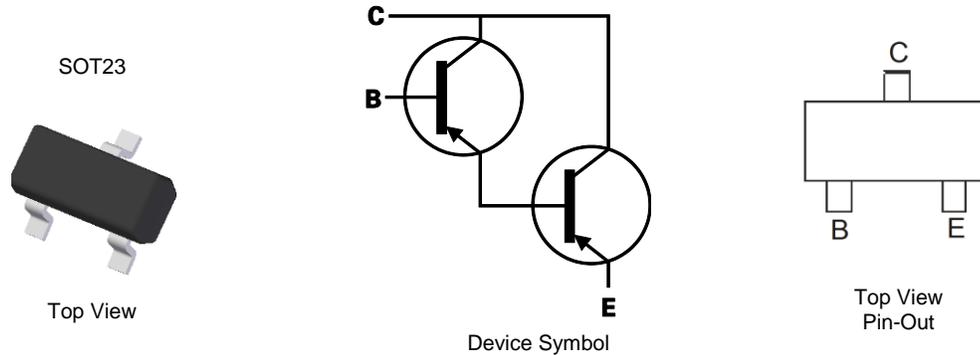


### Features

- $BV_{CE0} > -100V$
- $I_C = -800mA$  High Continuous Collector Current
- Darlington Transistor  $h_{FE} > 20k$  @ 100mA for High Gain
- High Gain Hold-Up to 5A
- 625mW Power Dissipation
- Complementary Darlington NPN Type: FMMT634
- **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
- Weight 0.008 grams (Approximate)

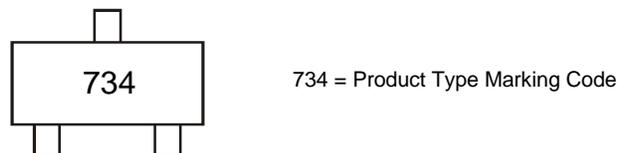


### Ordering Information (Note 4)

Product	Compliance	Marking	Reel Size (inches)	Tape Width (mm)	Quantity Per Reel
FMMT734TA	AEC-Q101	734	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/quality/lead\\_free.html](http://www.diodes.com/quality/lead_free.html) 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 <http://www.diodes.com/products/packages.html>.

### 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>	-100	V
Collector-Emitter Voltage	V <sub>CEO</sub>	-100	V
Emitter-Base Voltage	V <sub>EBO</sub>	-12	V
Continuous Collector Current	I <sub>C</sub>	-800	mA
Peak Pulse Current	I <sub>CM</sub>	-5	A

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

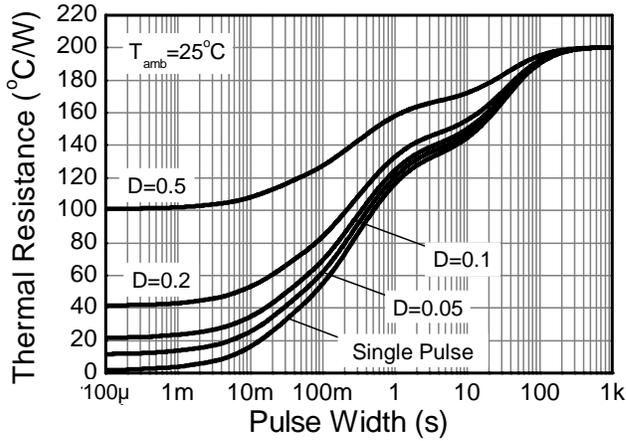
Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P <sub>D</sub>	625	mW
Power Dissipation (Note 6)	P <sub>D</sub>	806	mW
Thermal Resistance, Junction to Ambient (Note 5)	R <sub>θJA</sub>	200	°C/W
Thermal Resistance, Junction to Ambient (Note 6)	R <sub>θJA</sub>	155	°C/W
Thermal Resistance, Junction to Leads (Note 7)	R <sub>θJL</sub>	194	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

### ESD Ratings (Note 8)

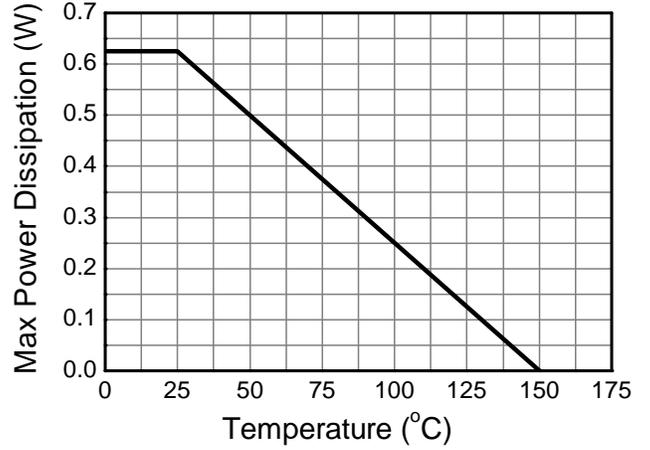
Characteristic	Symbol	Value	Unit	JEDEC Class
Electrostatic Discharge - Human Body Model	ESD HBM	2,000	V	1C
Electrostatic Discharge - Machine Model	ESD MM	200	V	A

- Notes:
5. For a device surface mounted on 25mm X 25mm FR-4 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.
  6. Same as note 5, except the device is measured at t ≤ 5 sec.
  7. Thermal resistance from junction to solder-point (at the end of the collector lead).
  8. Refer to JEDEC specification JESD22-A114 and JESD22-A115.

