



# THE DATASHEET OF ZTX758



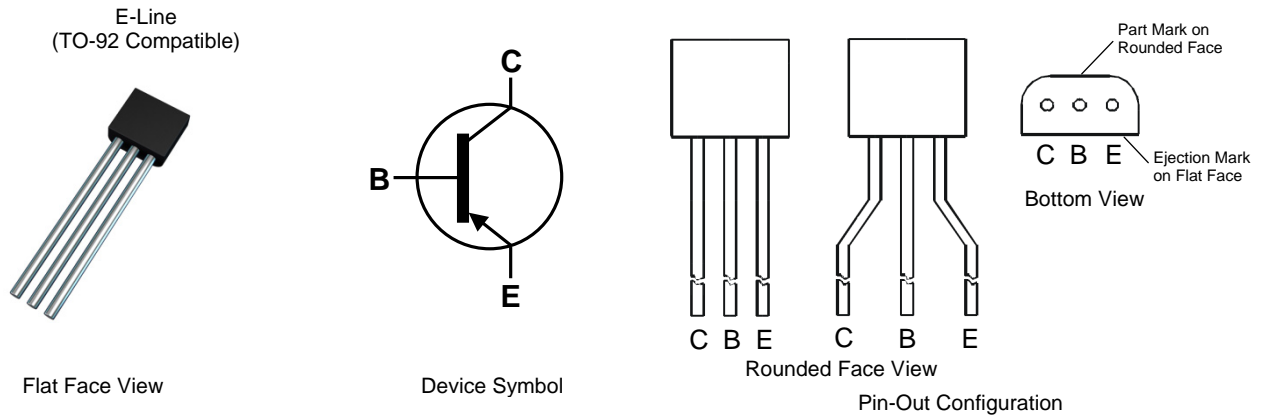
**400V PNP MEDIUM POWER HIGH VOLTAGE TRANSISTOR IN E-LINE**

**Features**

- $BV_{CEO} > -400V$
- $I_C = -0.5A$  High Continuous Collector Current
- $I_{CM} = -1A$  Peak Pulse Current
- $T_J$  up to  $+200^{\circ}C$  for High Temperature Operation
- Low Saturation Voltage  $< -0.25V @ -50mA$
- $P_D = 1W$  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**

**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 208e3
- Weight: 0.159 grams (approximate)

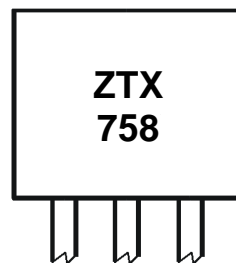


**Ordering Information** (Notes 4)

Part Number	Compliance	Marking	Case	Leads	Quantity
ZTX758	AEC-Q101	ZTX758	E-Line	Straight	4,000 loose in a Box
ZTX758STZ	AEC-Q101	ZTX758	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](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**



ZTX758 = Product Type Marking Code

Rounded Face View

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

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V <sub>CB0</sub>	-400	V
Collector-Emitter Voltage	V <sub>CEO</sub>	-400	V
Emitter-Base Voltage	V <sub>EBO</sub>	-7	V
Continuous Collector Current	I <sub>C</sub>	-0.5	A
Peak Pulse Current	I <sub>CM</sub>	-1	A

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

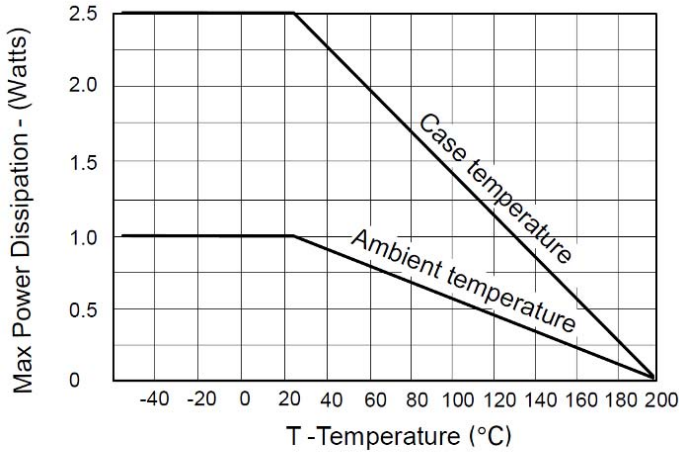
Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P <sub>D</sub>	1.5	W
Power Dissipation (Note 6)	P <sub>D</sub>	1	W
Thermal Resistance Junction to Ambient (Note 5)	R <sub>θJA</sub>	116	°C/W
Thermal Resistance Junction to Ambient (Note 6)	R <sub>θJA</sub>	175	°C/W
Thermal Resistance Junction to Lead (Note 7)	R <sub>θJL</sub>	70	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +200	°C

