

**12V PNP POWER SWITCHING TRANSISTOR IN SOT323**
**Features**

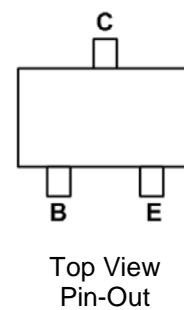
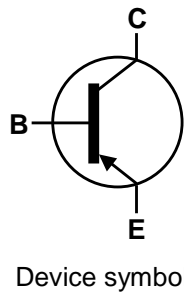
- $BV_{CEO} > -12V$
- $I_C = -1.25A$  Continuous Collector Current
- $I_{CM} = -3A$  Peak Pulse Current
- Low Saturation Voltage  $V_{CE(sat)} < -215mV @ I_C = -1A$
- $R_{CE(sat)} = 150m\Omega$  for a Low Equivalent On-Resistance
- 500mW Power Dissipation
- Excellent  $h_{FE}$  Characteristics up to -3A
- Complementary NPN Type: ZUMT617
- **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: SOT323
- Case Material: Molded Plastic. "Green" Molding Compound. UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208<sup>(3)</sup>
- Weight: 0.006 grams (approximate)

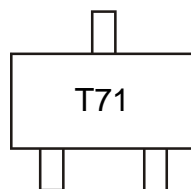
**Applications**

- Negative boost functions in DC-DC converters
- Supply line switching in mobile phones and pagers
- Motor drivers in camcorders and mini disk players


**Ordering Information** (Notes 4)

Device	Compliance	Marking	Reel Size (inches)	Tape Width (mm)	Quantity per reel
ZUMT717TA	AEC-Q101	T71	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**


T71 = Product Type Marking Code

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

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V <sub>CB0</sub>	-12	V
Collector-Emitter Voltage	V <sub>CEO</sub>	-12	V
Emitter-Base Voltage	V <sub>EBO</sub>	-7	V
Peak Pulse Current	I <sub>CM</sub>	-3	A
Continuous Collector Current	I <sub>C</sub>	-1.25	A
Base Current	I <sub>B</sub>	-200	mA

