

NPN SILICON PLANAR MEDIUM POWER HIGH GAIN TRANSISTOR

ZTX1049A

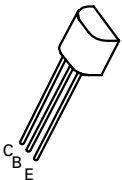
ISSUE 1 – JUNE 1995

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	$^{\circ}C$

ZTX1049A

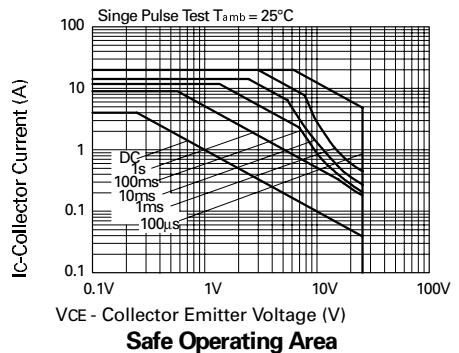
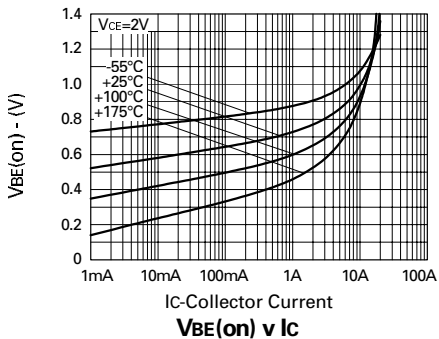
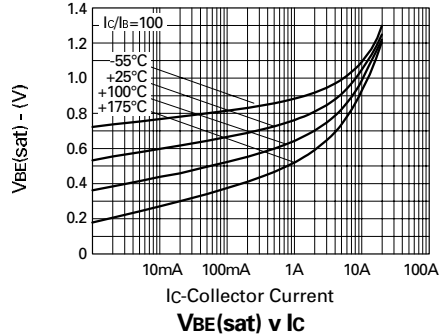
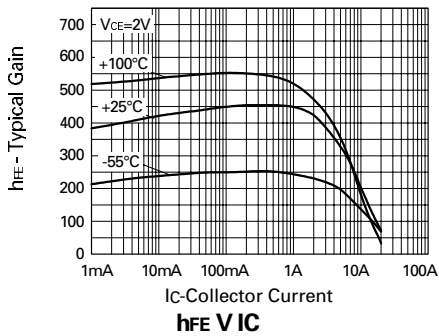
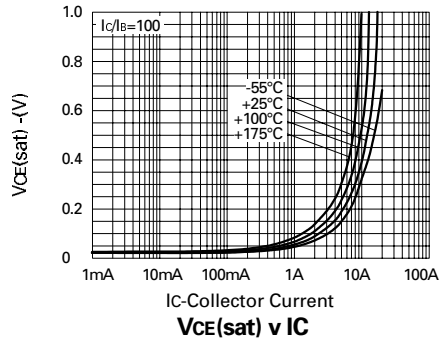
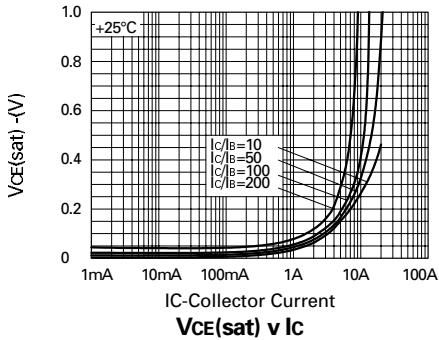
ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^{\circ}\text{C}$ unless otherwise stated).

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	$V_{(BR)EBO}$	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 mV mV 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	$I_C=4\text{A}$, $I_B=\pm 40\text{mA}$, $V_{CC}=10\text{V}$

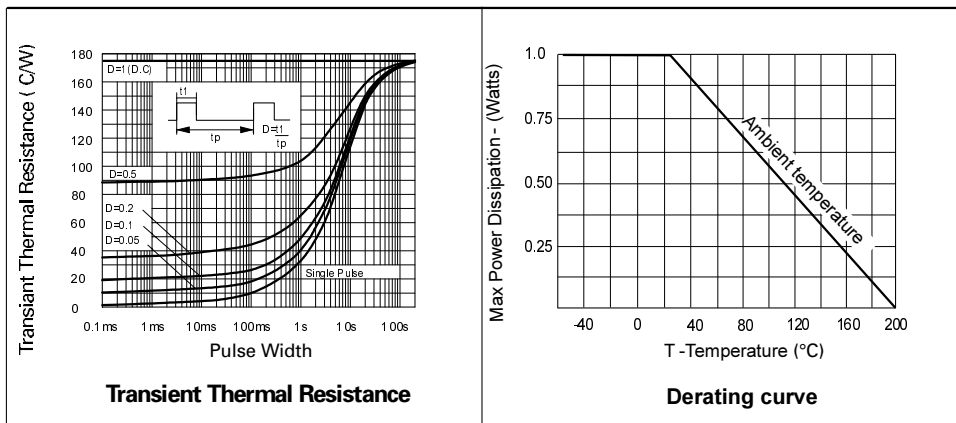
*Measured under pulsed conditions. Pulse width=300 μs . Duty cycle $\leq 2\%$

ZTX1049A

TYPICAL CHARACTERISTICS



ZTX1049A



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

*

*

*

© 1995 ZETEX PLC

The copyright in this model and the design embodied belong to Zetex PLC ("Zetex"). It is supplied free of charge by Zetex for the purpose of research and design and may be used or copied intact (including this notice) for that purpose only. All other rights are reserved. The model is believed accurate but no condition or warranty as to its merchantability or fitness for purpose is given and no liability in respect of any use is accepted by Zetex PLC, its distributors or agents.



Zetex plc.
Fields New Road, Chadderton, Oldham, OL9-8NP, United Kingdom.
Telephone: (44)161 622 4422 (Sales), (44)161 622 4444 (General Enquiries)
Fax: (44)161 622 4420

Zetex GmbH
Streitfeldstraße 19
D-81673 München
Germany
Telephone: (49) 89 45 49 49 0
Fax: (49) 89 45 49 49 49

Zetex Inc.
47 Mall Drive, Unit 4
Commack NY 11725
USA
Telephone: (516) 543-7100
Fax: (516) 864-7630

Zetex (Asia) Ltd.
3510 Metroplaza, Tower 2
Hing Fong Road,
Kwai Fong, Hong Kong
Telephone: (852) 26100 611
Fax: (852) 24250 494

These are supported by
agents and distributors in
major countries world-wide
©Zetex plc 1997
Internet:
<http://www.zetex.com>

This publication is issued to provide outline information only which (unless agreed by the Company in writing) may not be used, applied or reproduced for any purpose or form part of any order or contract or be regarded as a representation relating to the products or services concerned. The Company reserves the right to alter without notice the specification, design, price or conditions of supply of any product or service.