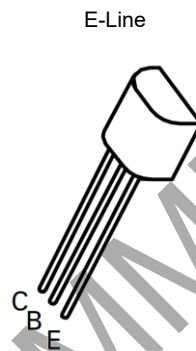


Features

- $V_{CEV} = 150V$
- Very Low Saturation Voltages
- High Gain
- Inherently Low Noise
- **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](#) or your local Diodes representative. <https://www.diodes.com/quality/product-definitions/>**

Applications

- Emergency lighting
- Low-noise audio



Absolute Maximum Ratings

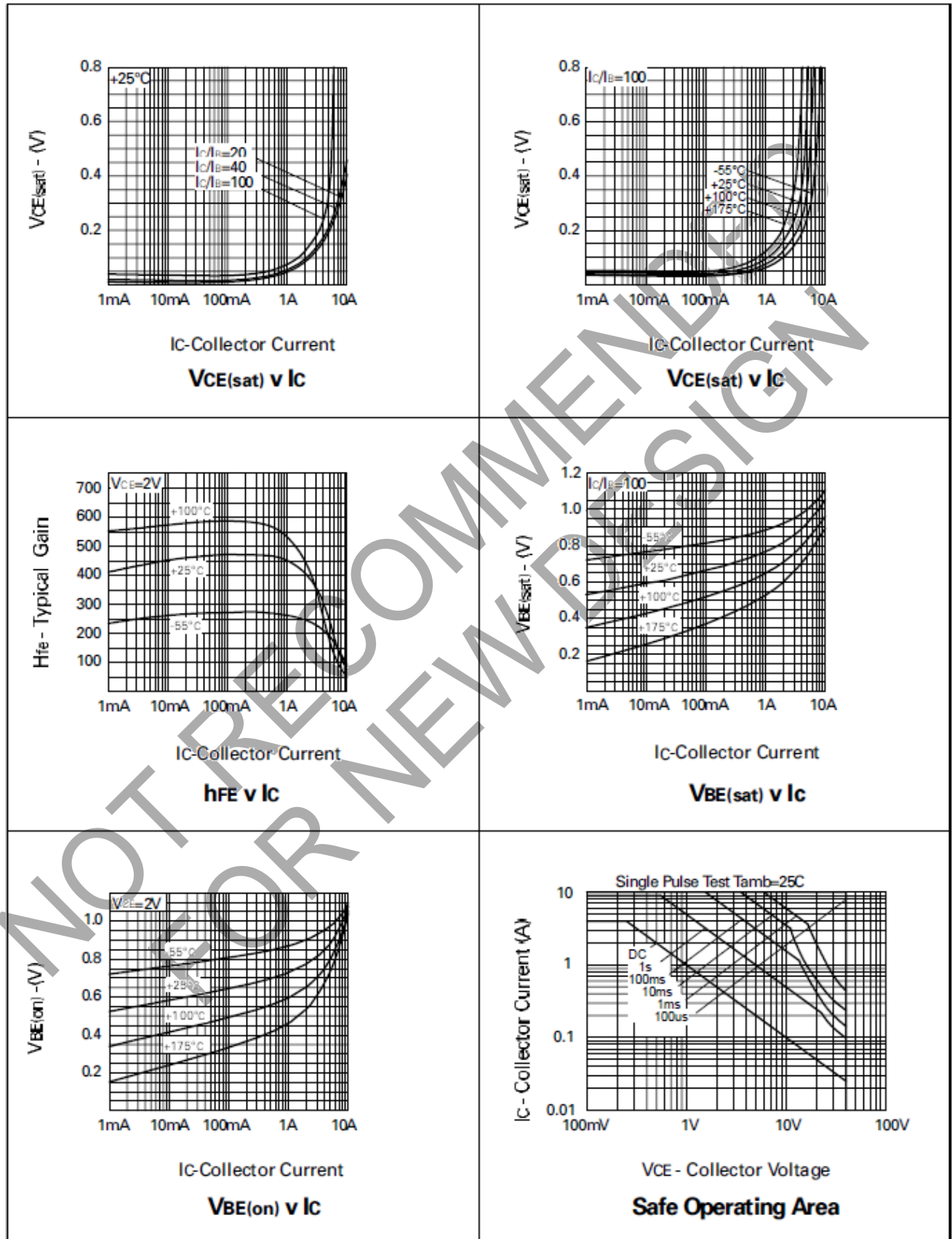
Parameter	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	150	V
Collector-Emitter Voltage	V_{CEO}	40	V
Emitter-Base Voltage	V_{EBO}	5	V
Peak Pulse Current	I_{CM}	10	A
Continuous Collector Current	I_C	4	A
Base Current	I_B	500	mA
Power Dissipation at $T_{amb} = +25^{\circ}C$	P_{tot}	1	w
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +200	$^{\circ}C$

