# ZTX758STOA Datasheet


| | |
|---|---|
| DiGi Electronics Part Number | ZTX758STOA-DG |
| Manufacturer | Diodes Incorporated |
| Manufacturer Product Number | ZTX758STOA |
| Description | TRANS PNP 400V 0.5A E-LINE |
| Detailed Description | Bipolar (BJT) Transistor PNP 400 V 500 mA 50MHz 1 W Through Hole E-Line (TO-92 compatible) |

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## Purchase and inquiry

| Manufacturer Product Number: | Manufacturer: |
| --- | --- |
| ZTX758STOA | Diodes Incorporated |
| Series: | Product Status: |
| - | Obsolete |
| Transistor Type: | Current - Collector (Ic) (Max): |
| PNP | 500 mA |
| Voltage - Collector Emitter Breakdown (Max): | Vce Saturation (Max) @ Ib, Ic: |
| 400 V | 500mV @ 10mA, 100mA |
| Current - Collector Cutoff (Max): | DC Current Gain (hFE) (Min) @ Ic, Vce: |
| 100nA | 40 @ 200mA, 10V |
| Power - Max: | Frequency - Transition: |
| 1 W | 50MHz |
| Operating Temperature: | Mounting Type: |
| -55°C ~ 200°C (TJ) | Through Hole |
| Package / Case: | Supplier Device Package: |
| E-Line-3, Formed Leads | E-Line (TO-92 compatible) |
| Base Product Number: | |
| ZTX758 | |

## Environmental & Export classification

| RoHS Status: | Moisture Sensitivity Level (MSL): |
| --- | --- |
| ROHS3 Compliant | 1 (Unlimited) |
| REACH Status: | ECCN: |
| REACH Unaffected | EAR99 |
| HTSUS: | |
| 8541.29.0075 | |

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Lead-free Green

**ZTX758**

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

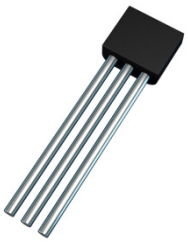
## Features

- $BV_{CEO}$ > -400V
- $I_C$ = -0.5A High Continuous Collector Current
- $I_{CM}$ = -1A Peak Pulse Current
- $T_J$ up to +200°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**

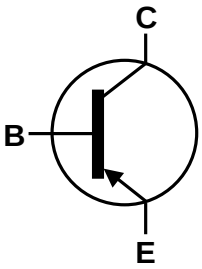
## Mechanical Data

- 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 208 e3
- Weight: 0.159 grams (approximate)

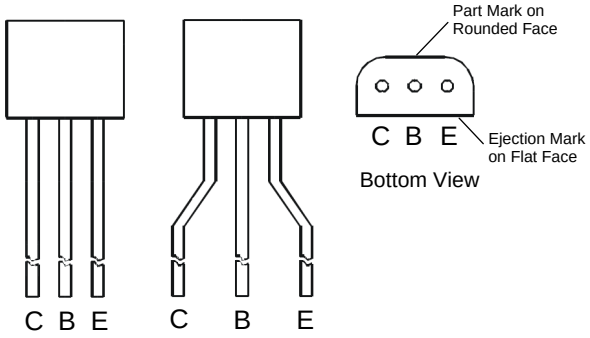
E-Line
(TO-92 Compatible)



Flat Face View




Device Symbol




Bottom View

Rounded Face View

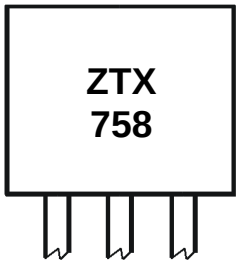
Pin-Out Configuration

## 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 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




Rounded Face View

ZTX758 = Product Type Marking Code

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

| Characteristic | Symbol | Value | Unit |
|---|---|---|---|
| Collector-Base Voltage | $V_{CBO}$ | -400 | V |
| Collector-Emitter Voltage | $V_{CEO}$ | -400 | V |
| Emitter-Base Voltage | $V_{EBO}$ | -7 | V |
| Continuous Collector Current | $I_C$ | -0.5 | A |
| Peak Pulse Current | $I_{CM}$ | -1 | A |

