

PNP SILICON PLANAR MEDIUM POWER HIGH GAIN TRANSISTOR

ISSUE 1 - January 1997

ZTX1149A

FEATURES

- * $V_{CE0} = -25V$
- * 3 Amp Continuous Current
- * 10 Amp Pulse Current
- * Low Saturation Voltage
- * High Gain



E-Line
TO92 Compatible

ABSOLUTE MAXIMUM RATINGS.

| PARAMETER | SYMBOL | ZTX1149A | UNIT |
|--|----------------|-------------|-------------|
| Collector-Base Voltage | V_{CBO} | -30 | V |
| Collector-Emitter Voltage | V_{CEO} | -25 | V |
| Emitter-Base Voltage | V_{EBO} | -5 | V |
| Peak Pulse Current | I_{CM} | -10 | A |
| Continuous Collector Current | I_C | -3 | 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 | $^{\circ}C$ |

ZTX1149A

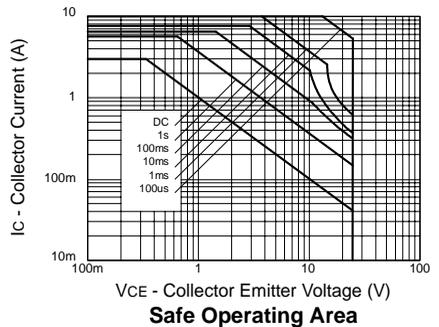
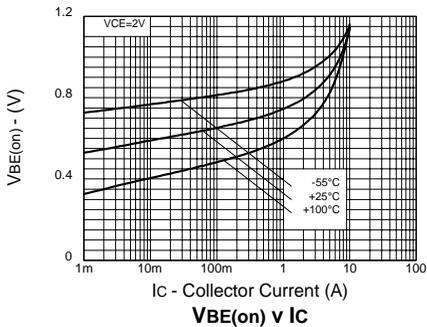
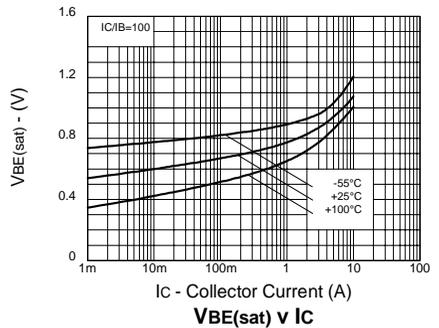
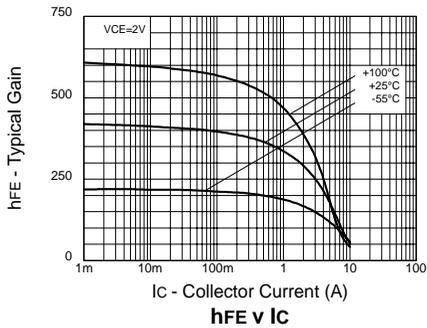
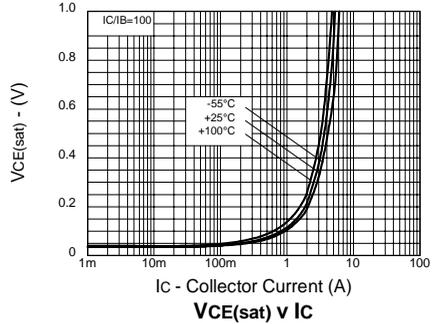
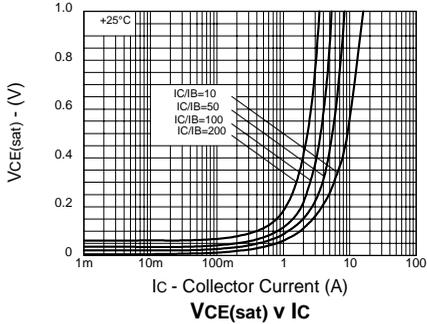
ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^{\circ}\text{C}$ unless otherwise stated).

