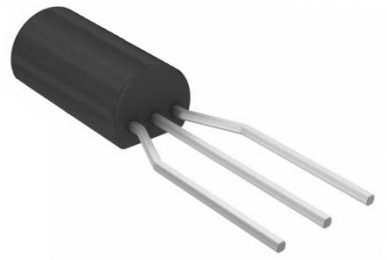
400V PNP High Voltage Transistor in TO92L

Features and Benefits

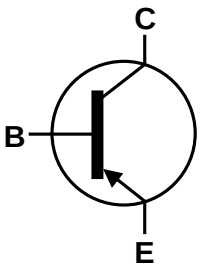
- BV_{CEO} > 400V
- Power dissipation P_D = 1W
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

Mechanical Data

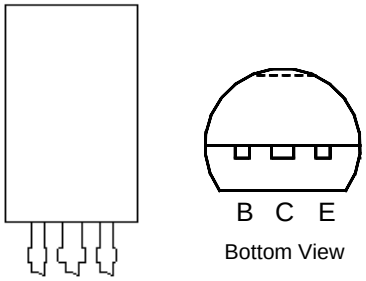
- Case: TO92L (Long Body)
- Case Material: Molded Plastic, "Green" Molding Compound.
- UL Flammability Classification Rating 94V-0
- Terminals: Finish - Bright Tin (e3)
- Weight: 0.272 grams (Approximate)



TO92L (Long Body)
Joggled Leads



Device Symbol



Flat Face
View

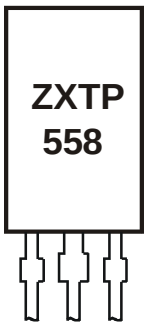
Pin-Out

Ordering Information (Note 4)

Product	Package	Marking	Leads	Quantity
ZXTP558LSTZ	TO92L	ZXTP558	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



ZXTP558 = 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	-200	mA
Peak Pulse Current	I_{CM}	-500	mA

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

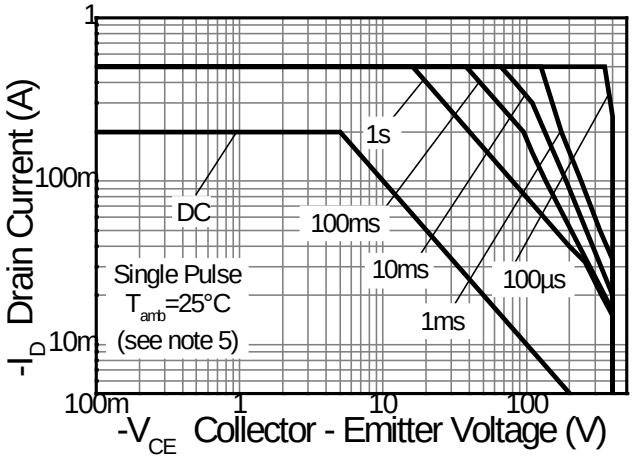
Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P_D	1	W
Thermal Resistance, Junction to Ambient (Note 5)	$R_{\theta JA}$	125	°C/W
Thermal Resistance, Junction to Lead (Note 6)	$R_{\theta JL}$	50	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C

ESD Ratings (Note 7)

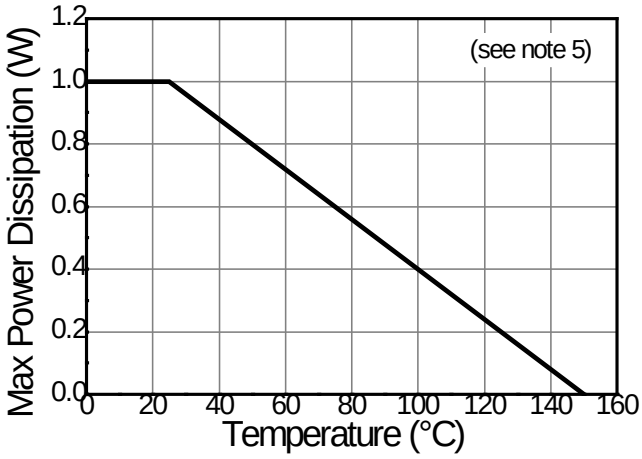
Characteristic	Symbol	Value	Unit	JEDEC Class
Electrostatic Discharge - Human Body Model	ESD HBM	8,000	V	3B
Electrostatic Discharge - Machine Model	ESD MM	400	V	C

Notes: 5. For the through-hole device mounted vertically, in still air conditions, with the lead length 6mm from the bottom of package to the board.
6. Thermal resistance from junction to solder-point (2mm from the bottom of package along the collector lead).
7. Refer to JEDEC specification JESD22-A114 and JESD22-A115.

