

150V NPN MEDIUM POWER TRANSISTOR IN E-LINE

Features

- $BV_{CEO} > 150V$
- $I_C = 4A$ High Continuous Collector Current
- $I_{CM} = 10A$ Peak Pulse Current
- T_J up to $200^{\circ}C$ for High Temperature Operation
- Low Saturation Voltage $< 100mV @ 1A$
- $P_D = 1.2W$ Power dissipation
- Complementary NPN Type: ZTX955
- **Lead-Free Finish; RoHS compliant (Note 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

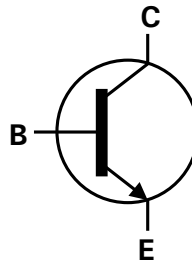
Mechanical Data

- Case: 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 
- Weight: 0.159 grams (approximate)

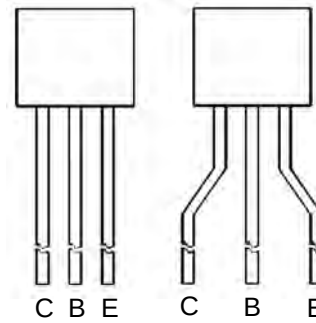
E-Line
(TO-92 Compatible)



Flat Face View

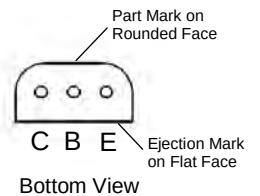


Device Symbol



Rounded Face View

Pin-Out Configuration



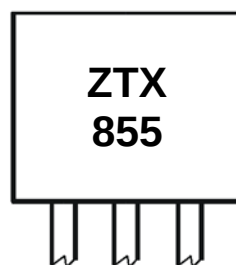
Bottom View

Ordering Information (Note 4)

Product	Marking	Package	Leads	Quantity
ZTX855STZ	ZTX855	E-Line	Joggled	2,000 taped per Ammo Box
ZTX855	ZTX855	E-Line	Straight	4,000 loose in a Box

- 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/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

ZTX855 = Product type Marking Code

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

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V _{CBO}	250	V
Collector-Emitter Voltage	V _{CEO}	150	V
Emitter-Base Voltage	V _{EBO}	6	V
Continuous Collector Current	I _C	4	A
Peak Pulse Current	I _{CM}	10	A

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

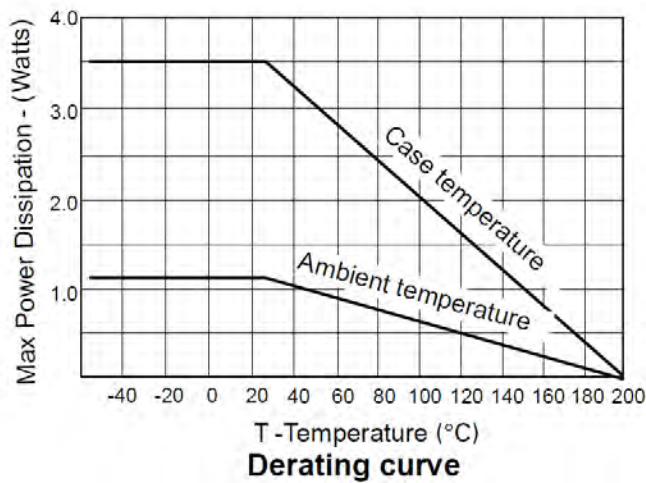
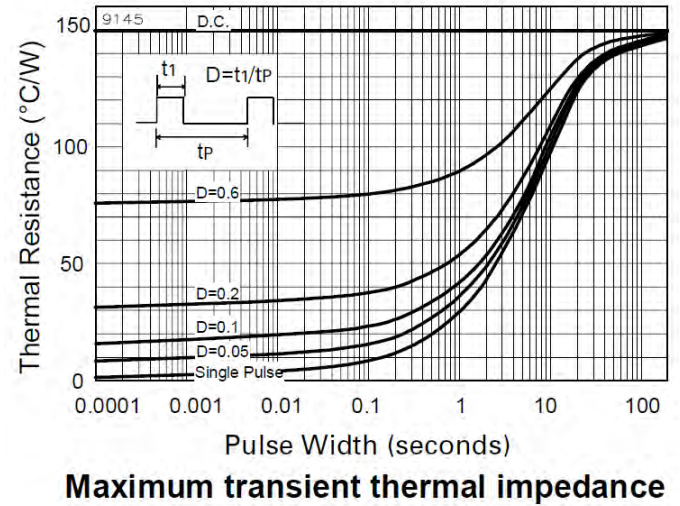
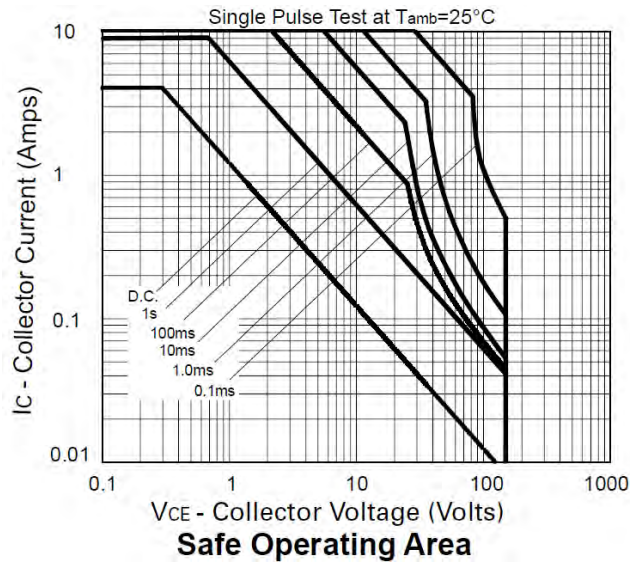
Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P _D	1.58	W
Power Dissipation (Note 6)	P _D	1.2	W
Thermal Resistance, Junction to Ambient (Note 5)	R _{θJA}	150	°C/W
Thermal Resistance, Junction to Ambient (Note 6)	R _{θJA}	110	°C/W
Thermal Resistance, Junction to Lead (Note 7)	R _{θJC}	50	°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:
- 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.
 - 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.
 - Thermal resistance from junction to solder-point at the seating plane (2.5mm from the bottom of package along the collector lead).
 - Refer to JEDEC specification JESD22-A114 and JESD22-A115.

