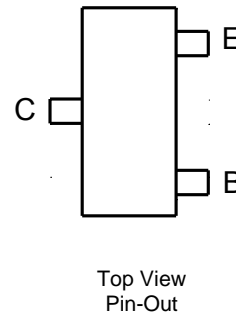
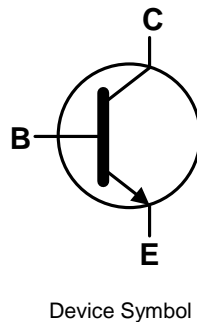


**Features**

- $BV_{CEO} > 350V$
- $I_C = 500mA$  High Collector Current
- 350mW Power Dissipation
- $h_{FE}$  of 15 @  $I_C=100mA$
- Complementary Part Number: FMMT6520
- **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**

**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 (E3)
- Weight: 0.008 grams (Approximate)

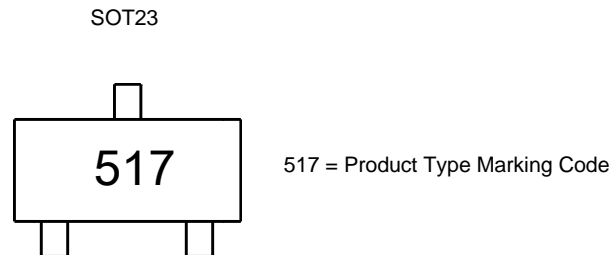


**Ordering Information** (Note 4)

Part Number	Compliance	Marking	Reel Size (inches)	Tape Width (mm)	Quantity per Reel
FMMT6517TA	AEC-Q101	517	7	8	3,000

- 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**



**Absolute Maximum Ratings** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V <sub>CBO</sub>	350	V
Collector-Emitter Voltage	V <sub>CEO</sub>	350	V
Emitter-Base Voltage	V <sub>EBO</sub>	7	V
Base Current	I <sub>B</sub>	25	mA
Collector Current	I <sub>C</sub>	500	mA

**Thermal Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

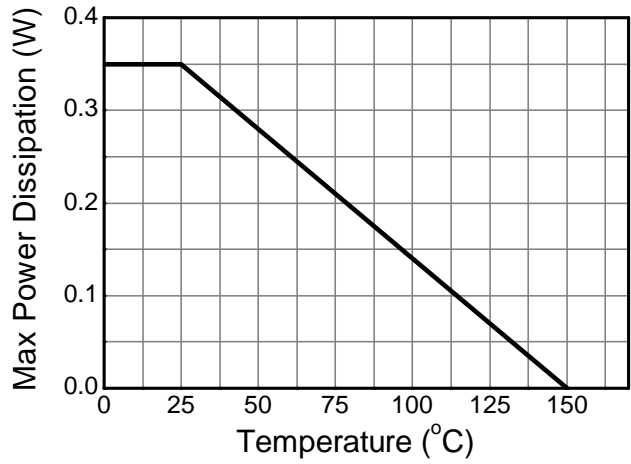
Characteristic		Symbol	Value	Unit
Power Dissipation	(Note 5)	P <sub>D</sub>	310	mW
	(Note 6)		350	
Thermal Resistance, Junction to Ambient	(Note 5)	R <sub>θJA</sub>	403	°C/W
	(Note 6)		357	
Thermal Resistance, Junction to Leads	(Note 7)	R <sub>θJL</sub>	350	°C/W
Operating and Storage Temperature Range		T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

**ESD Ratings** (Note 8)

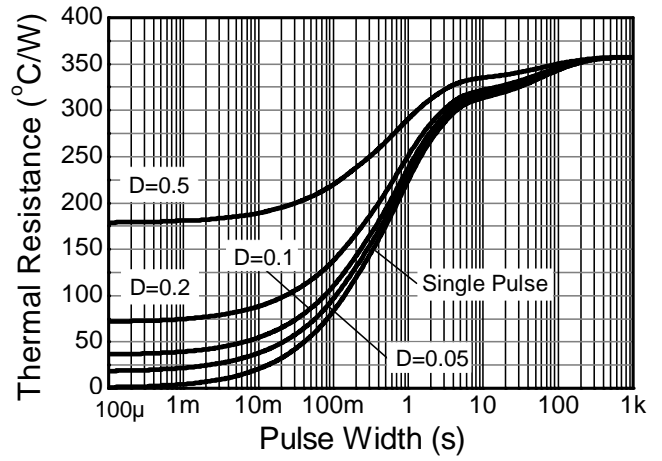
Characteristic	Symbol	Value	Unit	JEDEC Class
Electrostatic Discharge - Human Body Model	ESD HBM	4,000	V	3A
Electrostatic Discharge - Machine Model	ESD MM	400	V	C

