

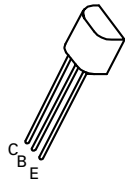
**PNP SILICON PLANAR MEDIUM POWER
HIGH GAIN TRANSISTOR**

ISSUE 1 - JANUARY 1997

ZTX1147A

FEATURES

- * $V_{CE0} = -12V$
- * 4 Amp Continuous Current
- * 20 Amp pulse Current
- * Low Saturation Voltage
- * High Gain



**E-Line
TO92 Compatible**

ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V_{CBO}	-15	V
Collector-Emitter Voltage	V_{CEO}	-12	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	$^{\circ}C$

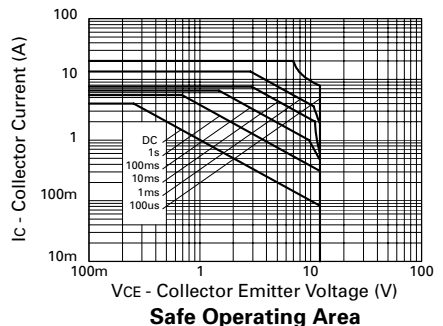
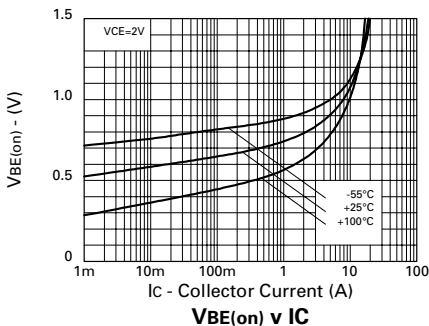
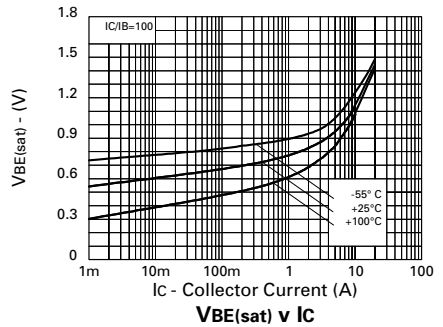
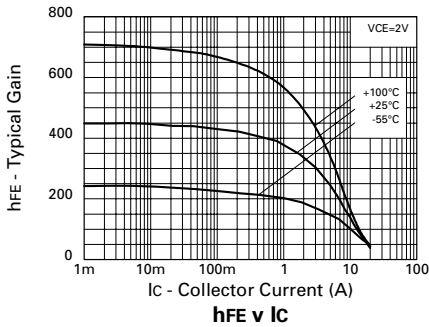
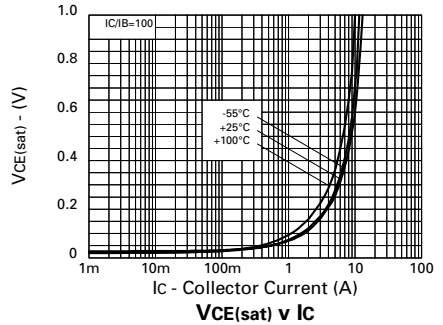
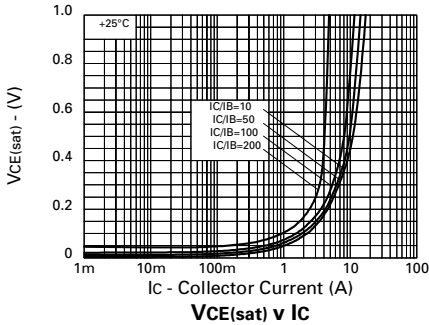
ZTX1147A

