





October 2012

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20V PNP SILICON LOW SATURATION TRANSISTOR IN SOT23

Features

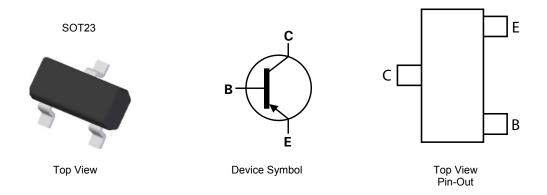
- BV_{CFO} > -20V
- I_C = -1.5A Continuous Collector Current
- I_{CM} = -6A Peak Pulse Current
- Low Saturation Voltage V_{CE(sat)} < -200mV @ -1A
- $R_{CE(SAT)} = 97m\Omega$ for a low equivalent on-resistance
- 625mW power dissipation
- h_{FF} characterised up to -6A for high current gain hold-up
- Complementary NPN Type: FMMT618
- Totally Lead-Free & Fully RoHS compliant (Notes 1 & 2)
- Halogen and Antimony Free. "Green" Device (Note 3)
- Qualified to AEC-Q101 Standards for High Reliability
- PPAP capable (Note 4)

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



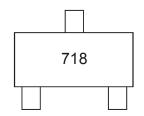
Ordering Information (Note 5)

Product	Compliance	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
FMMT718TA	AEC-Q101	718	7	8	3,000
FMMT718TC	AEC-Q101	718	13	8	10,000
FMMT718QTA	Automotive	718	7	8	3,000

Notes:

- 1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
- 2. See http://www.diodes.com 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.
- Automotive products are AEC-Q101 qualified and are PPAP capable. Automotive, AEC-Q101 and standard products are electrically and thermally the same, except where specified.
- 5. For packaging details, go to our website at http://www.diodes.com

Marking Information



718 = 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}	-7	V
Continuous Collector Current	Ic	-1.5	Α
Peak Pulse Current	I _{CM}	-6	Α
Base Current	Ι _Β	-500	mA

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

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 6)	P _D	625	mW
Power Dissipation (Note 7)	P _D	806	mW
Thermal Resistance, Junction to Ambient (Note 6)	R _{θJA}	200	°C/W
Thermal Resistance, Junction to Ambient (Note 7)	R _{θJA}	155	°C/W
Thermal Resistance, Junction to Leads (Note 8)	R _{θJL}	194	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

ESD Ratings (Note 9)

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:

^{6.} 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.

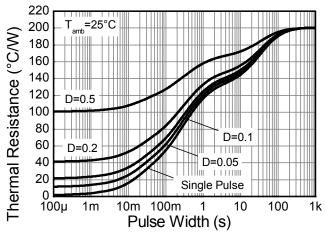
^{7.} Same as note 6, except the device is measured at t \leq 5 sec.

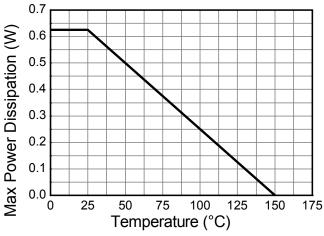
^{8.} Thermal resistance from junction to solder-point (at the end of the collector lead).

^{9.} Refer to JEDEC specification JESD22-A114 and JESD22-A115.

