

Features

- $V_{CEV} = 50V$
- Very Low Saturation Voltages
- High Gain
- 20 Amps Pulse Current
- 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

- LCD backlight converters
- Emergency lighting
- DC-DC converters



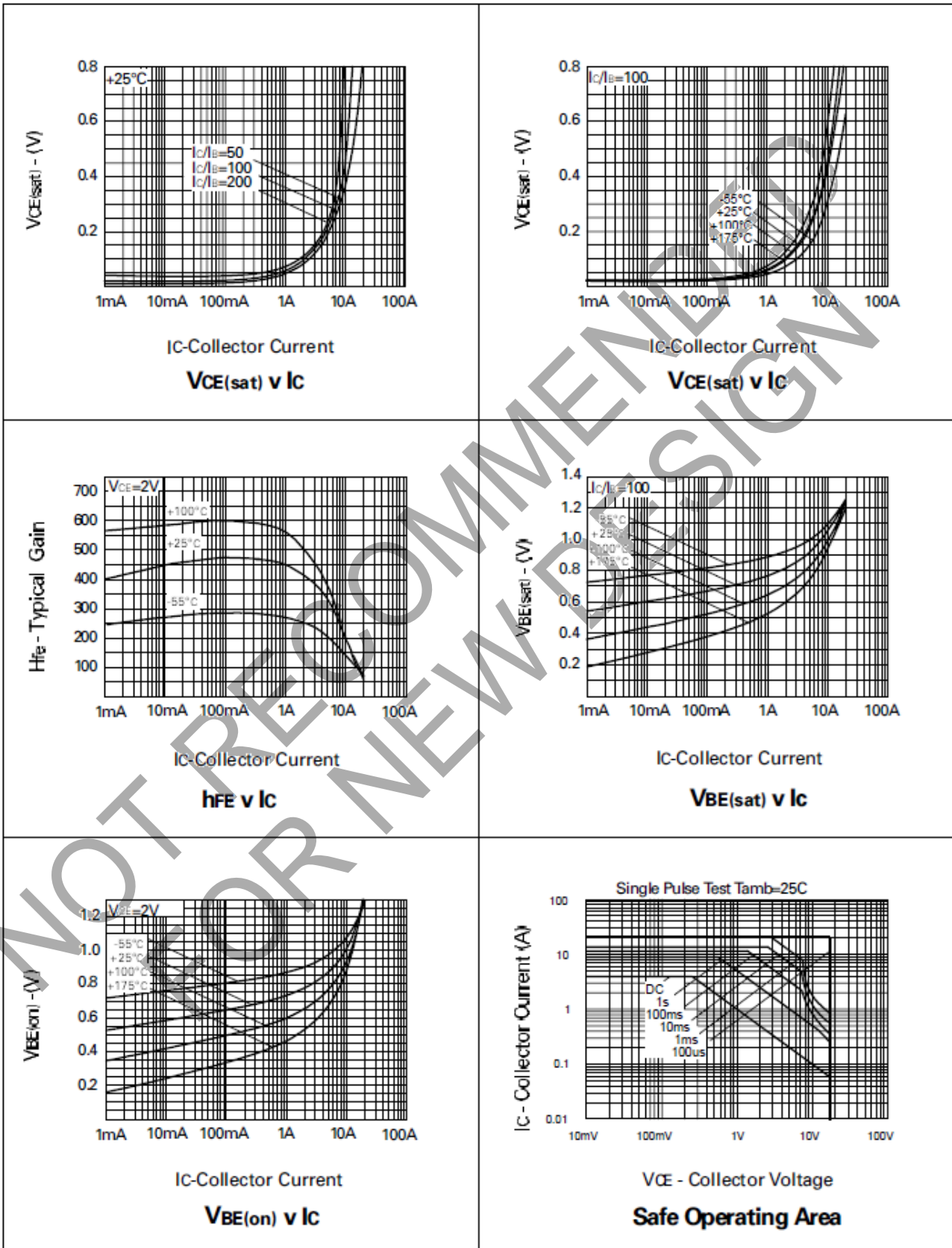
Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	50	V
Collector-Emitter Voltage	V_{CEO}	17.5	V
Emitter-Base Voltage	V_{EBO}	5	V
Peak Pulse Current	I_{CM}	20	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	$^{\circ}C$