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

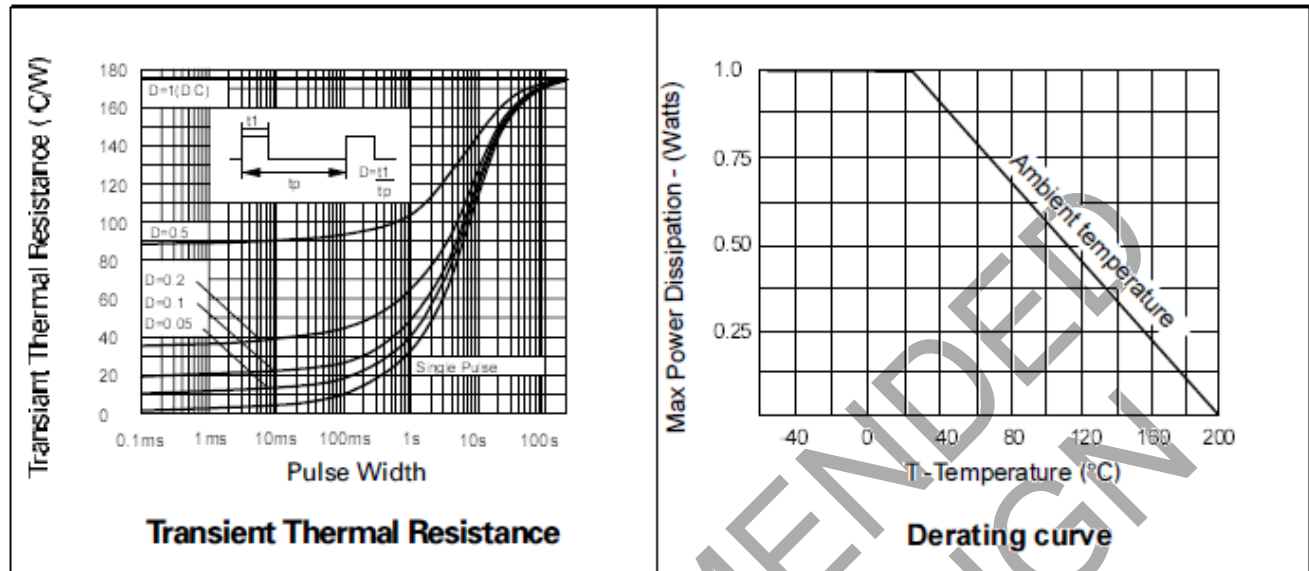
Parameter	Symbol	Min	Typ	Max	Unit	Conditions
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	150	190	—	V	$I_C = 100\mu\text{A}$
Collector-Emitter Breakdown Voltage	V_{CES}	150	190	—	V	$I_C = 100\mu\text{A}$
Collector-Emitter Breakdown Voltage	V_{CEO}	40	60	—	V	$I_C = 10\text{mA}$
Collector-Emitter Breakdown Voltage	V_{CEV}	150	190	—	V	$I_C = 100\mu\text{A}$, $V_{EB} = 1\text{V}$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	5	8.8	—	V	$I_E = 100\mu\text{A}$
Collector Cutoff Current	I_{CBO}	—	0.3	10	nA	$V_{CB} = 120\text{V}$
Emitter Cutoff Current	I_{EBO}	—	0.3	10	nA	$V_{EB} = 4\text{V}$
Collector Emitter Cutoff Current	I_{CES}	—	0.3	10	nA	$V_{CES} = 120\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	—	17	25	mV	$I_C = 0.2\text{A}$, $I_B = 10\text{mA}$
		—	75	110		$I_C = 1\text{A}$, $I_B = 10\text{mA}$
		—	165	210		$I_C = 4\text{A}$, $I_B = 100\text{mA}$ (Note 1)
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	—	920	1000	mV	$I_C = 4\text{A}$, $I_B = 100\text{mA}$ (Note 1)
Base-Emitter Turn-On Voltage	$V_{BE(on)}$	—	825	950	mV	$I_C = 4\text{A}$, $V_{CE} = 2\text{V}$ (Note 1)
Static Forward Current Transfer Ratio	h_{FE}	290	440	—	—	$I_C = 10\text{mA}$, $V_{CE} = 2\text{V}$
		300	450	1200		$I_C = 1\text{A}$, $V_{CE} = 2\text{V}$
		190	310	—		$I_C = 4\text{A}$, $V_{CE} = 2\text{V}$
		45	70	—		$I_C = 10\text{A}$, $V_{CE} = 2\text{V}$ (Note 1)
Transition Frequency	f_T	—	155	—	MHz	$I_C = 50\text{mA}$, $V_{CE} = 10\text{V}$ $f = 100\text{MHz}$
Output Capacitance	C_{obo}	—	27	40	pF	$V_{CB} = 10\text{V}$, $f = 1\text{MHz}$
Switching Times	t_{on}	—	100	—	ns	$I_C = 4\text{A}$, $I_B = 40\text{mA}$, $V_{CC} = 10\text{V}$
	t_{off}	—	300	—	ns	$I_C = 4\text{A}$, $I_B = \pm 40\text{mA}$, $V_{CC} = 10\text{V}$

