



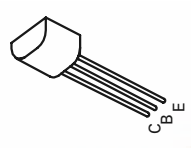
ZTX1047A

NPN SILICON PLANAR MEDIUM POWER
HIGH GAIN TRANSISTOR

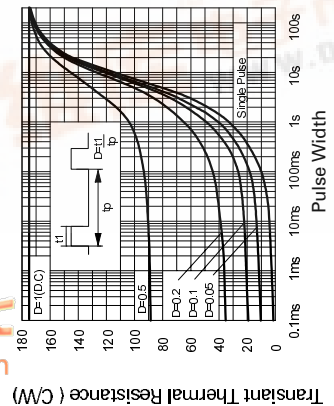
ISSUE 3 – JANUARY 1995

FEATURES

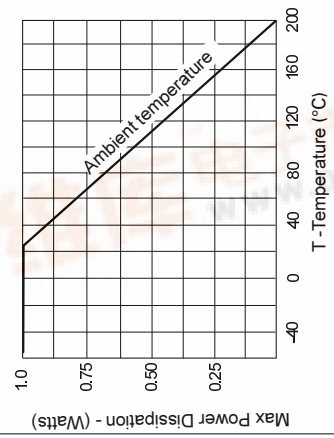
- * Very Low Saturation Voltage
 - * High Gain
 - * 4 Amp Continuous Current
- APPLICATIONS
- * DC-DC Convertors
 - * Power Management - Supply Switching



E-Line
TO92 Compatible



Transient Thermal Resistance



Derating curve

SPICE PARAMETERS

ZETEX ZTX1047A Spice model Last revision 20/01/95

MODEL ZTX1047A NPN IS=9.73E-13 NF=1.0 BF=550 IKF=8.0 VAF=120
ISE=2.6E-13 NE=1.38 NR=1.0 BR=400 IKR=5 VAR=15
ISC=8E-13 NC=1.4 RB=0.1 RE=0.017 RC=0.010
CJC=195.4E-12 CJE=540.4E-12 MJC=0.257 MJE=0.359
VJC=0.390 VJE=0.753 TF=450E-12 TR=1.2E-9

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ZETEX Zetex plc.
Fields New Road, Chadderton, Oldham, OL9 8NP, United Kingdom.
Telephone: (44)161-627 5105 (Sales), (44)161-627 4963 (General Enquiries)
Facsimile: (44)161-627 5467

Zetex GmbH
Treitfeldstraße 19
81673 München
Tel: (49) 89 45 49 49 0
Fax: (49) 89 45 49 49 9

Zetex Inc.
87 Modular Avenue
Commack NY 11725
Tel: (516) 543-7100
Fax: (516) 864-7630

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

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[捷多邦, 专业PCB打样工厂, 24小时加急出货](#)