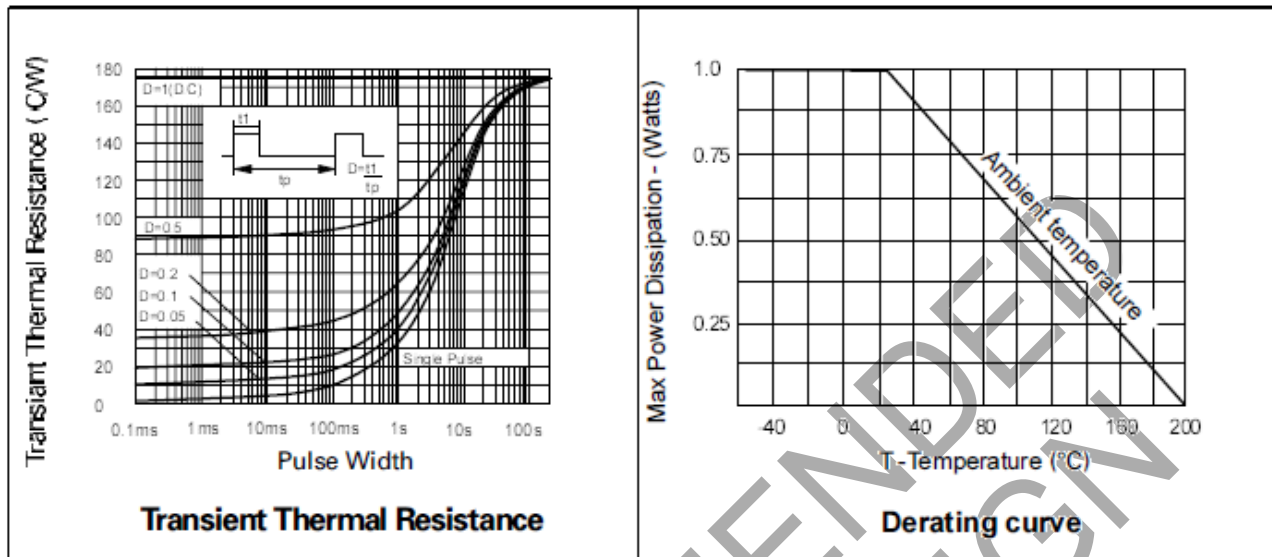
Electrical Characteristics (@ $T_{amb} = +25^{\circ}\text{C}$, unless otherwise stated).

Parameter	Symbol	Min	Typ	Max	Unit	Conditions
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	50	85	—	V	$I_C = 100\mu\text{A}$
Collector-Emitter Breakdown Voltage	V_{CES}	50	85	—	V	$I_C = 100\mu\text{A}$
Collector-Emitter Breakdown Voltage	V_{CEO}	17.5	24	—	V	$I_C = 10\text{mA}$
Collector-Emitter Breakdown Voltage	V_{CEV}	50	85	—	V	$I_C = 100\mu\text{A}$, $V_{EB} = 1\text{V}$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	5	8.7	—	V	$I_E = 100\mu\text{A}$
Collector Cutoff Current	I_{CBO}	—	0.3	10	nA	$V_{CB} = 35\text{V}$
Emitter Cutoff Current	I_{EBO}	—	0.3	10	nA	$V_{EB} = 4\text{V}$
Collector Emitter Cutoff Current	I_{CES}	—	0.3	10	nA	$V_{CES} = 35\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	—	27	45	mV	$I_C = 0.5\text{A}$, $I_B = 10\text{mA}$
		—	55	75		$I_C = 1\text{A}$, $I_B = 10\text{mA}$
		—	110	150		$I_C = 2\text{A}$, $I_B = 10\text{mA}$
		—	210	245		$I_C = 4\text{A}$, $I_B = 20\text{mA}$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	—	860	950	mV	$I_C = 4\text{A}$, $I_B = 20\text{mA}$
Base-Emitter Turn-On Voltage	$V_{BE(on)}$	—	860	950	mV	$I_C = 4\text{A}$, $V_{CE} = 2\text{V}$
Static Forward Current Transfer Ratio	h_{FE}	280	440	1200	—	$I_C = 10\text{mA}$, $V_{CE} = 2\text{V}$
		300	450			$I_C = 0.5\text{A}$, $V_{CE} = 2\text{V}$
		300	450			$I_C = 1\text{A}$, $V_{CE} = 2\text{V}$
		220	330			$I_C = 4\text{A}$, $V_{CE} = 2\text{V}$
		50	80			$I_C = 20\text{A}$, $V_{CE} = 2\text{V}$
Transition Frequency	f_T	—	150	—	MHz	$I_C = 50\text{mA}$, $V_{CE} = 10\text{V}$, $f = 50\text{MHz}$
Output Capacitance	C_{obo}	—	60	80	pF	$V_{CB} = 10\text{V}$, $f = 1\text{MHz}$
Switching Times	t_{on}	—	130	—	ns	$I_C = 4\text{A}$, $I_B = 40\text{mA}$, $V_{CC} = 10\text{V}$
	t_{off}	—	180	—	ns	$I_C = 4\text{A}$, $I_B = \pm 40\text{mA}$, $V_{CC} = 10\text{V}$

Typical Characteristics



Typical Characteristics (continued)

