



# THE DATASHEET OF ZTX618STZ



# ZTX618

## NPN SILICON PLANAR ME HIGH GAIN TRANSISTOR

ISSUE 2 – JULY 1995

### FEATURES

- \* 10A Peak pulse current
- \* Excellent  $h_{FE}$  characteristics up to 100°C
- \* Extremely low saturation voltage  $e_{CE(sat)}$
- \*  $I_C$  cont 3.5A

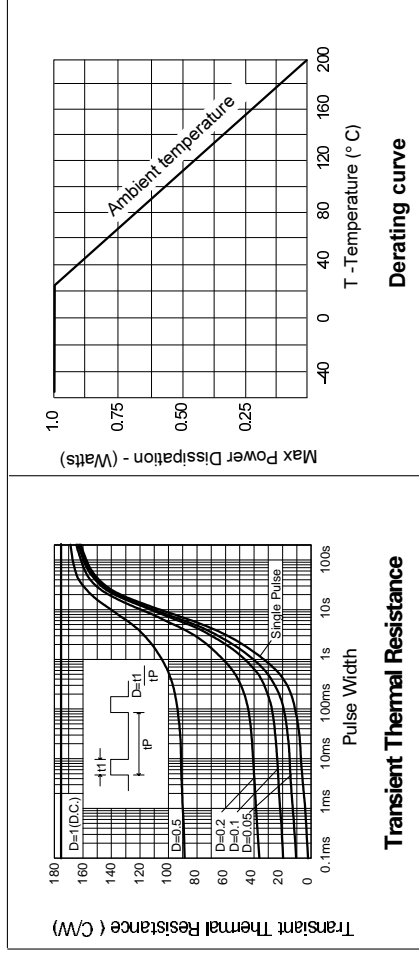
### APPLICATIONS

- \* Power MOSFET gate driver in conjunction with
- complementary ZTX718

### THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	MAX.	UNIT
Thermal Resistance: Junction to Ambient <sub>1</sub>	$R_{th(j-amb)1}$	175	°C/W
Junction to Ambient <sub>2</sub>	$R_{th(j-amb)2} †$	116	°C/W

† Device mounted on P.C.B. with copper equal to 1 sq. Inch minimum.



### ABSOLUTE MAXIMUM RATINGS

PARAMETER
Collector-Base Voltage
Collector-Emitter Voltage
Emitter-Base Voltage
Peak Pulse Current
Continuous Collector Current
Base Current
Practical Power Dissipation*
Power Dissipation
Operating and Storage Temperature F

\* Device mounted on P.C.B. with copper



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 (Asia) Ltd. 3510 Metroplaza, Tower 2 Hing Fong Road, Kwai Fong, Hong Kong Telephone: (516) 543-7100 Fax: (516) 864-7630	These are supported by agents and distributors in major countries world-wide ©Zetex plc 1997 <b>Internet:</b> <a href="http://www.zetex.com">http://www.zetex.com</a>
--	--	--

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.

