



THE DATASHEET OF ZTX453



NPN SILICON PLANAR MEDIUM POWER TRANSISTOR

Features

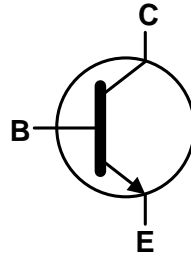
- $BV_{CEO} > 100V$ (ZTX453)
- $I_{CM} = 2A$ Peak Pulse Current
- $I_C = 1A$ High Continuous Current
- $P_D = 1W$ Power Dissipation
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

Mechanical Data

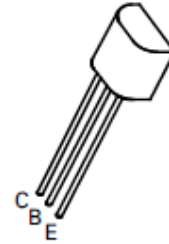
- Case: E-Line
- Case Material: Molded Plastic. "Green" Molding Compound. UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish – Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208 ^{Ⓔ3}
- Weight: 159mg (Approximate)



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 _{CB0}	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)

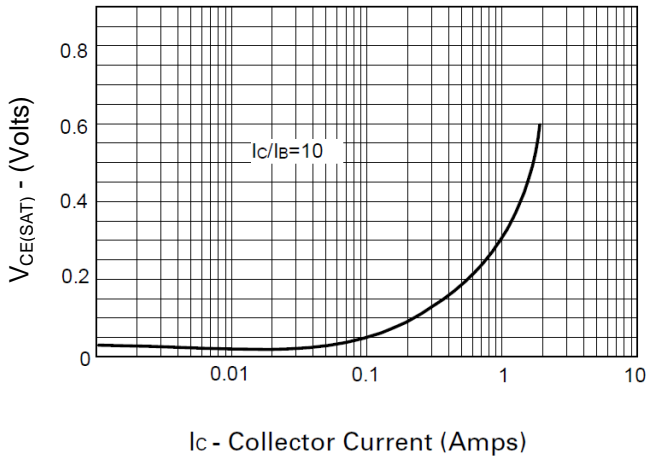
Characteristic	Symbol	Value	Unit	JEDEC Class
Electrostatic Discharge - Human Body Model	ESD HBM	8,000	V	3B
Electrostatic Discharge - Machine Model	ESD MM	400	V	C

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

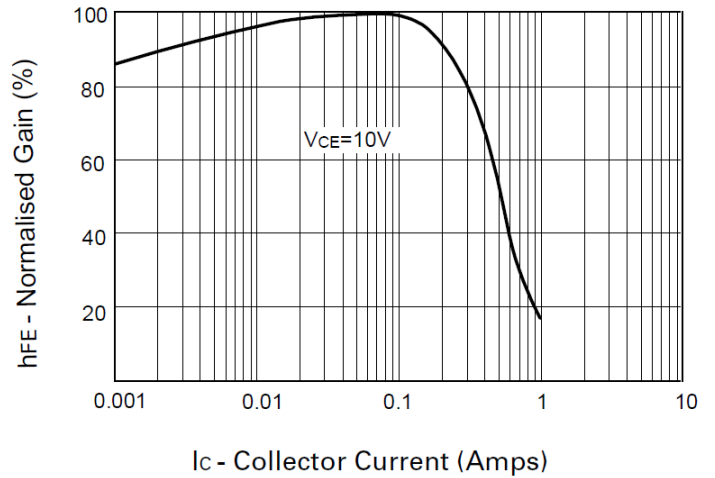
Characteristic (Note 5)	Symbol	Min	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV _{CB0}	120	—	V	I _C = 100μA, I _B = 0
Collector-Emitter Breakdown Voltage	BV _{CEO}	100	—	V	I _C = 10mA, I _B = 0
Emitter-Base Breakdown Voltage	BV _{EBO}	5	—	V	I _E = 100μA, I _C = 0
DC Current Gain	h _{FE}	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 _{CB0}	—	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 _{CB0}	—	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.

