



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



## Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: [info@chipsmall.com](mailto:info@chipsmall.com) Web: [www.chipsmall.com](http://www.chipsmall.com)

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



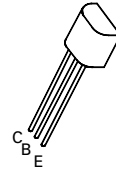
# PNP SILICON PLANAR MEDIUM POWER TRANSISTOR

ISSUE 1 – APRIL 94

## FEATURES

- \* 25 Volt  $V_{CE0}$
- \* 2 Amp continuous current
- \* Low saturation voltage

# ZTX749



**E-Line**  
**TO92 Compatible**

## ABSOLUTE MAXIMUM RATINGS.

| PARAMETER                                                                | SYMBOL         | VALUE       | UNIT       |
|--------------------------------------------------------------------------|----------------|-------------|------------|
| Collector-Base Voltage                                                   | $V_{CBO}$      | -35         | V          |
| Collector-Emitter Voltage                                                | $V_{CEO}$      | -25         | V          |
| Emitter-Base Voltage                                                     | $V_{EBO}$      | -5          | V          |
| Peak Pulse Current                                                       | $I_{CM}$       | -6          | A          |
| Continuous Collector Current                                             | $I_C$          | -2          | A          |
| Power Dissipation at $T_{amb}=25^{\circ}C$<br>derate above $25^{\circ}C$ | $P_{tot}$      | 1<br>5.7    | W<br>mW/°C |
| Operating and Storage Temperature Range                                  | $T_j; T_{stg}$ | -55 to +200 | °C         |

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

| PARAMETER                             | SYMBOL        | MIN.                  | TYP.                    | MAX.         | UNIT    | CONDITIONS.                                                                                                                |
|---------------------------------------|---------------|-----------------------|-------------------------|--------------|---------|----------------------------------------------------------------------------------------------------------------------------|
| Collector-Base Breakdown Voltage      | $V_{(BR)CBO}$ | -35                   |                         |              | V       | $I_C = -100\mu A, I_E = 0$                                                                                                 |
| Collector-Emitter Breakdown Voltage   | $V_{(BR)CEO}$ | -25                   |                         |              | V       | $I_C = -10mA, I_B = 0^*$                                                                                                   |
| Emitter-Base Breakdown Voltage        | $V_{(BR)EBO}$ | -5                    |                         |              | V       | $I_E = -100\mu A, I_C = 0$                                                                                                 |
| Collector Cut-Off Current             | $I_{CBO}$     |                       |                         | -0.1<br>-10  | $\mu A$ | $V_{CB} = -30V$<br>$V_{CB} = -30V, T_{amb} = 100^{\circ}C$                                                                 |
| Emitter Cut-Off Current               | $I_{EBO}$     |                       |                         | -0.1         | $\mu A$ | $V_{EB} = -4V, I_E = 0$                                                                                                    |
| Collector-Emitter Saturation Voltage  | $V_{CE(sat)}$ |                       | -0.12<br>-0.23          | -0.3<br>-0.5 | V       | $I_C = 1A, I_B = -100mA^*$<br>$I_C = 2A, I_B = -200mA^*$                                                                   |
| Base-Emitter Saturation Voltage       | $V_{BE(sat)}$ |                       | -0.9                    | -1.25        | V       | $I_C = 1A, I_B = -100mA^*$                                                                                                 |
| Base-Emitter Turn-On Voltage          | $V_{BE(on)}$  |                       | -0.8                    | -1           | V       | $I_C = 1A, V_{CE} = -2V^*$                                                                                                 |
| Static Forward Current Transfer Ratio | $h_{FE}$      | 70<br>100<br>75<br>15 | 200<br>200<br>150<br>50 | 300          |         | $I_C = -50mA, V_{CE} = -2V^*$<br>$I_C = -1A, V_{CE} = -2V^*$<br>$I_C = -2A, V_{CE} = -2V^*$<br>$I_C = -6A, V_{CE} = -2V^*$ |

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

# ZTX749

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

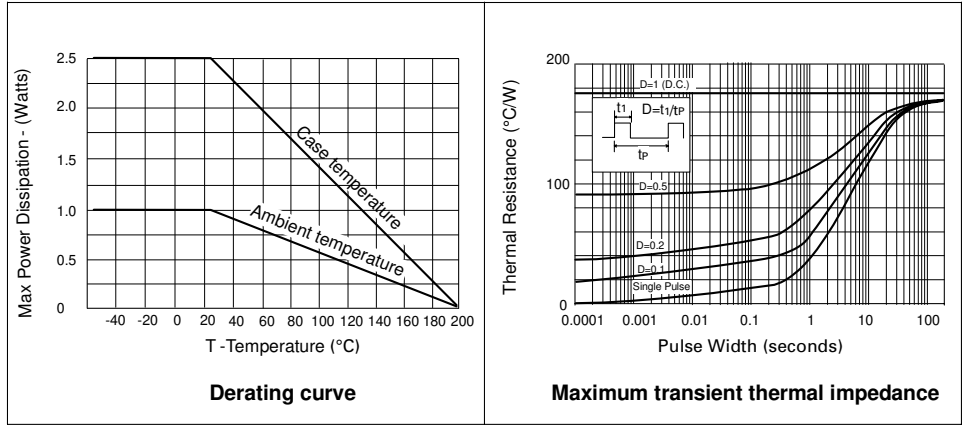
| PARAMETER            | SYMBOL    | MIN. | TYP. | MAX. | UNIT | CONDITIONS.                                                                           |
|----------------------|-----------|------|------|------|------|---------------------------------------------------------------------------------------|
| Transition Frequency | $f_T$     | 100  | 160  |      | MHz  | $I_C = -100\text{mA}$ ,<br>$V_{CE} = -5\text{V}$ $f = 100\text{MHz}$                  |
| Output Capacitance   | $C_{obo}$ |      | 55   | 100  | pF   | $V_{CB} = -10\text{V}$ $f = 1\text{MHz}$                                              |
| Switching Times      | $t_{on}$  |      | 40   |      | ns   | $I_C = -500\text{mA}$ ,<br>$V_{CC} = -10\text{V}$<br>$I_{B1} = I_{B2} = -50\text{mA}$ |
|                      | $t_{off}$ |      | 450  |      | ns   |                                                                                       |

