NPN SILICON PLANAR MEDIUM POWER TRANSISTOR

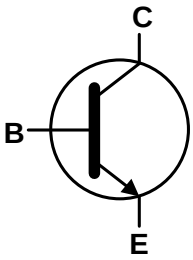
Features

- BV_{CEO} > 100V (ZTX453)
- I_{CM} = 2A Peak Pulse Current
- I_C = 1A High Continuous Current
- P_D = 1W Power Dissipation
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

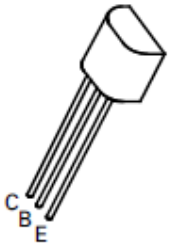
Mechanical Data

- Case: E-Line
- Case Material: Molded Plastic. "Green" Molding Compound. UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish – Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208 (e3)
- Weight: 159mg (Approximate)

E-Line



Device Symbol



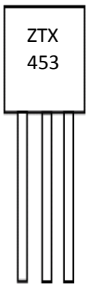
Top View
Pin-Out

Ordering Information (Note 4)

Part Number	Compliance	Marking	Quantity
ZTX453	Standard	ZTX 453	4000 Bulk
ZTX453STZ	Standard	ZTX 453	2000 Taped

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



ZTX 453 = Product Type Marking Code

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

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	120	V
Collector-Emitter Voltage	V_{CEO}	100	V
Emitter-Base Voltage	V_{EBO}	5	V
Collector Current	I_C	1	A
Peak Collector Current	I_{CM}	2	A
Peak Dissipation at T_A = +25°C	P_D	1	W

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

Characteristic	Symbol	Value	Unit
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C

ESD Ratings (Note 6)

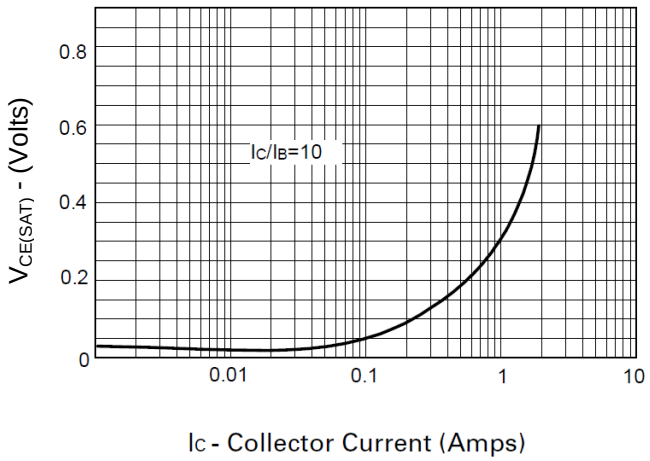
Characteristic	Symbol	Value	Unit	JEDEC Class
Electrostatic Discharge - Human Body Model	ESD HBM	8,000	V	3B
Electrostatic Discharge - Machine Model	ESD MM	400	V	C

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

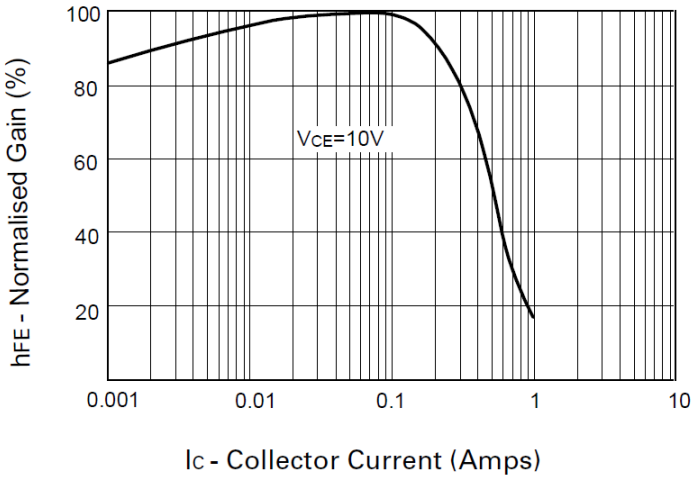
Characteristic (Note 5)	Symbol	Min	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV_{CBO}	120	—	V	I_C = 100µA, I_B = 0
Collector-Emitter Breakdown Voltage	BV_{CEO}	100	—	V	I_C = 10mA, I_B = 0
Emitter-Base Breakdown Voltage	BV_{EBO}	5	—	V	I_E = 100µA, I_C = 0
DC Current Gain	h_{FE}	40	200	—	V_{CE} = 10V, I_C = 150mA, V_{CE} = 10V, I_C = 1A
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	—	0.7	V	I_C = 150mA, I_B = 15mA
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$	—	1.3	V	I_C = 150mA, I_B = 15mA
Collector-Cutoff Current	I_{CBO}	—	0.1	µA	V_{CB} = 100V
Emitter-Cutoff Current	I_{EBO}	—	0.1	µA	V_{EB} = 4V
Gain Bandwidth Product	f_T	150	—	MHz	V_{CE} = 10V, I_C = 50mA, f = 100MHz
Collector-Base Capacitance	C_{CBO}	—	3.0	pF	V_{CB} = 10V, f = 1MHz
Output Capacitance	C_{OBO}	—	15	pF	V_{CB} = 10V, f = 1MHz