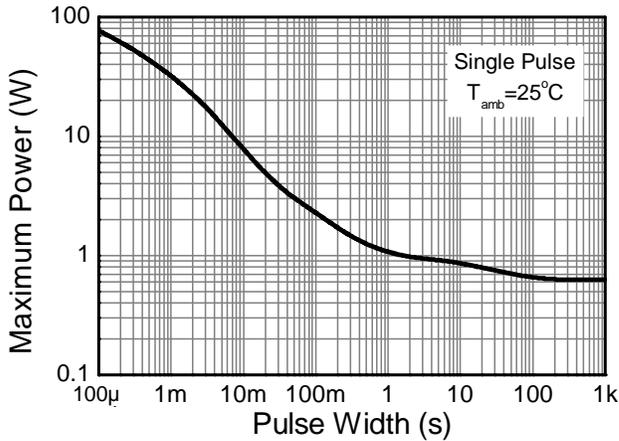
**Thermal Characteristics and Derating Information**



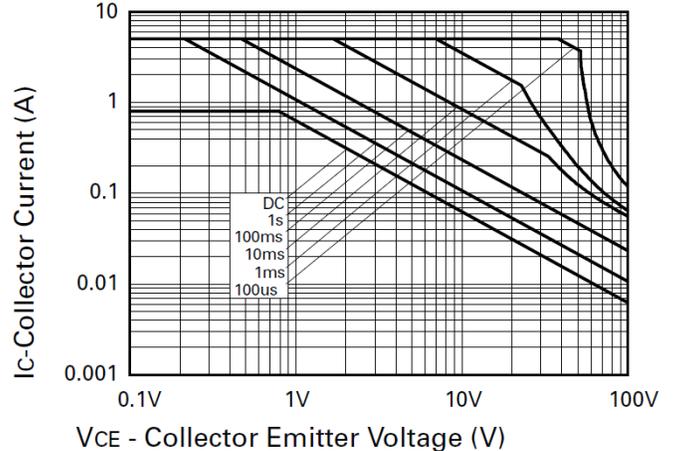
**Transient Thermal Impedance**



**Derating Curve**



**Pulse Power Dissipation**