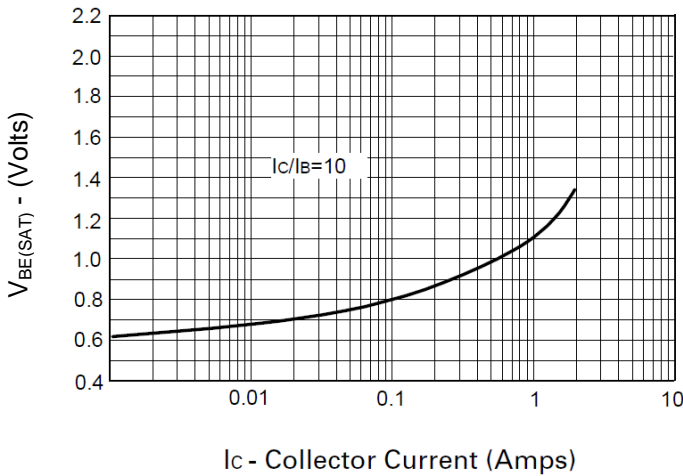
Typical Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)



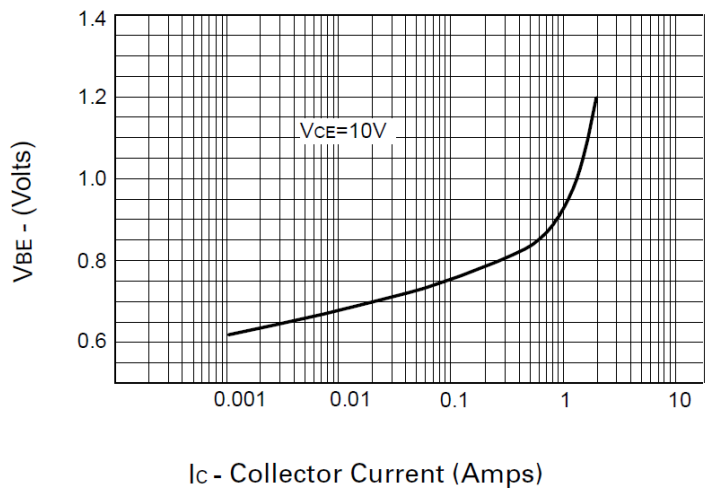
$V_{CE(SAT)} \ v \ I_C$



$hFE \ v \ I_C$

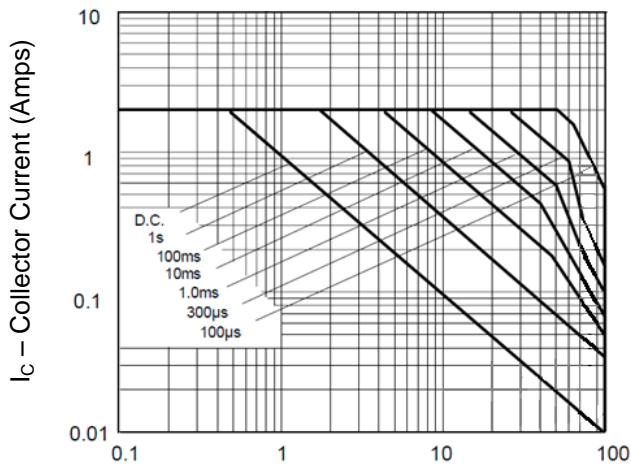


$V_{BE(SAT)} \ v \ I_C$



$V_{BE(ON)} \ v \ I_C$

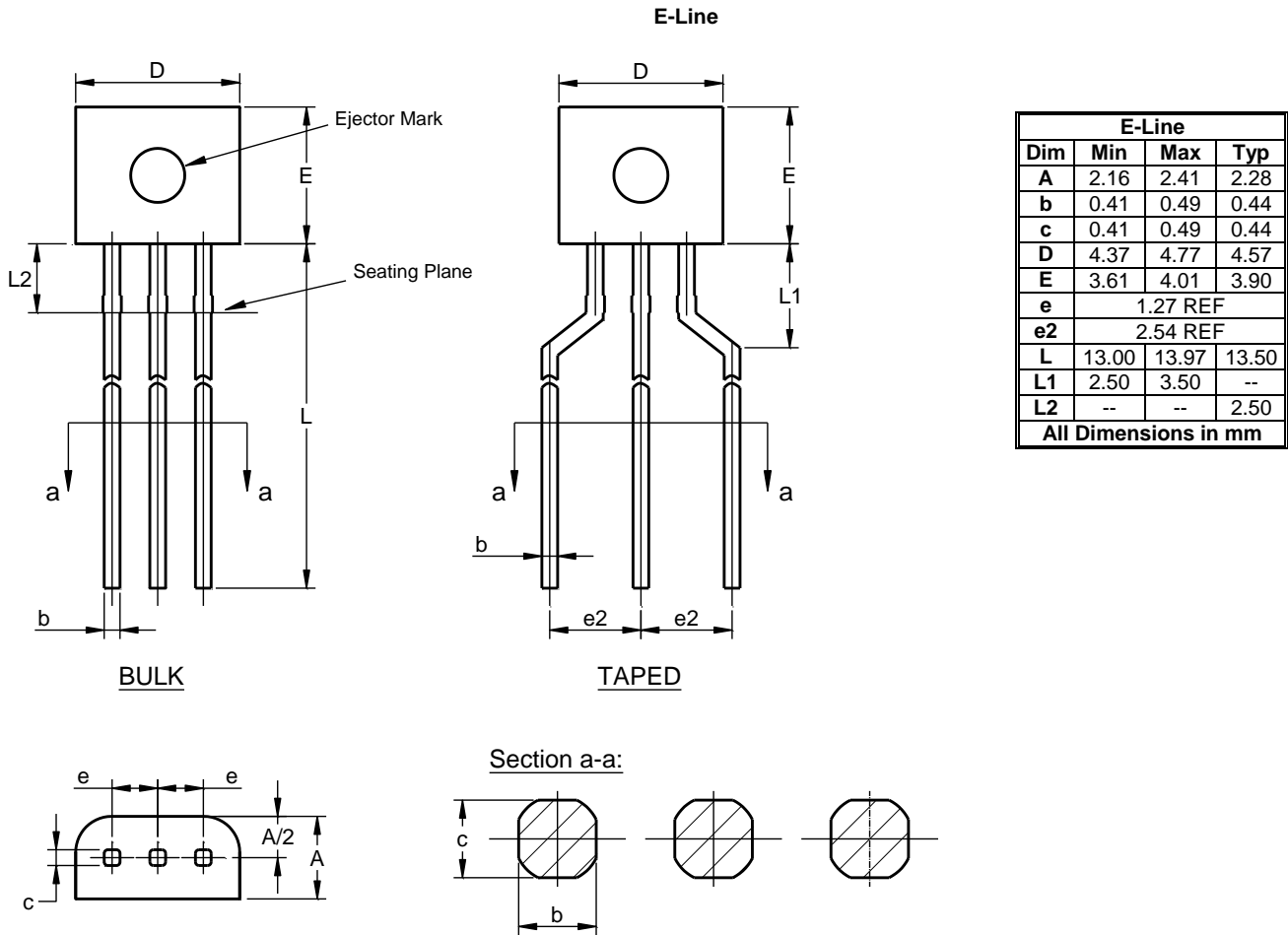
