



# THE DATASHEET OF ZTX705



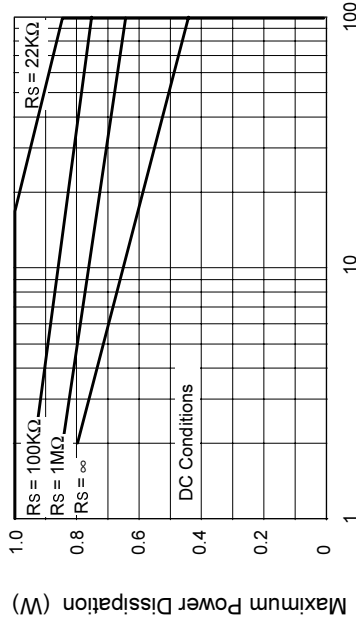
# ZTX704 ZTX705

# PNP SILICON PLANAR ME DARLINGTON TRANSISTOR ISSUE 3 – MAY 94

## ELECTRICAL CHARACTERISTICS (at T<sub>amb</sub> = 25°C).

PARAMETER	SYMBOL	ZTX704		ZTX705		UNIT	CONDITIONS.
		MIN.	MAX.	MIN.	MAX.		
Static Forward Current Transfer Ratio	h <sub>FE</sub>	3K		3K			I <sub>C</sub> =-10mA, V <sub>CE</sub> =-5V*
		3K		3K			I <sub>C</sub> =-100mA, V <sub>CE</sub> =-5V*
		3K	30K	3K	30K		I <sub>C</sub> =-1A, V <sub>CE</sub> =-5V*
		2K		2K			I <sub>C</sub> =-2A, V <sub>CE</sub> =-5V*
Transition Frequency	f <sub>T</sub>	160 Typical		160 Typical		MHz	I <sub>C</sub> =-100mA, V <sub>CE</sub> =-10V f=20MHz
Input Capacitance	C <sub>ibo</sub>	90 Typical		90 Typical		pF	V <sub>EB</sub> =-0.5V, f=1MHz
Output Capacitance	C <sub>obo</sub>	15 Typical		15 Typical		pF	V <sub>CE</sub> =-10V, f=1MHz
Switching Times	t <sub>on</sub>	0.6 Typical		0.6 Typical		μs	I <sub>C</sub> =-0.5A, V <sub>CE</sub> =-10V I <sub>B1</sub> =I <sub>B2</sub> =-0.5mA
	t <sub>off</sub>	0.8 Typical		0.8 Typical		μs	

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



VCE - Collector-Emitter Voltage (Volts)

### Voltage Derating Graph

The maximum permissible operational temperature can be obtained from this graph using the following equation

$$T_{amb(max)} = \frac{Power(max) - Power(act)}{0.0057} + 25^{\circ}C$$

T<sub>amb(max)</sub> = Maximum operating ambient temperature  
 Power(max) = Maximum power dissipation figure, obtained from the above graph for a given V<sub>CE</sub> and source resistance (R<sub>S</sub>)  
 Power(actual) = Actual power dissipation in users circuit

## FEATURES

- \* 120 Volt V<sub>CE0</sub>
  - \* 1 Amp continuous current
  - \* Gain of 3K at I<sub>C</sub>=1 Amp
  - \* P<sub>tot</sub>=1 Watt
- APPLICATIONS
- \* Lamp, solenoid and relay drivers

## ABSOLUTE MAXIMUM RATINGS

PARAMETER	MIN	MAX
Collector-Base Voltage		
Collector-Emitter Voltage		
Emitter-Base Voltage		
Peak Pulse Current		
Continuous Collector Current		
Power Dissipation at T <sub>amb</sub> = 25°C derate above 25°C		
Operating and Storage Temperature Range		

## ELECTRICAL CHARACTERISTICS

PARAMETER	SYMBOL	MIN	MAX
Collector-Base Breakdown Voltage	V <sub>(BR)CBO</sub>	-120	
Collector-Emitter Breakdown Voltage	V <sub>CE0(SUS)</sub>	-100	
Emitter-Base Breakdown Voltage	V <sub>(BR)EBO</sub>	-10	
Collector Cut-Off Current	I <sub>CBO</sub>		
Collector Cut-Off Current	I <sub>CES</sub>		
Emitter Cut-Off Current	I <sub>EBO</sub>		
Collector-Emitter Saturation Voltage	V <sub>CE(sat)</sub>		
Base-Emitter Saturation Voltage	V <sub>BE(sat)</sub>		
Base-Emitter Turn-On Voltage	V <sub>BE(on)</sub>		