- Notes:
5. For the device mounted on minimum recommended pad layout 1oz copper that is on a single-sided 1.6mm FR-4 PCB; device is measured under still air conditions whilst operating in steady state condition.
  6. Same as note (5), except the device is mounted on 15mm x 15mm 1oz copper.
  7. Thermal resistance from junction to solder-point (at the end of the leads).
  8. Refer to JEDEC specification JESD22-A114 and JESD22-A115.

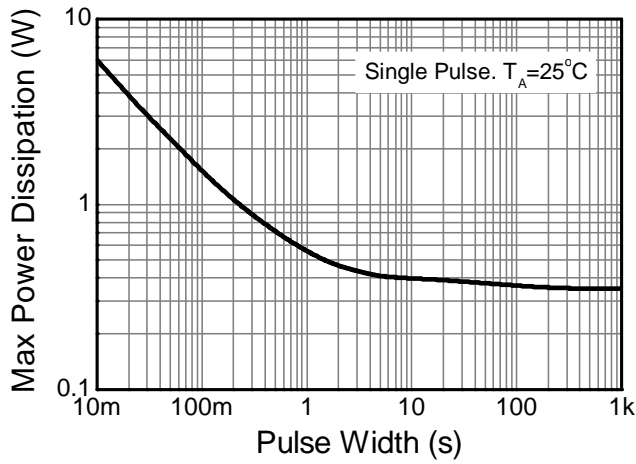
**Thermal Characteristics and Derating information**



