

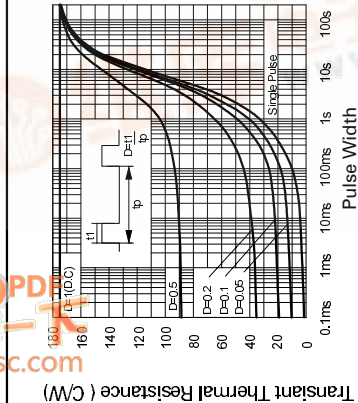


ZTX1049A

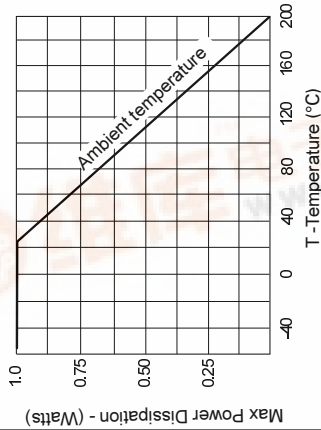
NPN SILICON PLANAR MEDIUM POWER HIGH GAIN TRANSISTOR

ISSUE 1 - JUNE 1995

ZTX1049A



Transient Thermal Resistance



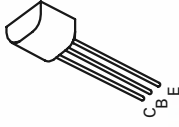
Derating curve

FEATURES

- * $V_{CEV} = 80V$
- * Very low saturation voltages
- * High Gain
- * 20 Amps pulse current

APPLICATIONS

- * LCD Backlight converters
- * Emergency lighting
- * DC-DC converters



E-Line TO92 Compatible

ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V_{CBO}	80	V
Collector-Emitter Voltage	V_{CEO}	25	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	$^{\circ}C$

SPICE PARAMETERS

ZETEX ZTX1049A Spice model Last revision 15/6/95

MODEL ZTX1049A NPN IS=1.5E-12 NF=1.0 BF=600 IKF=7.5 VAF=100
 ISE=0.9E-13 NE=1.25 NR=1.0 BR=150 IKR=3 VAR=15
 ISC=5.0E-13 NC=1.76 RB=0.1 RE=0.018 RC=0.007
 CJC=136E-12 CJE=550E-12 MJC=0.352 MJE=0.36
 VJC=0.554 VJE=0.726 TF=400E-12 TR=6.9E-9

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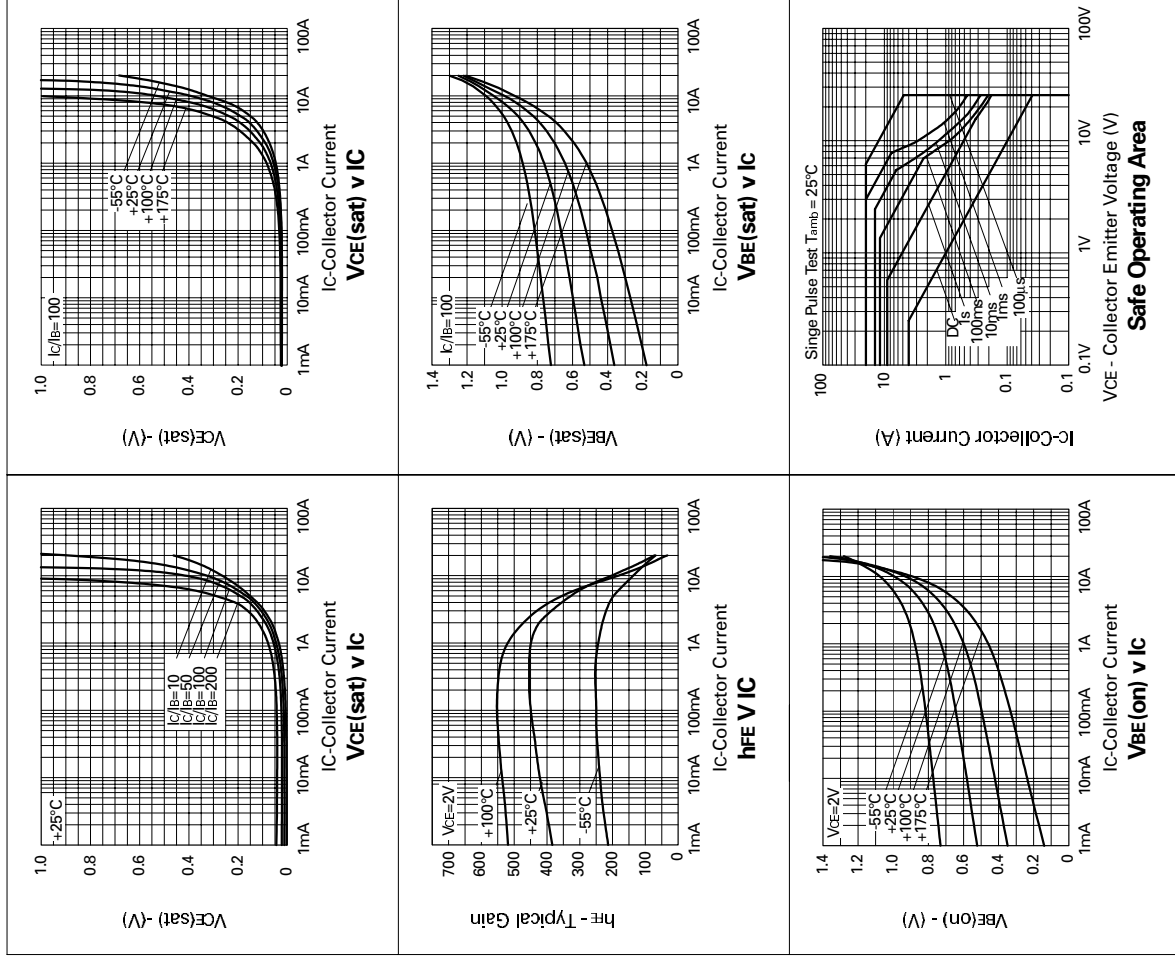
ZTX1049A

ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^{\circ}\text{C}$ unless otherwise stated).

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	80	120		V	$I_C = 100\mu\text{A}$
Collector-Emitter Breakdown Voltage	V_{CES}	80	120		V	$I_C = 100\mu\text{A}$
Collector-Emitter Breakdown Voltage	V_{CEO}	25	35		V	$I_C = 10\text{mA}$
Collector-Emitter Breakdown Voltage	V_{CEV}	80	120		V	$I_C = 100\mu\text{A}, V_{EB} = 1\text{V}$
Emitter-Base Breakdown Voltage	$V_{(BRE)BO}$	5	8.75		V	$I_E = 100\mu\text{A}$
Collector Cut-Off Current	I_{CBO}		0.3	10	nA	$V_{CB} = 50\text{V}$
Emitter Cut-Off Current	I_{EBO}		0.3	10	nA	$V_{EB} = 4\text{V}$
Collector Emitter Cut-Off Current	I_{CES}		0.3	10	nA	$V_{CES} = 50\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		30 60 125 155	45 80 180 220	mV	$I_C = 0.5\text{A}, I_B = 10\text{mA}^*$ $I_C = 1\text{A}, I_B = 10\text{mA}^*$ $I_C = 2\text{A}, I_B = 10\text{mA}^*$ $I_C = 4\text{A}, I_B = 50\text{mA}^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		890	950	mV	$I_C = 4\text{A}, I_B = 50\text{mA}^*$
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		820	900	mV	$I_C = 4\text{A}, V_{CE} = 2\text{V}^*$
Static Forward Current Transfer Ratio	h_{FE}	250 300 300 200 35	430 450 450 350 70	1200		$I_C = 10\text{mA}, V_{CE} = 2\text{V}^*$ $I_C = 0.5\text{A}, V_{CE} = 2\text{V}^*$ $I_C = 1\text{A}, V_{CE} = 2\text{V}^*$ $I_C = 4\text{A}, V_{CE} = 2\text{V}^*$ $I_C = 20\text{A}, V_{CE} = 2\text{V}^*$
Transition Frequency	f_T		180		MHz	$I_C = 50\text{mA}, V_{CE} = 10\text{V}$ $f = 50\text{MHz}$
Output Capacitance	C_{obo}		45	60	pF	$V_{CB} = 10\text{V}, f = 1\text{MHz}$
Turn - On Time	t_{on}		125		ns	$I_C = 4\text{A}, I_B = 40\text{mA}, V_{CC} = 10\text{V}$
Turn - Off Time	t_{off}		380		ns	$I_C = 4\text{A}, I_B = \pm 40\text{mA}, V_{CC} = 10\text{V}$