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

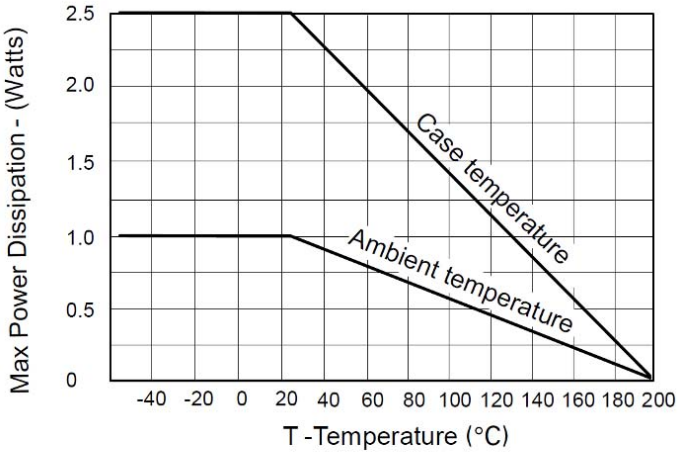
| Characteristic | Symbol | Value | Unit |
|---|---|---|---|
| Power Dissipation (Note 5) | $P_D$ | 1.5 | W |
| Power Dissipation (Note 6) | $P_D$ | 1 | W |
| Thermal Resistance Junction to Ambient (Note 5) | $R_{\theta JA}$ | 116 | °C/W |
| Thermal Resistance Junction to Ambient (Note 6) | $R_{\theta JA}$ | 175 | °C/W |
| Thermal Resistance Junction to Lead (Note 7) | $R_{\theta JL}$ | 70 | °C/W |
| Operating and Storage Temperature Range | $T_J$, $T_{STG}$ | -55 to +200 | °C |

## ESD Ratings (Note 8)

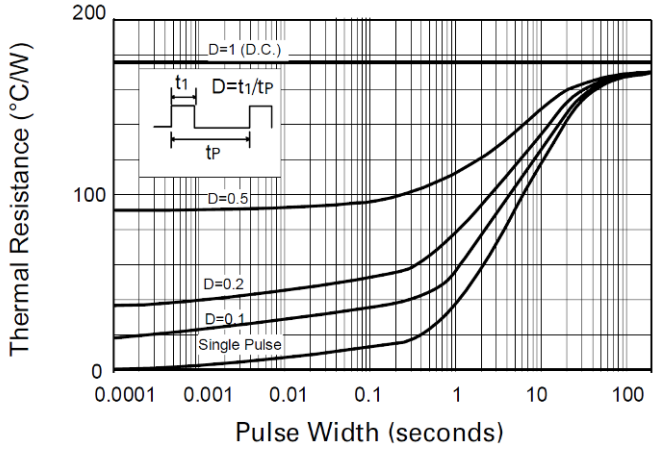
| Characteristic | Symbol | Value | Unit | JEDEC Class |
|---|---|---|---|---|
| Electrostatic Discharge - Human Body Model | ESD HBM | ≥ 4,000 | V | 3A |
| Electrostatic Discharge - Machine Model | ESD MM | ≥ 400 | V | C |

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.

