



THE DATASHEET OF ZTX618STOA



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

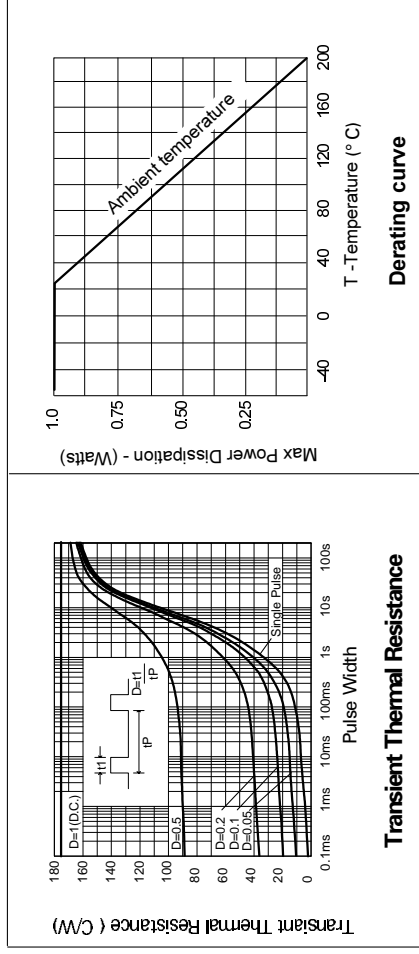
APPLICATIONS

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

THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	MAX.	UNIT
Thermal Resistance: Junction to Ambient 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



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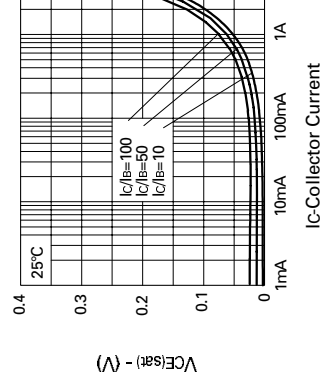
ZTX618

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

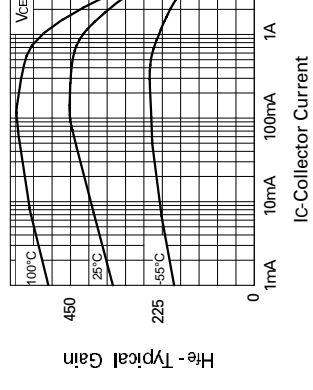
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	20	100		V	$I_C = 100\mu\text{A}$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	20	27		V	$I_C = 10\text{mA}^*$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	5	8.3		V	$I_E = 100\mu\text{A}$
Collector Cut-Off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

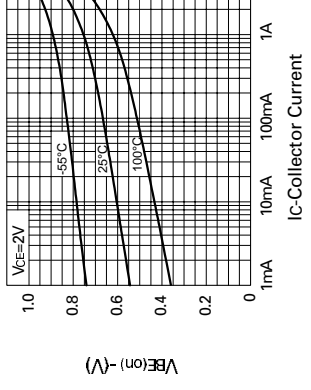
TYPICAL



$V_{CE(sat)}$ v I_C



h_{FE} v I_C



$V_{BE(on)}$ v I_C

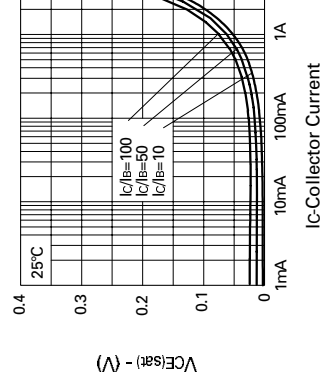
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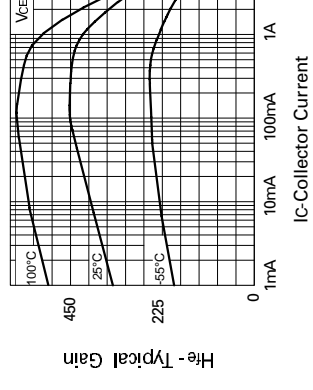
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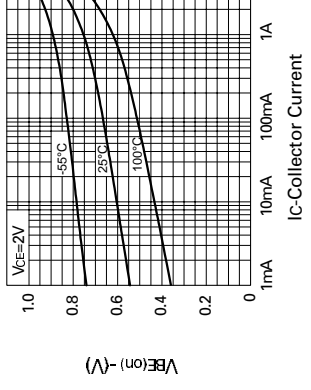
TYPICAL



$V_{CE(sat)}$ v I_C



h_{FE} v I_C



$V_{BE(on)}$ v I_C

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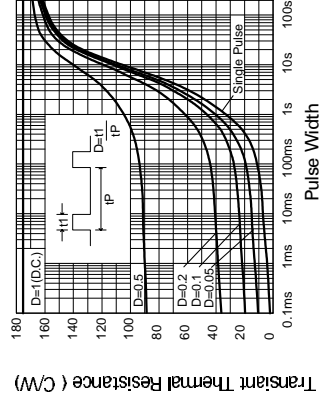
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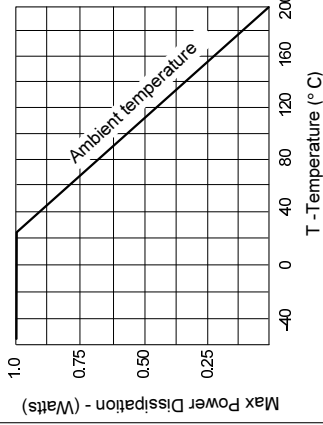
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Transient Thermal Resistance



Derating curve

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