

ANTREX Electronics

Electronic Components Sourcing Information

Product Reference Information

Part Number: ZX5T851ASTZ
Manufacturer: Diodes Incorporated
Package: E-Line-3
Availability: Please confirm with sales

Product Page:

<https://antrexco.com/product/details/diodes-incorporated/zx5t851astz.html>

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Note:

This PDF includes an ANTREX product reference cover page.

The original manufacturer datasheet follows from the next page.

Product Summary

BV_{CEO}	R_{SAT}	I_C
60V	34m Ω	4.5A

Description

Packaged in the E-line outline, this new 5th generation low-saturation 60V NPN transistor offers extremely low on-state losses, making it ideal for use in DC-DC circuits and various driving and power-management functions.

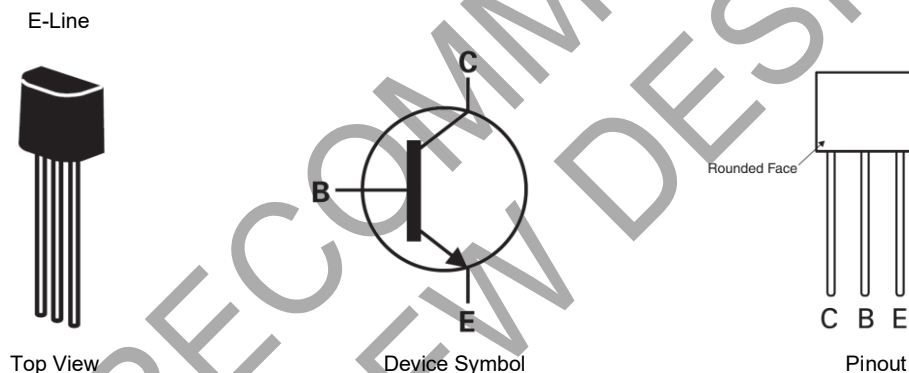
Applications

- Emergency lighting circuits
- Motor driving (including DC fans)
- Solenoids, relays and actuator drivers
- DC modules
- Backlight inverters

Features

- Extremely Low Equivalent On-Resistance; $R_{SAT} = 34m\Omega$ at 5A
- 4.5 Amps Continuous Current
- Up to 15 Amps Peak Current
- Very Low Saturation Voltage
- For automotive applications requiring specific change control (i.e. parts qualified to AEC-Q100/101/104/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please [contact us](https://www.diodes.com/quality/product-definitions/) or your local Diodes representative.

<https://www.diodes.com/quality/product-definitions/>



Ordering Information

Orderable Part Number	Package	Packing	
		Qty.	Carrier
ZX5T851ASTOA	E-Line	2000 Units	Reel
ZX5T851ASTZ	E-Line	2000 Units	Carton

