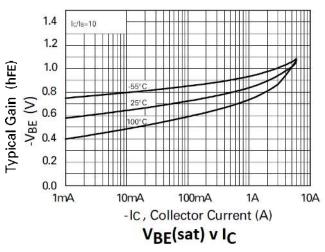


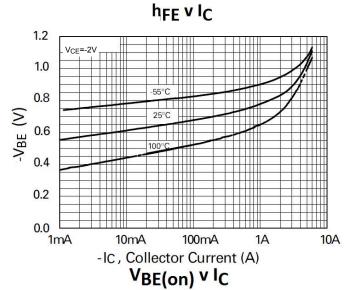
Typical Electrical Characteristics (@ T_A = +25°C, unless otherwise specified.)









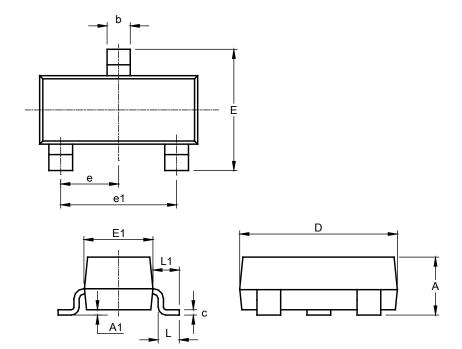




Package Outline Dimensions

Please see http://www.diodes.com/package-outlines.html for the latest version.

SOT23 (Type DN)

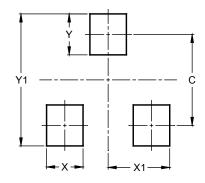


SOT23 Type DN					
Dim	Min	Max	Тур		
Α	0.89	1.12	1.00		
A1	0.01	0.10	0.05		
b	0.30	0.51	0.45		
С	0.08	0.20	0.10		
D	2.80	3.04	3.00		
E	2.10	2.64	2.42		
E1	1.20	1.40	1.37		
е	0.95 REF				
e1	1.90 REF				
L	0.25	0.60	0.30		
L1	0.45	0.62	0.54		
All Dimensions in mm					

Suggested Pad Layout

Please see http://www.diodes.com/package-outlines.html for the latest version.

SOT23 (Type DN)



Dimensions	Value (in mm)			
С	2.0			
X	0.8			
X1	1.35			
Y	0.9			
V1	2.0			



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