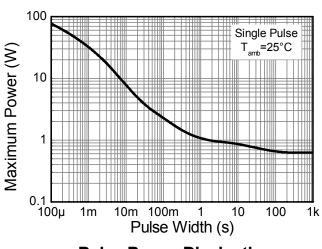


Thermal Characteristics and Derating information

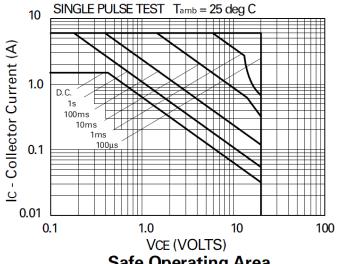




Transient Thermal Impedance



Derating Curve



Pulse Power Dissipation





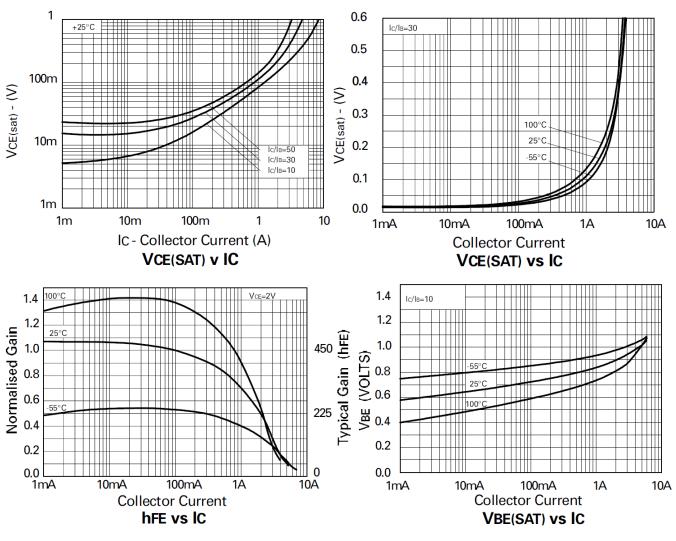
Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

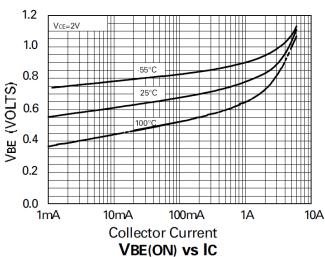
Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV_{CBO}	-20	-65	-	V	$I_{C} = -100 \mu A$
Collector-Emitter Breakdown Voltage (Note 10)	BV _{CEO}	-20	-55	-	V	$I_C = -10mA$
Emitter-Base Breakdown Voltage	BV _{EBO}	-7	-8.8	-	V	$I_{E} = -100 \mu A$
Collector Cutoff Current	I _{CBO}	-	-	-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	-		$I_C = -100 \text{mA}, V_{CE} = -2 \text{V}$
Static Forward Current Transfer Ratio (Note 10)	h _{FE}	150	230	-	-	$I_C = -2A$, $V_{CE} = -2V$
		35	70	-		$I_C = -4A$, $V_{CE} = -2V$
		15	30	-		$I_C = -6A$, $V_{CE} = -2V$
	V _{CE(sat)}	-	-16	-40	mV	I _C =- 0.1A, I _B = -10mA
Collector-Emitter Saturation Voltage (Note 10)		-	-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 10)	V _{BE(on)}	-	-0.81	-1.0	V	I _C = -2A, V _{CE} = -2V
Base-Emitter Saturation Voltage(Note 10)	$V_{BE(sat)}$	-	-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 _T	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: 10. Measured under pulsed conditions. Pulse width \leq 300 μ s. Duty cycle \leq 2%



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

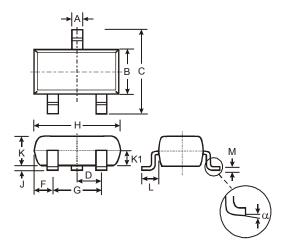






Package Outline Dimensions

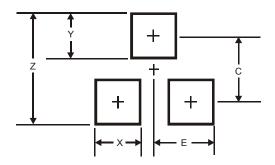
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for latest version.



SOT23					
Dim	Min	Max	Тур		
Α	0.37	0.51	0.40		
В	1.20	1.40	1.30		
С	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		
Н	2.80	3.00	2.90		
7	0.013	0.10	0.05		
K	0.903	1.10	1.00		
K1	-	ı	0.400		
L	0.45	0.61	0.55		
М	0.085	0.18	0.11		
α	0°	8°	-		
All Dimensions in mm					

Suggested Pad Layout

Please see AP02001 at http://www.diodes.com/datasheets/ap02001.pdf for the latest version.



Dimensions	Value (in mm)		
Z	2.9		
Х	0.8		
Υ	0.9		
С	2.0		
E	1.35		





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