NPN SILICON PLANAR MEDIUM POWER HIGH GAIN TRANSISTOR

ZTX618

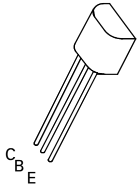
ISSUE 2 – JULY 1995

FEATURES

- 10A Peak pulse current
- Excellent h_{FE} characteristics up to10A (pulsed)
- Extremely low saturation voltage e.g. 7mV typ.
- I_C cont 3.5A

APPLICATIONS

- Power MOSFET gate driver in conjunction with complementary ZTX718



E-Line
TO92 Compatible

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.

ZETEX

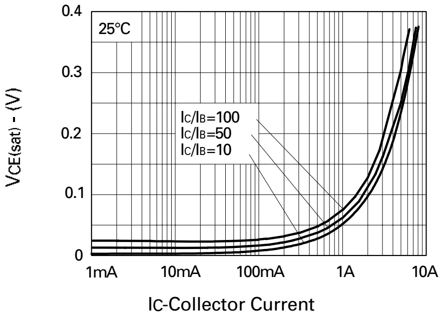
ZTX618

ELECTRICAL CHARACTERISTICS (at T_{amb} = 25°C unless otherwise stated).

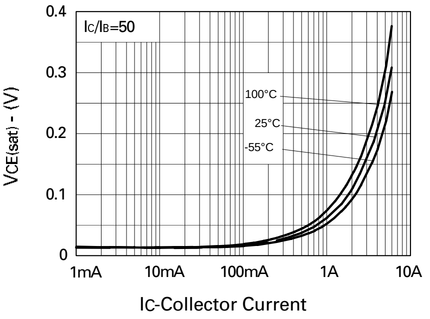
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	20	100		V	I_C=100μA
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	20	27		V	I_C=10mA*
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	5	8.3		V	I_E=100μA
Collector Cut-Off Current	I_{CBO}			100	nA	V_{CB}=16V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

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

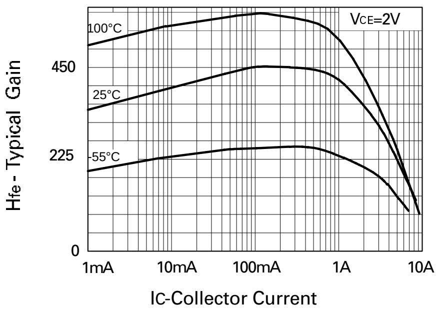
TYPICAL CHARACTERISTICS



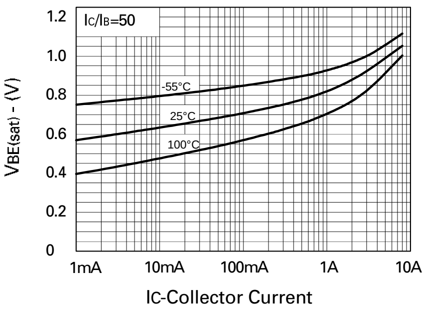
$V_{CE(sat)}$ v I_C



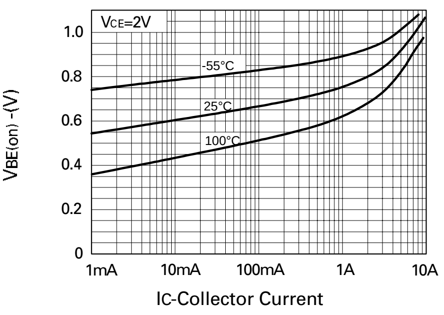
$V_{CE(sat)}$ v I_C



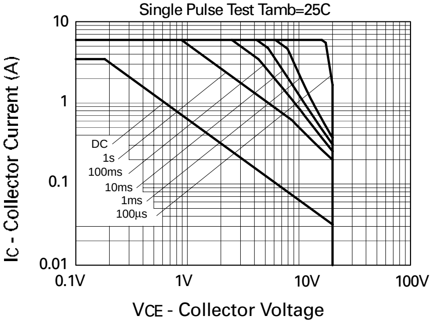
h_{FE} v I_C



$V_{BE(sat)}$ v I_C



$V_{BE(on)}$ v I_C



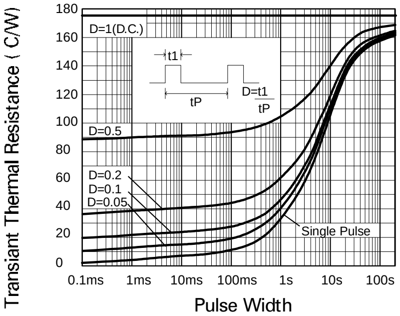
Safe Operating Area

ZTX618

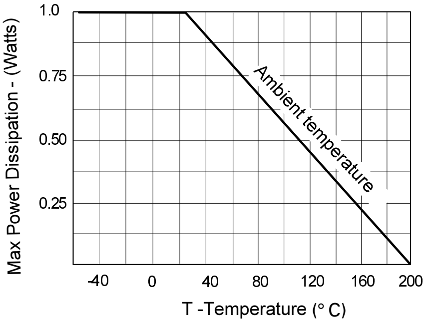
THERMAL CHARACTERISTICS

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

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