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

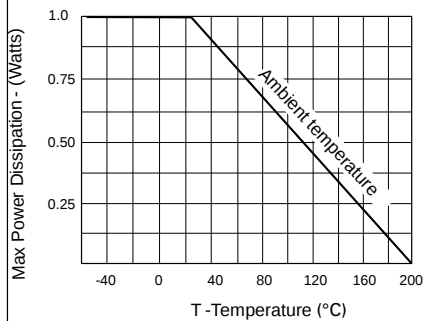
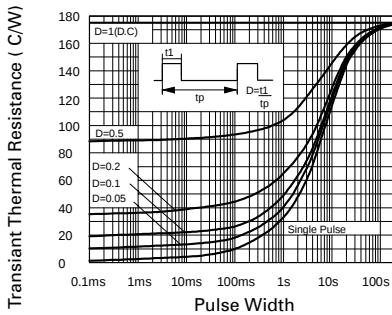
PARAMETER	SYMBOL	VALUE			UNIT	CONDITIONS.
		MIN.	TYP.	MAX.		
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	-15	-35		V	$I_C = -100\mu\text{A}$
Collector-Emitter Breakdown Voltage	$V_{(BR)CES}$	-12	-25		V	$I_C = -100\mu\text{A}$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	-12	-25		V	$I_C = -10\text{mA}$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEV}$	-12	-25		V	$I_C = -100\mu\text{A}$, $V_{EB} = +1\text{V}$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	-5	-8.5		V	$I_E = -100\mu\text{A}$
Collector Cut-Off Current	I_{CBO}		-0.3	-100	nA	$V_{CB} = -12\text{V}$
Emitter Cut-Off Current	I_{EBO}		-0.3	-100	nA	$V_{EB} = -4\text{V}$
Collector Emitter Cut-Off Current	I_{CES}		-0.3	-100	nA	$V_{CE} = -10\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		-25	-50	mV	$I_C = -0.1\text{A}$, $I_B = -1\text{mA}^*$
			-70	-110	mV	$I_C = -0.5\text{A}$, $I_B = -2.5\text{mA}^*$
			-90	-130	mV	$I_C = -1\text{A}$, $I_B = -6\text{mA}^*$
			-115	-170	mV	$I_C = -2\text{A}$, $I_B = -20\text{mA}^*$
			-175	-235	mV	$I_C = -4\text{A}$, $I_B = -70\text{mA}^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		-890	-1000	mV	$I_C = -4\text{A}$, $I_B = -70\text{mA}^*$
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		-830	-950	mV	$I_C = -4\text{A}$, $V_{CE} = -2\text{V}^*$
Static Forward Current Transfer Ratio	h_{FE}	270 250 200 170 90	450 400 340 270 150 50	850		$I_C = -10\text{mA}$, $V_{CE} = -2\text{V}^*$ $I_C = -0.5\text{A}$, $V_{CE} = -2\text{V}^*$ $I_C = -2.0\text{A}$, $V_{CE} = -2\text{V}^*$ $I_C = -4.0\text{A}$, $V_{CE} = -2\text{V}^*$ $I_C = -10\text{A}$, $V_{CE} = -2\text{V}^*$ $I_C = -20\text{A}$, $V_{CE} = -2\text{V}^*$
Transition Frequency	f_T		115		MHz	$I_C = -50\text{mA}$, $V_{CE} = -10\text{V}$ $f = 50\text{MHz}$
Out Capacitance	C_{cb}		80		pF	$V_{CB} = -10\text{V}$, $f = 1\text{MHz}$
Switching Times	t_{on}		150		ns	$I_C = -4\text{A}$, $I_B = -40\text{mA}$, $V_{CC} = -10\text{V}$
	t_{off}		220		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



ZTX1147A



SPICE PARAMETERS

* ZETEX ZTX1147 Spice model Last revision 10/12/96

*

.MODEL ZTX1147 PNP IS=1.272e-12 NF=0.989 ISE=2.5e-13 NE=1.65

+ BF=500 VAF=14.59 IKF=8 NR=1 ISC=8e-14 NC= 1.6

+ BR=90 VAR=3.1 IKR=1.2 RE=15e-3 RB=145e-3

+ RC=13e-3 CJE=560e-12

+ CJC=255e-12 VJC=0.6288

+ MJC=0.4048 TF=1.2e-9 TR=13e-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
Telefon: (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.

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[Diodes Inc.:](#)

[ZTX1147A](#) [ZTX1147ASTZ](#)