150V NPN MEDIUM POWER TRANSISTOR IN E-LINE

Features

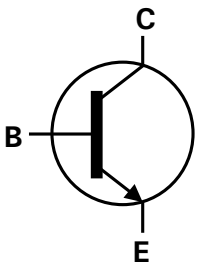
- BV_{CEO} > 150V
- I_C = 4A High Continuous Collector Current
- I_{CM} = 10A Peak Pulse Current
- T_J up to 200°C for High Temperature Operation
- Low Saturation Voltage < 100mV @ 1A
- P_D = 1.2W Power dissipation
- Complementary NPN Type: ZTX955
- **Lead-Free Finish; RoHS compliant (Note 1 & 2)**
-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

Mechanical Data

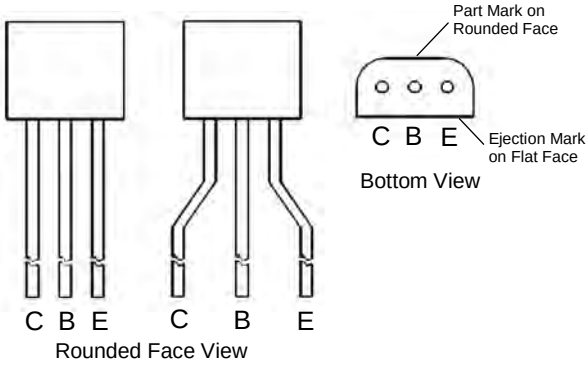
- Case: E-Line (TO-92 Compatible)
- Case Material: molded plastic, "Green" Molding Compound
- UL Flammability Classification Rating 94V-0
- Terminals: Finish – Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208 (e3)
- Weight: 0.159 grams (approximate)

E-Line
(TO-92 Compatible)

Flat Face View



Device Symbol



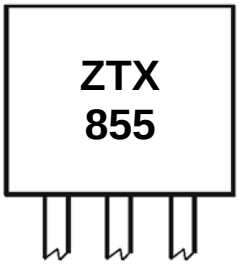
Pin-Out Configuration

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.)

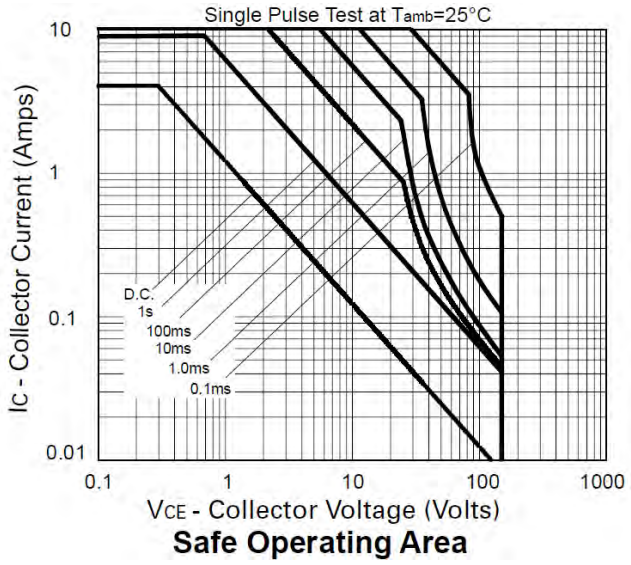
Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P_D	1.58	W
Power Dissipation (Note 6)	P_D	1.2	W
Thermal Resistance, Junction to Ambient (Note 5)	$R_{\theta JA}$	150	°C/W
Thermal Resistance, Junction to Ambient (Note 6)	$R_{\theta JA}$	110	°C/W
Thermal Resistance, Junction to Lead (Note 7)	$R_{\theta JC}$	50	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +200	°C

ESD Ratings (Note 8)

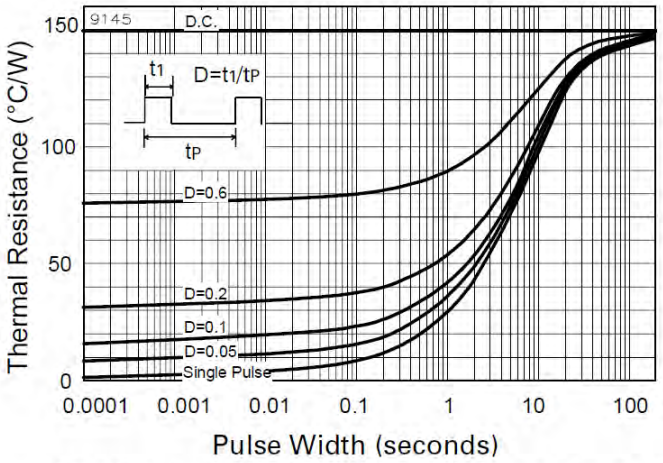
Characteristic	Symbol	Value	Unit	JEDEC Class
Electrostatic Discharge - Human Body Model	ESD HBM	≥ 4,000	V	3A
Electrostatic Discharge - Machine Model	ESD MM	≥ 400	V	C

Notes:
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.

