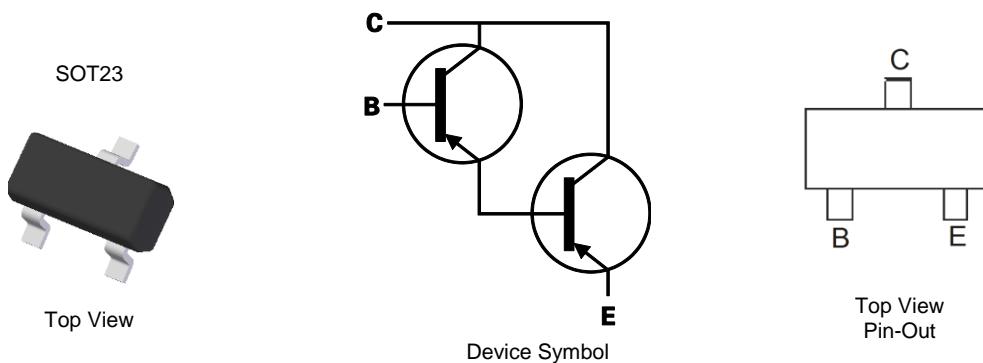


Features

- $BV_{CEO} > -100V$
- $I_C = -800mA$ 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 (E3)
- Weight 0.008 grams (Approximate)



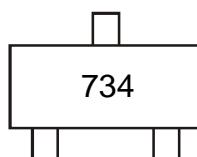
Ordering Information (Note 4)

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 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



734 = Product Type Marking Code

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

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	-100	V
Collector-Emitter Voltage	V_{CEO}	-100	V
Emitter-Base Voltage	V_{EBO}	-12	V
Continuous Collector Current	I_C	-800	mA
Peak Pulse Current	I_{CM}	-5	A

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

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P_D	625	mW
Power Dissipation (Note 6)	P_D	806	mW
Thermal Resistance, Junction to Ambient (Note 5)	$R_{\theta JA}$	200	°C/W
Thermal Resistance, Junction to Ambient (Note 6)	$R_{\theta JA}$	155	°C/W
Thermal Resistance, Junction to Leads (Note 7)	$R_{\theta JL}$	194	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C

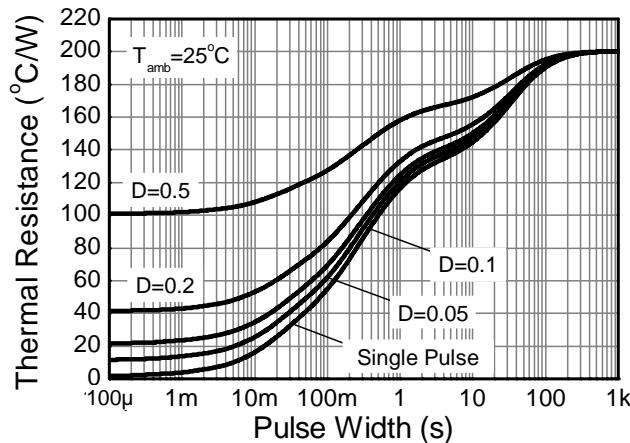
ESD Ratings (Note 8)

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

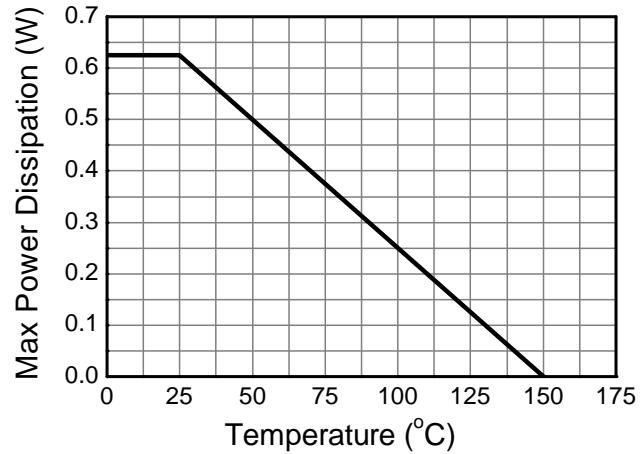
Notes:

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 $t \leq 5$ 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.