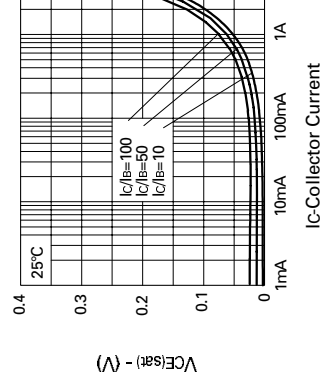
# ZTX618

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

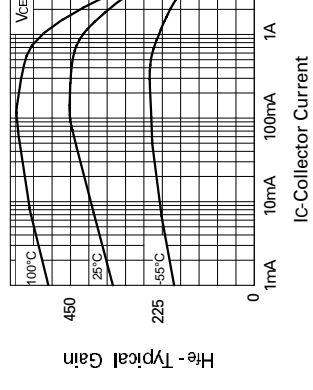
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	20	100		V	$I_C = 100\mu\text{A}$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	20	27		V	$I_C = 10\text{mA}^*$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	5	8.3		V	$I_E = 100\mu\text{A}$
Collector Cut-Off Current	$I_{CBO}$			100	nA	$V_{CB} = 16\text{V}$
Emitter Cut-Off Current	$I_{EBO}$			100	nA	$V_{EB} = 4\text{V}$
Collector Emitter Cut-Off Current	$I_{CES}$			100	nA	$V_{CES} = 16\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		7 80 210	15 150 255	mV	$I_C = 0.1\text{A}, I_B = 10\text{mA}^*$ $I_C = 1\text{A}, I_B = 10\text{mA}^*$ $I_C = 3.5\text{A}, I_B = 50\text{mA}^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		0.93	1.05	V	$I_C = 3.5\text{A}, I_B = 50\text{mA}^*$
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		0.86	1.0	V	$I_C = 3.5\text{A}, V_{CE} = 2\text{V}^*$
Static Forward Current Transfer Ratio	$h_{FE}$	200 300 170 40	400 450 300 85			$I_C = 10\text{mA}, V_{CE} = 2\text{V}^*$ $I_C = 200\text{mA}, V_{CE} = 2\text{V}^*$ $I_C = 3\text{A}, V_{CE} = 2\text{V}^*$ $I_C = 10\text{A}, V_{CE} = 2\text{V}^*$
Transition Frequency	$f_T$	100	140		MHz	$I_C = 50\text{mA}, V_{CE} = 10\text{V}$ $f = 100\text{MHz}$
Output Capacitance	$C_{obo}$		23	30	pF	$V_{CB} = 10\text{V}, f = 1\text{MHz}$
Turn-On Time	$t_{(on)}$		170		ns	$V_{CC} = 10\text{V}, I_C = 1\text{A}$ $I_{B1} = I_{B2} = 10\text{mA}$
Turn-Off Time	$t_{(off)}$		400		ns	

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

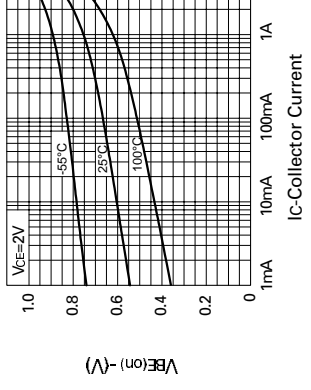
## TYPICAL



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



$h_{FE}$  v  $I_C$



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

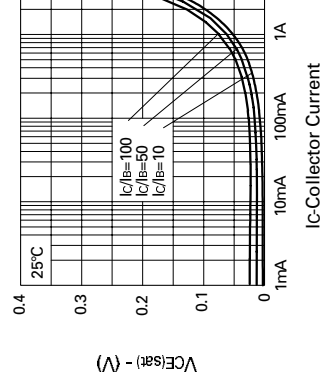
# ZTX618

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

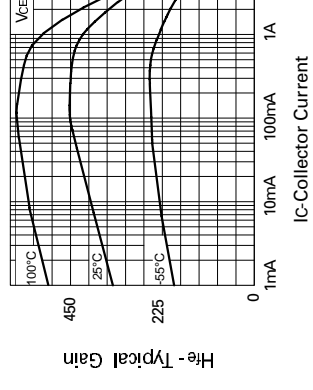
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	20	100		V	$I_C = 100\mu\text{A}$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	20	27		V	$I_C = 10\text{mA}^*$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	5	8.3		V	$I_E = 100\mu\text{A}$
Collector Cut-Off Current	$I_{CBO}$			100	nA	$V_{CB} = 16\text{V}$
Emitter Cut-Off Current	$I_{EBO}$			100	nA	$V_{EB} = 4\text{V}$
Collector Emitter Cut-Off Current	$I_{CES}$			100	nA	$V_{CES} = 16\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		7 80 210	15 150 255	mV	$I_C = 0.1\text{A}, I_B = 10\text{mA}^*$ $I_C = 1\text{A}, I_B = 10\text{mA}^*$ $I_C = 3.5\text{A}, I_B = 50\text{mA}^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		0.93	1.05	V	$I_C = 3.5\text{A}, I_B = 50\text{mA}^*$
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		0.86	1.0	V	$I_C = 3.5\text{A}, V_{CE} = 2\text{V}^*$
Static Forward Current Transfer Ratio	$h_{FE}$	200 300 170 40	400 450 300 85			$I_C = 10\text{mA}, V_{CE} = 2\text{V}^*$ $I_C = 200\text{mA}, V_{CE} = 2\text{V}^*$ $I_C = 3\text{A}, V_{CE} = 2\text{V}^*$ $I_C = 10\text{A}, V_{CE} = 2\text{V}^*$
Transition Frequency	$f_T$	100	140		MHz	$I_C = 50\text{mA}, V_{CE} = 10\text{V}$ $f = 100\text{MHz}$
Output Capacitance	$C_{obo}$		23	30	pF	$V_{CB} = 10\text{V}, f = 1\text{MHz}$
Turn-On Time	$t_{(on)}$		170		ns	$V_{CC} = 10\text{V}, I_C = 1\text{A}$ $I_{B1} = I_{B2} = 10\text{mA}$
Turn-Off Time	$t_{(off)}$		400		ns	

