

20V PNP SILICON LOW SATURATION TRANSISTOR IN SOT23

Features

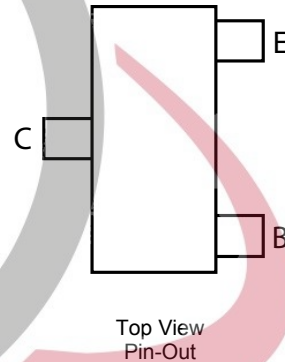
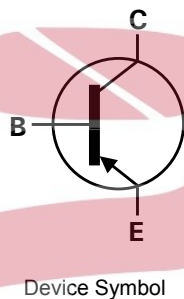
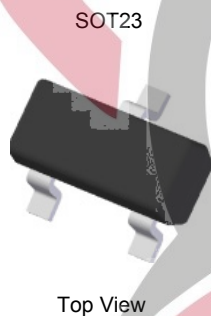
- $BV_{CEO} > -20V$
- $I_C = -1.5A$ Continuous Collector Current
- $I_{CM} = -6A$ Peak Pulse Current
- Low Saturation Voltage $V_{CE(sat)} < -200mV @ -1A$
- $R_{CE(SAT)} = 97m\Omega$ for a low equivalent on-resistance
- 625mW power dissipation
- h_{FE} characterised up to -6A for high current gain hold-up
- 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

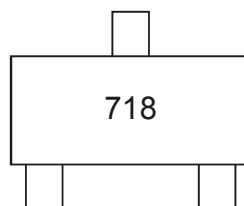


Ordering Information (Note 5)

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.
 4. 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	I _C	-1.5	A
Peak Pulse Current	I _{CM}	-6	A
Base Current	I _B	-500	mA

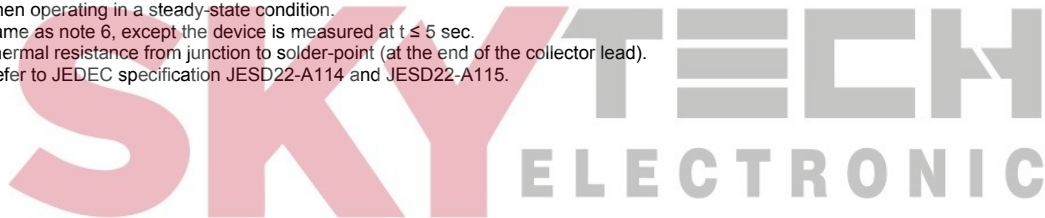
Thermal Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 6)	P _D	625	mW
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

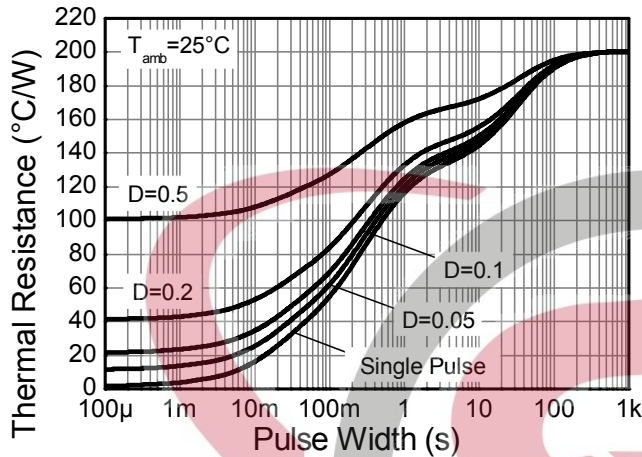
ESD Ratings (Note 9)

