ZTX751

60V PNP MEDIUM POWER TRANSISTOR IN E-LINE

Features

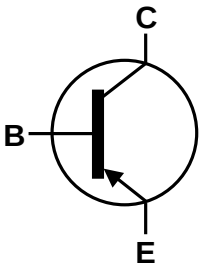
- BV_{CEO} > -60V
- I_C = -2A High Continuous Collector Current
- I_{CM} = -6A Peak Pulse Current
- T_J up to +200°C for High Temperature Operation
- Low Saturation Voltage < -0.3V @ -1A
- P_D = 1W Power dissipation
- **Totally Lead-Free & Fully RoHS compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**
- **PPAP Capable (Note 4)**

Mechanical Data

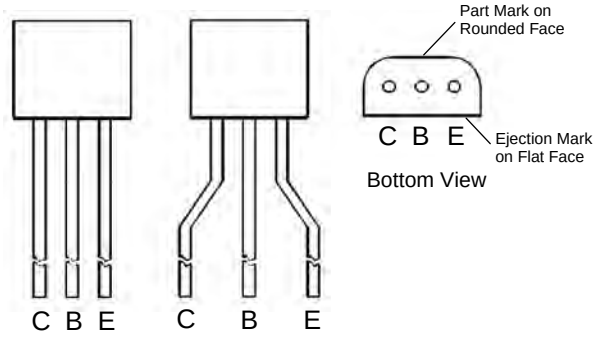
- Case: E-Line (TO-92 Compatible)
- Case Material: molded plastic, "Green" Molding Compound
- UL Flammability Classification Rating 94V-0
- Terminals: Finish – Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208 e3
- Weight: 0.159 grams (approximate)

E-Line
(TO-92 Compatible)

Flat Face View



Device Symbol



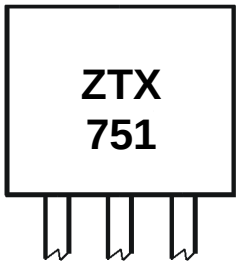
Pin-Out Configuration

Ordering Information (Notes 4 & 5)

Part Number	Compliance	Marking	Case	Leads	Quantity
ZTX751	AEC-Q101	ZTX751	E-Line	Straight	4,000 loose in a Box
ZTX751STZ	AEC-Q101	ZTX751	E-Line	Joggled	2,000 taped per Ammo Box
ZTX751QSTZ	Automotive	ZTX751	E-Line	Joggled	2,000 taped per Ammo Box

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. Automotive products are AEC-Q101 qualified and are PPAP capable. Automotive, AEC-Q101 and standard products are electrically and thermally the same, except where specified. For more information, please refer to http://www.diodes.com/quality/product_compliance_definitions/.
5. For packaging details, go to our website at http://www.diodes.com/products/packages.html.

Marking Information



Rounded Face View

ZTX751 = Product type Marking Code

Absolute Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	-80	V
Collector-Emitter Voltage	V_{CEO}	-60	V
Emitter-Base Voltage	V_{EBO}	-7	V
Continuous Collector Current	I_C	-2	A
Peak Pulse Current	I_{CM}	-6	A

Thermal Characteristics (@T_A = +25°C, unless otherwise specified.)

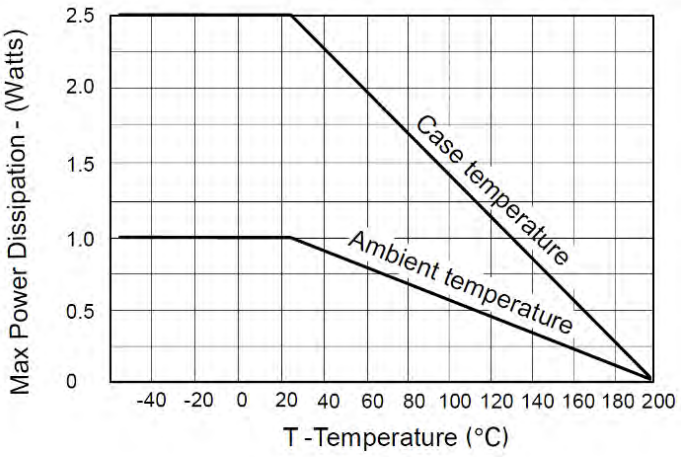
Characteristic	Symbol	Value	Unit
Power Dissipation (Note 6)	P_D	1.5	W
Power Dissipation (Note 7)	P_D	1	W
Thermal Resistance Junction to Ambient (Note 6)	$R_{\theta JA}$	116	°C/W
Thermal Resistance Junction to Ambient (Note 7)	$R_{\theta JA}$	175	°C/W
Thermal Resistance Junction to Lead (Note 8)	$R_{\theta JL}$	70	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +200	°C