Notes: 5. Short duration pulse test used to minimize self-heating effect.
6. Refer to JEDEC specification JESD22-A114 and JESD22-A115.

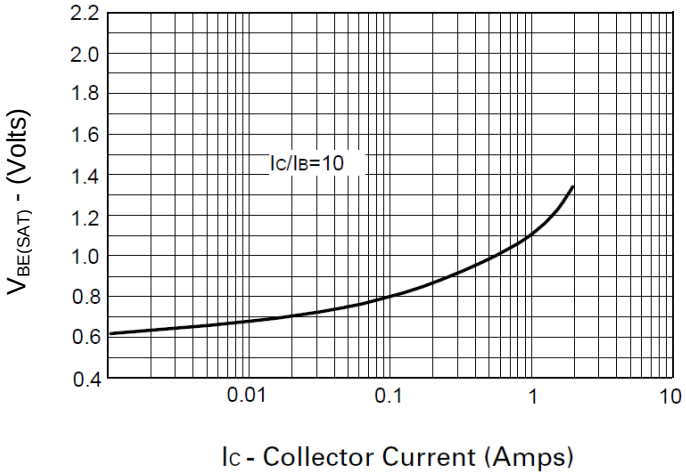
Typical Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)



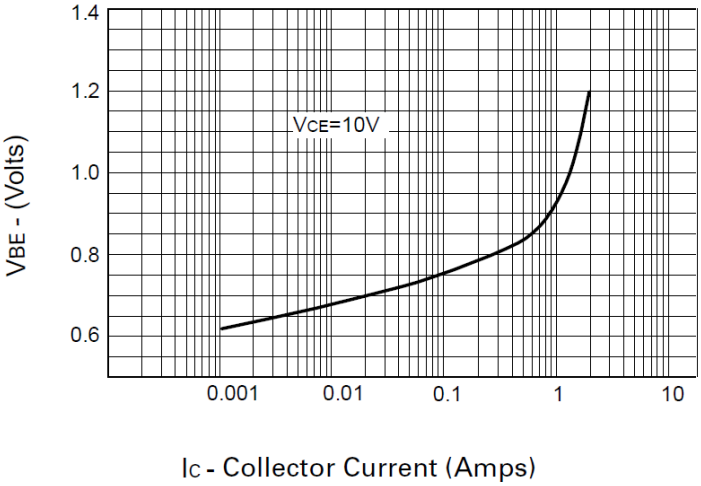
$V_{CE(SAT)}$ v I_C



hFE v IC

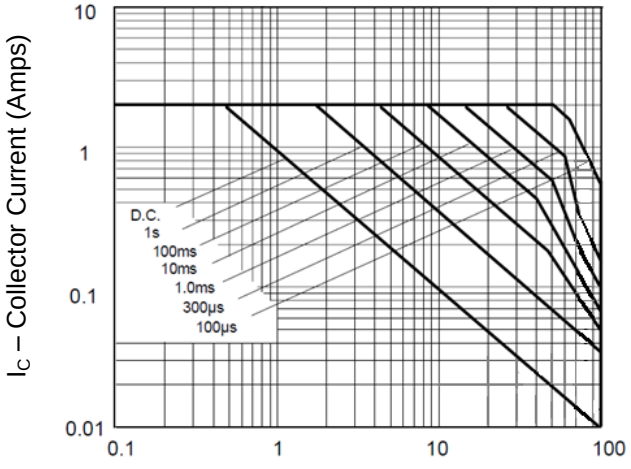


$V_{BE(SAT)}$ v I_C



$V_{BE(ON)}$ v I_C

Single Pulse Test at T_A = +25°C

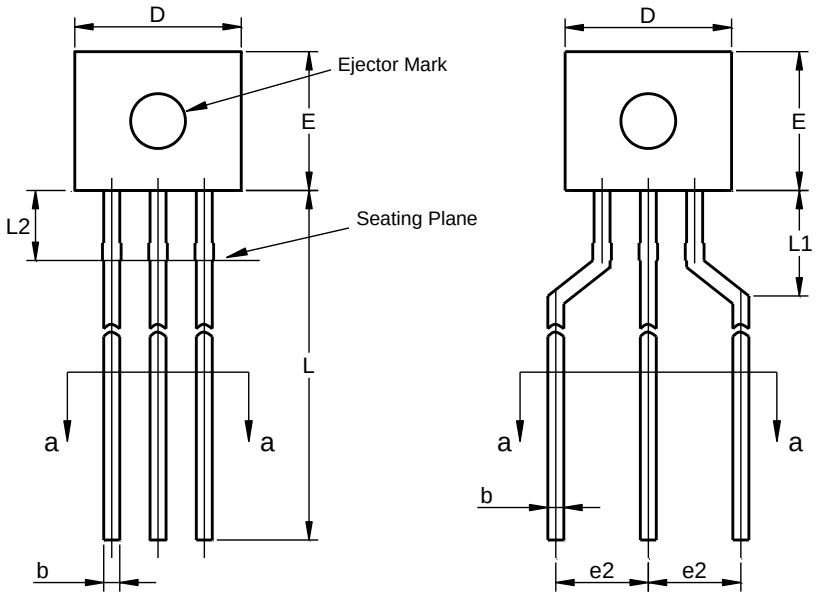


Safe Operating Area

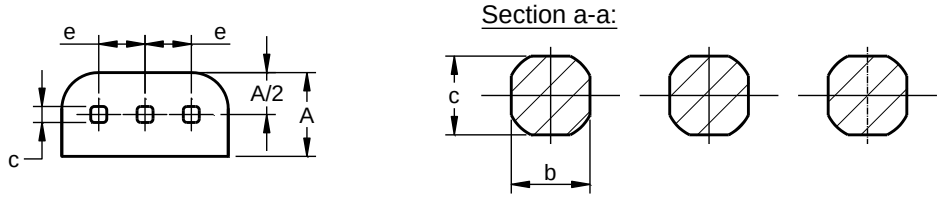