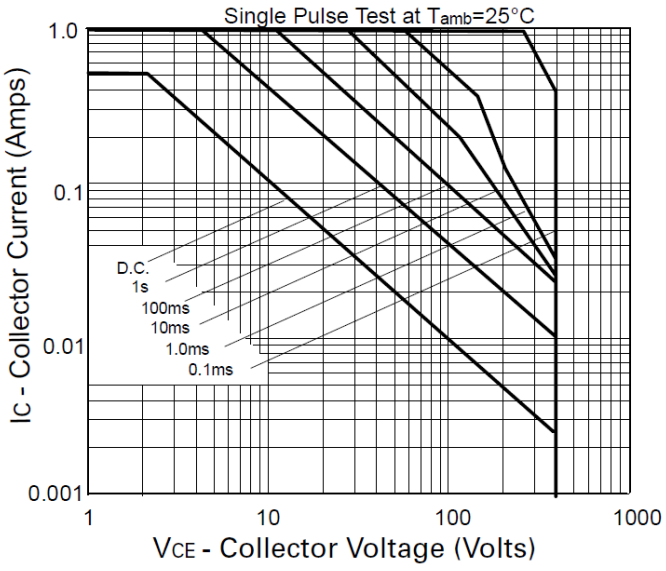
## Thermal Characteristics and Derating Information




**Derating curve**




**Maximum transient thermal impedance**



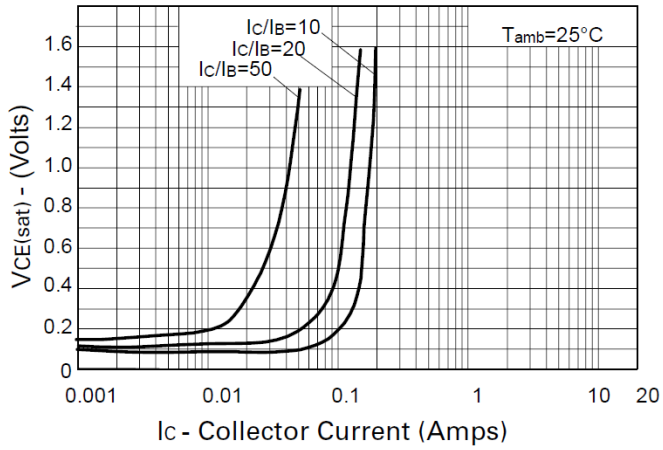

**Safe Operating Area**

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

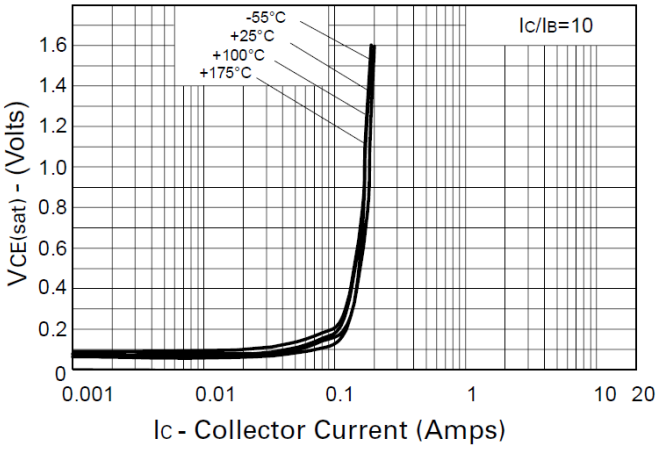
| Characteristic | Symbol | Min | Typ | Max | Unit | Test Condition |
|---|---|---|---|---|---|---|
| Collector-Base Breakdown Voltage | $BV_{CBO}$ | -400 | — | — | V | $I_C$ = -100µA |
| Collector-Emitter Breakdown Voltage (Note 9) | $BV_{CEO}$ | -400 | — | — | V | $I_C$ = -1mA |
| Emitter-Base Breakdown Voltage | $BV_{EBO}$ | -7 | — | — | V | $I_E$ = -100µA |
| Collector Cut-off Current | $I_{CBO}$ | — | — | -100 | nA | $V_{CB}$ = -320V |
| Emitter Cut-off Current | $I_{EBO}$ | — | — | -100 | nA | $V_{EB}$ = -6V |
| Collector-Emitter Saturation Voltage (Note 9) | $V_{CE(sat)}$ | — | — | -300<br>-250<br>-500 | mV | $I_C$ = -20mA, $I_B$ = -1mA<br>$I_C$ =-50mA, $I_B$ = -5mA<br>$I_C$ =-100mA, $I_B$ = -10mA |
| Base-Emitter Saturation Voltage (Note 9) | $V_{BE(sat)}$ | — | — | -0.9 | V | $I_C$ = -100mA, $I_B$ = -100mA |
| Base-Emitter Turn-On Voltage (Note 9) | $V_{BE(on)}$ | — | — | -0.9 | V | $I_C$ = -100mA, $V_{CE}$ = -5V |
| DC Current Gain (Note 9) | $h_{FE}$ | 50<br>50<br>40 | — | — | — | $I_C$ = -1mA, $V_{CE}$ = -5V<br>$I_C$ = -100mA, $V_{CE}$ = -5V<br>$I_C$ = -200mA, $V_{CE}$ = -10V |
| Current Gain-Bandwidth Product (Note 9) | $f_T$ | 50 | — | — | MHz | $V_{CE}$ = -20V, $I_C$ = -20mA<br>f = 20MHz |
| Output Capacitance (Note 9) | $C_{obo}$ | — | — | 20 | pF | $V_{CB}$ = -20V. f = 1MHz |
| Turn-On Times | $t_{on}$ | — | 140 | — | ns | $I_C$ = -100mA, $I_{B1}$ = 10mA, |
| Turn-Off Times | $t_{off}$ | — | 2000 | — | ns | $I_{B2}$ = -20mA, $V_C$ = -100V |