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

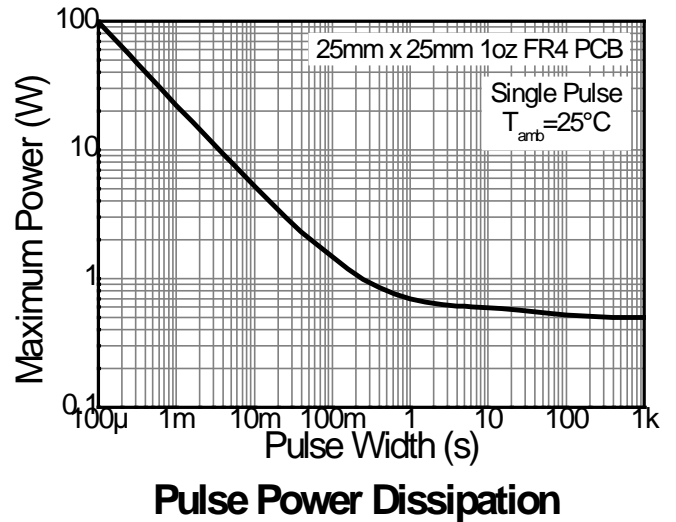
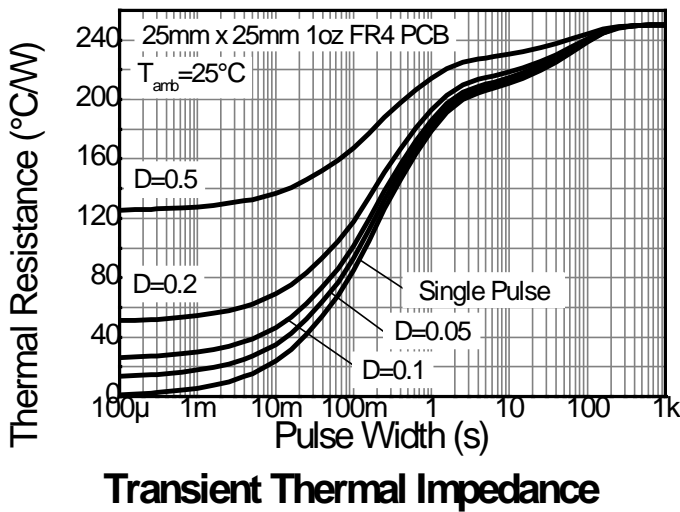
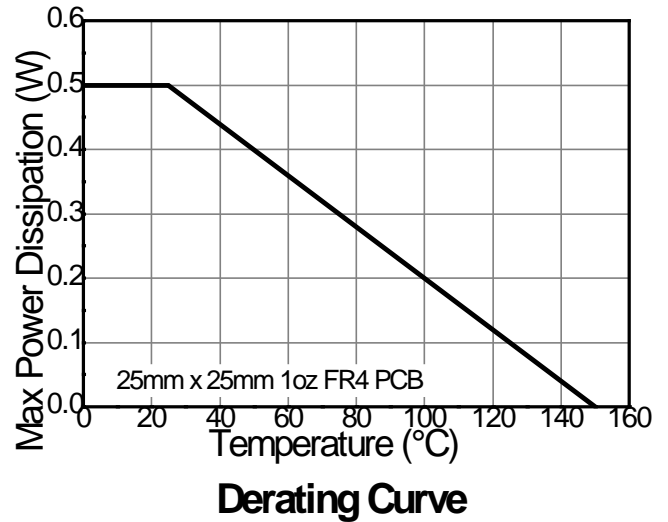
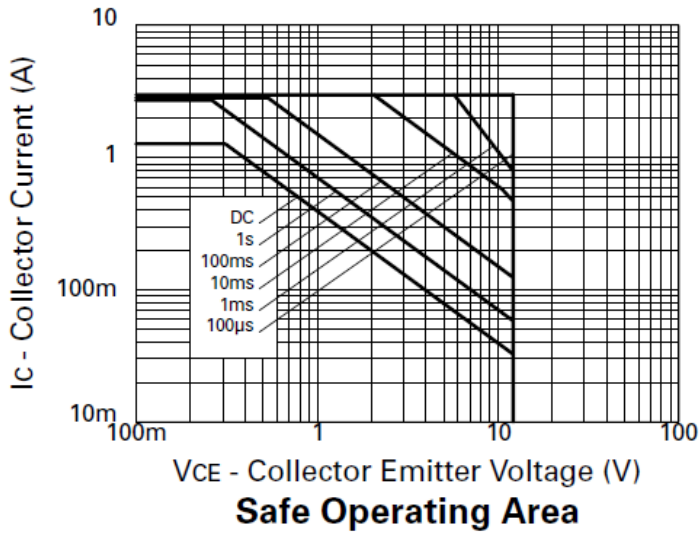
Characteristic	Symbol	Value	Unit
Power Dissipation	P <sub>D</sub>	(Note 5) 385	mW
		(Note 6) 500	
Thermal Resistance, Junction to Ambient	R <sub>θJA</sub>	(Note 5) 325	°C/W
		(Note 6) 250	
Thermal Resistance, Junction to Leads	R <sub>θJL</sub>	350	°C/W
Operating and Storage Temperature Range	T <sub>J</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 a device mounted with collector lead on 10mm x 8mm 1oz copper that is on a single-sided 0.6mm FR4 PCB; device is measured under still air conditions whilst operating in a steady-state.
  6. Same as note (5), except the collector lead is on a 25mm x 25mm 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**

