FMMT560

500V PNP SILICON PLANAR HIGH VOLTAGE TRANSISTOR IN SOT23

Features and Benefits

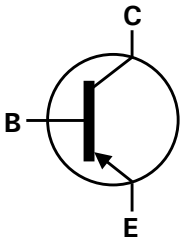
- BV_{CEO} > -500V
- Maximum Continuous Collector Current I_C = -150mA
- Excellent h_{FE} Characteristics up to I_C = 50mA
- Low Saturation Voltages
- **Lead Free, RoHS Compliant (Note 1)**
- **Halogen and Antimony Free "Green" Device (Note 2)**
- **Qualified to AEC-Q101 Standards for High Reliability**

Mechanical Data

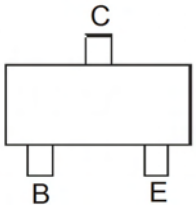
- Case: SOT23
- UL Flammability Rating 94V-0
- Case material: molded Plastic.
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish; Solderable per MIL-STD-202, Method 208
- Weight: 0.008 grams (Approximate)

SOT23

Top View



Device Symbol



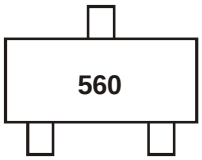
Top View
Pin-Out

Ordering Information (Note 3)

Product	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
FMMT560TA	560	7	8	3,000
FMMT560TC	560	13	8	10,000

Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
2. Halogen and Antimony free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
3. For packaging details, go to our website at http://www.diodes.com.

Marking Information



560 = Product Type Marking Code

Maximum Ratings @T_A = 25°C unless otherwise specified

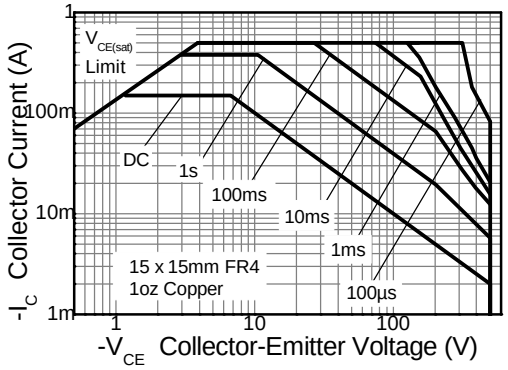
Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	-500	V
Collector-Emitter Voltage	V_{CEO}	-500	V
Emitter-Base Voltage	V_{EBO}	-5	V
Continuous Collector Current	I_C	-150	mA
Peak Pulse Current	I_{CM}	-500	mA

Thermal Characteristics @T_A = 25°C unless otherwise specified

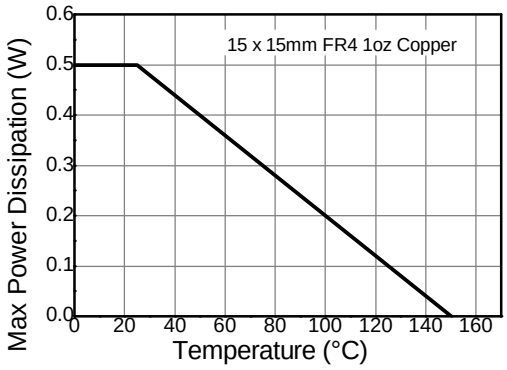
Characteristic		Symbol	Value	Unit
Power Dissipation	(Note 4)	P_D	500	mW
Thermal Resistance, Junction to Ambient	(Note 4)	$R_{\theta JA}$	250	°C/W
Thermal Resistance, Junction to Lead	(Note 5)	$R_{\theta JL}$	194	°C/W
Operating and Storage Temperature Range		T_J, T_{STG}	-55 to +150	°C

Notes: 4. For a device surface mounted on 15mm X 15mm 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.
5. Thermal resistance from junction to solder-point (at the end of the collector lead).