\*Measured under pulsed conditions. Pulse width=300 $\mu\text{s}$ . Duty cycle  $\leq 2\%$

## THERMAL CHARACTERISTICS

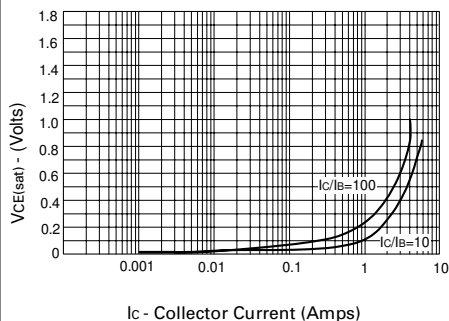
| PARAMETER                                            | SYMBOL                    | MAX. | UNIT                 |
|------------------------------------------------------|---------------------------|------|----------------------|
| Thermal Resistance: Junction to Ambient <sub>1</sub> | $R_{th(j-amb)1}$          | 175  | $^{\circ}\text{C/W}$ |
| Junction to Ambient <sub>2</sub>                     | $R_{th(j-amb)2} \uparrow$ | 116  | $^{\circ}\text{C/W}$ |
| Junction to Case                                     | $R_{th(j-case)}$          | 70   | $^{\circ}\text{C/W}$ |

$\uparrow$  Device mounted on P.C.B. with copper equal to 1 sq. Inch minimum.

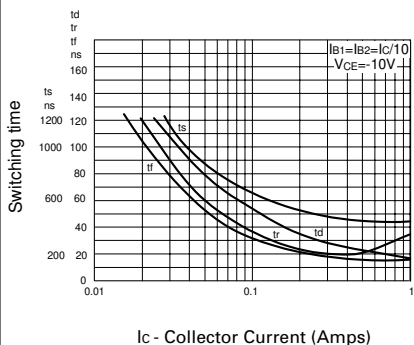


# ZTX749

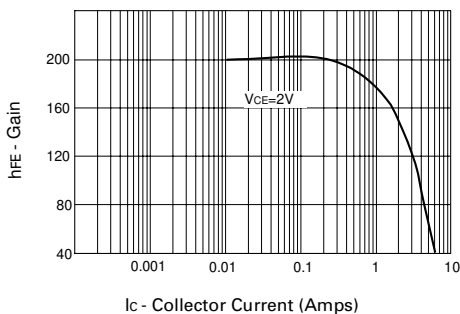
## TYPICAL CHARACTERISTICS



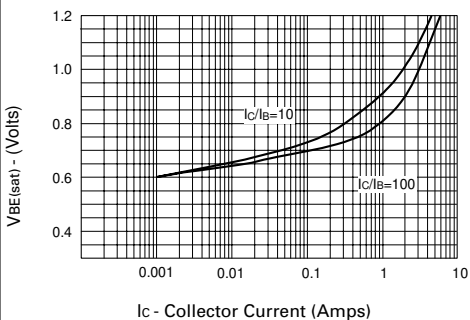
**$V_{CE(sat)}$  v  $I_C$**



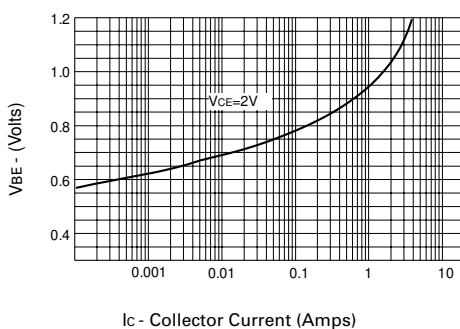
**Switching Speeds**



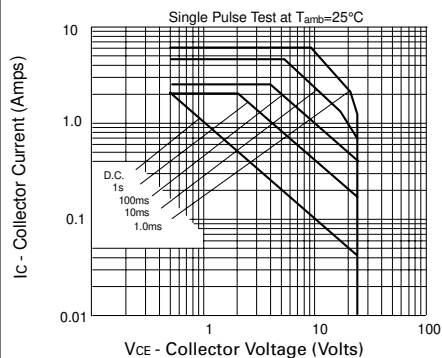
**$hFE$  v  $I_C$**



**$V_{BE(sat)}$  v  $I_C$**



**$V_{BE(on)}$  v  $I_C$**



**Safe Operating Area**