Device Marking

- X5T851

Absolute Maximum Ratings

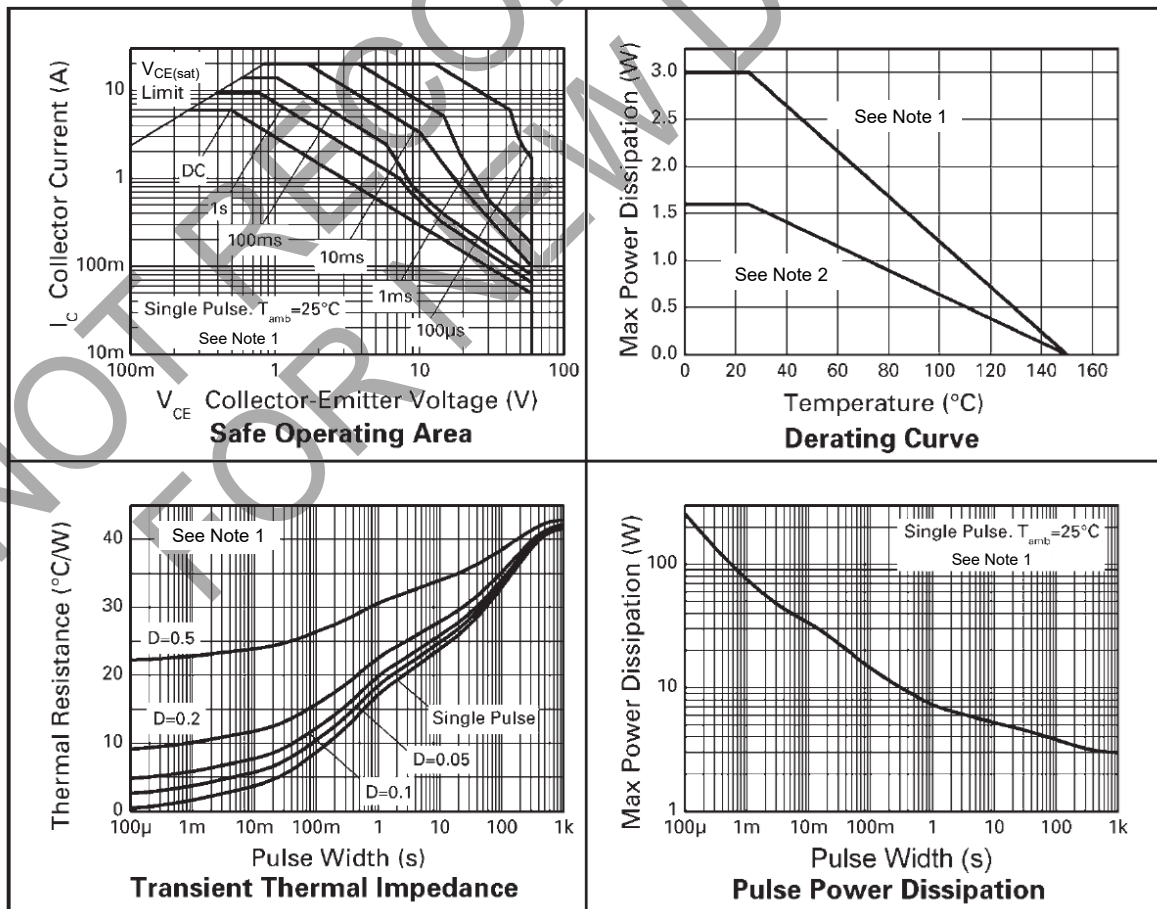
Parameter	Symbol	Value	Unit
Collector-Base Voltage	BV_{CBO}	150	V
Collector-Emitter Voltage	BV_{CEO}	60	V
Emitter-Base Voltage	BV_{EBO}	7	V
Continuous Collector Current (Note 1)	I_C	4.5	A
Peak Pulse Current	I_{CM}	15	A
Practical Power Dissipation (Note 1)	P_D	1.0	W
Linear Derating Factor		8	mW/°C
Power Dissipation at $T_A = 25^\circ\text{C}$ (Note 2)	P_D	0.71	W
Linear Derating Factor		5.7	mW/°C
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to 150	°C

Thermal Resistance

Parameter	Symbol	Value	Unit
Junction to Ambient (Note 1)	$R_{\theta JA}$	125	°C/W
Junction to Ambient (Note 2)	$R_{\theta JA}$	175	°C/W

Notes: 1. For a device through hole mounted on 25mm x 25mm x 1.6mm FR4 PCB with high coverage of single-sided 1oz copper, in still air conditions. Collector lead length to solder point 4mm.
2. For a device mounted in a socket in still air conditions. Collector lead length 10mm.

