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

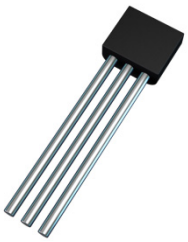
Features

- 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**

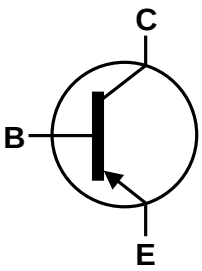
Mechanical Data

- 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)

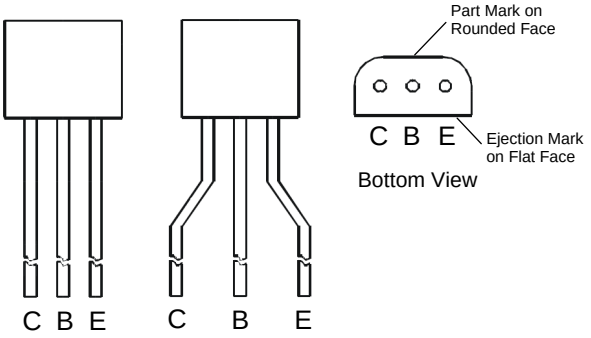
E-Line
(TO-92 Compatible)



Flat Face View



Device Symbol



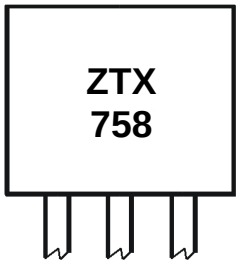
Pin-Out Configuration

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

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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

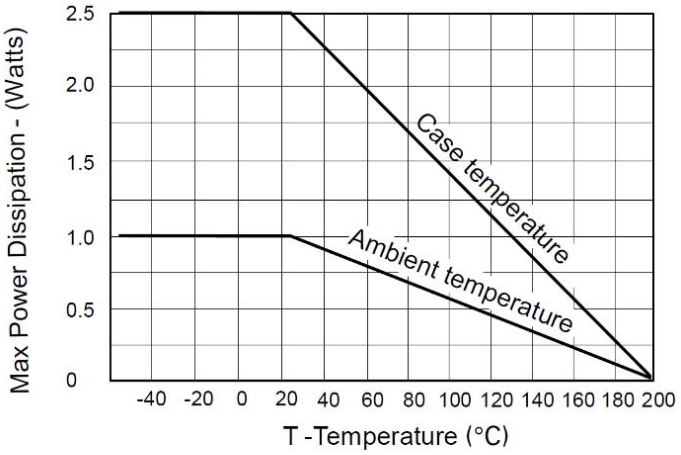
ESD Ratings (Note 8)

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

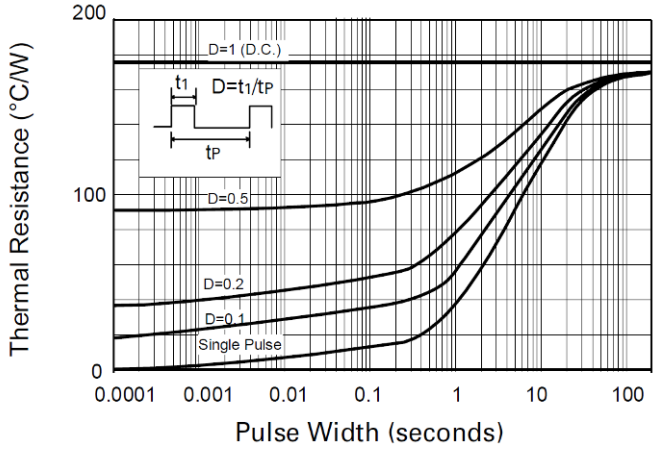
Notes:
5. For a through-hole device mounted at the seating plane (2.5mm lead length) with the collector lead on 25mm x 25mm 1oz copper that is on a single-sided FR4 PCB; device is measured under still air conditions whilst operating in a steady-state.
6. Same as note (5), except the device is mounted 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.