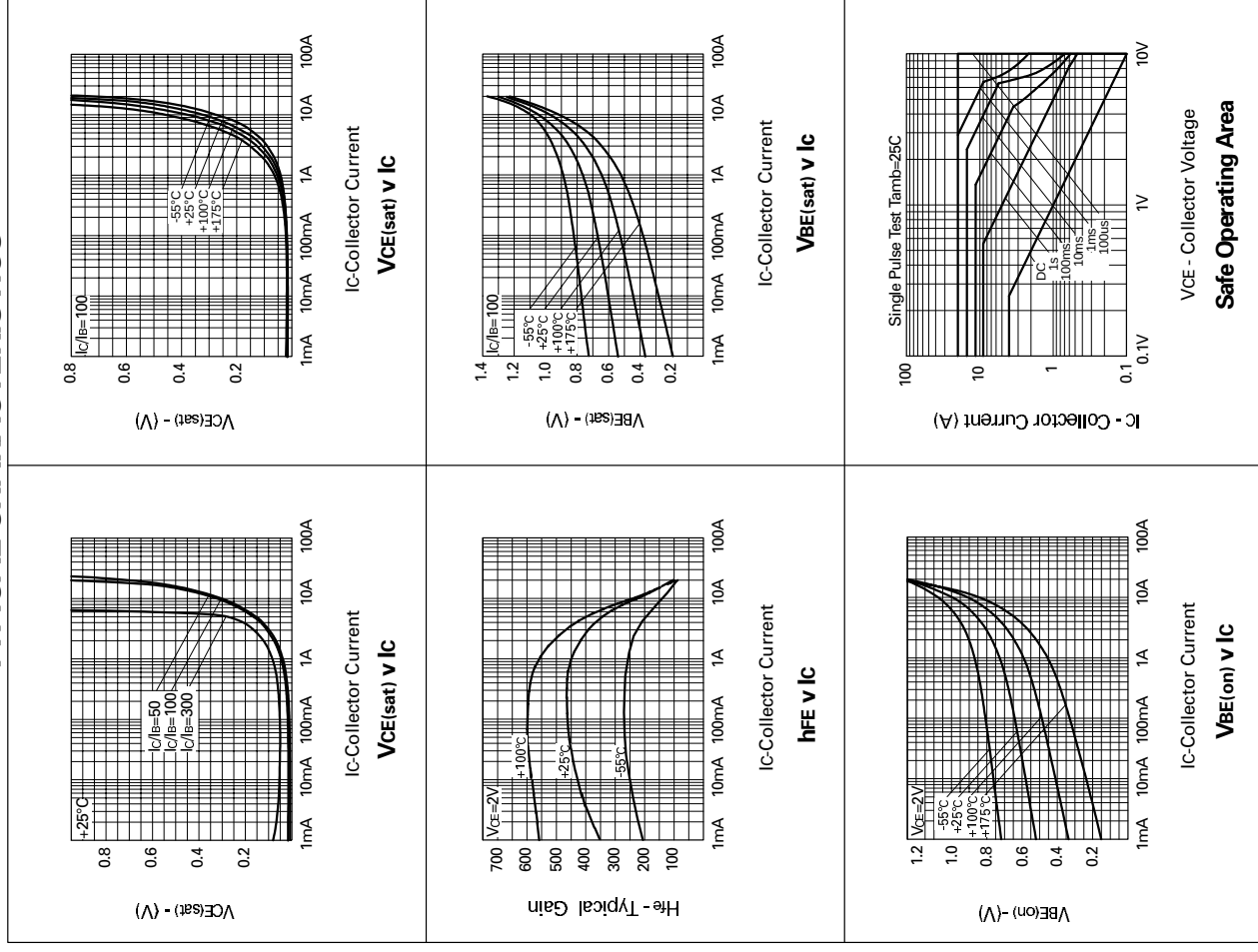


ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^{\circ}\text{C}$ unless otherwise stated).

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{BR}(CBO)$	35	55		V	$I_C = 100\mu\text{A}$
Collector-Emitter Breakdown Voltage	V_{CES}	35	55		V	$I_C = 100\mu\text{A}$
Collector-Emitter Breakdown Voltage	V_{CEO}	10	14		V	$I_C = 10\text{mA}$
Collector-Emitter Breakdown Voltage	V_{CEV}	35	55		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 Cut-Off Current	I_{CBO}		0.3	10	nA	$V_{CB} = 20\text{V}$
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	$V_{CES} = 20\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	23	40		mV	$I_C = 0.5\text{A}$, $I_B = 10\text{mA}^*$
		44	70		mV	$I_C = 1\text{A}$, $I_B = 10\text{mA}^*$
		120	185		mV	$I_C = 3\text{A}$, $I_B = 10\text{mA}^*$
		130	190		mV	$I_C = 4\text{A}$, $I_B = 20\text{mA}^*$
		860	950		mV	$I_C = 4\text{A}$, $I_B = 20\text{mA}^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		810	900	mV	$I_C = 4\text{A}$, $V_{CE} = 2\text{V}^*$
Base-Emitter Turn-On Voltage	$V_{BE(on)}$				mV	$I_C = 4\text{A}$, $V_{CE} = 2\text{V}^*$
Static Forward Current Transfer Ratio	h_{FE}	280	440			$I_C = 10\text{mA}$, $V_{CE} = 2\text{V}^*$
		300	450	1200		$I_C = 1\text{A}$, $V_{CE} = 2\text{V}^*$
		240	380			$I_C = 4\text{A}$, $V_{CE} = 2\text{V}^*$
		150	230			$I_C = 10\text{A}$, $V_{CE} = 2\text{V}^*$
		60	110			$I_C = 20\text{A}$, $V_{CE} = 2\text{V}^*$
Transition Frequency	f_T		150		MHz	$I_C = 50\text{mA}$, $V_{CE} = 10\text{V}$ $f = 50\text{MHz}$
Output Capacitance	C_{obo}		85	110	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	$I_C = 4\text{A}$, $I_B = \pm 40\text{mA}$, $V_{CC} = 10\text{V}$