### ESD Ratings (Note 8)

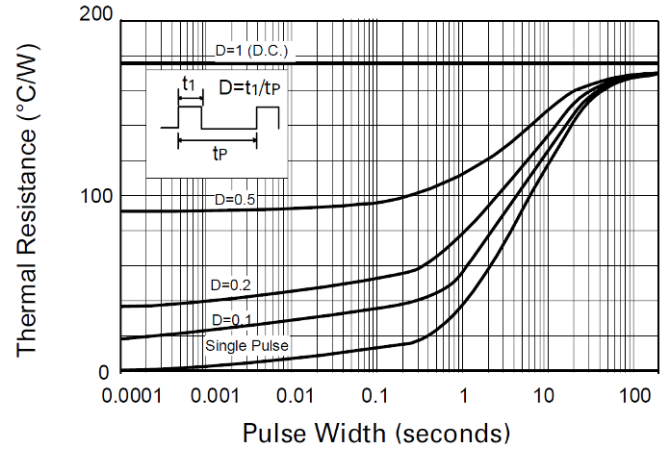
Characteristic	Symbol	Value	Unit	JEDEC Class
Electrostatic Discharge - Human Body Model	ESD HBM	≥ 4,000	V	3A
Electrostatic Discharge - Machine Model	ESD MM	≥ 400	V	C

- Notes:
5. For a 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.
  6. 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.
  7. Thermal resistance from junction to solder-point at the seating plane (2.5mm from the bottom of package along the collector lead).
  8. Refer to JEDEC specification JESD22-A114 and JESD22-A115.

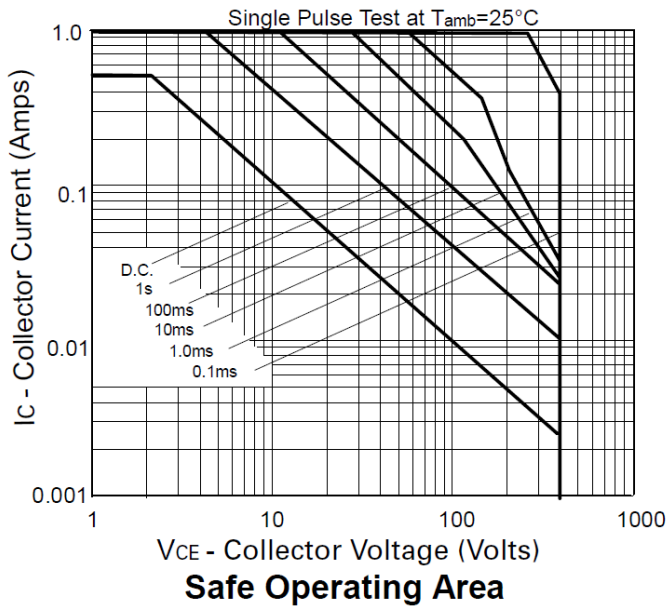
**Thermal Characteristics and Derating Information**