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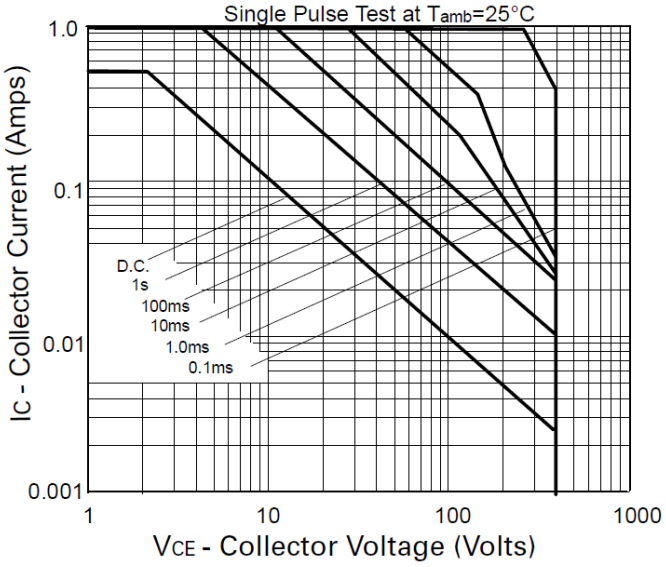
Thermal Characteristics and Derating Information



Derating curve



Maximum transient thermal impedance



Safe Operating Area

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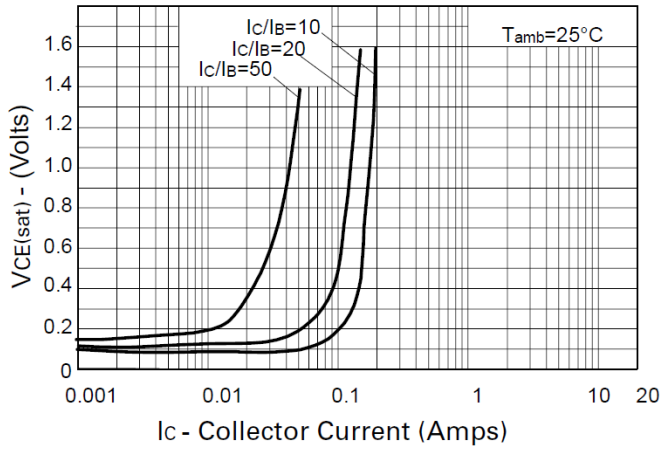
Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

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 -250 -500	mV	I_C = -20mA, I_B = -1mA I_C =-50mA, I_B = -5mA 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 50 40	—	—	—	I_C = -1mA, V_{CE} = -5V I_C = -100mA, V_{CE} = -5V I_C = -200mA, V_{CE} = -10V
Current Gain-Bandwidth Product (Note 9)	f_T	50	—	—	MHz	V_{CE} = -20V, I_C = -20mA 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

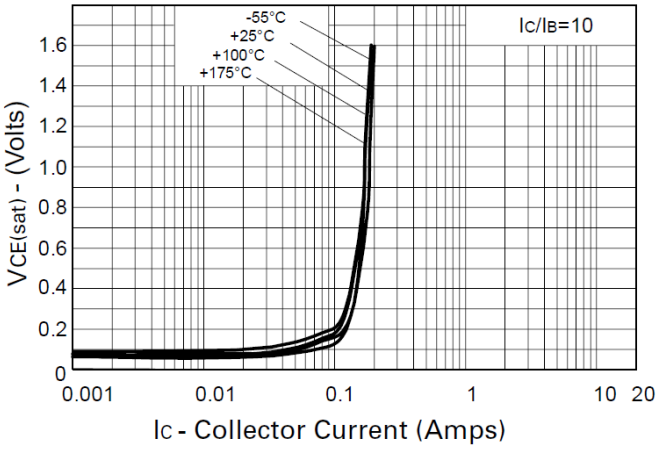
Note: 9. Measured under pulsed conditions. Pulse width ≤ 300µs. Duty cycle ≤ 2%