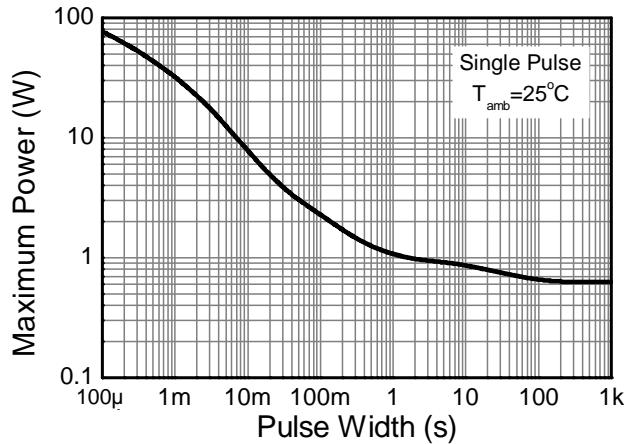
Thermal Characteristics and Derating Information



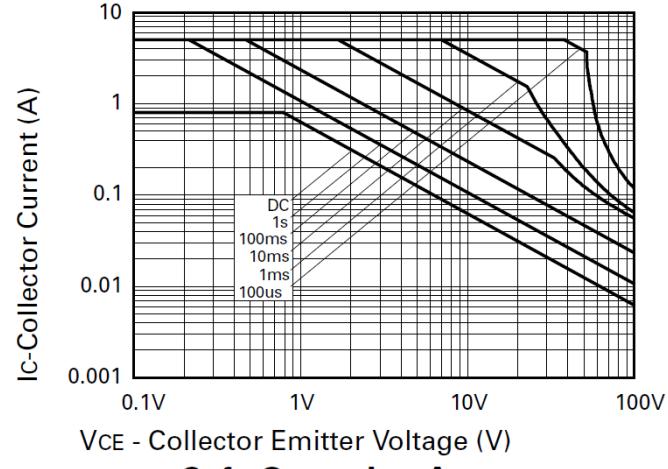
Transient Thermal Impedance



Derating Curve



Pulse Power Dissipation