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	C

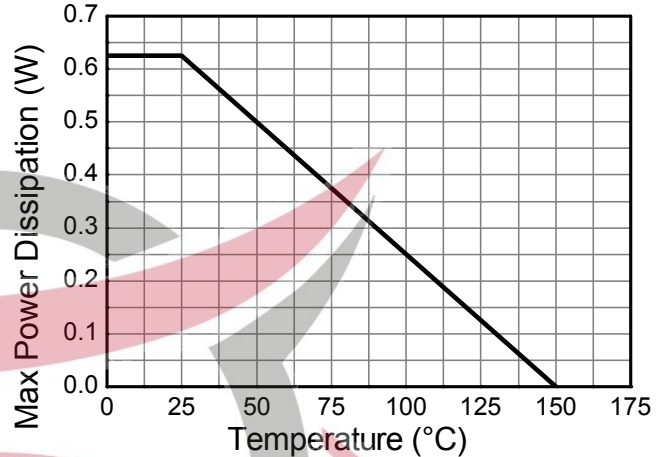
- Notes:
6. For a device surface mounted on 25mm X 25mm FR4 PCB with high coverage of single sided 1 oz copper, in still air conditions; the device is measured when operating in a steady-state condition.
 7. Same as note 6, except the device is measured at t ≤ 5 sec.
 8. Thermal resistance from junction to solder-point (at the end of the collector lead).
 9. Refer to JEDEC specification JESD22-A114 and JESD22-A115.



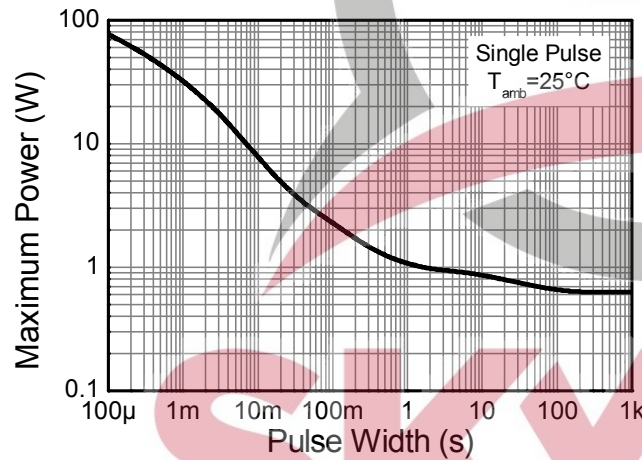
Thermal Characteristics and Derating information