Package Outline Dimensions

Please see http://www.diodes.com/package-outlines.html for the latest version.

E-Line



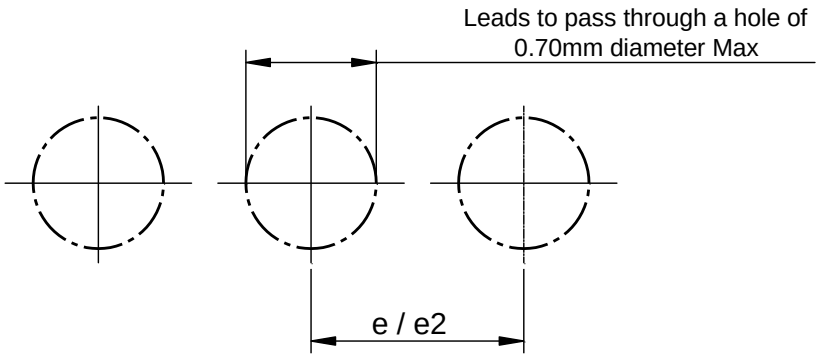
E-Line			
Dim	**Min**	**Max**	**Typ**
A	2.16	2.41	2.28
b	0.41	0.49	0.44
c	0.41	0.49	0.44
D	4.37	4.77	4.57
E	3.61	4.01	3.90
e	1.27 REF		
e2	2.54 REF		
L	13.00	13.97	13.50
L1	2.50	3.50	--
L2	--	--	2.50
All Dimensions in mm			



Suggested Pad Hole

Please see http://www.diodes.com/package-outlines.html for the latest version.

E-Line



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