ESD Ratings (Note 9)

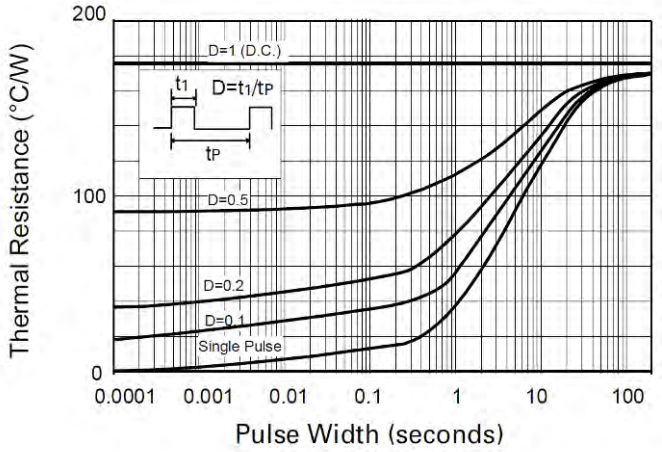
Characteristic	Symbol	Value	Unit	JEDEC Class
Electrostatic Discharge - Human Body Model	ESD HBM	≥ 4,000	V	3A
Electrostatic Discharge - Machine Model	ESD MM	≥ 400	V	C

Notes:
6. For a through-hole device mounted at the seating plane (2.5mm lead length) with the collector lead on 25mm x 25mm 1oz copper that is on a single-sided FR4 PCB; device is measured under still air conditions whilst operating in a steady-state.
7. Same as note (5), except the device is mounted on minimum recommended pad layout with 12mm lead length from the bottom of package to the board.
8. Thermal resistance from junction to solder-point at the seating plane (2.5mm from the bottom of package along the collector lead).
9. Refer to JEDEC specification JESD22-A114 and JESD22-A115.

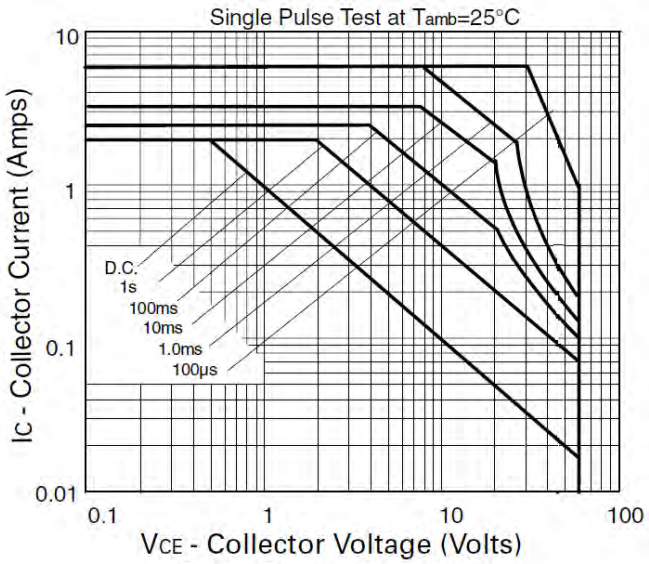
Thermal Characteristics and Derating Information



