150V NPN SILICON PLANAR MEDIUM POWER TRANSISTOR

Features

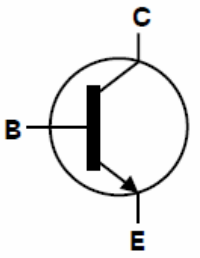
- BV_{CEO} > 150V
- Maximum Continuous Current $I_{C(cont)}$ = 4A
- Up to 10A Peak Current
- Low Saturation Voltage
- P_D = 1.2W
- **Lead-Free Finish; RoHS compliant (Note 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

Mechanical Data

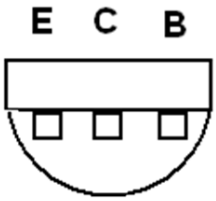
- Case: E-Line (TO-92 Compatible)
- UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish e3
- Weight: 0.159 grams (approximate)

E-Line

Top View



Device Symbol



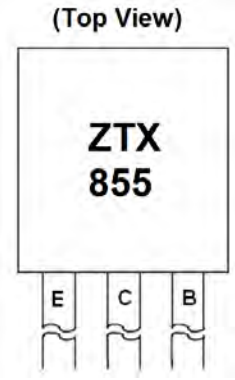
Bottom View
Pin-Out

Ordering Information (Note 4)

Product	Marking	Package	Quantity per box on tape
ZTX855STZ	ZTX855	E-Line	2,000
ZTX855	ZTX855	E-Line	4,000 loose

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 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.

Marking Information



ZTX855 = Product type Marking Code

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

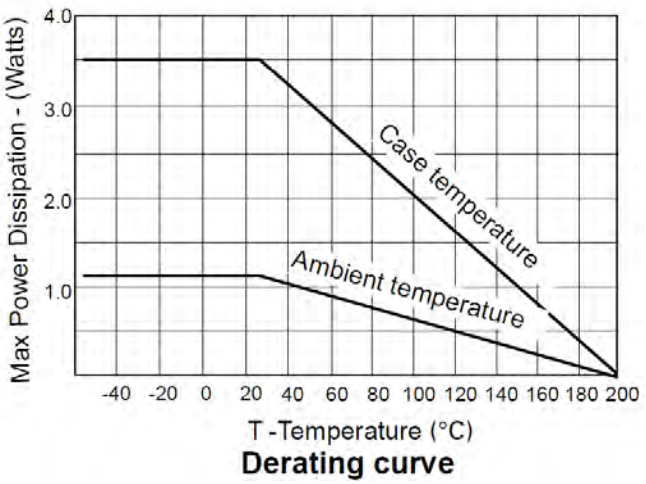
Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	250	V
Collector-Emitter Voltage	V_{CEO}	150	V
Emitter-Base Voltage	V_{EBO}	6	V
Continuous Collector Current	I_C	4	A
Peak Pulse Current	I_{CM}	10	A

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

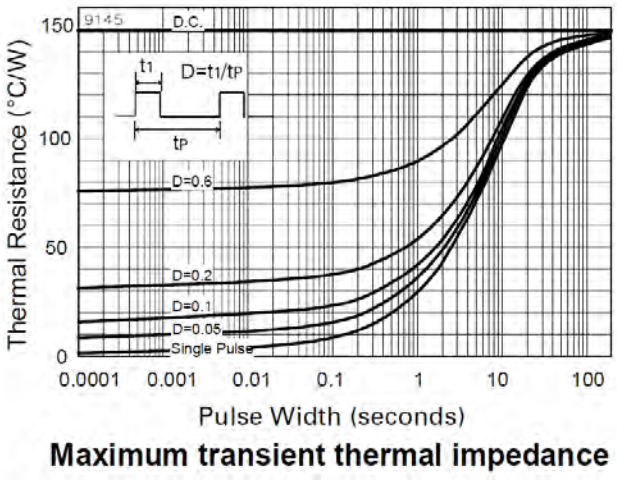
Characteristic	Symbol	Value	Unit
Practical Power Dissipation (Note 5)	P_{DP}	1.58	W
Power Dissipation	P_D	1.2	W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	150	°C/W
Thermal Resistance, Junction to Case	$R_{\theta JC}$	50	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +200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

Notes: 5. For devices mounted in a typical manner on a P.C.B. with copper equal to 1 inch square minimum.