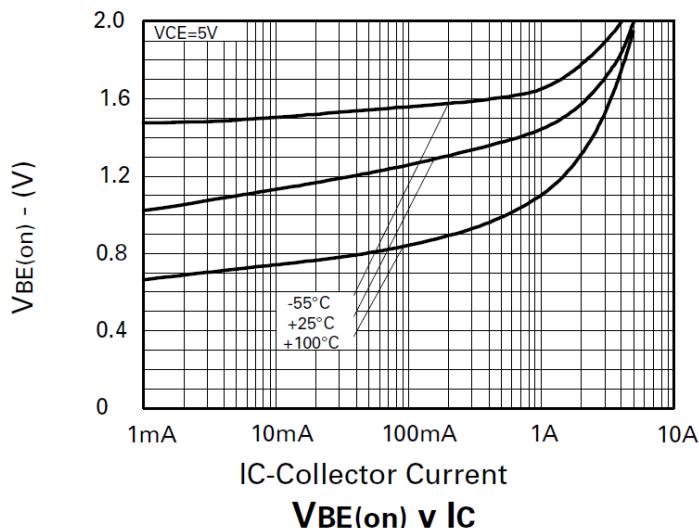
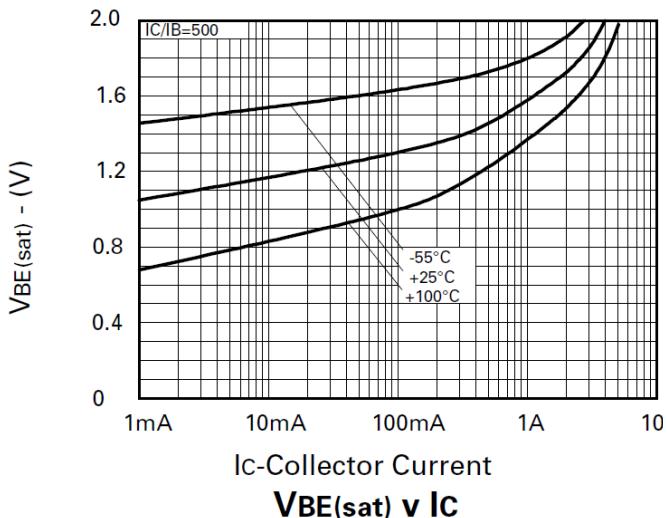
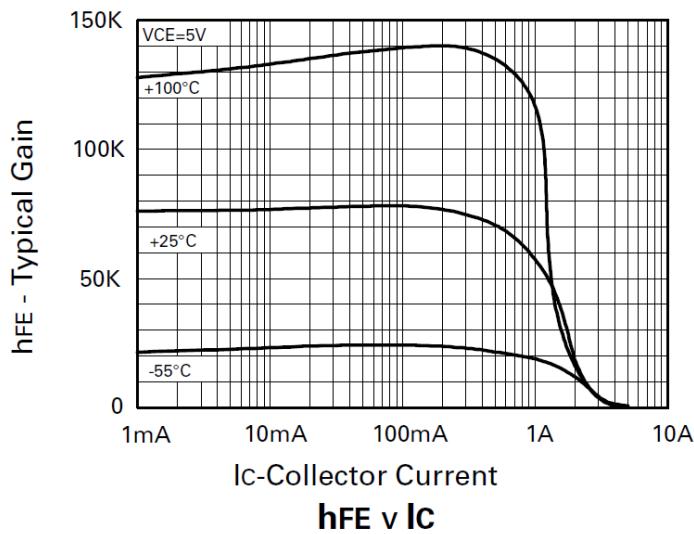
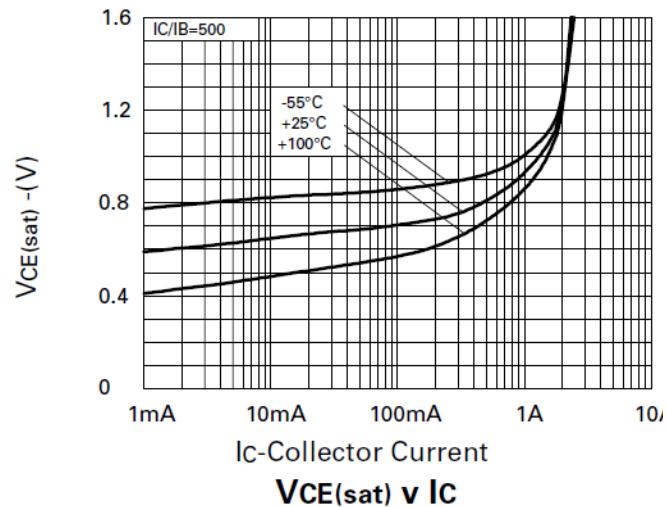
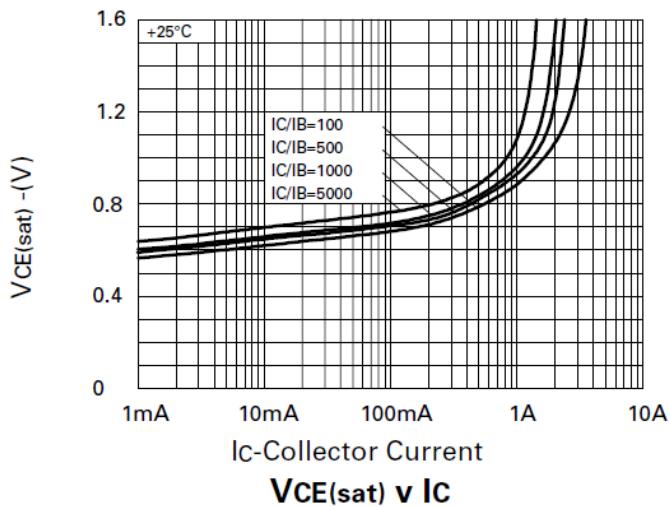
Safe Operating Area