**Derating curve**



**Maximum transient thermal impedance**



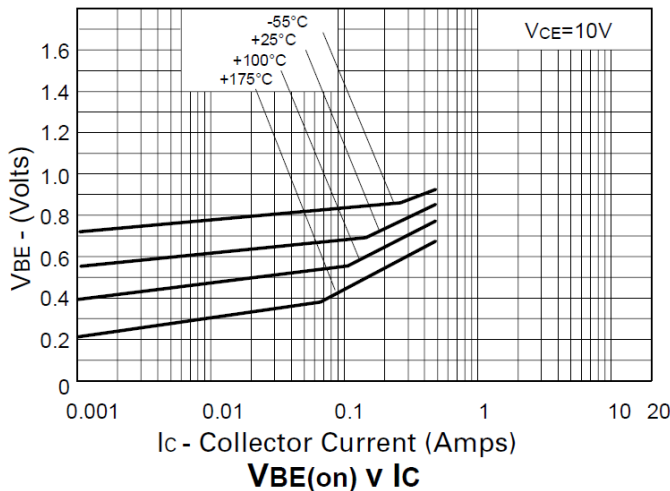
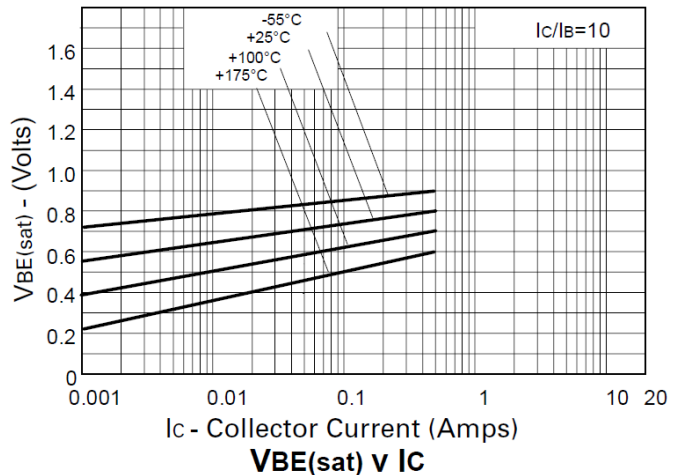
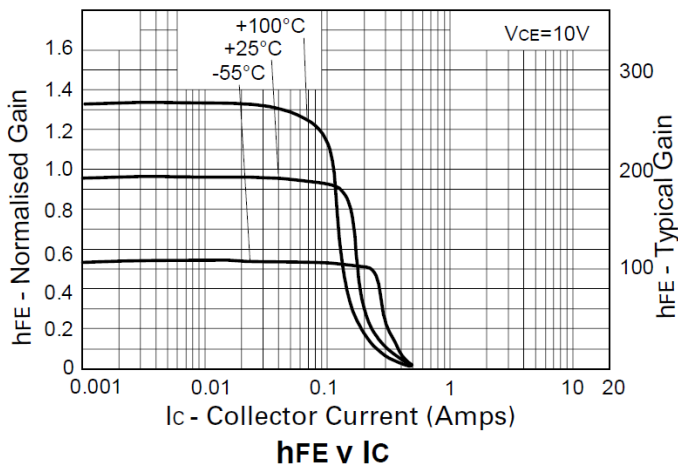
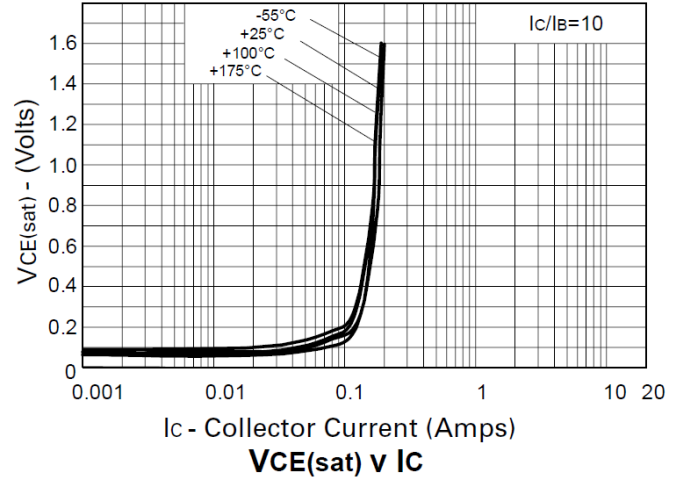
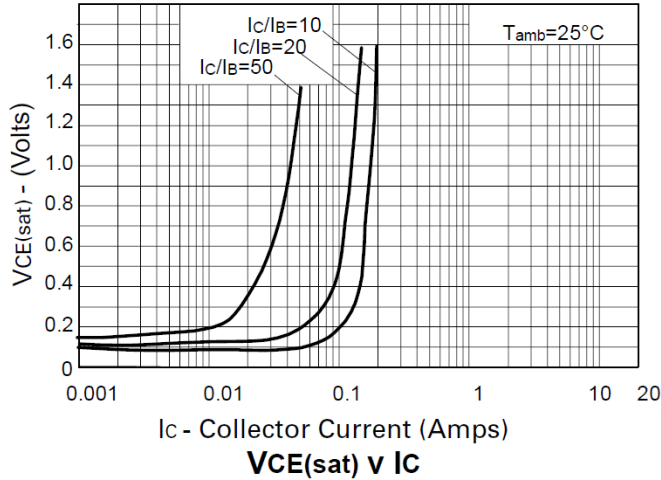
**Safe Operating Area**