Note: 1. Measured under pulsed conditions. Pulse width = 300 μs . Duty cycle $\leq 2\%$.

Typical Characteristics



Typical Characteristics (continued)

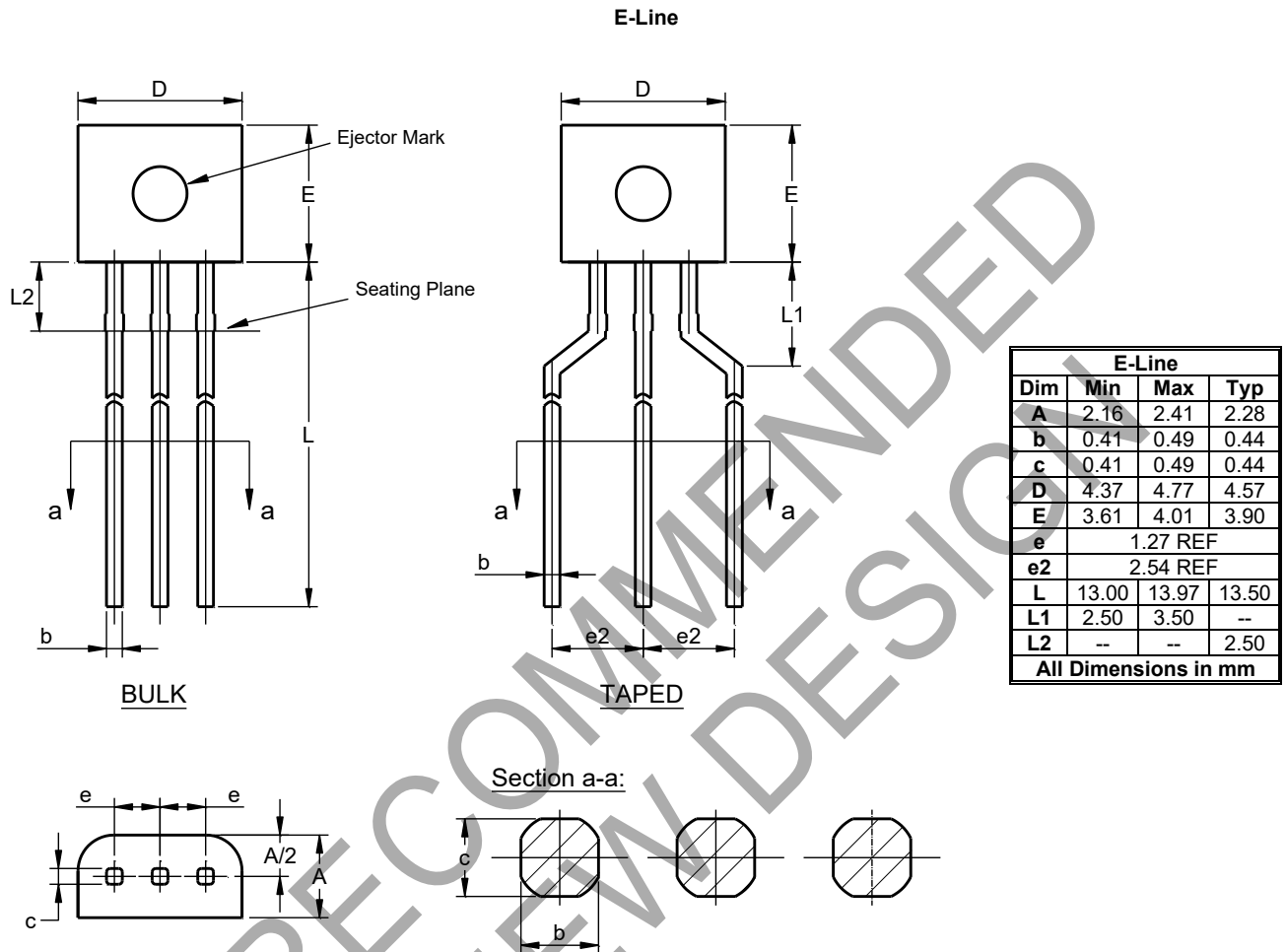


SPICE Parameters

```
MODEL ZTX1051A NPN IS=1.35E-12 NF=1.0 BF=600 IKF=5.0 VAF=120
+ ISE=0.6E-13 NE=1.25 NR=1.0 BR=150 IKR=3 VAR=15
+ ISC=1.0E-10 NC=1.7 RB=0.1 RE=0.023 RC=0.010