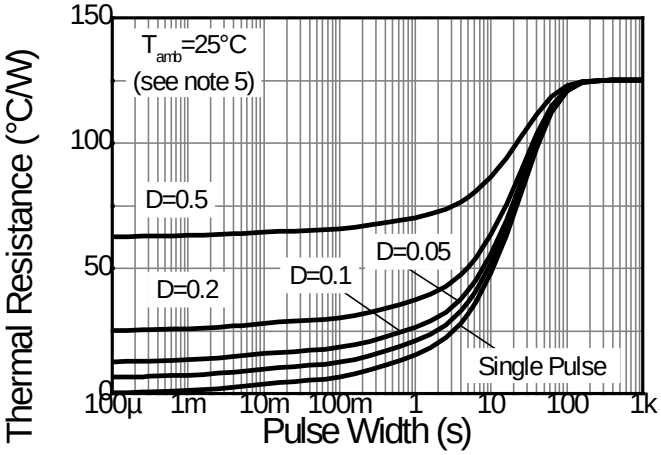
Thermal Characteristics and Derating Information



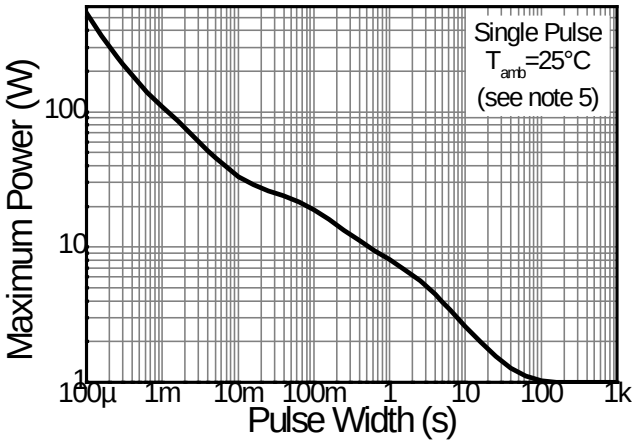
Safe Operating Area



Derating Curve



Transient Thermal Impedance



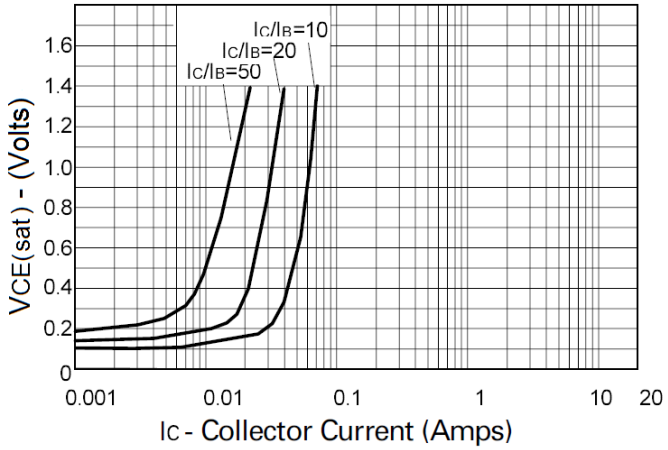
Pulse Power Dissipation

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

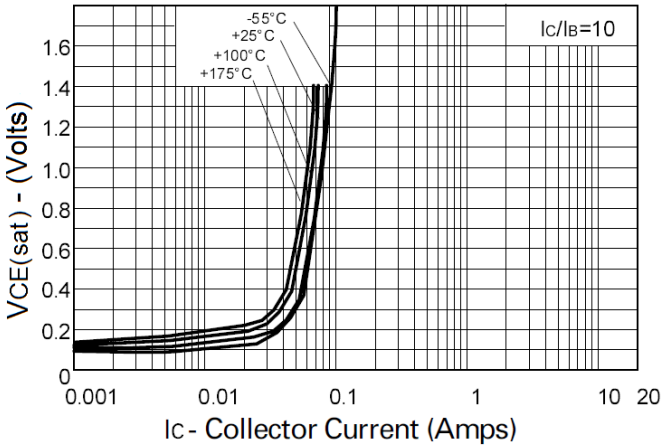
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV_{CBO}	-400	—	—	V	I_C = -100µA
Collector-Emitter Breakdown Voltage (Note 8)	BV_{CEO}	-400	—	—	V	I_C = -1mA
Emitter-Base Breakdown Voltage	BV_{EBO}	-7	—	—	V	I_E = -100µA
Collector Cutoff Current	I_{CBO}	—	—	-100	nA	V_{CB} = -320V
Emitter Cutoff Current	I_{CES}	—	—	-100	nA	V_{CE} = -320V
Base Cutoff Current	I_{EBO}	—	—	-100	nA	V_{BE} = -5V