Derating curve



Maximum transient thermal impedance



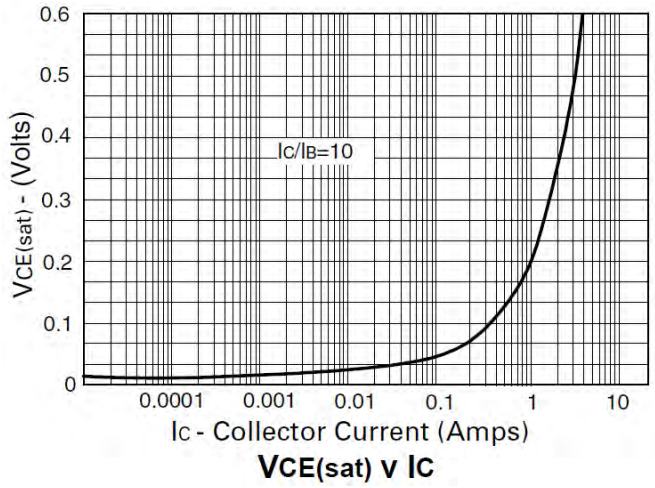
Safe Operating Area

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

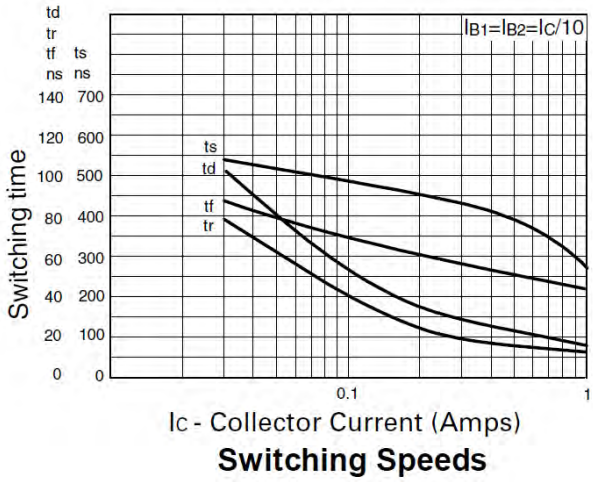
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV_{CBO}	-80	—	—	V	I_C = -100µA
Collector-Emitter Breakdown Voltage (Note 10)	BV_{CEO}	-60	—	—	V	I_C = -10mA
Emitter-Base Breakdown Voltage	BV_{EBO}	-7	—	—	V	I_E = -100µA
Collector Cut-off Current	I_{CBO}	—	—	-0.1 -10	µA µA	V_{CB} = -60V V_{CB} = -60V,T_{amb} = +100°C
Emitter Cut-off Current	I_{EBO}	—	—	-0.1	µA	V_{EB} = -6V
Collector-Emitter Saturation Voltage (Note 10)	$V_{CE(sat)}$	—	-150 -280	-300 -500	mV	I_C = -1A, I_B = -100mA I_C =-2A, I_B = -200mA
Base-Emitter Saturation Voltage (Note 10)	$V_{BE(sat)}$	—	-0.9	-1.25	V	I_C = -1A, I_B = -100mA
Base-Emitter Turn-On Voltage (Note 10)	$V_{BE(on)}$	—	-0.8	-1	V	I_C = -1A, V_{CE} = -2V
DC Current Gain (Note 10)	h_{FE}	70 100 80 40	200 200 170 80	— 300 — —	—	I_C = -50mA, V_{CE} = -2V I_C = -500mA, V_{CE} = -2V I_C = -1A, V_{CE} = -2V I_C = -2A, V_{CE} = -2V
Current Gain-Bandwidth Product (Note 10)	f_T	100	140	—	MHz	V_{CE} = -5V, I_C = -100mA f = 100MHz
Output Capacitance (Note 10)	C_{obo}	—	—	30	pF	V_{CB} = -10V. f = 1MHz
Turn-On Times	t_{on}	—	40	—	ns	I_C = -500mA, I_{B1} = I_{B2} = -50mA, V_{CC} = -10V
Turn-Off Times	t_{off}	—	450	—	ns	