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

TYPICAL CHARACTERISTICS



ZTX1049A

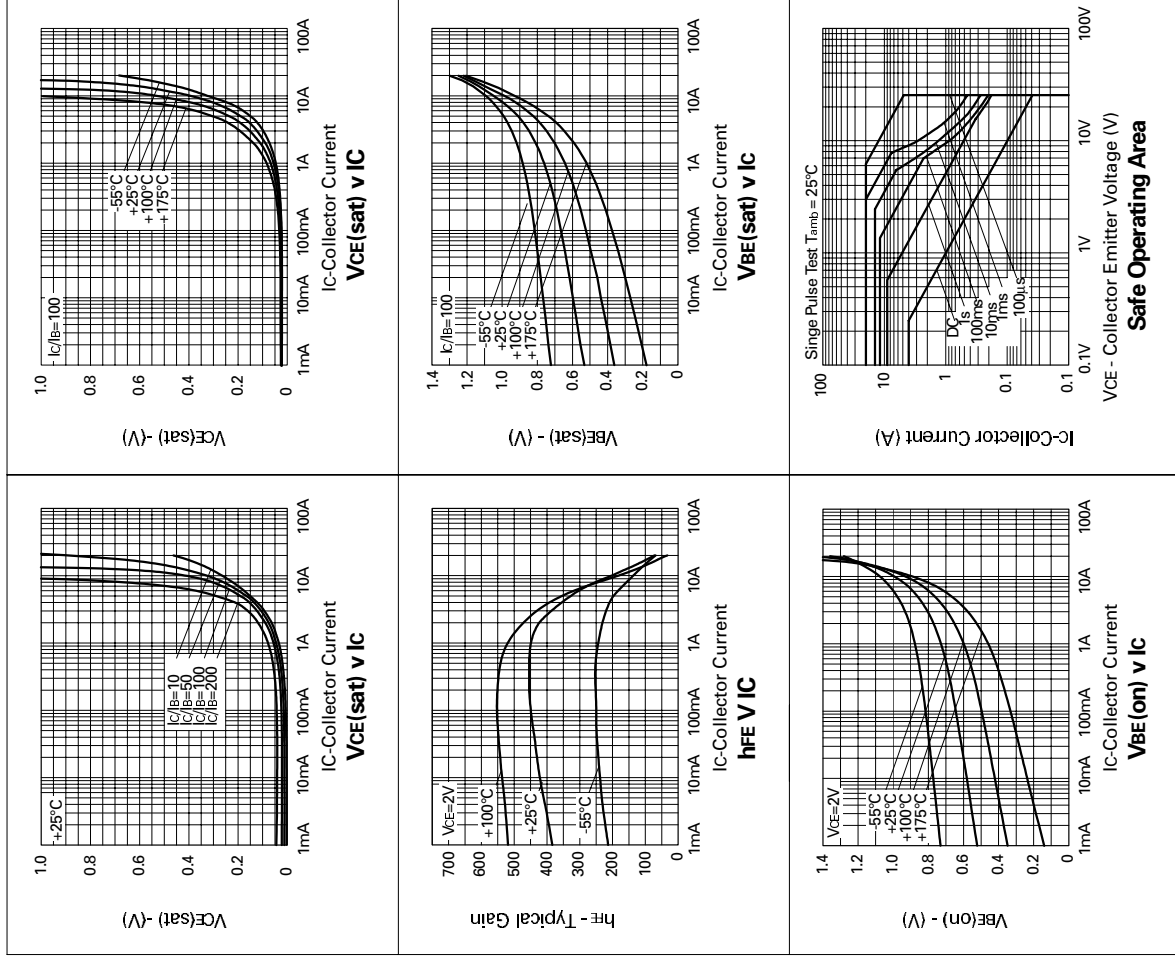
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Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		30 60 125 155	45 80 180 220	mV	$I_C = 0.5\text{A}, I_B = 10\text{mA}^*$ $I_C = 1\text{A}, I_B = 10\text{mA}^*$ $I_C = 2\text{A}, I_B = 10\text{mA}^*$ $I_C = 4\text{A}, I_B = 50\text{mA}^*$
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Static Forward Current Transfer Ratio	h_{FE}	250 300 300 200 35	430 450 450 350 70	1200		$I_C = 10\text{mA}, V_{CE} = 2\text{V}^*$ $I_C = 0.5\text{A}, V_{CE} = 2\text{V}^*$ $I_C = 1\text{A}, V_{CE} = 2\text{V}^*$ $I_C = 4\text{A}, V_{CE} = 2\text{V}^*$ $I_C = 20\text{A}, V_{CE} = 2\text{V}^*$
Transition Frequency	f_T		180		MHz	$I_C = 50\text{mA}, V_{CE} = 10\text{V}$ $f = 50\text{MHz}$
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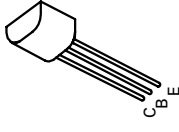
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FEATURES

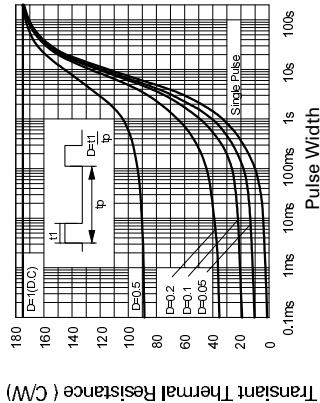
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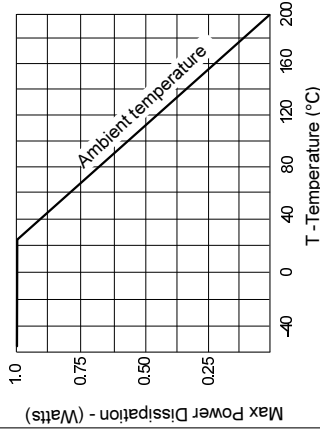
E-Line
TO92 Compatible

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