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

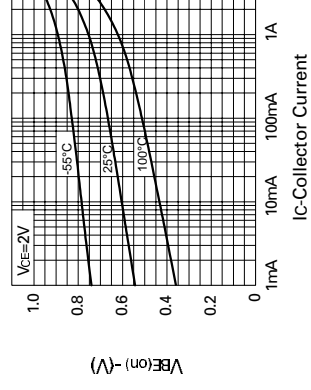
## TYPICAL



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



$h_{FE}$  v  $I_C$



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

# ZTX618

## NPN SILICON PLANAR MEDIUM GAIN TRANSISTOR

ISSUE 2 – JULY 1995

### FEATURES

- \* 10A Peak pulse current
- \* Excellent  $h_{FE}$  characteristics up to 100°C
- \* Extremely low saturation voltage  $e_{CE(sat)}$
- \*  $I_C$  cont 3.5A

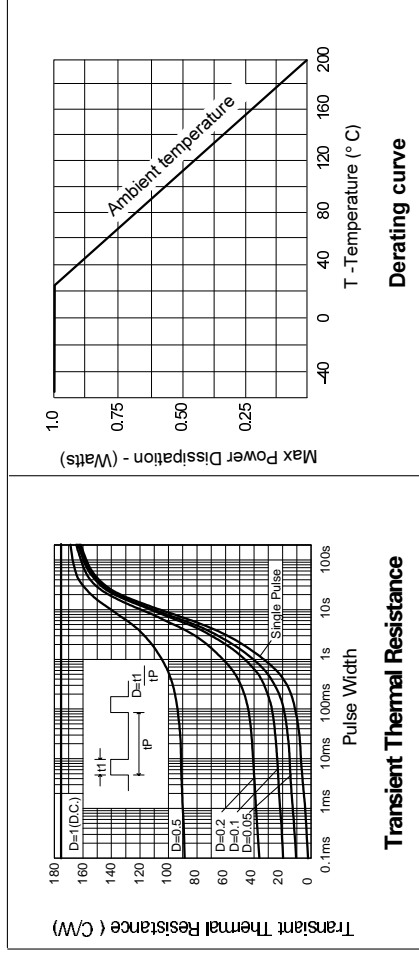
### APPLICATIONS

- \* Power MOSFET gate driver in conjunction with complementary ZTX718

### THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	MAX.	UNIT
Thermal Resistance: Junction to Ambient <sub>1</sub> Junction to Ambient <sub>2</sub>	$R_{th(j-amb)1}$ $R_{th(j-amb)2}$ †	175 116	°C/W °C/W

† Device mounted on P.C.B. with copper equal to 1 sq. Inch minimum.



### ABSOLUTE MAXIMUM RATINGS

PARAMETER
Collector-Base Voltage
Collector-Emitter Voltage
Emitter-Base Voltage
Peak Pulse Current
Continuous Collector Current
Base Current
Practical Power Dissipation*
Power Dissipation
Operating and Storage Temperature F

\* Device mounted on P.C.B. with copper





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 (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: <a href="http://www.zetex.com">http://www.zetex.com</a>
--	--	--

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.

## Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

-  [View ZTX618STZ on WIN SOURCE](#)
-  [Diodes Incorporated](#) Information

## Optimize Your Supply Chain with WIN SOURCE Solutions

-  Global Sourcing Solution
-  Obsolete Management
-  Cost Control Management
-  Shortage Management
-  Alternative Solution
-  Excess Inventory Management