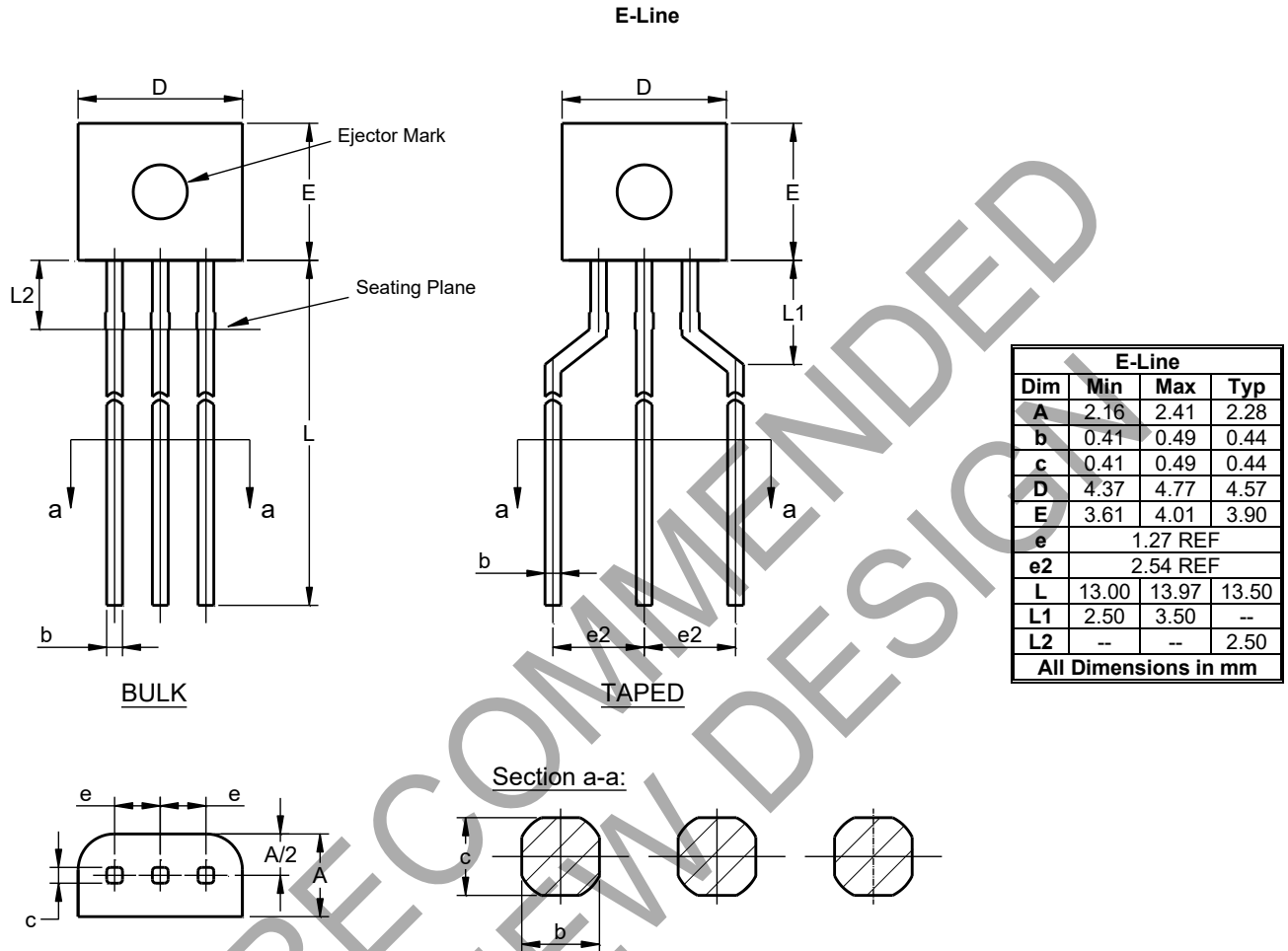


SPICE Parameters

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MODEL ZTX1048A NPN IS=13.73E-13 NF=1.0 BF=550 IKF=8.0 VAF=120
+ ISE=2.6E-13 NE=1.38 NR=1.0 BR=300 IKR=6 VAR=15
+ ISC=1.6E-12 NC=1.4 RB=0.1 RE=0.022 RC=0.010
+ CJC=136E-12 CJE=559.1E-12 MJC=0.267 MJE=0.299
+ VJC=0.420 VJE=0.533 TF=600E-12 TR=3E-9
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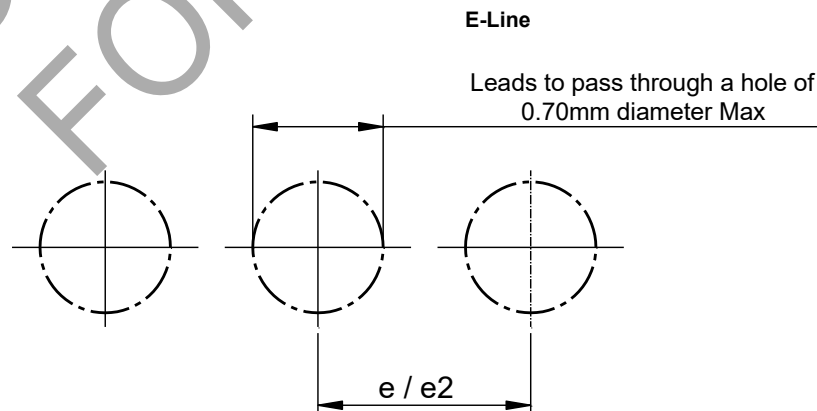
Package Outline Dimensions

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



Suggested Pad Layout

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



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