



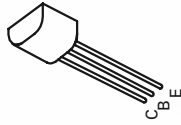
ZTX1056A

NPN SILICON PLANAR MEDIUM POWER
HIGH GAIN TRANSISTOR

ISSUE 3 – JANUARY 1995

FEATURES

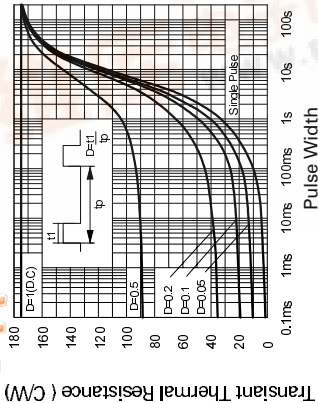
- * $V_{CE0}=160V$
- * 3 Amp Continuous Current
- * 6 Amp Pulse Current
- * Low Saturation Voltage



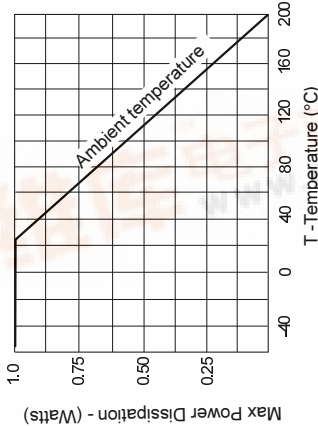
E-Line
TO92 Compatible

ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V_{CB0}	200	V
Collector-Emitter Voltage	V_{CE0}	160	V
Emitter-Base Voltage	V_{EB0}	5	V
Peak Pulse Current	I_{CM}	6	A
Continuous Collector Current	I_C	3	A
Base Current	I_B	500	mA
Power Dissipation at $T_{amb}=25^{\circ}C$	P_{tot}	1	W
Operating and Storage Temperature Range	T_j, T_{stg}	-55 to +200	$^{\circ}C$



Transient Thermal Resistance



Derating curve

SPICE PARAMETERS

ZETEX ZTX1056A Spice model Last revision 24/1/95

MODEL ZTX1056A NPN IS=1.41E-12 NF=1.0 BF=600 IKF=2.0 VAF=120
ISE=4.0E-13 NE=1.4 NR=1.0 BR=80 IKR=2.5 VAR=10
ISC=6.0E-10 NC=1.7 RB=0.1 RE=0.065 RC=0.015
CJC=53.1E-12 CJE=508.6E-12 MJC=0.461 MJE=0.350
VJC=0.461 VJE=0.679 TF=800E-12 TR=110E-9

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捷多邦, 专业PCB打样工厂, 24小时加急出货

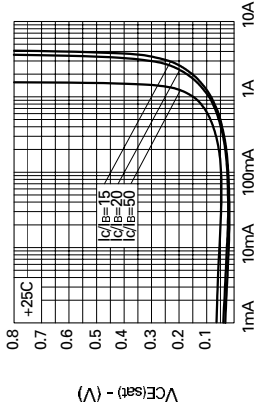
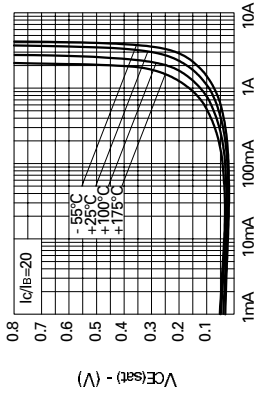
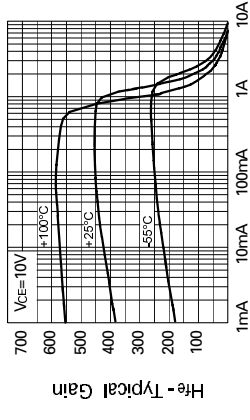
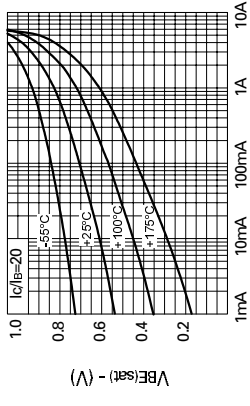
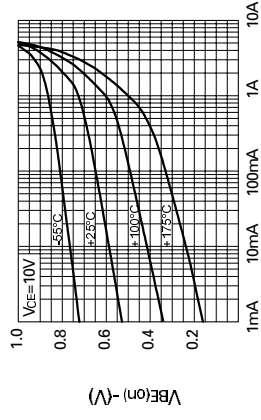
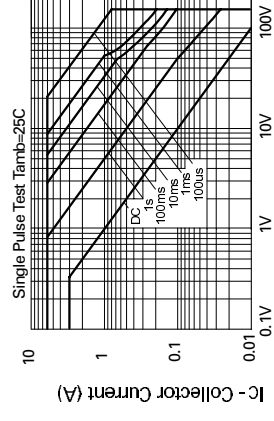
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ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^{\circ}\text{C}$ unless otherwise stated).