DC Current Gain (Note 8)	h_{FE}	100 100	— —	— 300	— —	I_C = -1mA, V_{CE} = -10V I_C = -50mA
Collector-Emitter Saturation Voltage (Note 8)	$V_{CE(sat)}$	— —	— —	-0.2 -0.5	V	I_C = -20mA, I_B = -2mA I_C = -50mA, I_B = -6mA
Base-Emitter Turn-On Voltage	$V_{BE(on)}$	—	—	-0.9	V	V_{CE} = -10V, I_C = -50mA
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	—	—	-0.9	V	I_C = -50mA, I_B = -5mA
Output Capacitance (Note 8)	C_{obo}	—	—	5	pF	V_{CB} = -20V, f = 1.0MHz
Current Gain-Bandwidth Product	f_T	50	—	—	MHz	V_{CE} = -20V, I_C = -10mA, f = 20MHz
Turn-On Time	t_{on}	—	95	—	ns	V_{CE} = -100V, I_C = -50mA
Turn-Off Time	t_{off}	—	1600	—	ns	I_{B1} = 5mA, I_{B2} = -10mA

Note: 8. Measured under pulsed conditions. Pulse width ≤ 300µs; Duty cycle ≤ 2%.

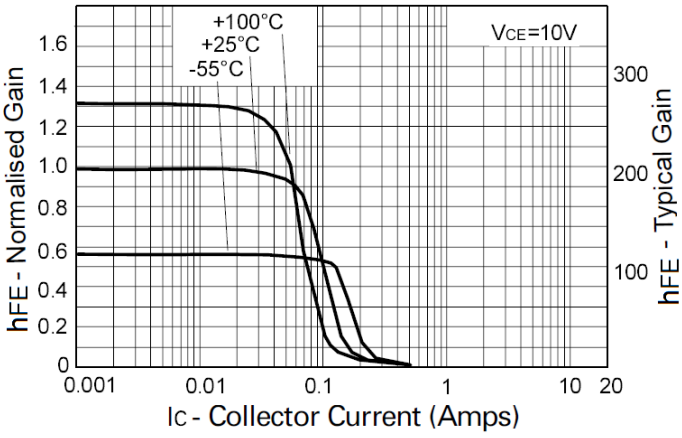
Typical Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)