Characteristics

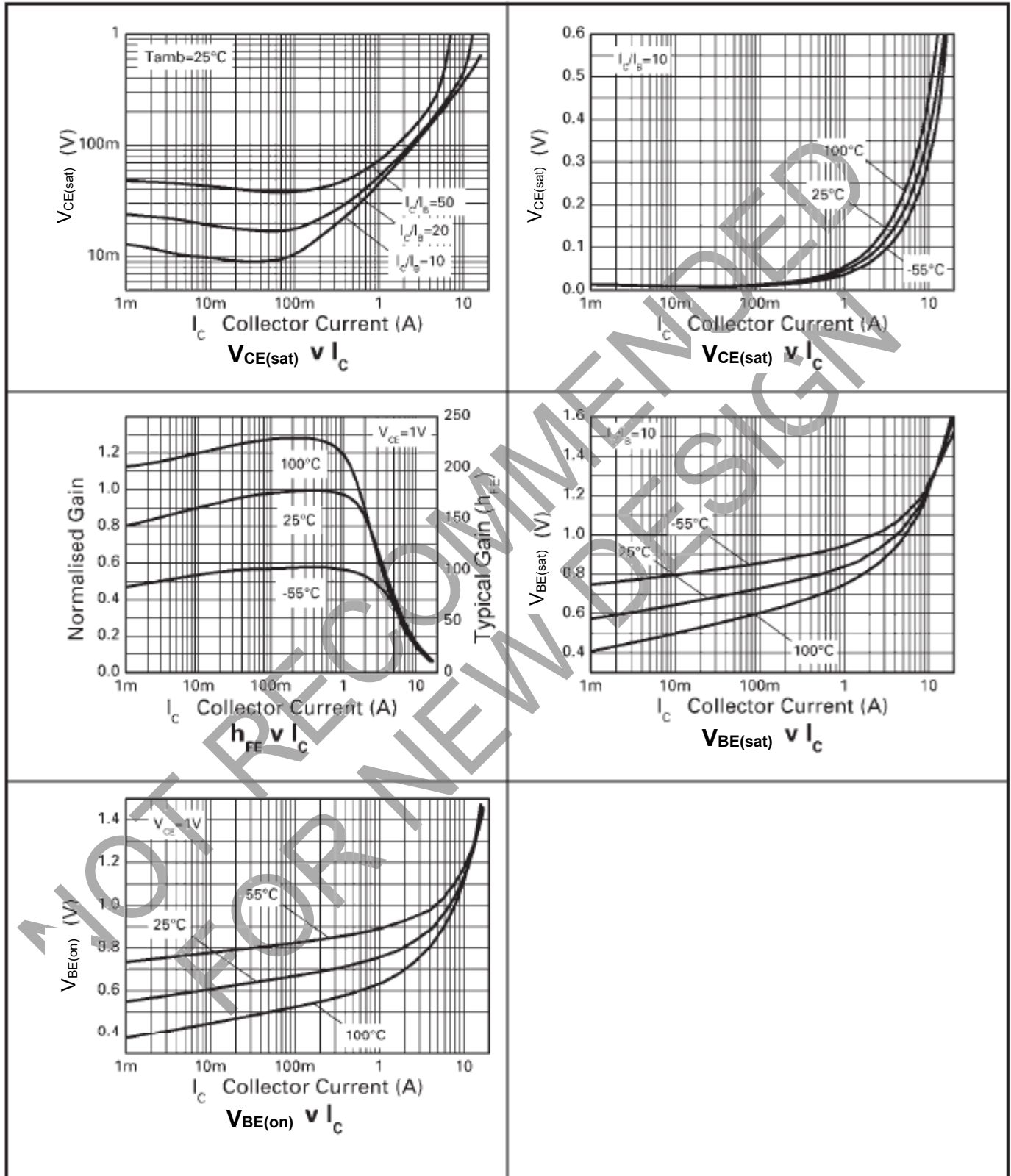


Electrical Characteristics (@ $T_{amb} = +25^{\circ}\text{C}$, unless otherwise stated.)