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	200	310		V	$I_C = 100\mu\text{A}$
Collector-Emitter Breakdown Voltage	V_{CES}	200	310		V	$I_C = 100\mu\text{A}$
Collector-Emitter Breakdown Voltage	V_{CEO}	160	190		V	$I_C = 10\text{mA}$
Collector-Emitter Breakdown Voltage	V_{CEV}	200	310		V	$I_C = 100\mu\text{A}$, $V_{EB} = 1\text{V}$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	5	8.8		V	$I_E = 100\mu\text{A}$
Collector Cut-Off Current	I_{CBO}		0.3	10	nA	$V_{CB} = 150\text{V}$
Emitter Cut-Off Current	I_{EBO}		0.3	10	nA	$V_{EB} = 4\text{V}$
Collector Emitter Cut-Off Current	I_{CES}		0.3	10	nA	$V_{CES} = 150\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		25	60	mV	$I_C = 0.1\text{A}$, $I_B = 5\text{mA}^*$
			95	140	mV	$I_C = 1\text{A}$, $I_B = 50\text{mA}^*$
			175	250	mV	$I_C = 2\text{A}$, $I_B = 100\text{mA}^*$
			220	300	mV	$I_C = 3\text{A}$, $I_B = 200\text{mA}^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		950	1050	mV	$I_C = 3\text{A}$, $I_B = 200\text{mA}^*$
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		860	950	mV	$I_C = 3\text{A}$, $V_{CE} = 10\text{V}^*$
Static Forward Current Transfer Ratio	h_{FE}	275	420			$I_C = 10\text{mA}$, $V_{CE} = 10\text{V}^*$
		300	450	1200		$I_C = 0.5\text{A}$, $V_{CE} = 10\text{V}^*$
		250	400			$I_C = 1\text{A}$, $V_{CE} = 10\text{V}^*$
		60	120			$I_C = 2\text{A}$, $V_{CE} = 10\text{V}^*$
Transition Frequency	f_T	30	50			$I_C = 3\text{A}$, $V_{CE} = 10\text{V}^*$
		15	15			$I_C = 6\text{A}$, $V_{CE} = 10\text{V}^*$
		120	120		MHz	$I_C = 50\text{mA}$, $V_{CE} = 10\text{V}$ $f = 100\text{MHz}$
Output Capacitance	C_{obo}		14	25	pF	$V_{CB} = 10\text{V}$, $f = 1\text{MHz}$
Switching Times	t_{on}		110		ns	$I_C = 1\text{A}$, $I_B = 10\text{mA}$, $V_{CC} = 50\text{V}$
	t_{off}		2450		ns	$I_C = 1\text{A}$, $I_B = \pm 10\text{mA}$, $V_{CC} = 50\text{V}$

Measured under pulsed conditions. Pulse width=300 μs . Duty cycle $\leq 2\%$

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  V_{CE} - Collector Voltage