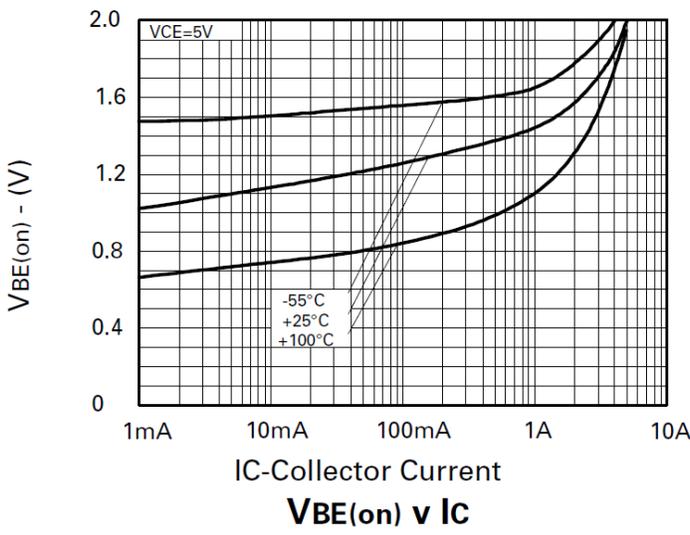
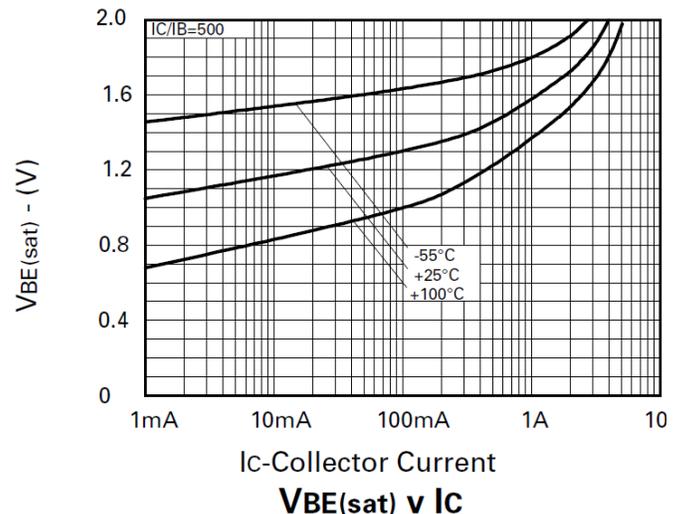
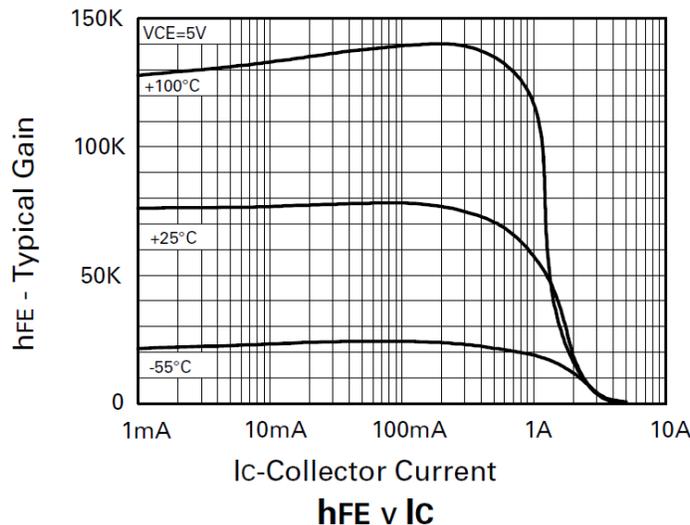
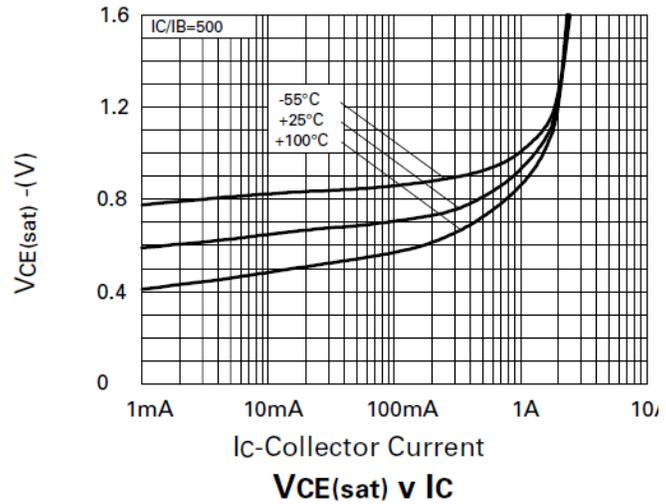
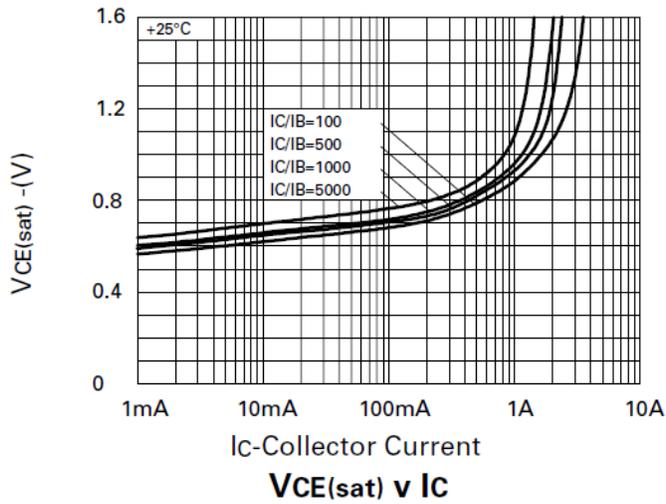
**Safe Operating Area**