Parameter	Symbol	Min	Typ	Max	Unit	Conditions
Collector-Base Breakdown Voltage	BV_{CBO}	150	190	—	V	$I_C = 100\mu\text{A}$
Collector-Emitter Breakdown Voltage	BV_{CER}	150	190	—	V	$I_C = 1\mu\text{A}$, $R_B \leq 1\text{k}\Omega$
Collector-Emitter Breakdown Voltage	BV_{CEO}	60	80	—	V	$I_C = 10\text{mA}$ (Note 3)
Emitter-Base Breakdown Voltage	BV_{EBO}	7	8.1	—	V	$I_E = 100\mu\text{A}$
Collector Cutoff Current	I_{CBO}	—	—	20 0.5	nA μA	$V_{CB} = 120\text{V}$ $V_{CB} = 120\text{V}$, $T_{amb} = 100^{\circ}\text{C}$
Collector Cutoff Current	I_{CER} $R \leq 1\text{k}\Omega$	—	—	20 0.5	nA μA	$V_{CB} = 120\text{V}$ $V_{CB} = 120\text{V}$, $T_{amb} = 100^{\circ}\text{C}$
Emitter Cutoff Current	I_{EBO}	—	—	10	nA	$V_{EB} = 6\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	—	18	30	mV	$I_C = 100\text{mA}$, $I_B = 5\text{mA}$ (Note 3)
		—	40	55		$I_C = 1\text{A}$, $I_B = 100\text{mA}$ (Note 3)
		—	45	65		$I_C = 1\text{A}$, $I_B = 50\text{mA}$ (Note 3)
		—	95	130		$I_C = 2\text{A}$, $I_B = 50\text{mA}$ (Note 3)
		—	170	210		$I_C = 5\text{A}$, $I_B = 200\text{mA}$ (Note 3)
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	—	950	1050	mV	$I_C = 4\text{A}$, $I_B = 200\text{mA}$ (Note 3)
Base-Emitter Turn-On Voltage	$V_{BE(on)}$	—	840	950	mV	$I_C = 4\text{A}$, $V_{CE} = 1\text{V}$ (Note 3)
Static Forward Current Transfer Ratio	h_{FE}	100	200	—	—	$I_C = 10\text{mA}$, $V_{CE} = 1\text{V}$ (Note 3)
		100	200	300		$I_C = 2\text{A}$, $V_{CE} = 1\text{V}$ (Note 3)
		55	105	—		$I_C = 5\text{A}$, $V_{CE} = 1\text{V}$ (Note 3)
		20	40	—		$I_C = 10\text{A}$, $V_{CE} = 1\text{V}$ (Note 3)
Transition Frequency	f_T	—	130	—	MHz	$I_C = 100\text{mA}$, $V_{CE} = 10\text{V}$ $f = 50\text{MHz}$
Output Capacitance	C_{OBO}	—	31	—	pF	$V_{CB} = 10\text{V}$, $f = 1\text{MHz}$ (Note 3)
Switching Times	t_{ON}	—	42	—	ns	$I_C = 1\text{A}$, $V_{CC} = 10\text{V}$, $I_{B1} = I_{B2} = 100\text{mA}$
	t_{OFF}	—	760	—		