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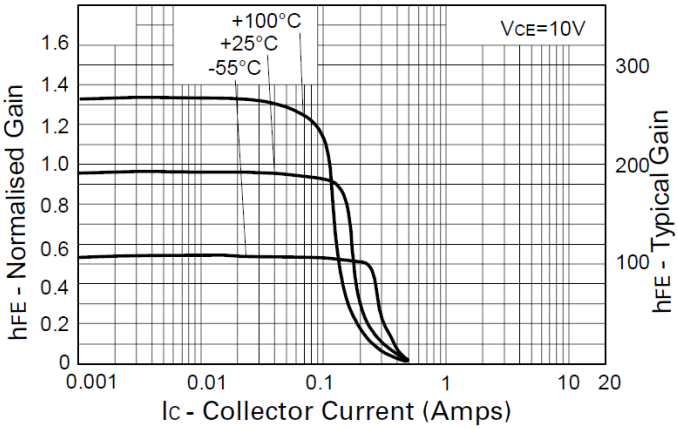
Typical Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)



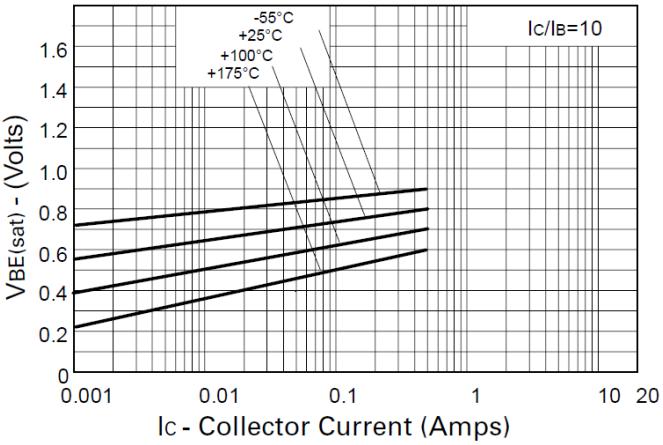
VCE(sat) v IC



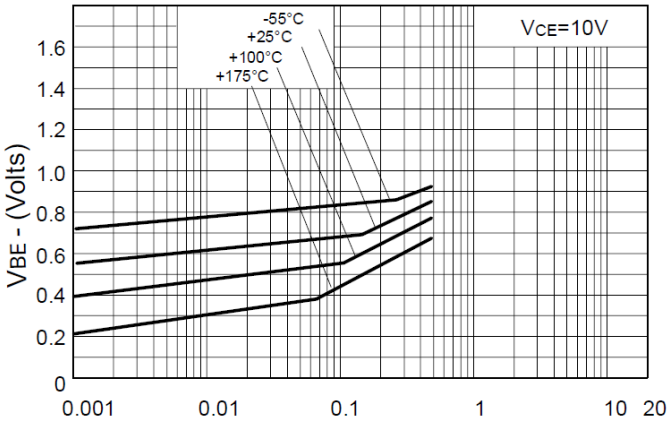
VCE(sat) v IC



hFE v IC



VBE(sat) v IC

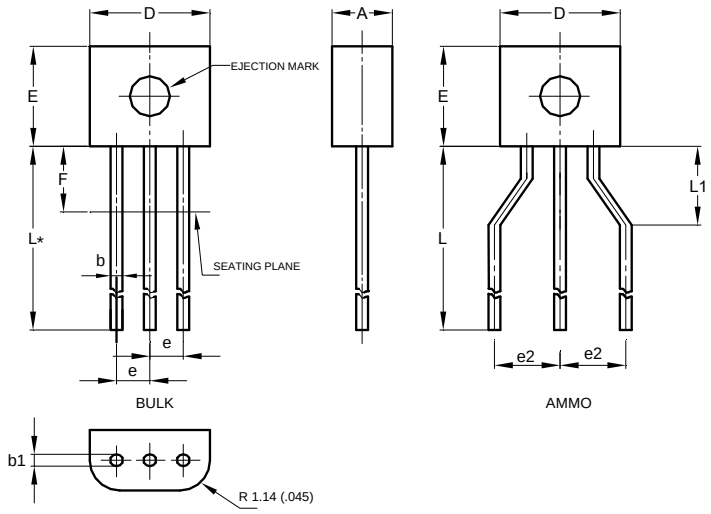


VBE(on) v IC

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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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