Thermal Characteristics



Derating curve



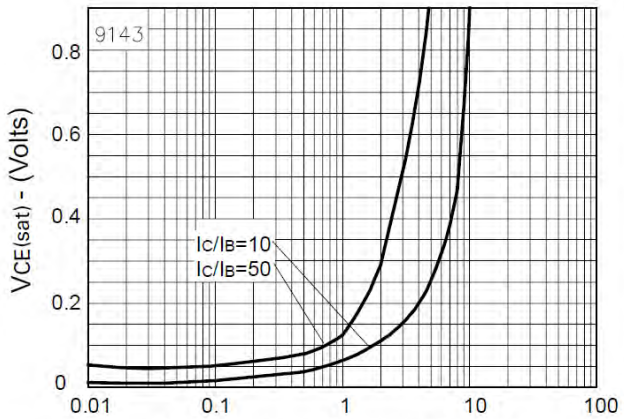
Maximum transient thermal impedance

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

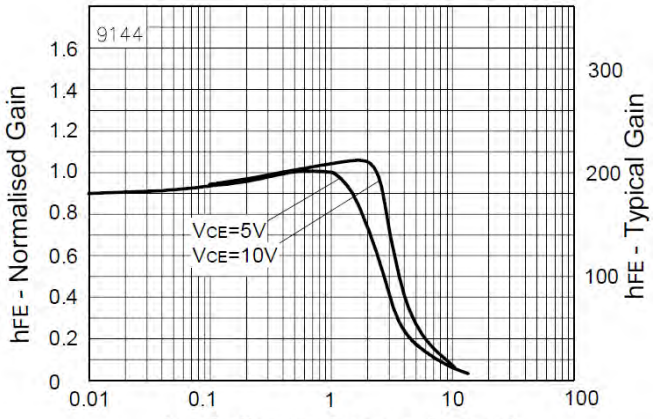
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV_{CBO}	250	375	–	V	I_C = 100µA
Collector-Emitter Breakdown Voltage	BV_{CER}	250	375	–	V	I_C = 1µA,RB ≤ 1kΩ
Collector-Emitter Breakdown Voltage (Note 6)	BV_{CEO}	150	180	–	V	I_C = 10mA
Emitter-Base Breakdown Voltage	BV_{EBO}	6	8	–	V	I_E = 100µA
Collector Cut-off Current	I_{CBO}	–	–	50 1	nA µA	V_{CB} = 200V V_{CB} = 200V, @T_A = 100°C
Collector Cut-off Current	I_{CER} R ≤ 1kΩ	–	–	50 1	nA µA	V_{CB} = 200V V_{CB} = 200V, @T_A = 100°C
Emitter Cut-off Current	I_{EBO}	–	–	10	nA	V_{EB} = 6V
Collector-Emitter Saturation Voltage (Note 6)	$V_{CE(sat)}$	–	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 6)	$V_{BE(sat)}$	–	960	1100	mV	I_C =4A, I_B = 400mA
Base-Emitter Turn-On Voltage (Note 6)	$V_{BE(on)}$	–	0.88	1.0	V	I_C = 4A, V_{CE} = 5V
DC Current Gain (Note 6)	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 6)	f_T	–	90	–	MHz	V_{CE} = 10V, I_C = 100mA f = 50MHz
Output Capacitance (Note 6)	C_{obo}	–	22	–	pF	V_{CB} = 20V. f = 1MHz
Switching Times	t_{on} t_{off}	–	66 2130	–	ns ns	I_C = 1A, I_{B1} = 100mA I_{B2} = 100mA, V_{CC} = 50V