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

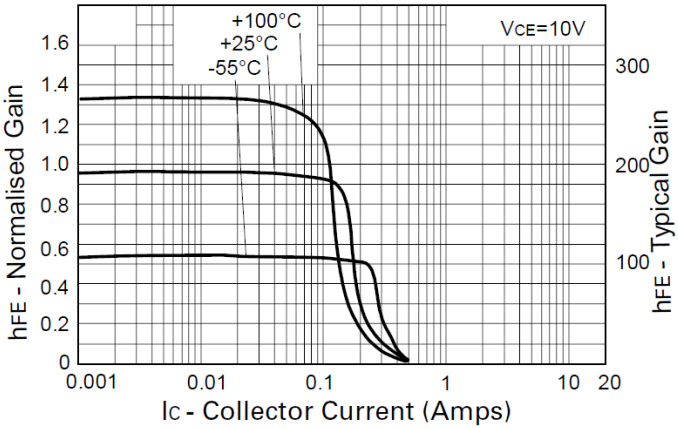
## Typical Electrical Characteristics (@$T_A$ = +25°C, unless otherwise specified.)



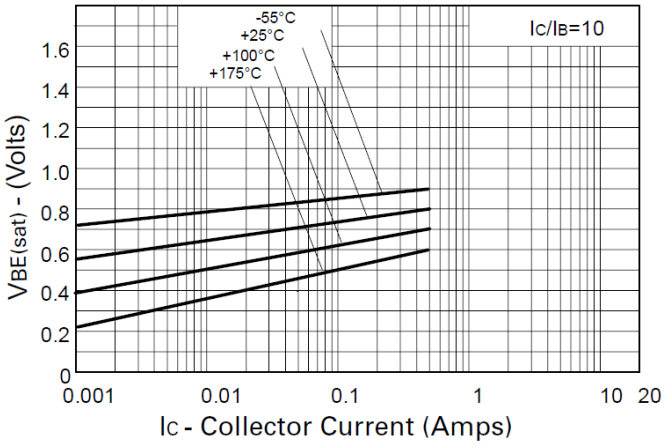

**VCE(sat) v IC**



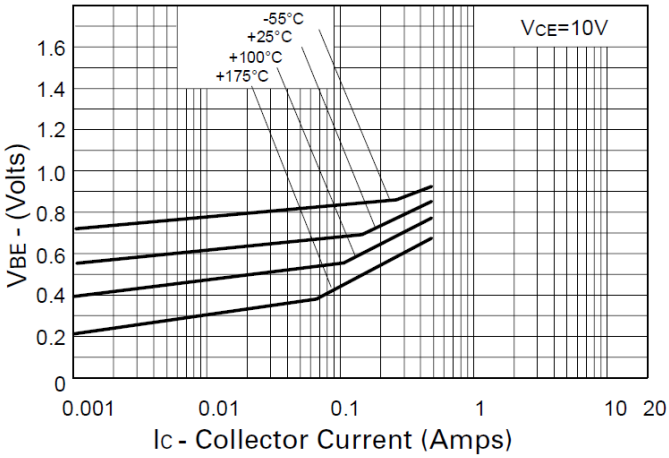

**VCE(sat) v IC**




**hFE v IC**




**VBE(sat) v IC**




**VBE(on) v IC**