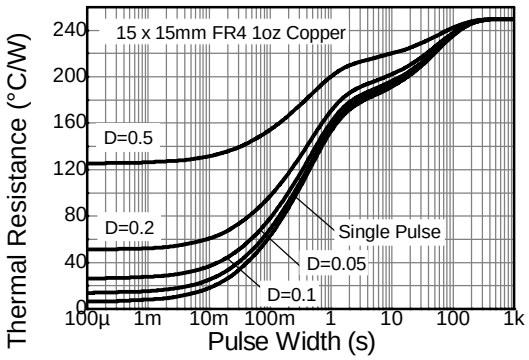
Typical Thermal Characteristics



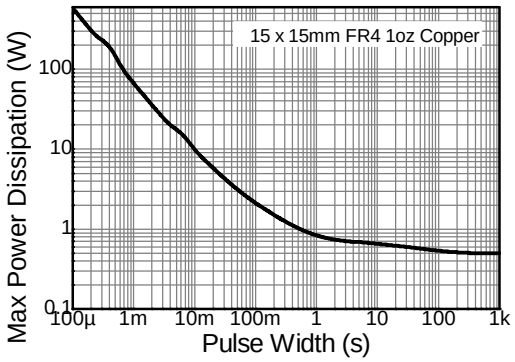
Safe Operating Area



Derating Curve



Transient Thermal Impedance



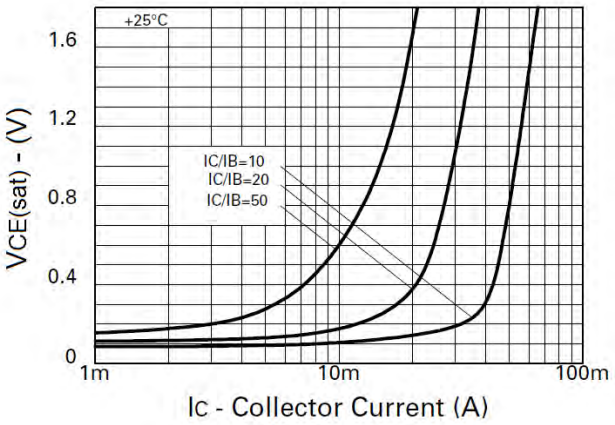
Pulse Power Dissipation

Electrical Characteristics @T_A = 25°C unless otherwise specified

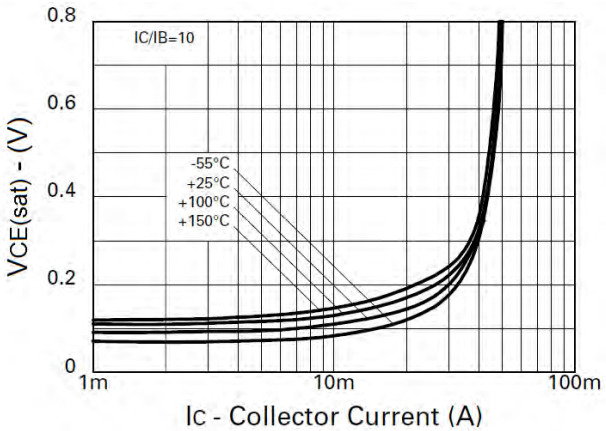
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV_{CBO}	-500	-	-	V	I_C = -100µA
Collector-Emitter Breakdown Voltage (Note 6)	BV_{CEO}	-500	-	-	V	I_C = -10mA
Emitter-Base Breakdown Voltage	BV_{EBO}	-5	-	-	V	I_E = -100µA
Collector Cutoff Current	I_{CBO}	-	-	-100	nA	V_{CB} = -500V
Emitter Cutoff Current	I_{EBO}	-	-	-100	nA	V_{EB} = -5V
Static Forward Current Transfer Ratio (Note 6)	h_{FE}	100 80 -	- - 15	300 300 -	-	I_C = -1mA, V_{CE} = -10V I_C = -50mA, V_{CE} = -10V I_C = -100mA, V_{CE} = -10V
Collector-Emitter Saturation Voltage (Note 6)	$V_{CE(sat)}$	-	-	-200 -500	mV	I_C = - 20mA, I_B = -2mA I_C = - 50mA, I_B = -10mA
Base-Emitter Saturation Voltage (Note 6)	$V_{BE(sat)}$	-	-	-0.9	V	I_C = -50mA, I_B = -10mA
Base-Emitter Turn-On Voltage (Note 6)	$V_{BE(on)}$	-	-	-0.9	V	I_C = -50mA, V_{CE} = -10V
Output Capacitance	C_{obo}	-	-	8	pF	V_{CB} = -20V, f = 1MHz
Transition Frequency	f_T	60	-	-	MHz	V_{CE} = -20V, I_C = -10mA, f = 50MHz
Turn-On Time	t_{on}	-	110	-	ns	V_{CE} = -100V, I_C = -50mA, I_{B1} = -5mA, I_{B2} = 10mA
Turn-Off Time	t_{off}	-	1.5	-	µs	

