



**THE DATASHEET OF
FMMT6520TA**



350V PNP SILICON PLANAR HIGH VOLTAGE TRANSISTOR IN SOT23

Features and Benefits

- $BV_{CEO} > -350V$
- Maximum Continuous Collector Current $I_C = -500mA$
- 330mW power dissipation
- Complementary part number FMMT6517
- **Lead Free, RoHS Compliant (Note 1)**
- **Halogen and Antimony Free "Green" Device (Note 2)**
- **Qualified to AEC-Q101 Standards for High Reliability**

Mechanical Data

- Case: SOT-23
- UL Flammability Rating 94V-0
- Case material: molded Plastic.
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish; Solderable per MIL-STD-202, Method 208
- Weight: 0.008 grams (Approximate)

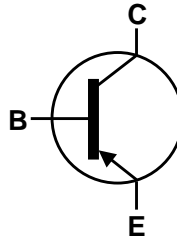
Applications

- Power switches

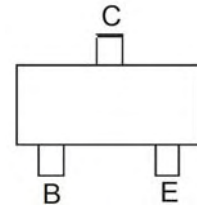


SOT-23

Top View



Device Symbol



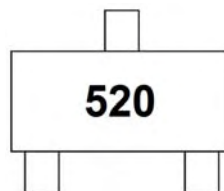
Top View
Pin-Out

Ordering Information (Note 3)

Product	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
FMMT6520TA	520	7	8	3,000

- Notes:
1. No purposefully added lead.
 2. Diodes Inc.'s "Green" Policy can be found on our website at <http://www.diodes.com>
 3. For Packaging Details, go to our website at <http://www.diodes.com>.

Marking Information



520 = Product Type Marking Code

Maximum Ratings @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	-350	V
Collector-Emitter Voltage	V_{CEO}	-350	V
Emitter-Base Voltage	V_{EBO}	-5	V
Continuous Collector Current	I_C	-500	mA

Thermal Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 4)	P_D	330	mW
Thermal Resistance, Junction to Ambient (Note 4)	$R_{\theta JA}$	379	$^\circ\text{C/W}$
Thermal Resistance, Junction to Lead (Note 5)	$R_{\theta JL}$	350	$^\circ\text{C/W}$
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

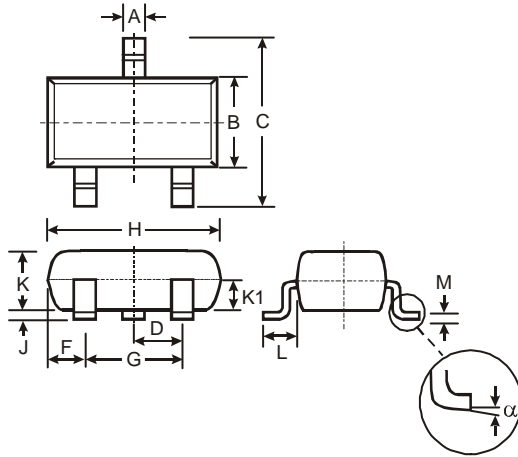
- Notes: 4. For a device surface mounted FR4 PCB with minimum recommended pad layout; high coverage of single sided 1 oz copper, in still air conditions; the device is measured when operating in a steady-state condition.
5. Thermal resistance from junction to solder-point (at the end of the collector lead).

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}	-350			V	$I_C = -100\mu\text{A}$
Collector-Emitter Breakdown Voltage (Note 6)	BV_{CEO}	-350			V	$I_C = -1\text{mA}$
Emitter-Base Breakdown Voltage	BV_{EBO}	-5			V	$I_E = -10\mu\text{A}$
Collector Cutoff Current	I_{CBO}			-50	nA	$V_{CB} = -250\text{V}$
Emitter Cutoff Current	I_{EBO}			-50	nA	$V_{EB} = -3\text{V}$
Static Forward Current Transfer Ratio (Note 6)	h_{FE}	20 30 30 20 15		200 200		$I_C = -1\text{mA}, V_{CE} = -10\text{V}$ $I_C = -10\text{mA}, V_{CE} = -10\text{V}$ $I_C = -30\text{mA}, V_{CE} = -10\text{V}$ $I_C = -50\text{mA}, V_{CE} = -10\text{V}$ $I_C = -100\text{mA}, V_{CE} = -10\text{V}$
Collector-Emitter Saturation Voltage (Note 6)	$V_{CE(sat)}$			-300 -350 -500 -1000	mV mV mV mV	$I_C = -10\text{mA}, I_B = -1\text{mA}$ $I_C = -20\text{mA}, I_B = -2\text{mA}$ $I_C = -30\text{mA}, I_B = -3\text{mA}$ $I_C = -50\text{mA}, I_B = -5\text{mA}$
Base-Emitter Saturation Voltage (Note 6)	$V_{BE(sat)}$			-750 -850 -900	mV	$I_C = -10\text{mA}, I_B = -1\text{mA}$ $I_C = -20\text{mA}, I_B = -2\text{mA}$ $I_C = -30\text{mA}, I_B = -3\text{mA}$
Base-Emitter Turn-On Voltage (Note 6)	$V_{BE(on)}$			-2.0	V	$I_C = -100\text{mA}, V_{CE} = -10\text{V}$
Output Capacitance	C_{obo}			6	pF	$V_{CB} = -20\text{V}, f = 1\text{MHz}$
Transition Frequency	f_T	50			MHz	$V_{CE} = -20\text{V}, I_C = -10\text{mA}, f = 20\text{MHz}$

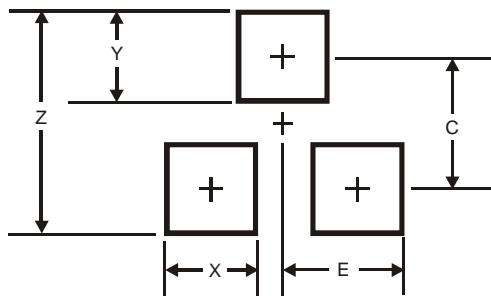
- Note: 6. Measured under pulsed conditions. Pulse width $\leq 300 \mu\text{s}$. Duty cycle $\leq 2\%$

Package Outline Dimensions



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	0.903	1.10	1.00
K1	-	-	0.400
L	0.45	0.61	0.55
M	0.085	0.18	0.11
α	0°	8°	-
All Dimensions in mm			

Suggested Pad Layout



Dimensions	Value (in mm)
Z	2.9
X	0.8
Y	0.9
C	2.0
E	1.35

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