

**60V PNP LOW SATURATION MEDIUM POWER TRANSISTOR**

**Features**

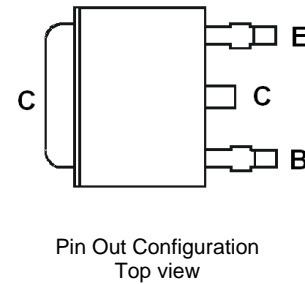
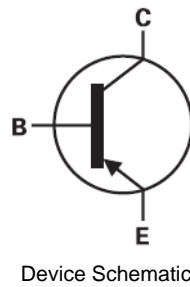
- $BV_{CEO} > -60V$
- $R_{SAT} = 53m\Omega$  Typical
- Continuous Collector Current  $I_C = -6A$
- Up to 15A Peak Current
- Low Equivalent On Resistance
- Low Saturation Voltage
- High Gain Holds Up (100 min @ 2A)
- **Lead-Free Finish; RoHS compliant (Note 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

**Mechanical Data**

- Case: TO252 (DPAK)
- 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; Solderable per MIL-STD-202, Method 208
- Weight: 0.34 grams (approximate)

**Application**

- DC – DC converters
- Power Switches
- Motor Control
- Automotive Circuits
- Inverter Circuits

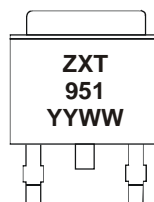


**Ordering Information** (Note 4)

Product	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
ZXT951KTC	ZXT951	13	16	2,500

- Notes:
1. EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. All applicable RoHS exemptions applied.
  2. See <http://www.diodes.com> 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>.

**Marking Information**



ZXT951 = Product Type Marking Code  
 YYWW = Date Code Marking  
 YY = Last Digit of Year (ex: 09 = 2009)  
 WW = Week Code (01 – 53)