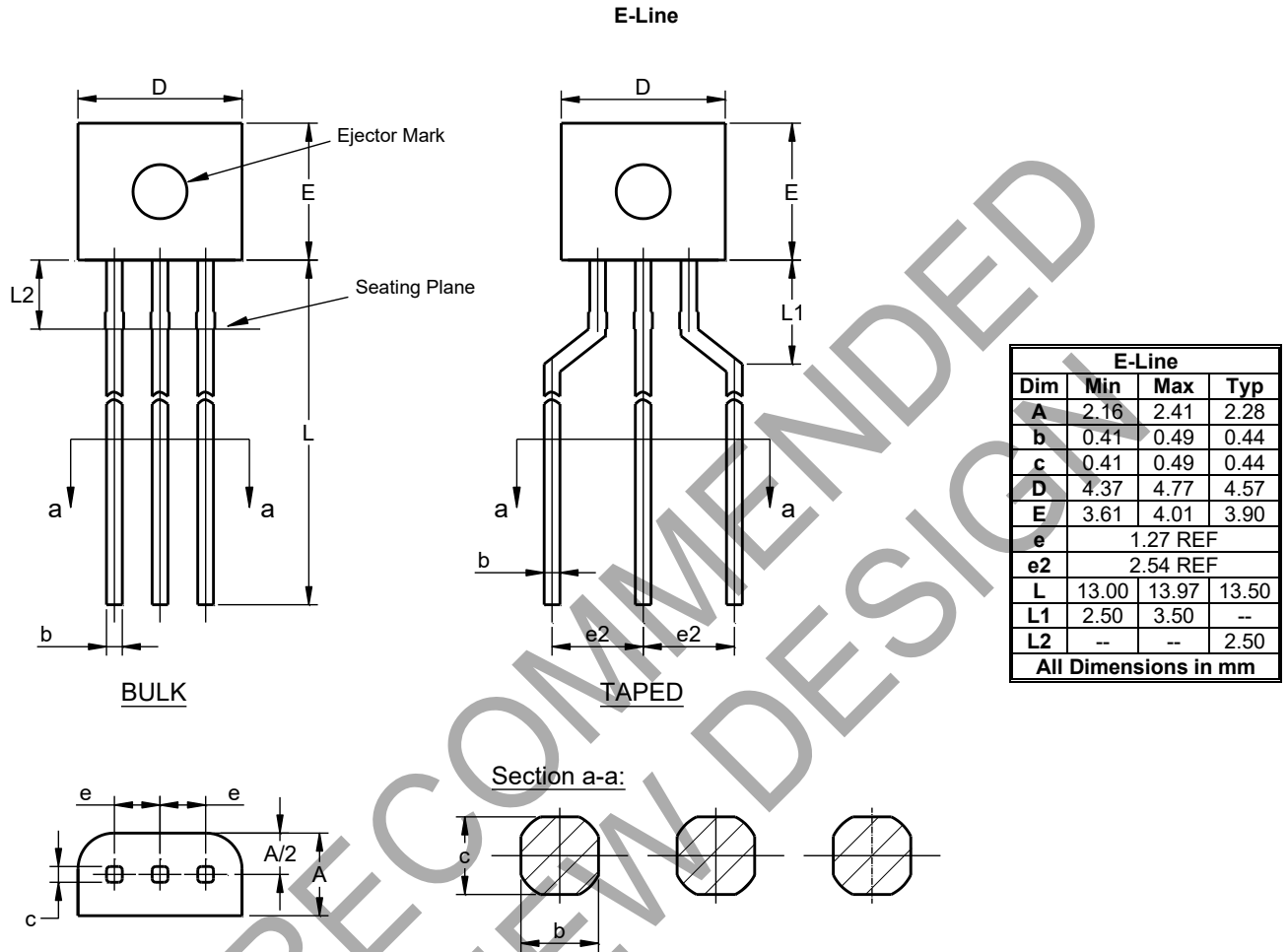
 Note: 3. Measured under pulsed conditions. Pulse width = 300 μs . Duty cycle $\leq 2\%$.

Typical Characteristics



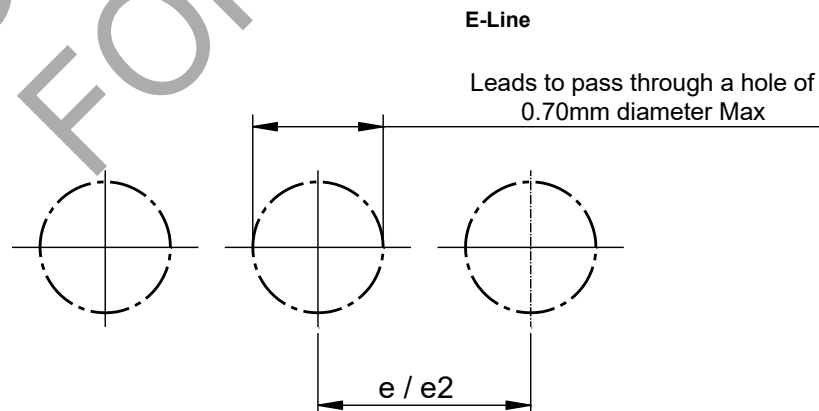
Package Outline Dimensions

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



Suggested Pad Layout

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