Thermal Characteristics and Derating Information

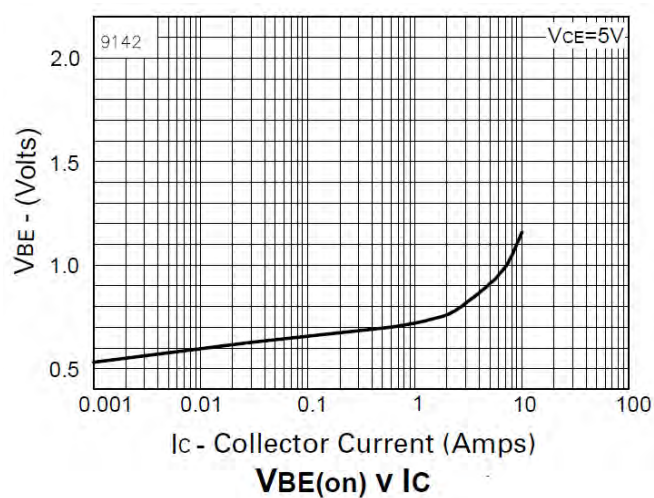
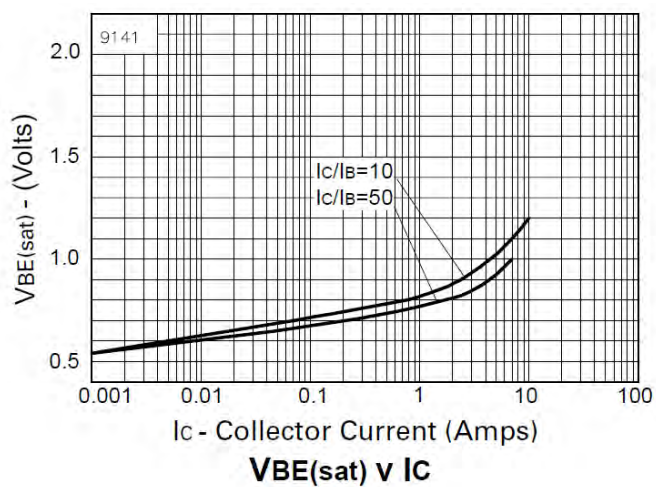
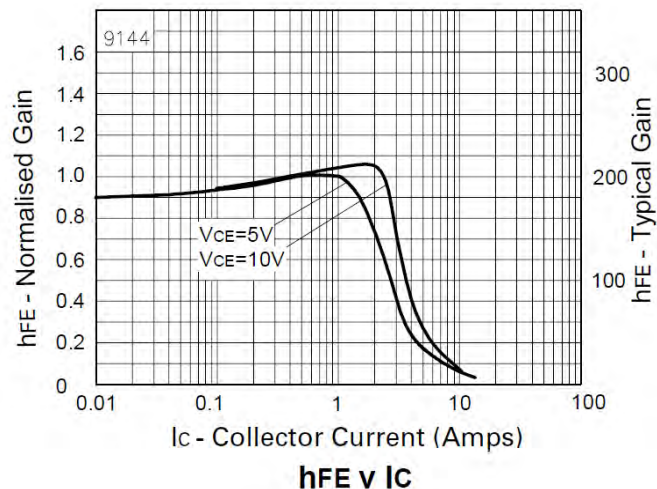
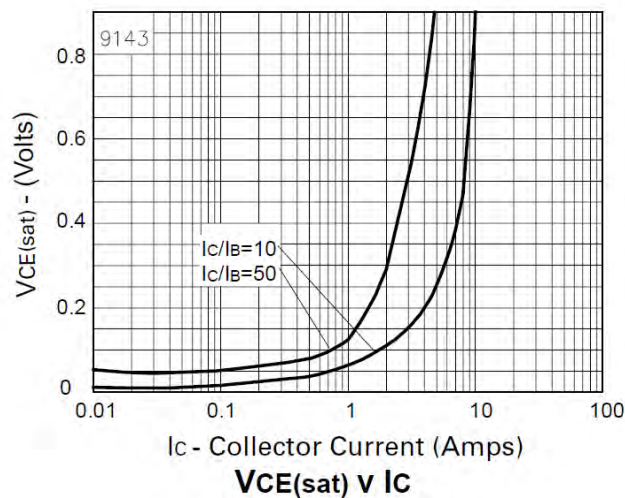


Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV _{CBO}	250	375	–	V	I _C = 100μA
Collector-Emitter Breakdown Voltage	BV _{CER}	250	375	–	V	I _C = 1μA, R _B ≤ 1kΩ
Collector-Emitter Breakdown Voltage (Note 9)	BV _{CEO}	150	180	–	V	I _C = 1mA
Emitter-Base Breakdown Voltage	BV _{EBO}	6	8	–	V	I _E = 100μA
Collector-Base Cut-off Current	I _{CBO}	–	–	50 1	nA μA	V _{CB} = 200V V _{CB} = 200V, @T _A = +100°C
Collector-Emitter Cut-off Current	I _{CER} R ≤ 1kΩ	–	–	50 1	nA μA	V _{CB} = 200V V _{CB} = 200V, @T _A = +100°C
Emitter-Base Cut-off Current	I _{EBO}	–	–	10	nA	V _{EB} = 6V
Collector-Emitter Saturation Voltage (Note 9)	V _{CE(sat)}	–	20 35 60 210	40 60 100 260	mV	I _C = 100mA, I _B = 5mA I _C = 500mA, I _B = 50mA I _C = 1A, I _B = 100mA I _C = 4A, I _B = 400mA
Base-Emitter Saturation Voltage (Note 9)	V _{BE(sat)}	–	960	1100	mV	I _C = 4A, I _B = 400mA
Base-Emitter Turn-On Voltage (Note 9)	V _{BE(on)}	–	880	1000	mV	I _C = 4A, V _{CE} = 5V
DC Current Gain (Note 9)	h _{FE}	100 100 35	200 200 55 10	– 300 – –		I _C = 10mA, V _{CE} = 5V I _C = 1A, V _{CE} = 5V I _C = 4A, V _{CE} = 5V I _C = 10A, V _{CE} = 5V
Current Gain-Bandwidth Product (Note 9)	f _T	–	90	–	MHz	V _{CE} = 10V, I _C = 100mA f = 50MHz
Output Capacitance (Note 9)	C _{obo}	–	22	–	pF	V _{CB} = 20V, f = 1MHz
Switching Times	t _{on} t _{off}	–	66 2130	–	ns ns	I _C = 1A, V _{CC} = 50V I _{B1} = -I _{B2} = 100mA

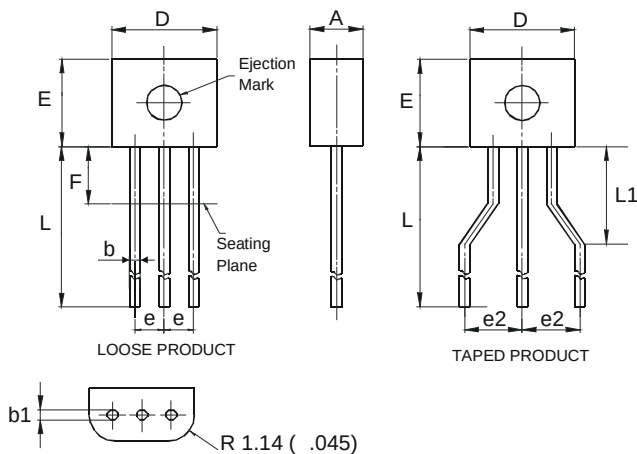
Notes: 9. Measured under pulsed conditions. Pulse width • 300μs. Duty cycle • 2%

Typical Electrical Characteristics (@T_A = +25°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			

Note: For high voltage applications, the appropriate industry sector guidelines should be considered with regards to voltage spacing between terminals.

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