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS						
Collector-Base Breakdown Voltage	BV_{CBO}	-100	-130	-	V	$I_C = -100\mu\text{A}$
Collector-Emitter Breakdown Voltage (Note 9)	BV_{CEO}	-100	-116	-	V	$I_C = -5\text{mA}$
Emitter-Base Breakdown Voltage	BV_{EBO}	-12	-17	-	V	$I_E = -100\mu\text{A}$
Collector Cutoff Current	I_{CBO}	-	-	-10	nA	$V_{\text{CB}} = -80\text{V}$
Collector Cutoff Current	I_{CES}	-	-	-200	nA	$V_{\text{CES}} = -80\text{V}$
Emitter Cutoff Current	I_{EBO}	-	-	-10	nA	$V_{\text{EB}} = -7\text{V}$
ON CHARACTERISTICS (Note 9)						
Static Forward Current Transfer Ratio	h_{FE}	- 20,000 15,000 5,000 - -	60,000 60,000 50,000 15,000 150 20,000	- - - - - -	-	$I_C = -10\text{mA}, V_{\text{CE}} = -5\text{V}$ $I_C = -100\text{mA}, V_{\text{CE}} = -5\text{V}$ $I_C = -1\text{A}, V_{\text{CE}} = -5\text{V}$ $I_C = -2\text{A}, V_{\text{CE}} = -5\text{V}$ $I_C = -5\text{A}, V_{\text{CE}} = -5\text{V}$ $I_C = -1\text{A}, V_{\text{CE}} = -2\text{V}$
Collector-Emitter Saturation Voltage	$V_{\text{CE}(\text{sat})}$	-	-0.68 -0.72 -0.78 -0.86 -0.72 -0.90	-0.75 -0.80 -0.86 -0.97 - -1.05	V	$I_C = -100\text{mA}, I_B = -1\text{mA}$ $I_C = -250\text{mA}, I_B = -1\text{mA}$ $I_C = -500\text{mA}, I_B = -5\text{mA}$ $I_C = -800\text{mA}, I_B = -5\text{mA}$ $I_C = -800\text{mA}, I_B = -5\text{mA}, T_J = +150^\circ\text{C}$ $I_C = -1\text{A}, I_B = -5\text{mA}$
Base-Emitter Saturation Voltage	$V_{\text{BE}(\text{sat})}$	-	-1.6	-1.75	V	$I_C = -1\text{A}, I_B = -5\text{mA}$
Base-Emitter Turn-On Voltage	$V_{\text{BE}(\text{on})}$	-	-1.3	-1.75	V	$I_C = -1\text{A}, V_{\text{CE}} = -5\text{V}$
SMALL SIGNAL CHARACTERISTICS						
Transition Frequency	f_T	-	140	-	MHz	$V_{\text{CE}} = -10\text{V}, I_C = -10\text{mA}, f = 100\text{MHz}$
Output Capacitance	C_{obo}	-	14	25	pF	$V_{\text{CB}} = -10\text{V}, f = 1\text{MHz}$
Turn-On Time	$t_{(\text{on})}$	-	460	-	ns	$I_C = -500\text{mA}, V_{\text{CC}} = -20\text{V}$
Turn-Off Time	$t_{(\text{off})}$	-	1200	-	ns	$I_B = \pm 1\text{mA}$

Note: 9. Measured under pulsed conditions. Pulse width $\leq 300\mu\text{s}$. Duty cycle $\leq 2\%$.

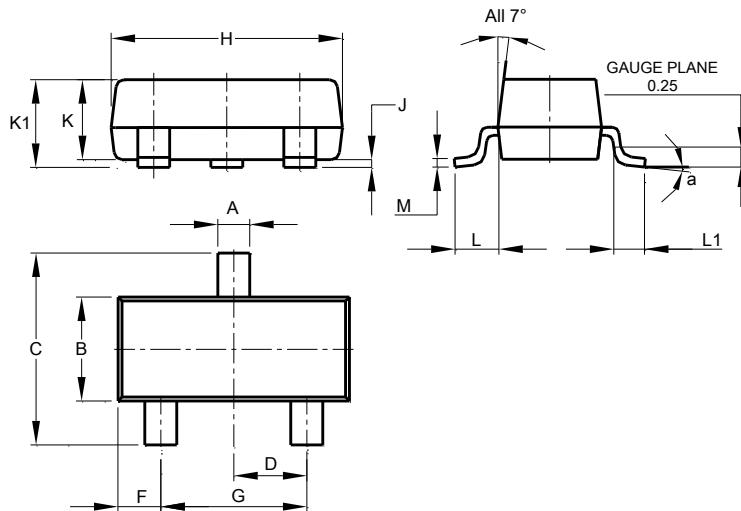
Typical Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)



Package Outline Dimensions

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

SOT23



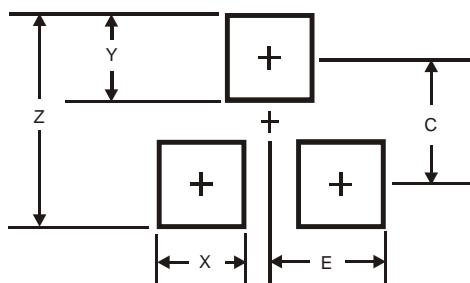
SOT23			
Dim	Min	Max	Typ
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	2.30	2.50	2.40
D	0.89	1.03	0.915
F	0.45	0.60	0.535
G	1.78	2.05	1.83
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.890	1.00	0.975
K1	0.903	1.10	1.025
L	0.45	0.61	0.55
L1	0.25	0.55	0.40
M	0.085	0.150	0.110
a	8°		

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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