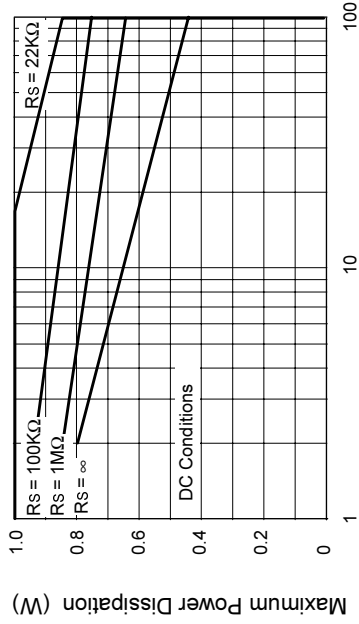
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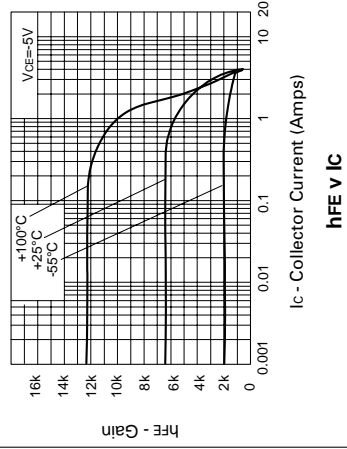
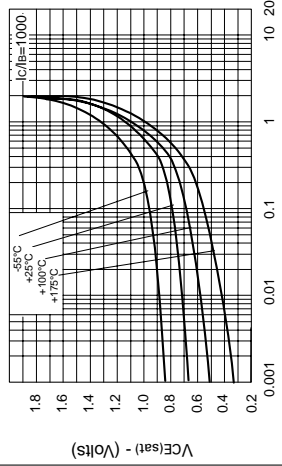
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Base-Emitter Turn-On Voltage	V <sub>BE(on)</sub>		

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## TYPICAL CHARACTERISTICS

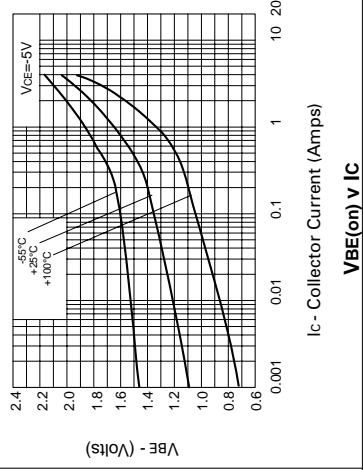
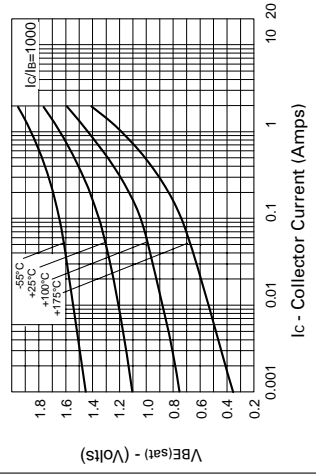


VCE(sat) v IC

IC - Collector Current (Amps)

IC - Collector Current (Amps)

hFE v IC

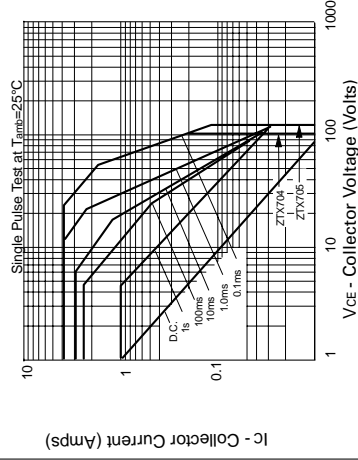


VBE(sat) v IC

IC - Collector Current (Amps)

IC - Collector Current (Amps)

VBE(on) v IC





Safe Operating Area

VCE - Collector Voltage (Volts)

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