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV <sub>CBO</sub>	-400	—	—	V	I <sub>C</sub> = -100μA
Collector-Emitter Breakdown Voltage (Note 9)	BV <sub>CEO</sub>	-400	—	—	V	I <sub>C</sub> = -1mA
Emitter-Base Breakdown Voltage	BV <sub>EBO</sub>	-7	—	—	V	I <sub>E</sub> = -100μA
Collector Cut-off Current	I <sub>CBO</sub>	—	—	-100	nA	V <sub>CB</sub> = -320V
Emitter Cut-off Current	I <sub>EBO</sub>	—	—	-100	nA	V <sub>EB</sub> = -6V
Collector-Emitter Saturation Voltage (Note 9)	V <sub>CE(sat)</sub>	—	—	-300 -250 -500	mV	I <sub>C</sub> = -20mA, I <sub>B</sub> = -1mA I <sub>C</sub> = -50mA, I <sub>B</sub> = -5mA I <sub>C</sub> = -100mA, I <sub>B</sub> = -10mA
Base-Emitter Saturation Voltage (Note 9)	V <sub>BE(sat)</sub>	—	—	-0.9	V	I <sub>C</sub> = -100mA, I <sub>B</sub> = -100mA
Base-Emitter Turn-On Voltage (Note 9)	V <sub>BE(on)</sub>	—	—	-0.9	V	I <sub>C</sub> = -100mA, V <sub>CE</sub> = -5V
DC Current Gain (Note 9)	h <sub>FE</sub>	50 50 40	—	—	—	I <sub>C</sub> = -1mA, V <sub>CE</sub> = -5V I <sub>C</sub> = -100mA, V <sub>CE</sub> = -5V I <sub>C</sub> = -200mA, V <sub>CE</sub> = -10V
Current Gain-Bandwidth Product (Note 9)	f <sub>T</sub>	50	—	—	MHz	V <sub>CE</sub> = -20V, I <sub>C</sub> = -20mA f = 20MHz
Output Capacitance (Note 9)	C <sub>obo</sub>	—	—	20	pF	V <sub>CB</sub> = -20V, f = 1MHz
Turn-On Times	t <sub>on</sub>	—	140	—	ns	I <sub>C</sub> = -100mA, I <sub>B1</sub> = 10mA,
Turn-Off Times	t <sub>off</sub>	—	2000	—	ns	I <sub>B2</sub> = -20mA, V <sub>C</sub> = -100V

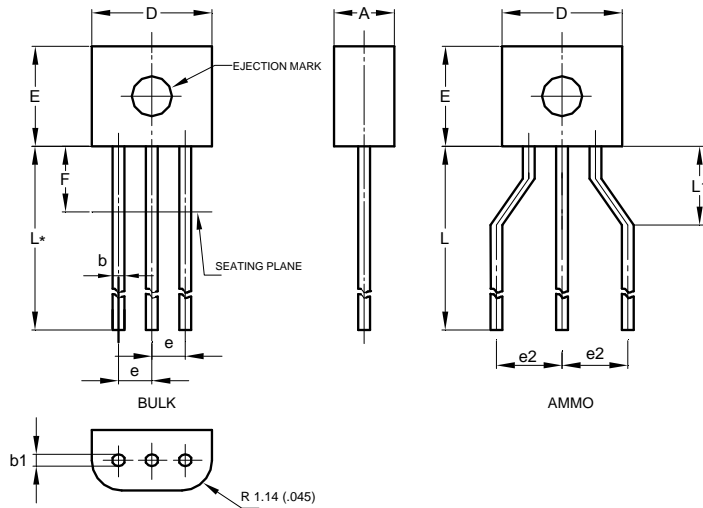
Note: 9. Measured under pulsed conditions. Pulse width ≤ 300μs. Duty cycle ≤ 2%

**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.



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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