Notes: 6. Measured under pulsed conditions. Pulse width ≤ 300 µs. Duty cycle ≤ 2%

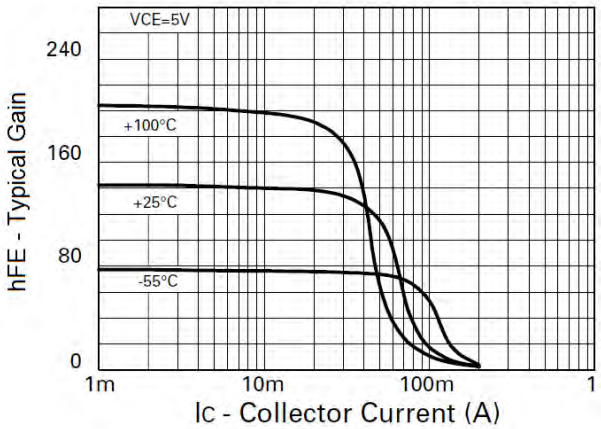
Typical Electrical Characteristics



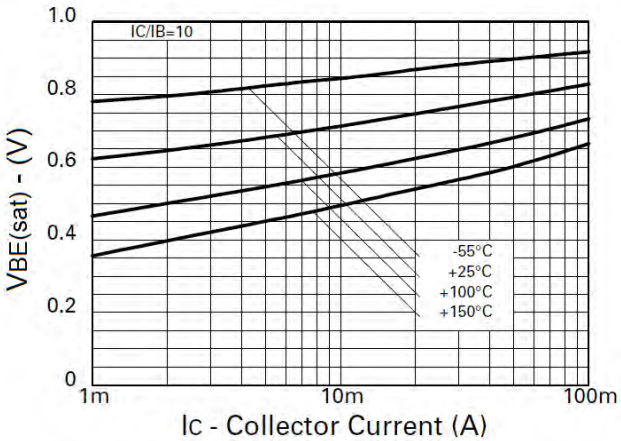
VCE(sat) v IC



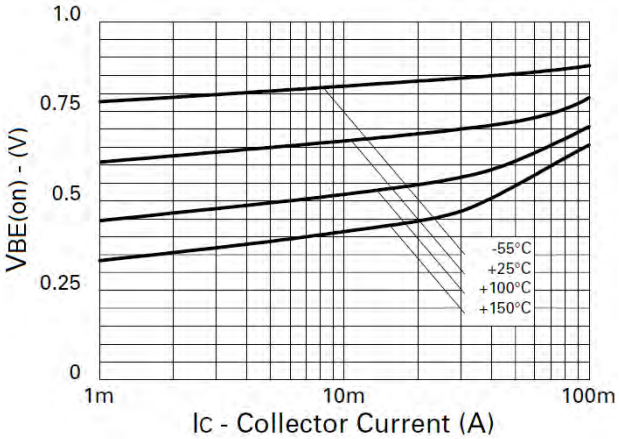
VCE(sat) v IC



hFE v IC

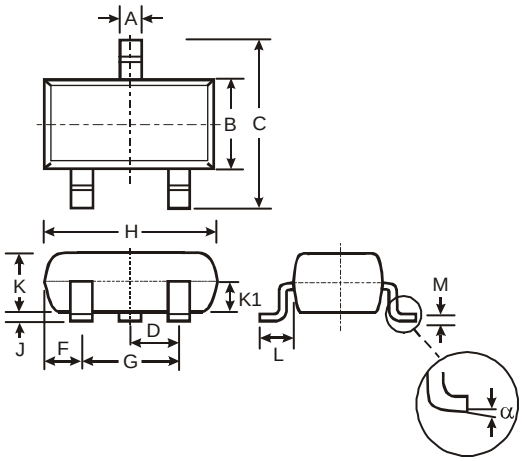


VBE(sat) v IC



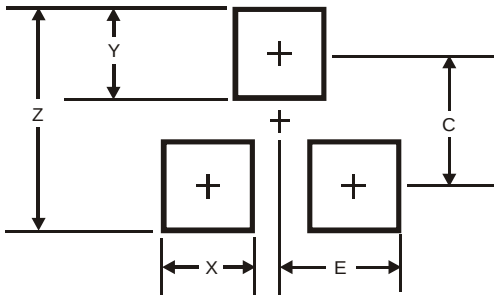
VBE(on) v IC

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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