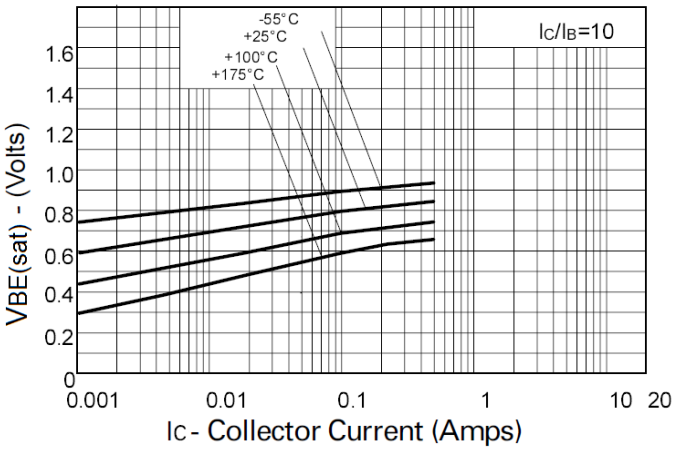
VCE(sat) v IC



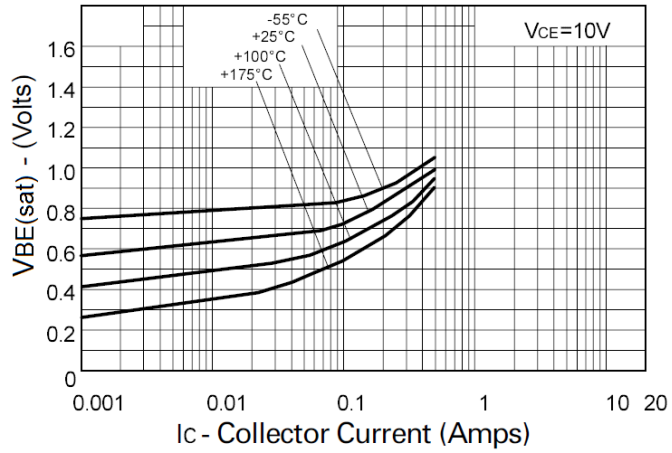
VCE(sat) v IC



hFE v IC



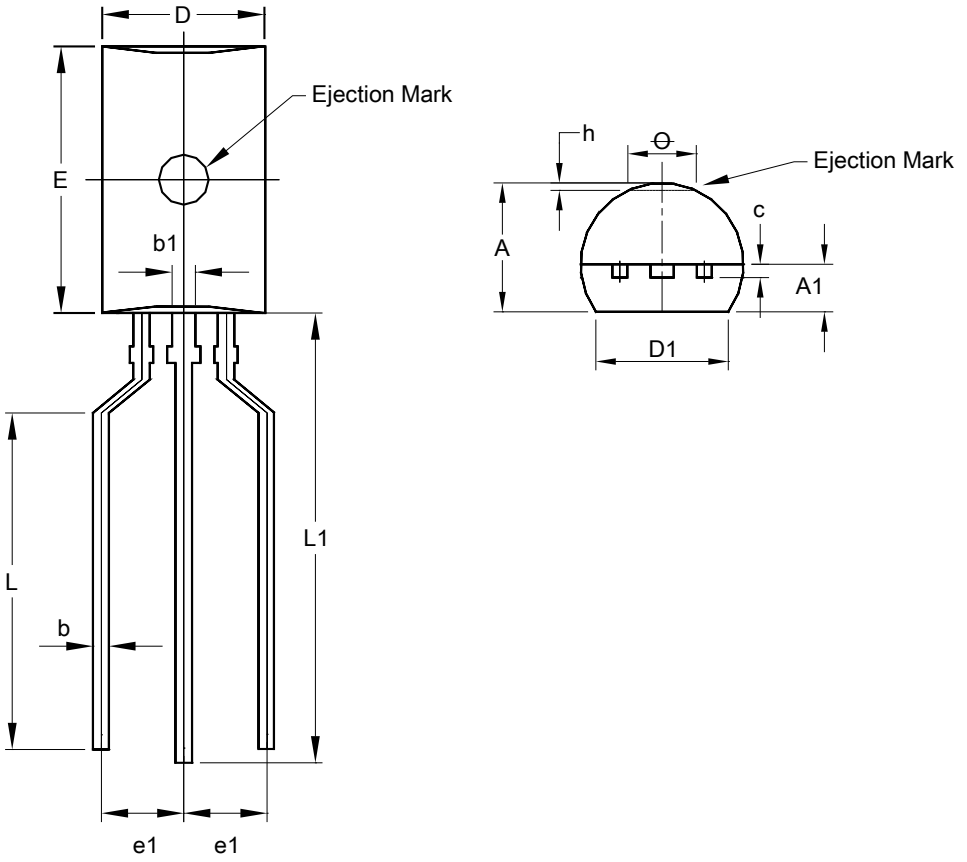
VBE(sat) v IC



VBE(on) v IC

Package Outline Dimensions

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



Taped

TO92L		
Dim	**Min**	**Max**
A	3.70	4.10
A1	1.28	1.58
b	0.35	0.55
b1	0.60	0.80
c	0.35	0.45
D	4.70	5.10
D1	4.00	-
e1	2.30	2.70
E	7.80	8.20
L	10.10	10.70
L1	13.80	14.20
h	0.00	0.30
θ	-	1.60
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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