

# NPN SILICON PLANAR MEDIUM POWER HIGH GAIN TRANSISTOR

ISSUE 2 – JULY 1995

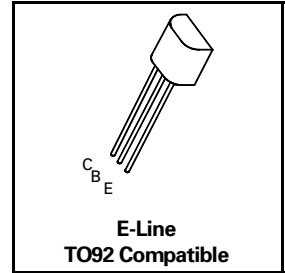
**ZTX618**

## FEATURES

- \* 10A Peak pulse current
- \* Excellent  $h_{FE}$  characteristics up to 10A (pulsed)
- \* Extremely low saturation voltage e.g. 7mV typ.
- \*  $I_C$  cont 3.5A

## APPLICATIONS

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



## ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	$V_{CBO}$	20	V
Collector-Emitter Voltage	$V_{CEO}$	20	V
Emitter-Base Voltage	$V_{EBO}$	5	V
Peak Pulse Current	$I_{CM}$	10	A
Continuous Collector Current	$I_C$	3.5	A
Base Current	$I_B$	500	mA
Practical Power Dissipation*	$P_{totp}$	1.5	W
Power Dissipation	$P_{tot}$	1	W
Operating and Storage Temperature Range	$T_j; T_{stg}$	-55 to +200	°C

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

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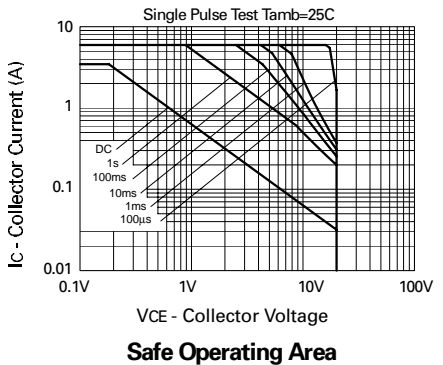
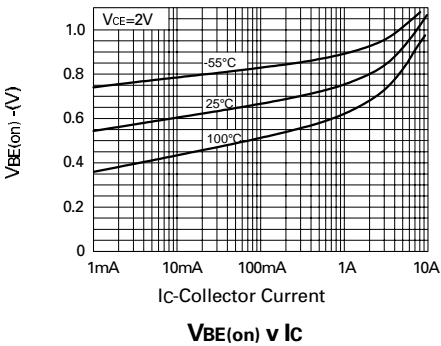
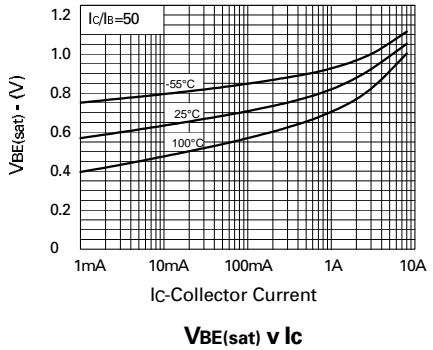
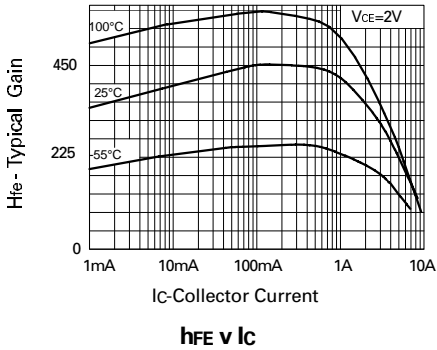
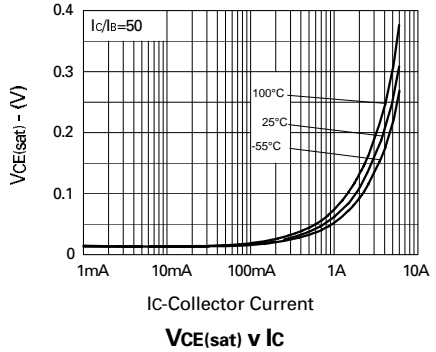
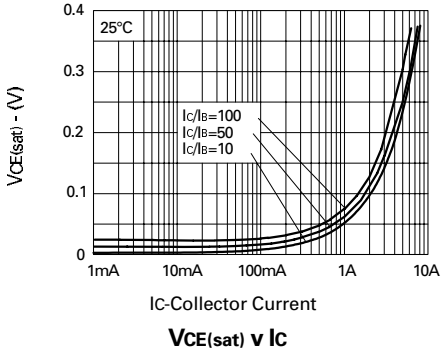
## ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^{\circ}\text{C}$ unless otherwise stated).

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 mV 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  $\leq 2\%$

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## TYPICAL CHARACTERISTICS

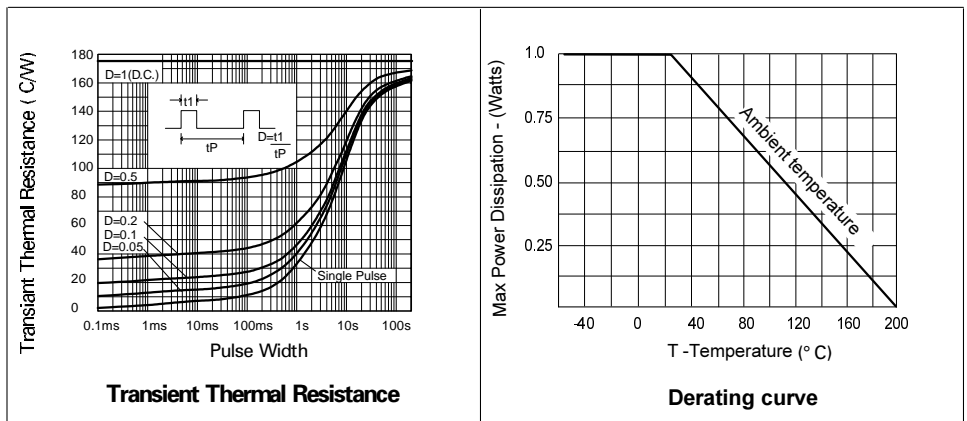


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## THERMAL CHARACTERISTICS

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.



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