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

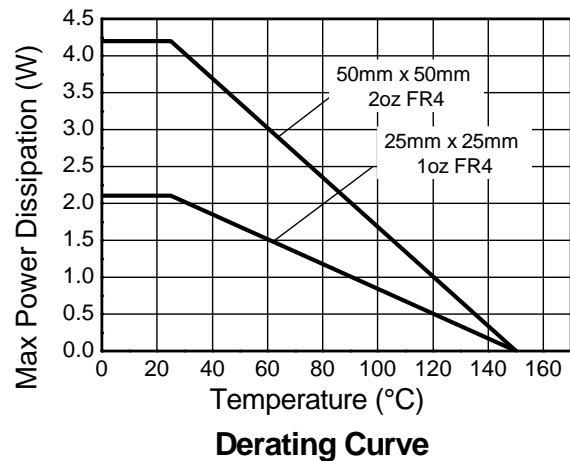
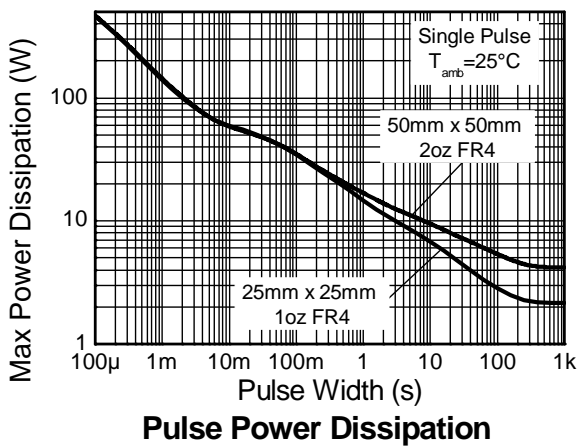
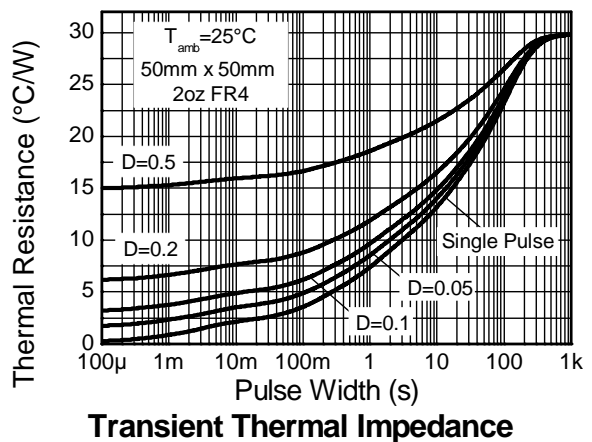
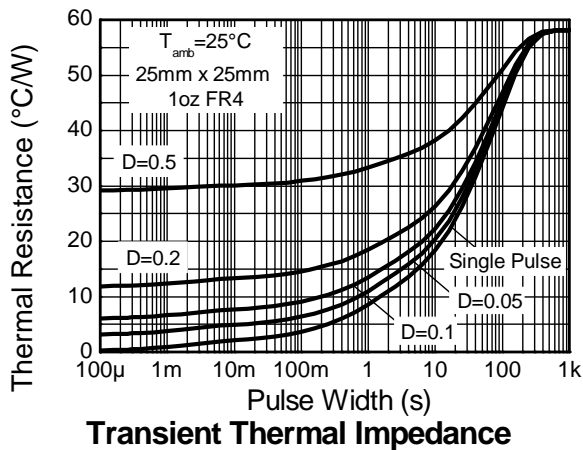
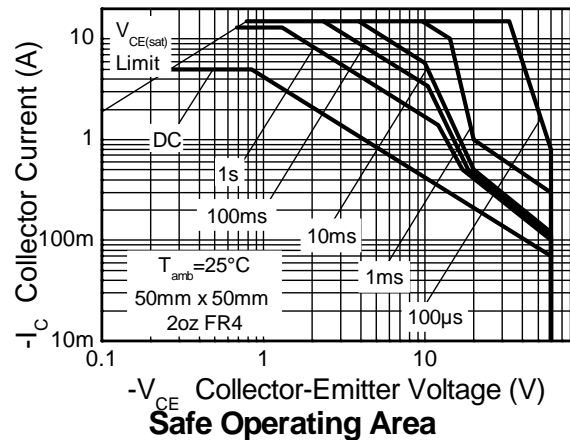
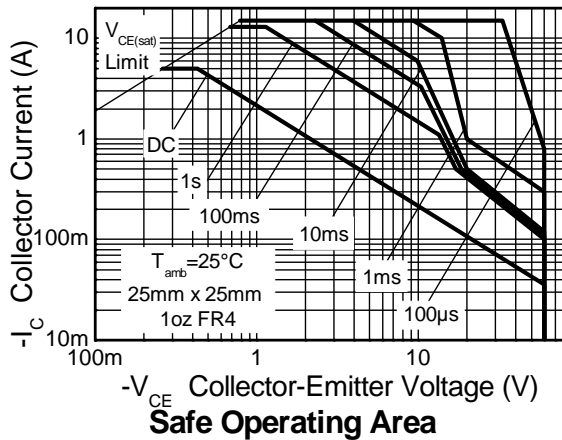
Characteristic	Symbol	Value	Unit
Collector-Base Voltage	BV <sub>CBO</sub>	-100	V
Collector-Base Voltage	BV <sub>CER</sub>	-100	V
Collector-Emitter Voltage	V <sub>CEO</sub>	-60	V
Emitter-Base Voltage	V <sub>EBO</sub>	-7	V
Continuous Collector Current	I <sub>C</sub>	-6	A
Base Current	I <sub>B</sub>	-0.5	A
Peak Pulse Collector Current	I <sub>CM</sub>	-15	A

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

Characteristic	Symbol	Value	Unit
Power Dissipation	P <sub>D</sub>	(Note 5) 2.1	W
		(Note 6) 3.2	
		(Note 7) 4.2	
Thermal Resistance, Junction to Ambient Air	R <sub>θJA</sub>	(Note 5) 59	°C/W
		(Note 6) 39	
		(Note 7) 30	
Thermal Resistance, Junction to Leads	R <sub>θJL</sub>	1.77	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

- Notes:
5. For the device mounted on 25mm x 25mm x 1.6mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions.
  6. For the device mounted on 50mm x 50mm x 1.6mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions
  7. For the device mounted on 25mm x 25mm x 1.6mm FR4 PCB with high coverage of single sided 2oz copper, in still air conditions
  8. Thermal resistance from junction to solder-point (at the end of the collector lead)

