



THE DATASHEET OF ZTX618



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 $V_{CE(sat)}$
- * I_C cont 3.5A

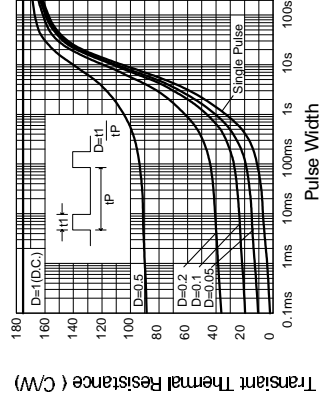
APPLICATIONS

- * Power MOSFET gate driver in conjunction with complementary ZTX718

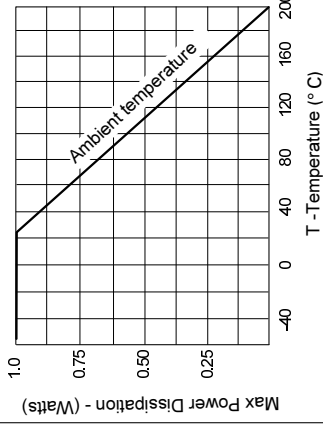
THERMAL CHARACTERISTICS

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

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



Transient Thermal Resistance



Derating curve

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 Inc.
47 Mail 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
<http://www.zetex.com>

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.

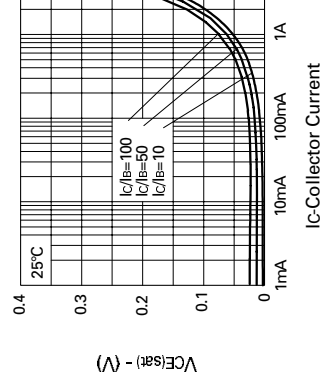
ZTX618

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

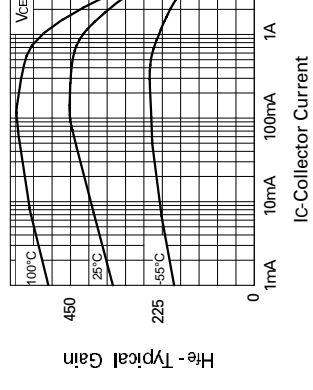
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	20	100		V	$I_C = 100\mu\text{A}$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	20	27		V	$I_C = 10\text{mA}^*$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	5	8.3		V	$I_E = 100\mu\text{A}$
Collector Cut-Off 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 μs . Duty cycle $\leq 2\%$

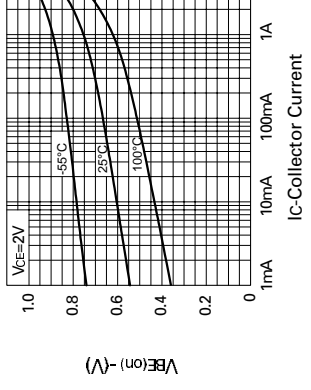
TYPICAL



$V_{CE(sat)}$ v I_C



h_{FE} v I_C



$V_{BE(on)}$ v I_C

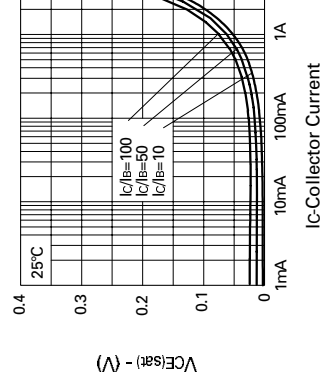
ZTX618

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

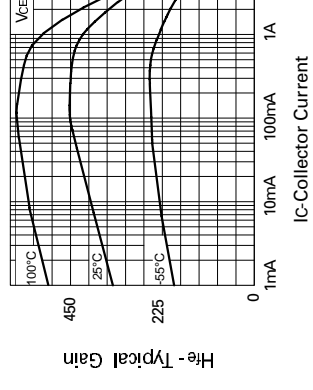
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	20	100		V	$I_C = 100\mu\text{A}$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	20	27		V	$I_C = 10\text{mA}^*$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	5	8.3		V	$I_E = 100\mu\text{A}$
Collector Cut-Off 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 μs . Duty cycle $\leq 2\%$

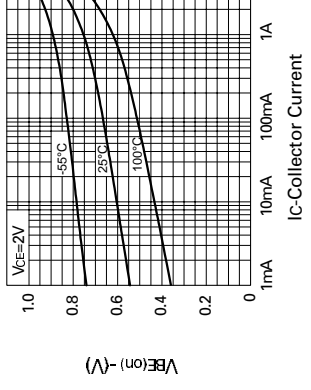
TYPICAL



$V_{CE(sat)}$ 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

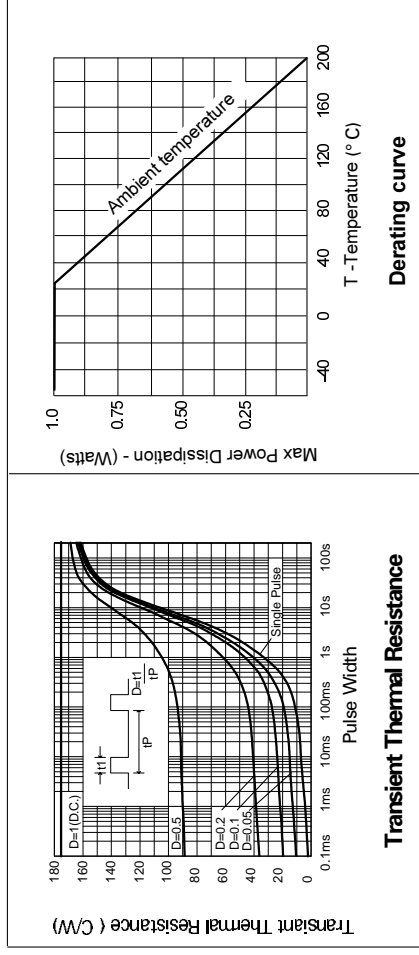
APPLICATIONS

- * Power MOSFET gate driver in conjunction with complementary ZTX718

THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	MAX.	UNIT
Thermal Resistance: Junction to Ambient ₁	$R_{th(j-amb)1}$	175	°C/W
Junction to Ambient ₂	$R_{th(j-amb)2} †$	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 Inc. 47 Mail 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.

Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

-  [View ZTX618 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