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

TYPICAL CHARACTERISTICS

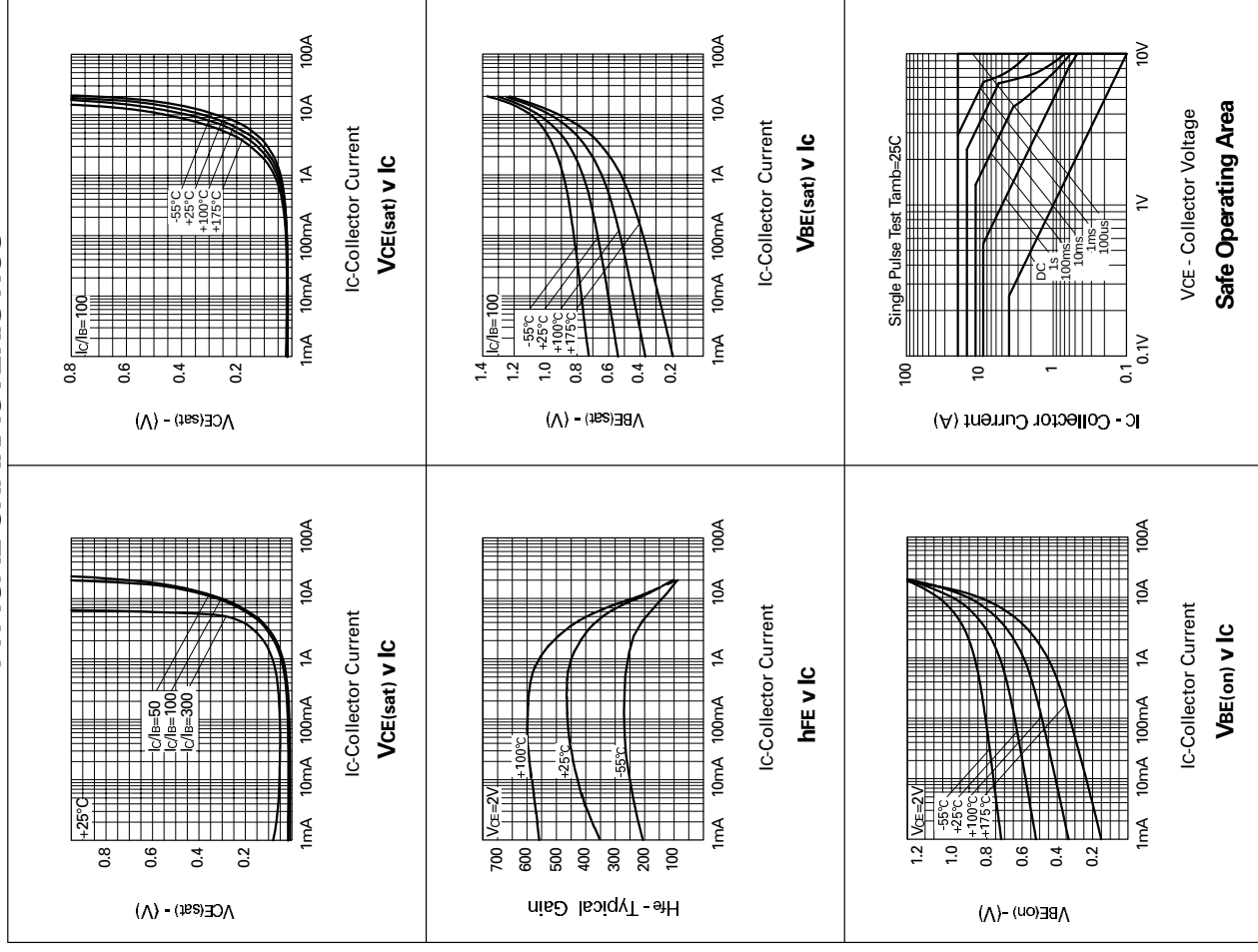


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ZTX1047A

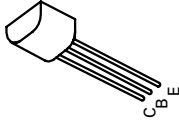
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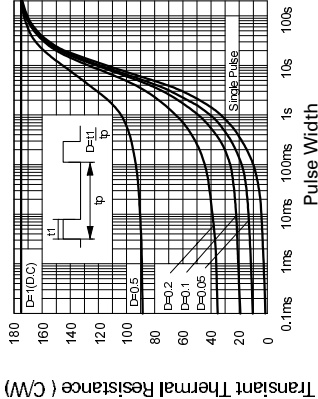
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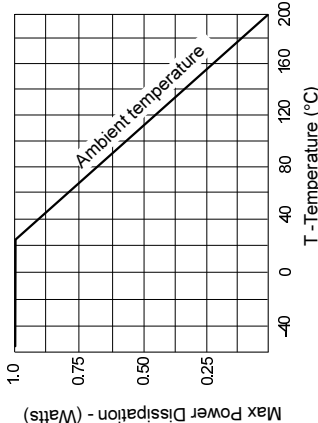
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Zetex GmbH

treitfeldstraße 19
-81673 München

Telephone: (49) 89 45 49 49 0
Fax: (49) 89 45 49 49 49

Zetex Inc.

87 Modular Avenue
Commack NY11725

Telephone: (516) 543-7100
Fax: (516) 864-7630

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Zetex plc.
Fields New Road, Chadderton, Oldham, OL9-8NP, United Kingdom.
Telephone: (44)161-627 5105 (Sales), (44)161-627 4963 (General Enquiries)
Facsimile: (44)161-627 5467

ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	ZTX1047A	UNIT
Collector-Base Voltage	V_{CB0}	35	V
Collector-Emitter Voltage	V_{CE0}	10	V
Emitter-Base Voltage	V_{EB0}	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	$^{\circ}C$