Single Pulse Test at $T_A = +25^\circ\text{C}$



Safe Operating Area

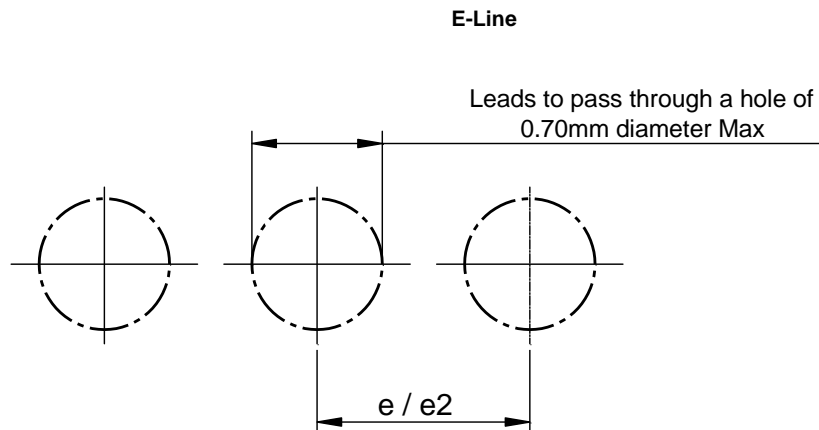
Package Outline Dimensions

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



Suggested Pad Hole

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



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