**Typical Thermal Characteristics**

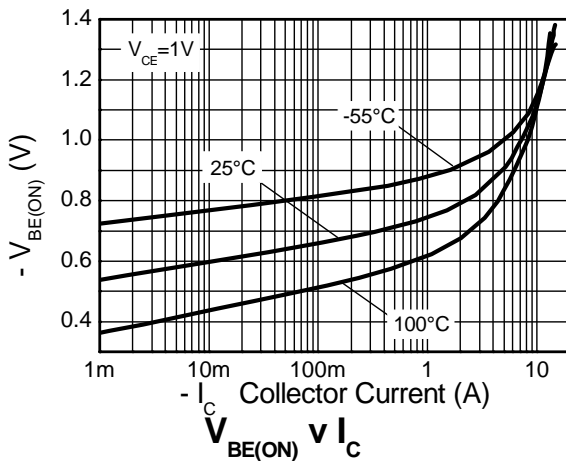
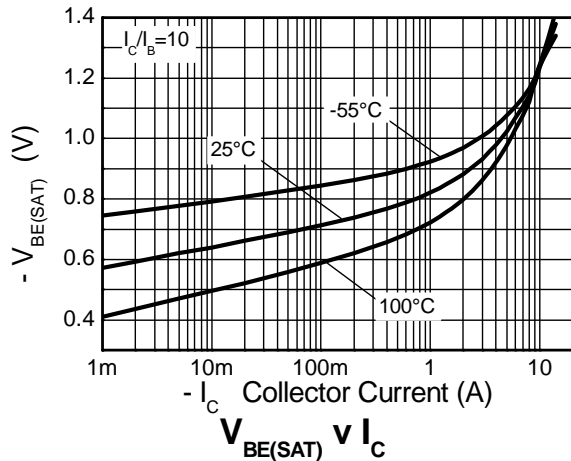
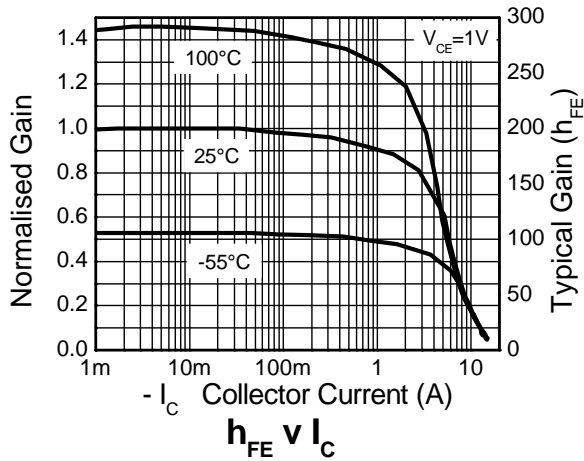
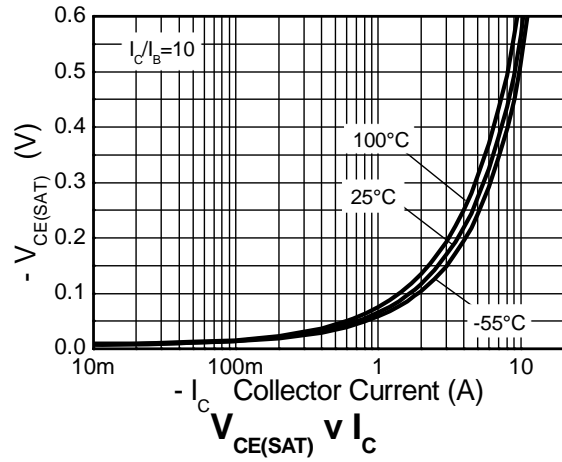
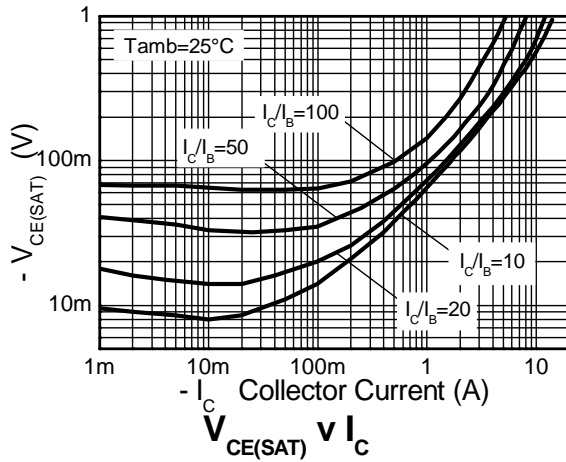


**Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ.	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV <sub>CB0</sub>	-100	-125	-	V	I <sub>C</sub> = -100μA
Collector-Base Breakdown Voltage	BV <sub>CER</sub>	-100	-125	-	V	I <sub>C</sub> = -100μA, R <sub>BE</sub> ≤ 1kΩ
Collector-Emitter Breakdown Voltage (Note 9)	BV <sub>CEO</sub>	-60	-80	-	V	I <sub>C</sub> = -10mA
Emitter-Base Breakdown Voltage	BV <sub>EBO</sub>	-7	-8.1	-	V	I <sub>E</sub> = -100μA
Collector Cutoff Current	I <sub>CB0</sub>	-	<1	-20	nA	V <sub>CB</sub> = -80V
Emitter Cutoff Current	I <sub>EBO</sub>	-	<1	-10	nA	V <sub>EB</sub> = -6V
Emitter Cutoff Current	I <sub>CER</sub>	-	<1	-20	nA	V <sub>CE</sub> = -80V, R <sub>BE</sub> ≤ 1kΩ
DC current transfer Static ratio (Note 9)	h <sub>FE</sub>	100	230	-	-	I <sub>C</sub> = -10mA, V <sub>CE</sub> = -1V
		100	200	300		I <sub>C</sub> = -2A, V <sub>CE</sub> = -1V
		50	110	-		I <sub>C</sub> = -6A, V <sub>CE</sub> = -1V
		15	40	-		I <sub>C</sub> = -10A, V <sub>CE</sub> = -1V
Collector-Emitter Saturation Voltage (Note 9)	V <sub>CE(sat)</sub>	-	-13	-25	mV	I <sub>C</sub> = -0.1A, I <sub>B</sub> = -10mA
		-	-60	-90		I <sub>C</sub> = -1A, I <sub>B</sub> = -100mA
		-	-115	-165		I <sub>C</sub> = -2A, I <sub>B</sub> = -200mA
		-	-315	-400		I <sub>C</sub> = -6A, I <sub>B</sub> = -600mA
Base-Emitter Saturation Voltage (Note 9)	V <sub>BE(sat)</sub>	-	-1.05	-1.2	V	I <sub>C</sub> = -6A, I <sub>B</sub> = -600mA
Base-Emitter Turn-on Voltage (Note 9)	V <sub>BE(on)</sub>	-	-0.92	-1.05	V	I <sub>C</sub> = -6A, V <sub>CE</sub> = -1V
Transitional Frequency	f <sub>T</sub>	-	120	-	MHz	I <sub>C</sub> = -100mA, V <sub>CE</sub> = -10V f = 50MHz
Output capacitance	C <sub>OBO</sub>	-	74	-	pF	V <sub>CB</sub> = -10V, f = 1MHz,
Switching times	t <sub>ON</sub>	-	82	-	nS	I <sub>C</sub> = -2A, V <sub>CC</sub> = -10V, I <sub>B1</sub> = I <sub>B2</sub> = -200mA
	t <sub>OFF</sub>	-	350	-		

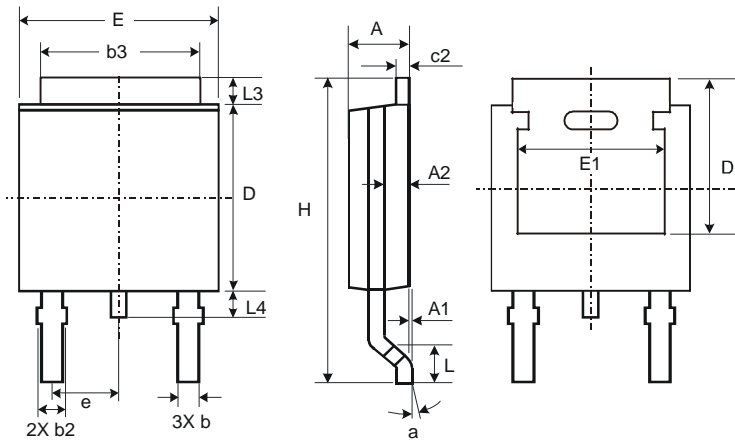
Notes: 9. Measured under pulsed conditions. Pulse width ≤ 300μs. Duty cycle ≤ 2%.

**Typical Electrical Characteristics**



## Package Outline Dimensions

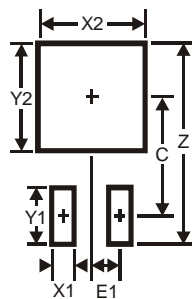
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.



TO252			
Dim	Min	Max	Typ
A	2.19	2.39	2.29
A1	0.00	0.13	0.08
A2	0.97	1.17	1.07
b	0.64	0.88	0.783
b2	0.76	1.14	0.95
b3	5.21	5.46	5.33
c2	0.45	0.58	0.531
D	6.00	6.20	6.10
D1	5.21	-	-
e	-	-	2.286
E	6.45	6.70	6.58
E1	4.32	-	-
H	9.40	10.41	9.91
L	1.40	1.78	1.59
L3	0.88	1.27	1.08
L4	0.64	1.02	0.83
a	0°	10°	-
<b>All Dimensions in mm</b>			

## Suggested Pad Layout

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



Dimensions	Value (in mm)
Z	11.6
X1	1.5
X2	7.0
Y1	2.5
Y2	7.0
C	6.9
E1	2.3

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