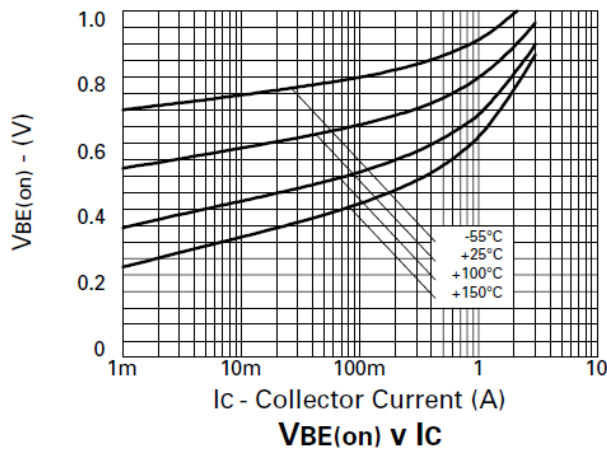
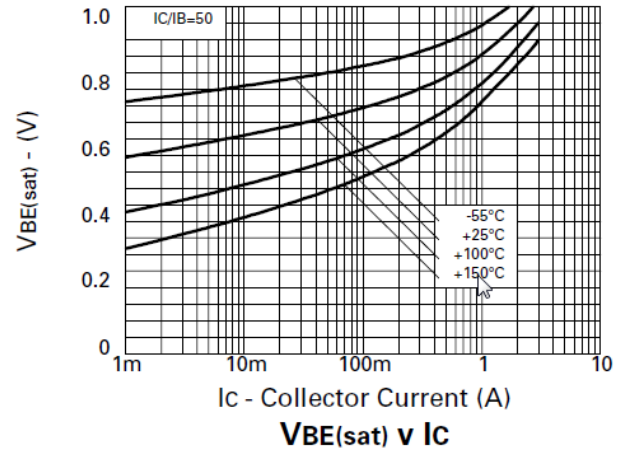
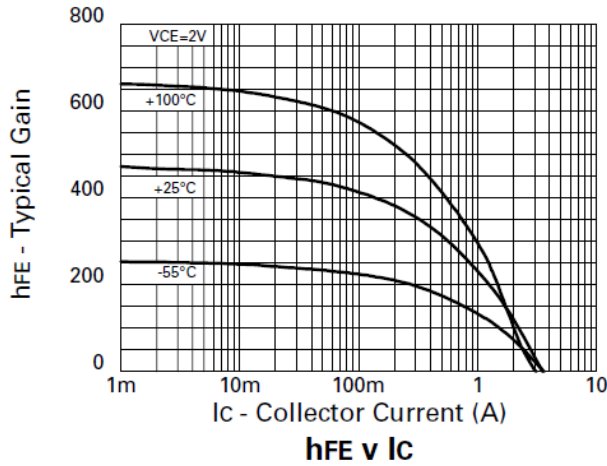
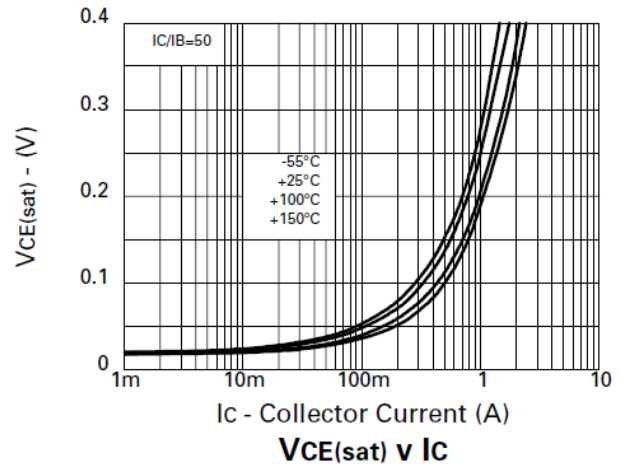
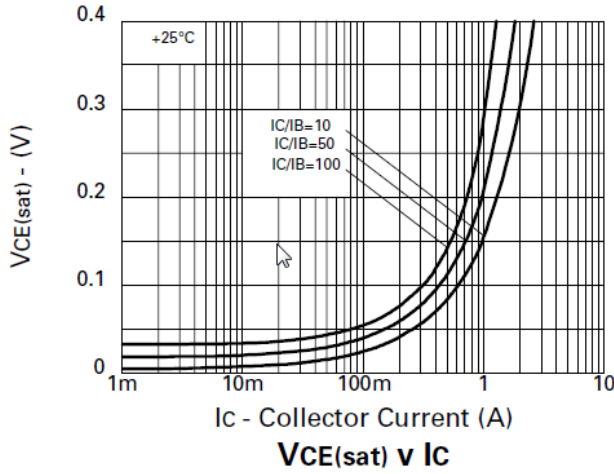


**Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
<b>OFF CHARACTERISTICS</b> (Note 9)						
Collector-Base Breakdown Voltage	V <sub>CB0</sub>	-12	—	—	V	I <sub>C</sub> = -100μA
Collector-Emitter Breakdown Voltage	V <sub>CEO</sub>	-12	—	—	V	I <sub>C</sub> = -10mA
Emitter-Base Breakdown Voltage	V <sub>EBO</sub>	-7	—	—	V	I <sub>E</sub> = -100μA
Collector-Base Cutoff Current	I <sub>CB0</sub>	—	—	-10	nA	V <sub>CB</sub> = -10V
Emitter-Base Cutoff Current	I <sub>EBO</sub>	—	—	-10	nA	V <sub>EB</sub> = -5.6V
Collector-Emitter Cutoff Current	I <sub>CES</sub>	—	—	-10	nA	V <sub>CES</sub> = -10V
<b>ON CHARACTERISTICS</b> (Note 9)						
DC Current Gain	h <sub>FE</sub>	300	490	—	—	I <sub>C</sub> = -10mA, V <sub>CE</sub> = -2.0V
		300	450			I <sub>C</sub> = -0.1A, V <sub>CE</sub> = -2.0V
		200	340			I <sub>C</sub> = -0.5A, V <sub>CE</sub> = -2.0V
		125	250			I <sub>C</sub> = -1.25A, V <sub>CE</sub> = -2.0V
		75	140			I <sub>C</sub> = -2A, V <sub>CE</sub> = -2.0V
		30	80			I <sub>C</sub> = -3A, V <sub>CE</sub> = -2.0V
Collector-Emitter Saturation Voltage	V <sub>CE(SAT)</sub>	—	-25	-40	mV	I <sub>C</sub> = -0.1A, I <sub>B</sub> = -10mA
		—	-55	-100	mV	I <sub>C</sub> = -0.25A, I <sub>B</sub> = -10mA
		—	-110	-175	mV	I <sub>C</sub> = -0.5A, I <sub>B</sub> = -10mA
		—	-160	-215	mV	I <sub>C</sub> = -1A, I <sub>B</sub> = -50mA
		—	-185	-240	mV	I <sub>C</sub> = -1.25A, I <sub>B</sub> = -100mA
Base-Emitter Saturation Voltage	V <sub>BE(SAT)</sub>	—	-990	-1100	mV	I <sub>C</sub> = -1.25A, I <sub>B</sub> = 100mA
Base-Emitter Turn-On Voltage	V <sub>BE(ON)</sub>	—	-850	-1000	mV	I <sub>C</sub> = -1.25A, V <sub>CE</sub> = -2.0V
<b>SMALL SIGNAL CHARACTERISTICS</b>						
Output Capacitance	C <sub>obo</sub>	—	15	—	pF	V <sub>CB</sub> = -10V, f = 1MHz
Turn-On Time	t <sub>(on)</sub>	—	50	—	ns	V <sub>CC</sub> = -10V, I <sub>C</sub> = -1A, I <sub>B1</sub> = -I <sub>B2</sub> = -100mA
Turn-Off Time	t <sub>(off)</sub>	—	135	—	ns	
Current Gain-Bandwidth Product	f <sub>T</sub>	—	220	—	MHz	V <sub>CE</sub> = -10V, I <sub>C</sub> = -50mA, f = 100MHz

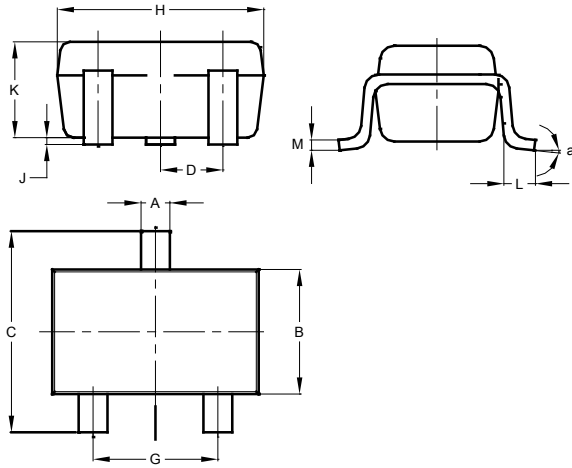
Note: 9. Measured under pulsed conditions. Pulse width ≤ 300μs. Duty cycle ≤ 2%.

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



### Package Outline Dimensions

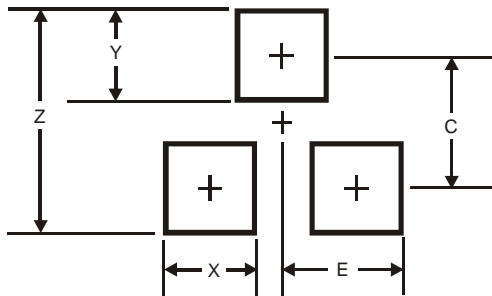
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.



SOT323			
Dim	Min	Max	Typ
A	0.25	0.40	0.30
B	1.15	1.35	1.30
C	2.00	2.20	2.10
D	0.650 BSC		
F	0.375	0.475	0.425
G	1.20	1.40	1.30
H	1.80	2.20	2.15
J	0.00	0.10	0.05
K	0.90	1.00	0.95
L	0.25	0.40	0.30
M	0.10	0.18	0.11
a	8°		
All Dimensions in mm			

### Suggested Pad Layout

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



Dimensions	SOT323
Z	2.8
X	0.7
Y	0.9
C	1.9
E	1.0

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