**Derating Curve**



**Transient Thermal Impedance**



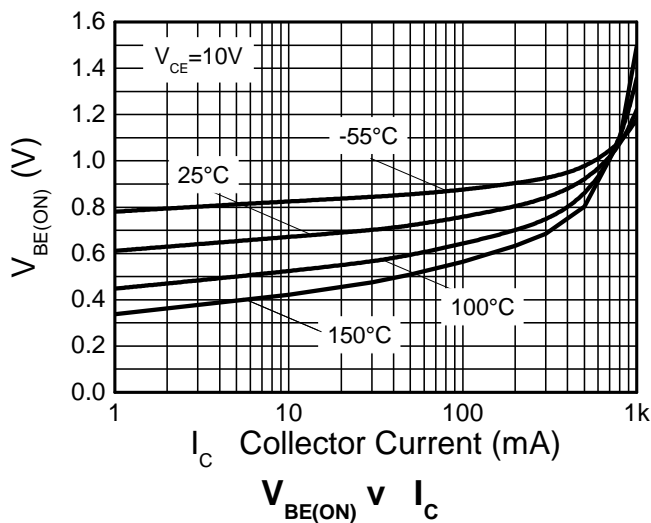
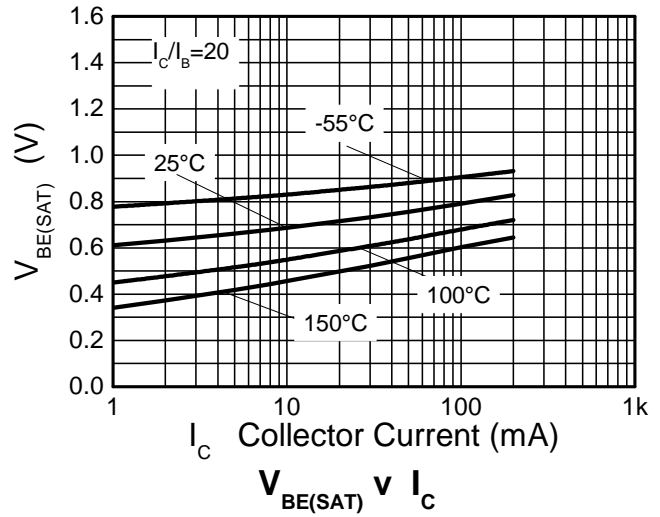
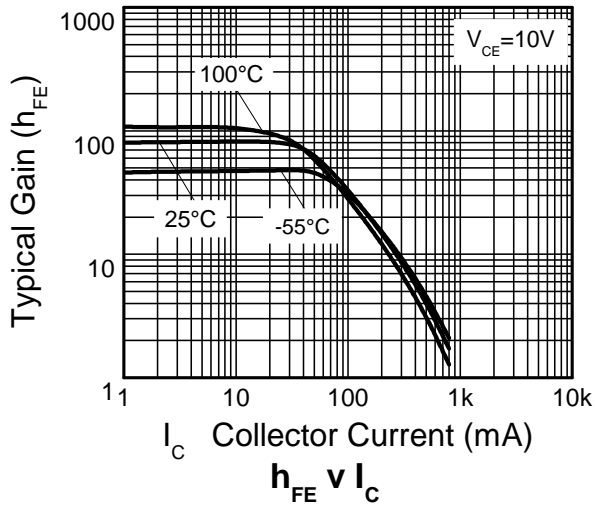
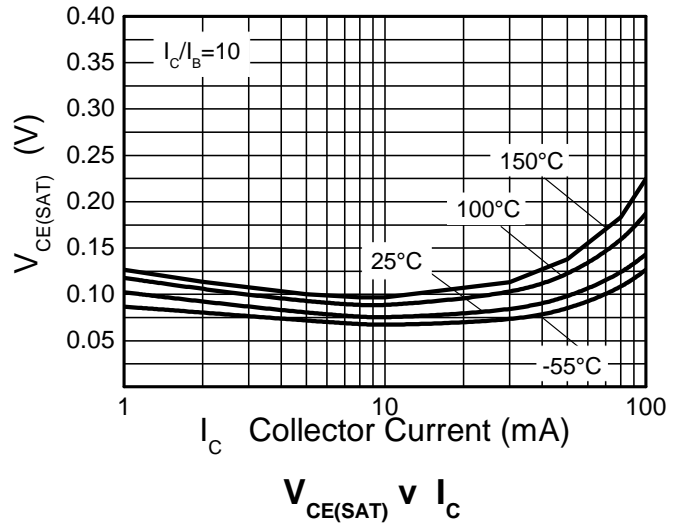
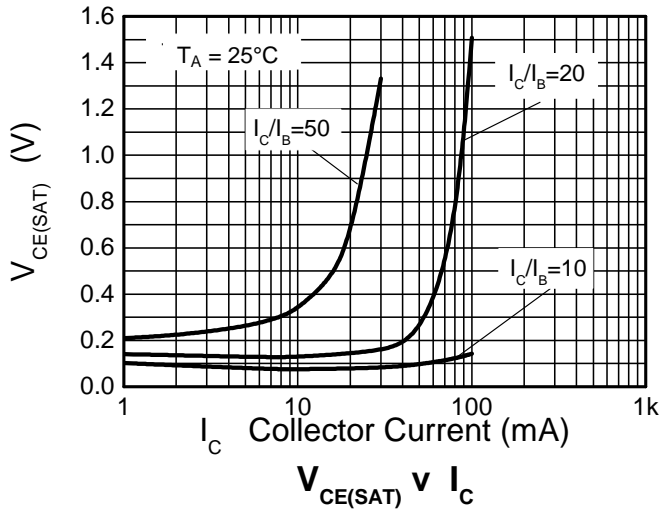
**Pulse Power Dissipation**

**Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV <sub>CBO</sub>	350	—	—	V	I <sub>C</sub> = 100μA
Collector-Emitter Breakdown Voltage (Note 9)	BV <sub>CEO</sub>	350	—	—	V	I <sub>C</sub> = 1mA
Emitter-Base Breakdown Voltage	BV <sub>EBO</sub>	7	—	—	V	I <sub>E</sub> = 100μA
Collector Cutoff Current	I <sub>CBO</sub>	—	—	50	nA	V <sub>CB</sub> = 250V
Emitter Cutoff Current	I <sub>EBO</sub>	—	—	50	nA	V <sub>EB</sub> = 6V
Static Forward Current Transfer Ratio (Note 9)	h <sub>FE</sub>	20 30 30 20 15	—	— — 200 200 —	—	I <sub>C</sub> = 1mA, V <sub>CE</sub> = 10V I <sub>C</sub> = 10mA, V <sub>CE</sub> = 10V I <sub>C</sub> = 30mA, V <sub>CE</sub> = 10V I <sub>C</sub> = 50mA, V <sub>CE</sub> = 10V I <sub>C</sub> = 100mA, V <sub>CE</sub> = 10V
Collector-Emitter Saturation Voltage (Note 9)	V <sub>CE(SAT)</sub>	—	—	0.3 0.35 0.5 1.0	V	I <sub>C</sub> = 10mA, I <sub>B</sub> = 1mA I <sub>C</sub> = 20mA, I <sub>B</sub> = 2mA I <sub>C</sub> = 30mA, I <sub>B</sub> = 3mA I <sub>C</sub> = 50mA, I <sub>B</sub> = 5mA
Base-Emitter Saturation Voltage (Note 9)	V <sub>BE(SAT)</sub>	—	—	0.80 0.85 0.90	V	I <sub>C</sub> = 10mA, I <sub>B</sub> = 1mA I <sub>C</sub> = 20mA, I <sub>B</sub> = 2mA I <sub>C</sub> = 30mA, I <sub>B</sub> = 3mA
Base-Emitter Turn-On Voltage (Note 9)	V <sub>BE(ON)</sub>	—	—	2.0	V	I <sub>C</sub> = 100mA, V <sub>CE</sub> = 10V
Output Capacitance	C <sub>OBO</sub>	—	—	6	pF	V <sub>CB</sub> = 20V, f = 1MHz
Transition Frequency	f <sub>T</sub>	50	—	—	MHz	V <sub>CE</sub> = 20V, I <sub>C</sub> = 10mA, f = 20MHz

Note: 9. Measured under pulsed conditions. Pulse width ≤ 300μs. Duty cycle ≤ 2%.

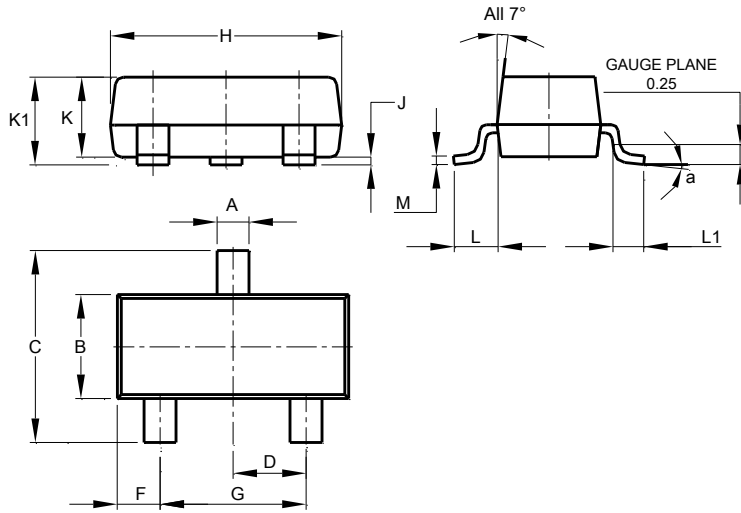
**Typical Electrical Characteristics** (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)



**Package Outline Dimensions**

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

**SOT23**

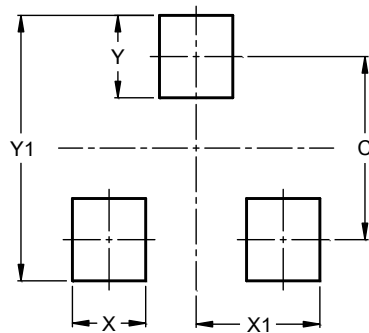


SOT23			
Dim	Min	Max	Typ
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	2.30	2.50	2.40
D	0.89	1.03	0.915
F	0.45	0.60	0.535
G	1.78	2.05	1.83
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.890	1.00	0.975
K1	0.903	1.10	1.025
L	0.45	0.61	0.55
L1	0.25	0.55	0.40
M	0.085	0.150	0.110
a	0°	8°	--
All Dimensions in mm			

**Suggested Pad Layout**

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

**SOT23**



Dimensions	Value (in mm)
C	2.0
X	0.8
X1	1.35
Y	0.9
Y1	2.9

Note: For high voltage applications, the appropriate industry sector guidelines should be considered with regards to creepage and clearance distances between device Terminals and PCB tracking.

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