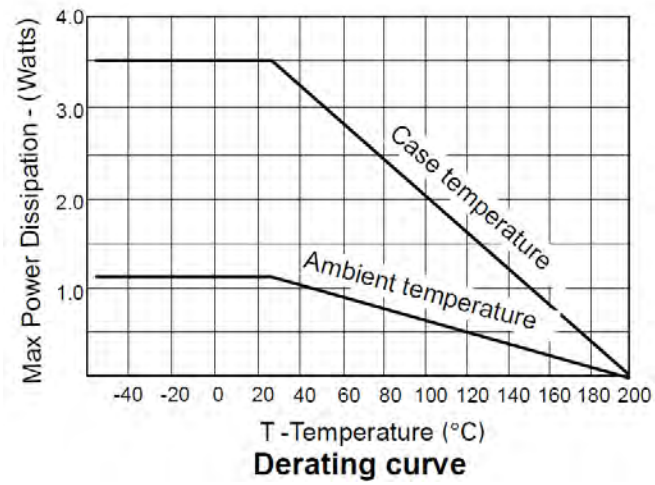
Thermal Characteristics and Derating Information



Safe Operating Area



Maximum transient thermal impedance



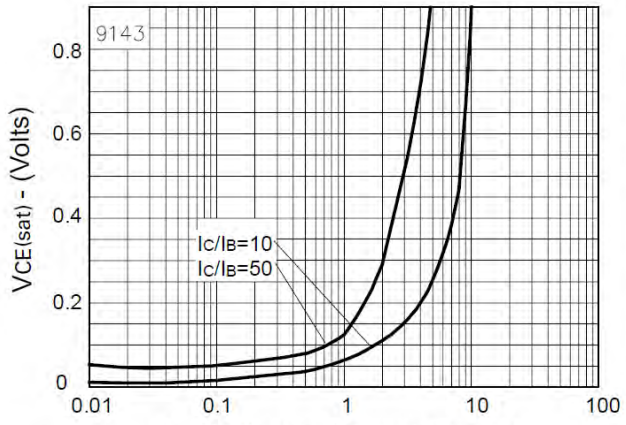
Derating curve

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

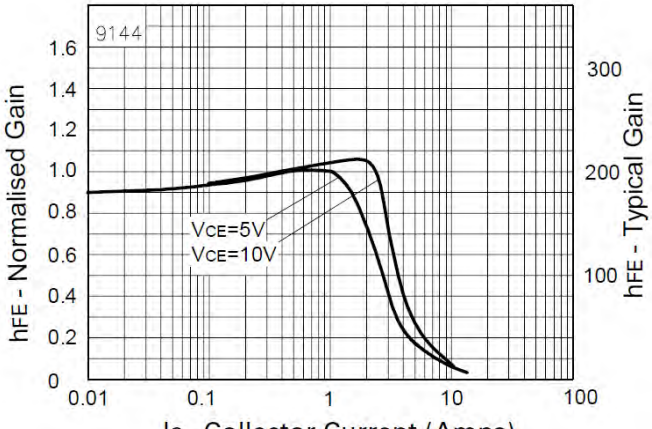
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV_{CBO}	250	375	–	V	I_C = 100µA
Collector-Emitter Breakdown Voltage	BV_{CER}	250	375	–	V	I_C = 1µA,R_B ≤1kΩ
Collector-Emitter Breakdown Voltage (Note 9)	BV_{CEO}	150	180	–	V	I_C = 1mA
Emitter-Base Breakdown Voltage	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%

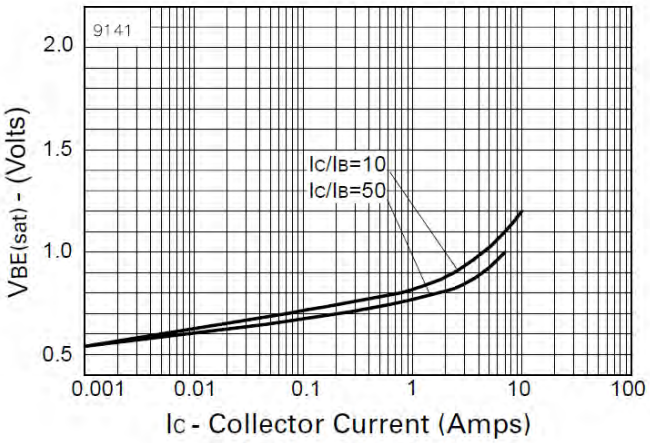
Typical Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)



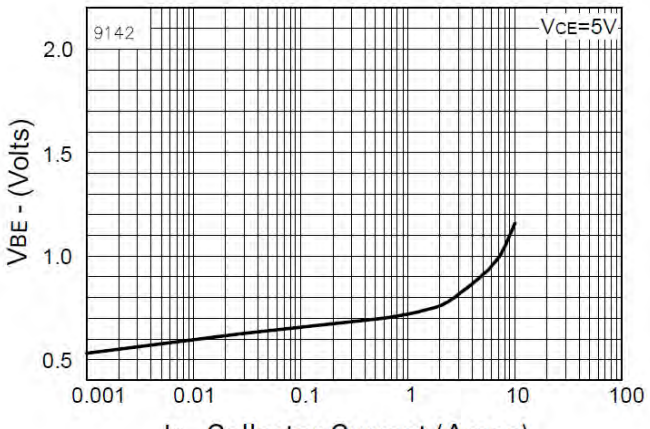
VCE(sat) v IC



hFE v IC



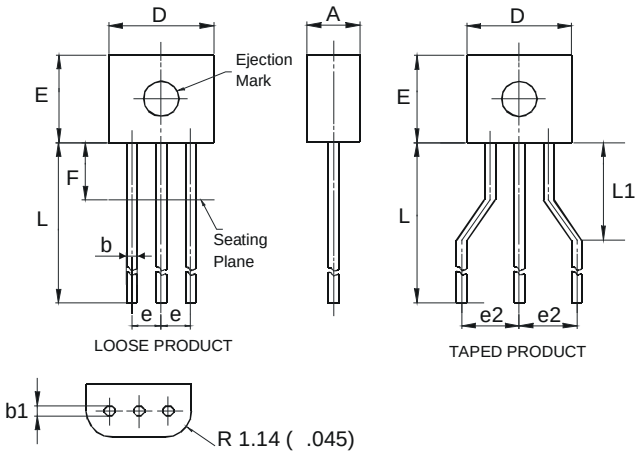
VBE(sat) v IC



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			

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

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