Notes: 6. Measured under pulsed conditions. Pulse width ≤ 300µs. Duty cycle ≤ 2%

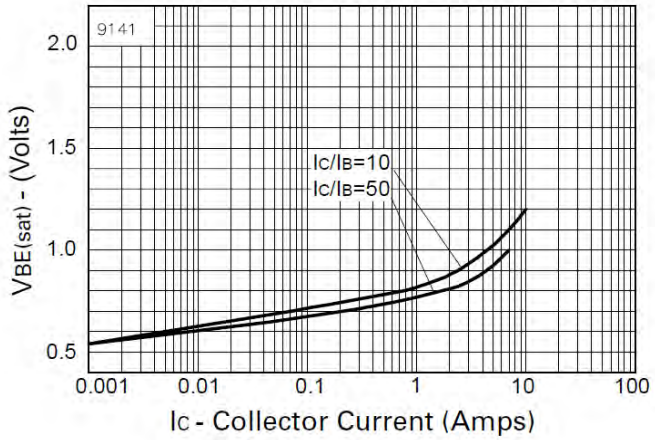
Typical Characteristics



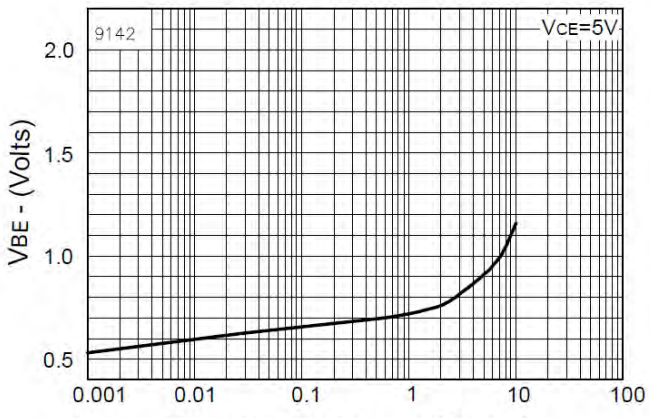
VCE(sat) v IC



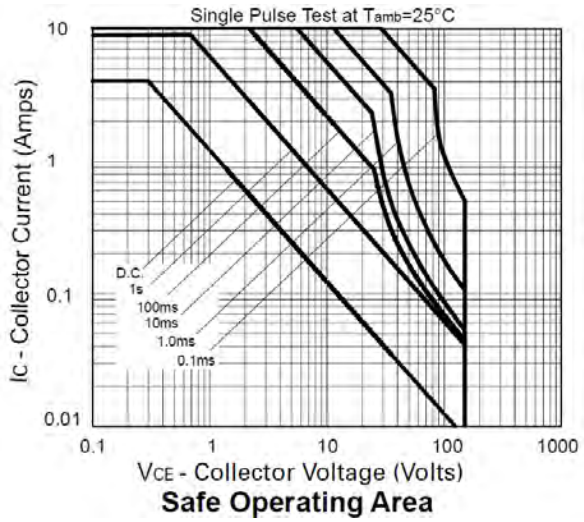
hFE v IC



VBE(sat) v IC



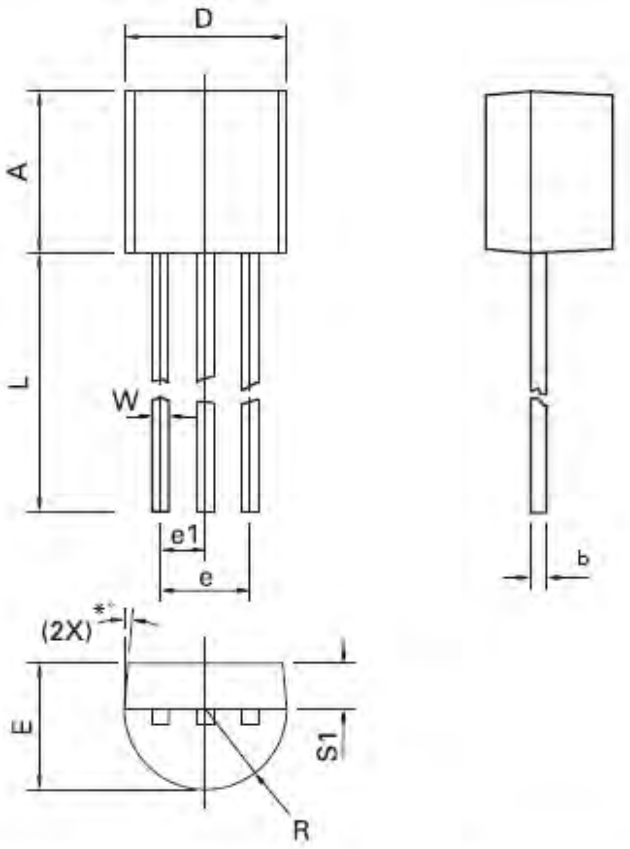
VBE(on) v IC



Safe Operating Area

Package Outline Dimensions

Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for latest version.



Dim.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	4.32	4.95	0.170	0.195
b	0.36	0.51	0.014	0.020
E	3.30	3.94	0.130	0.155
e	2.41	2.67	0.095	0.105
e1	1.14	1.40	0.045	0.055
L	12.70	15.49	0.500	0.610
R	2.16	2.41	0.085	0.095
S1	1.14	1.52	0.045	0.060
W	0.41	0.56	0.016	0.022
D	4.45	4.95	0.175	0.195
*°	4°	6°	4°	6°

Note: Controlling dimensions are in millimeters. Approximate dimensions are provided in inches

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