Note: 10. Measured under pulsed conditions. Pulse width ≤ 300µs. Duty cycle ≤2%

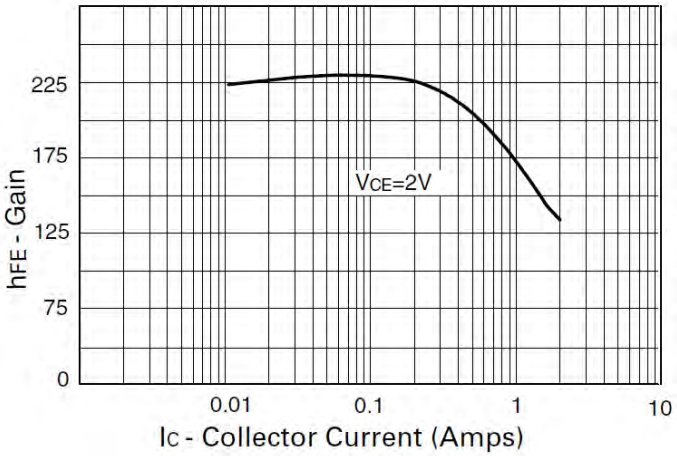
Typical Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)



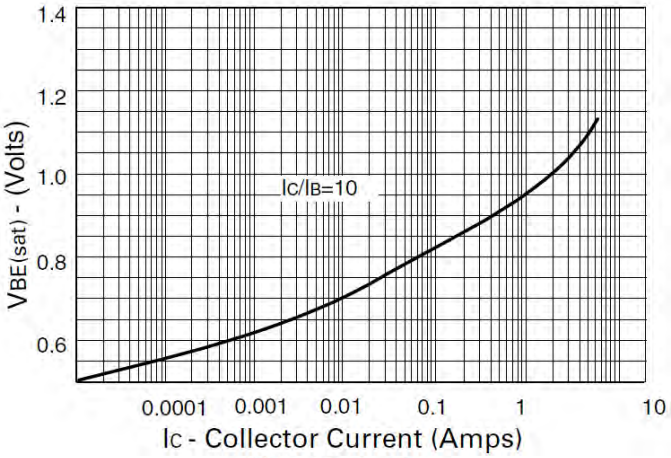
VCE(sat) v IC



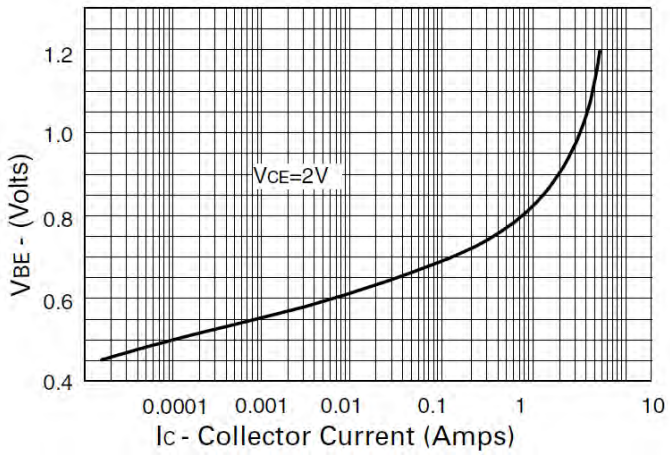
Switching Speeds



hFE v IC



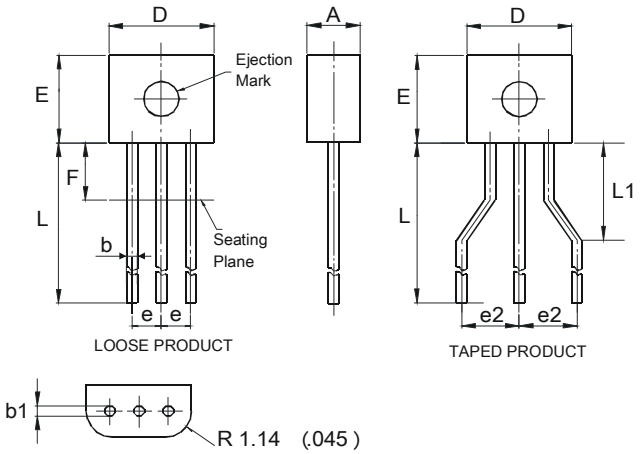
VBE(sat) v IC



VBE(on) v IC

Package Outline Dimensions

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



E-Line			
Dim	**Min**	**Max**	**Typ**
A	2.16	2.41	–
b	0.41	0.495	–
b1	0.41	0.495	–
D	4.37	4.77	–
E	3.61	4.01	–
e	–	–	1.27
e2	–	–	2.54
F	–	2.50	–
L	13.00	13.97	–
L1	2.50	3.50	–
All Dimensions in mm			

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