+ CJC=90.36E-12 CJE=547.5E-12 MJC=0.385 MJE=0.357
+ VJC=0.5 VJE=0.741 TF=600E-12 TR=8E-9
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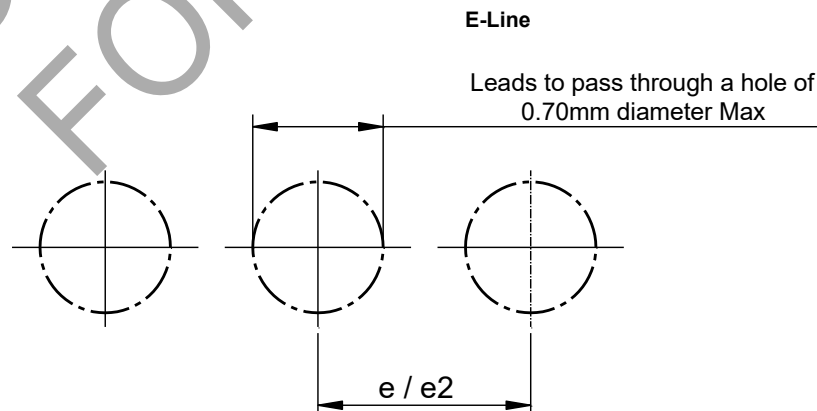
Package Outline Dimensions

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



Suggested Pad Layout

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