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
<b>OFF CHARACTERISTICS</b>						
Collector-Base Breakdown Voltage	BV <sub>CBO</sub>	-100	-130	-	V	I <sub>C</sub> = -100μA
Collector-Emitter Breakdown Voltage (Note 9)	BV <sub>CEO</sub>	-100	-116	-	V	I <sub>C</sub> = -5mA
Emitter-Base Breakdown Voltage	BV <sub>EBO</sub>	-12	-17	-	V	I <sub>E</sub> = -100μA
Collector Cutoff Current	I <sub>CBO</sub>	-	-	-10	nA	V <sub>CB</sub> = -80V
Collector Cutoff Current	I <sub>CES</sub>	-	-	-200	nA	V <sub>CES</sub> = -80V
Emitter Cutoff Current	I <sub>EBO</sub>	-	-	-10	nA	V <sub>EB</sub> = -7V
<b>ON CHARACTERISTICS (Note 9)</b>						
Static Forward Current Transfer Ratio	h <sub>FE</sub>	- 20,000 15,000 5,000 - -	60,000 60,000 50,000 15,000 150 20,000	- - - - - -	-	I <sub>C</sub> = -10mA, V <sub>CE</sub> = -5V I <sub>C</sub> = -100mA, V <sub>CE</sub> = -5V I <sub>C</sub> = -1A, V <sub>CE</sub> = -5V I <sub>C</sub> = -2A, V <sub>CE</sub> = -5V I <sub>C</sub> = -5A, V <sub>CE</sub> = -5V I <sub>C</sub> = -1A, V <sub>CE</sub> = -2V
Collector-Emitter Saturation Voltage	V <sub>CE(sat)</sub>	-	-0.68 -0.72 -0.78 -0.86 -0.72 -0.90	-0.75 -0.80 -0.86 -0.97 - -1.05	V	I <sub>C</sub> = -100mA, I <sub>B</sub> = -1mA I <sub>C</sub> = -250mA, I <sub>B</sub> = -1mA I <sub>C</sub> = -500mA, I <sub>B</sub> = -5mA I <sub>C</sub> = -800mA, I <sub>B</sub> = -5mA I <sub>C</sub> = -800mA, I <sub>B</sub> = -5mA, T <sub>J</sub> = +150°C I <sub>C</sub> = -1A, I <sub>B</sub> = -5mA
Base-Emitter Saturation Voltage	V <sub>BE(sat)</sub>	-	-1.6	-1.75	V	I <sub>C</sub> = -1A, I <sub>B</sub> = -5mA
Base-Emitter Turn-On Voltage	V <sub>BE(on)</sub>	-	-1.3	-1.75	V	I <sub>C</sub> = -1A, V <sub>CE</sub> = -5V
<b>SMALL SIGNAL CHARACTERISTICS</b>						
Transition Frequency	f <sub>T</sub>	-	140	-	MHz	V <sub>CE</sub> = -10V, I <sub>C</sub> = -10mA, f = 100MHz
Output Capacitance	C <sub>obo</sub>	-	14	25	pF	V <sub>CB</sub> = -10V, f = 1MHz
Turn-On Time	t <sub>(on)</sub>	-	460	-	ns	I <sub>C</sub> = -500mA, V <sub>CC</sub> = -20V
Turn-Off Time	t <sub>(off)</sub>	-	1200	-	ns	I <sub>B</sub> = ±1mA

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

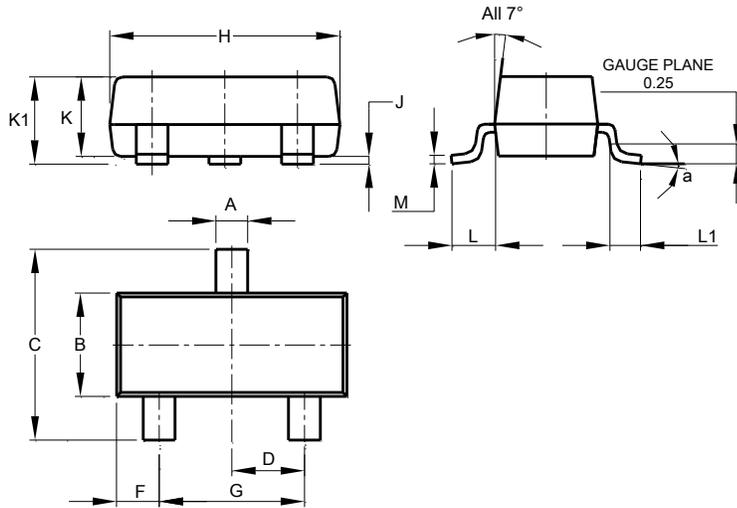
**Typical Electrical Characteristics** (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)



**Package Outline Dimensions**

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

**SOT23**

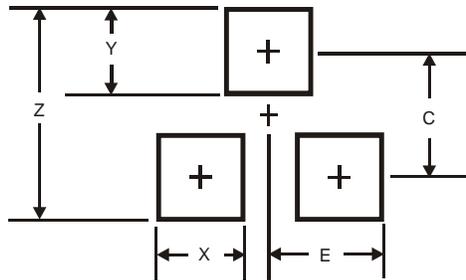


SOT23			
Dim	Min	Max	Typ
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	2.30	2.50	2.40
D	0.89	1.03	0.915
F	0.45	0.60	0.535
G	1.78	2.05	1.83
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.890	1.00	0.975
K1	0.903	1.10	1.025
L	0.45	0.61	0.55
L1	0.25	0.55	0.40
M	0.085	0.150	0.110
a	8°		
All Dimensions in mm			

**Suggested Pad Layout**

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

**SOT23**



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

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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