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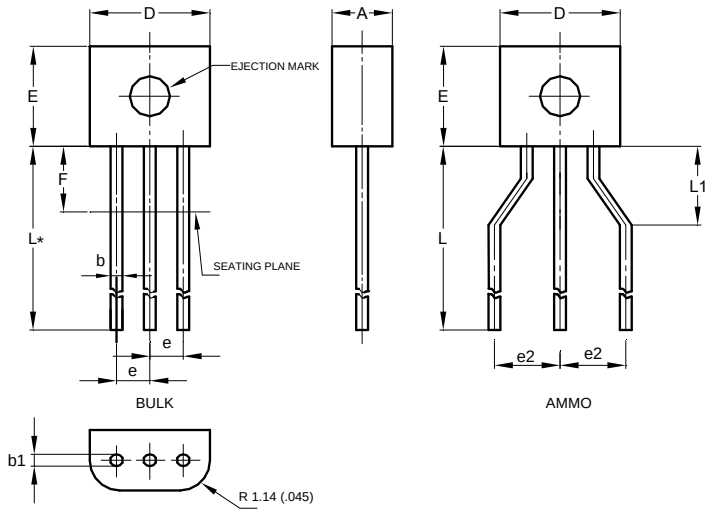
## Package Outline Dimensions

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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**ZTX758**

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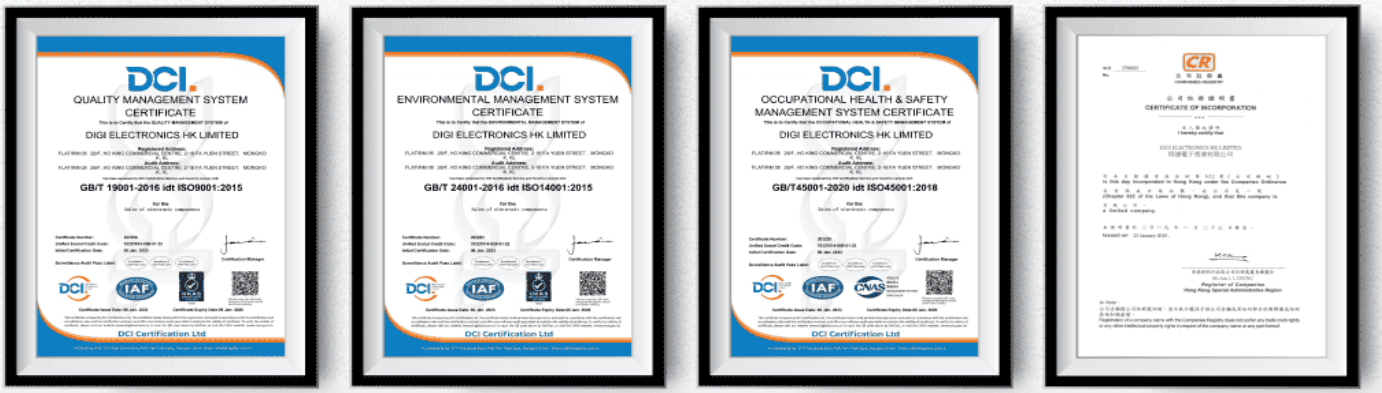



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