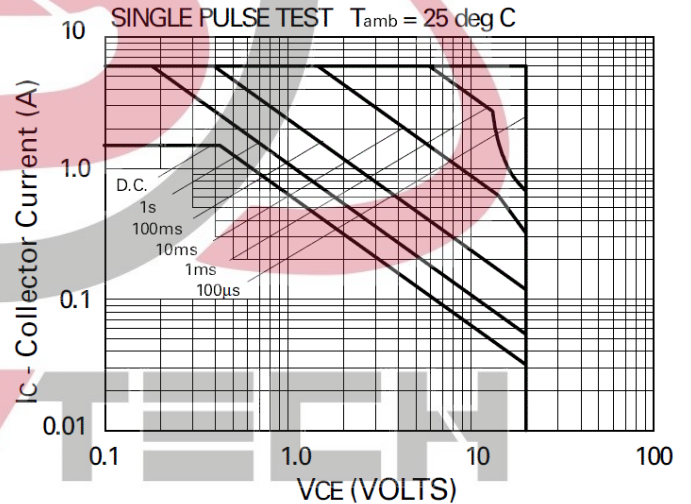
Transient Thermal Impedance



Derating Curve



Pulse Power Dissipation



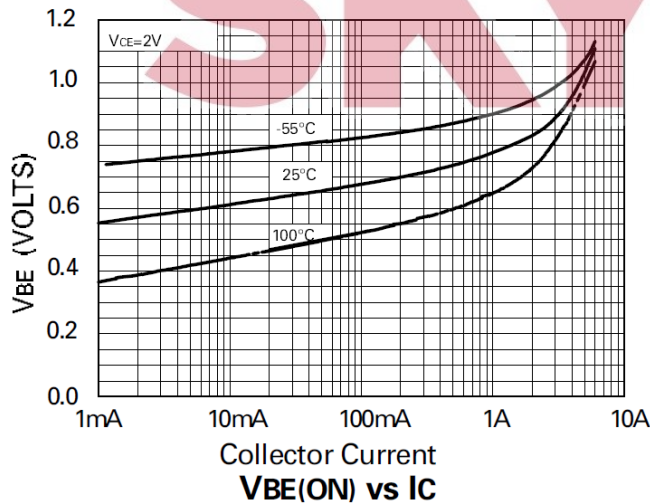
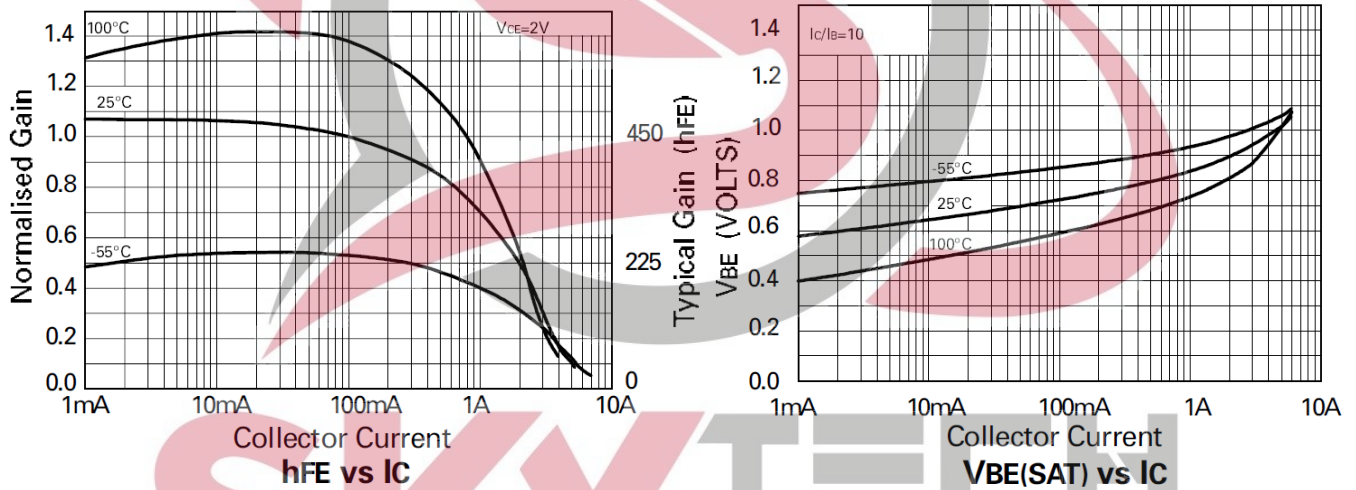
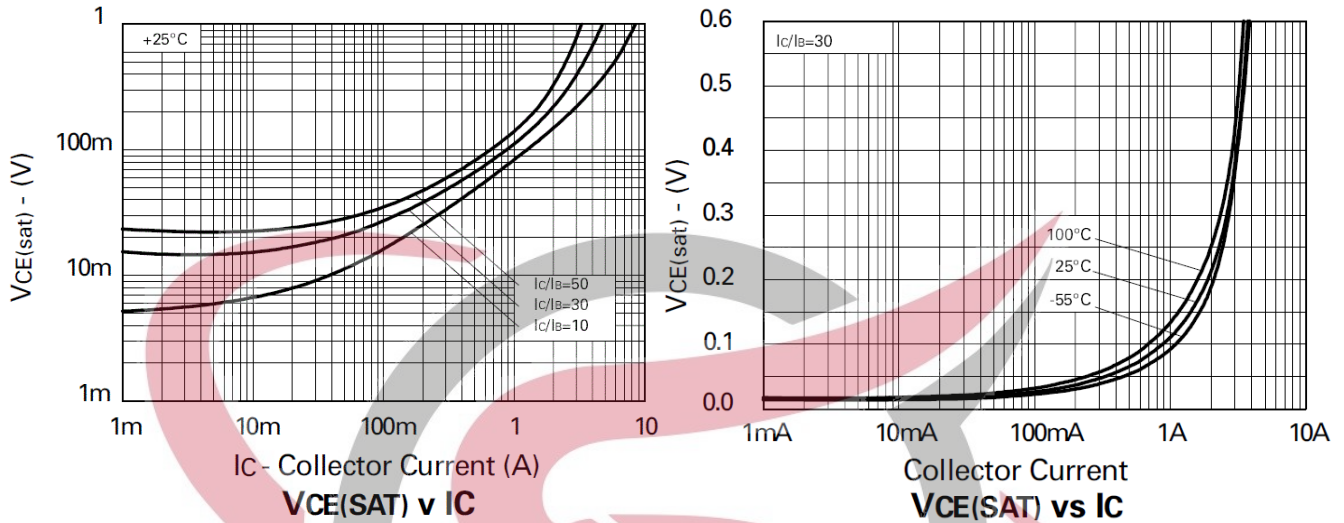
Safe Operating Area

Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

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

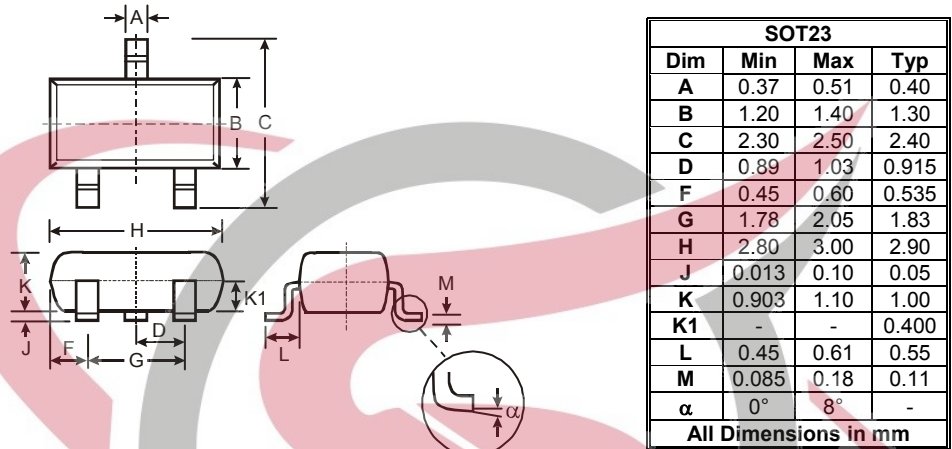
Notes: 10. Measured under pulsed conditions. Pulse width $\leq 300\mu\text{s}$. Duty cycle $\leq 2\%$

Typical Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)



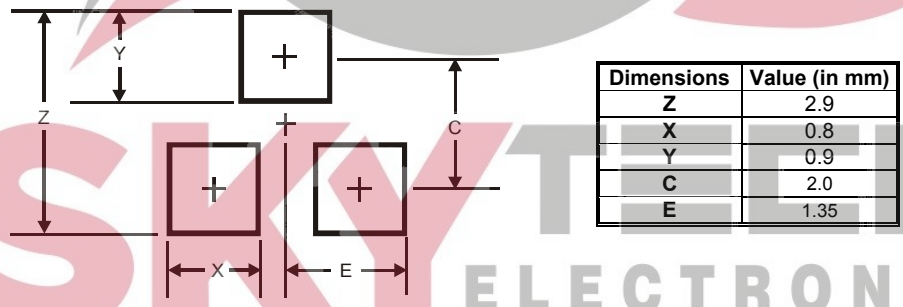
Package Outline Dimensions

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



Suggested Pad Layout

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



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