| PARAMETER | SYMBOL | | | | UNIT | CONDITIONS. |
|---------------------------------------|---------------|--------------------------|-------------------------------------|-------------------------------------|----------------------------|--|
| | | MIN. | TYP. | MAX. | | |
| Collector-Base Breakdown Voltage | $V_{(BR)CBO}$ | -30 | -70 | | V | $I_C = -100\mu\text{A}$ |
| Collector-Emitter Breakdown Voltage | $V_{(BR)CES}$ | -25 | -60 | | V | $I_C = -100\mu\text{A}$ |
| Collector-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | -25 | -60 | | V | $I_C = -10\text{mA}^*$ |
| Collector-Emitter Breakdown Voltage | $V_{(BR)CEV}$ | -25 | -60 | | 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 | $V_{CB} = -24\text{V}$ |
| 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 | $V_{CE} = -20\text{V}$ |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | | -45 -100 -140 -170 -200 | -80 -170 -240 -260 -300 | mV mV mV mV mV | $I_C = -0.1\text{A}, I_B = -1.0\text{mA}^*$ $I_C = -0.5\text{A}, I_B = -3\text{mA}^*$ $I_C = -1\text{A}, I_B = -7\text{mA}^*$ $I_C = -2\text{A}, I_B = -30\text{mA}^*$ $I_C = -3\text{A}, I_B = -70\text{mA}^*$ |
| Base-Emitter Saturation Voltage | $V_{BE(sat)}$ | | -870 | -1000 | mV | $I_C = -3\text{A}, I_B = -70\text{mA}^*$ |
| Base-Emitter Turn-On Voltage | $V_{BE(on)}$ | | -800 | -900 | mV | $I_C = -3\text{A}, V_{CE} = -2\text{V}^*$ |
| Static Forward Current Transfer Ratio | h_{FE} | 270 250 195 115 | 450 400 320 190 50 | 800 | | $I_C = -10\text{mA}, V_{CE} = -2\text{V}^*$ $I_C = -0.5\text{A}, V_{CE} = -2\text{V}^*$ $I_C = -2\text{A}, V_{CE} = -2\text{V}^*$ $I_C = -5\text{A}, V_{CE} = -2\text{V}^*$ $I_C = -10\text{A}, V_{CE} = -2\text{V}^*$ |
| Transition Frequency | f_T | | 135 | | MHz | $I_C = -50\text{mA}, V_{CE} = -10\text{V}$ $f = 50\text{MHz}$ |
| Output Capacitance | C_{cb} | | 50 | | 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} | | 270 | | ns | $I_C = -4\text{A}, I_B = \pm 40\text{mA}, V_{CC} = -10\text{V}$ |

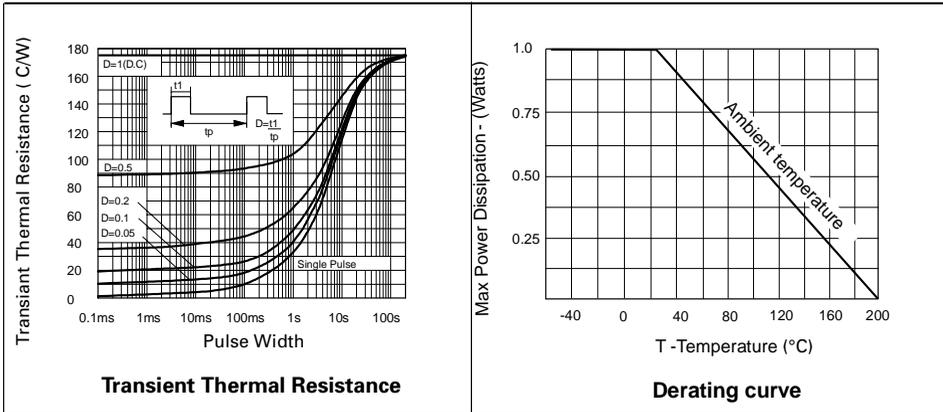
*Measured under pulsed conditions. Pulse width=300 μs . Duty cycle $\leq 2\%$.

ZTX1149A

TYPICAL CHARACTERISTICS



ZTX1149A



*ZETEX ZTX1149 Spice model Last revision 10/1/97

*

.MODEL ZTX1149 PNP IS =9.5e-13 NF=1.002 ISE=1.2e-13 NE =1.4 BF =520

+ VAF=24.97 IKF=5 NR =0.997 ISC=4.5E-13 NC =1.25

+ BR = 40 VAR=2.51 IKR=0.7 RE =20e-3 RB =150e-3

+ RC =10e-3 CJE=490e-12 CJC=150e-12 VJC=1.094

+ MJC= 0.4739 TF =1e-9 TR = 3.5e-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 Incorporated:](#)

[ZTX1149ASTOA](#) [ZTX1149ASTOB](#)