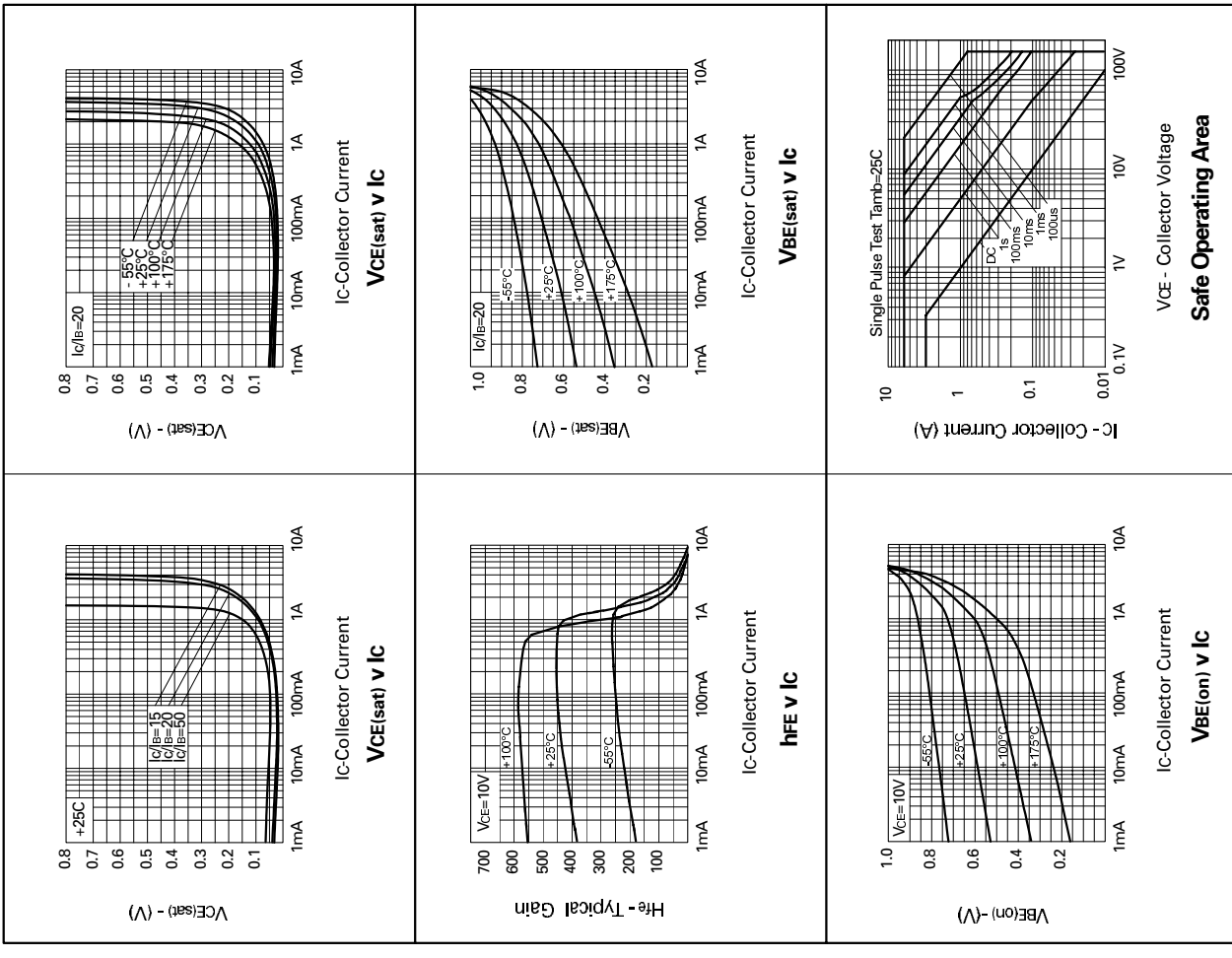
Safe Operating Area

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

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	200	310		V	$I_C = 100\mu\text{A}$
Collector-Emitter Breakdown Voltage	V_{CES}	200	310		V	$I_C = 100\mu\text{A}$
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Collector Cut-Off Current	I_{CBO}		0.3	10	nA	$V_{CB} = 150\text{V}$
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Collector Emitter Cut-Off Current	I_{CES}		0.3	10	nA	$V_{CES} = 150\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		25	60	mV	$I_C = 0.1\text{A}$, $I_B = 5\text{mA}^*$
			95	140	mV	$I_C = 1\text{A}$, $I_B = 50\text{mA}^*$
			175	250	mV	$I_C = 2\text{A}$, $I_B = 100\text{mA}^*$
			220	300	mV	$I_C = 3\text{A}$, $I_B = 200\text{mA}^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		950	1050	mV	$I_C = 3\text{A}$, $I_B = 200\text{mA}^*$
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		860	950	mV	$I_C = 3\text{A}$, $V_{CE} = 10\text{V}^*$
Static Forward Current Transfer Ratio	h_{FE}	275	420			$I_C = 10\text{mA}$, $V_{CE} = 10\text{V}^*$
		300	450	1200		$I_C = 0.5\text{A}$, $V_{CE} = 10\text{V}^*$
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Transition Frequency	f_T	30	50			$I_C = 3\text{A}$, $V_{CE} = 10\text{V}^*$
		15	15			$I_C = 6\text{A}$, $V_{CE} = 10\text{V}^*$
		120	120		MHz	$I_C = 50\text{mA}$, $V_{CE} = 10\text{V}$ $f = 100\text{MHz}$
Output Capacitance	C_{obo}		14	25	pF	$V_{CB} = 10\text{V}$, $f = 1\text{MHz}$
Switching Times	t_{on}		110		ns	$I_C = 1\text{A}$, $I_B = 10\text{mA}$, $V_{CC} = 50\text{V}$
	t_{off}		2450		ns	$I_C = 1\text{A}$, $I_B = \pm 10\text{mA}$, $V_{CC} = 50\text{V}$

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TYPICAL CHARACTERISTICS



Safe Operating Area

ZTX1056A

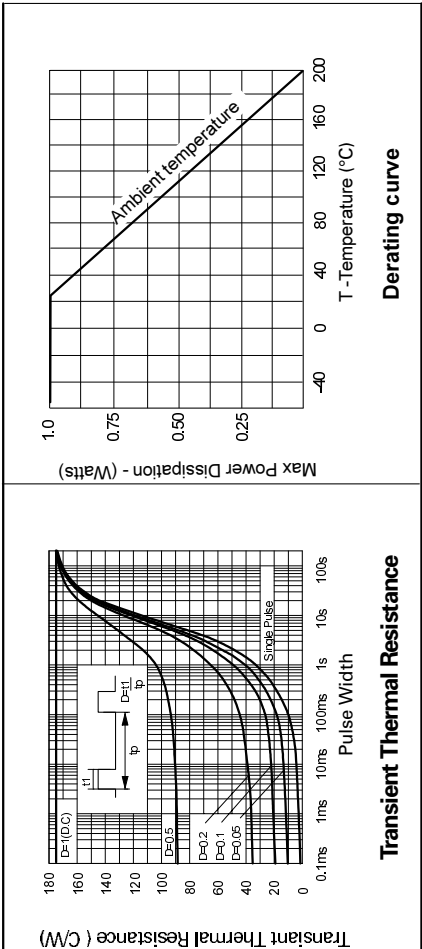
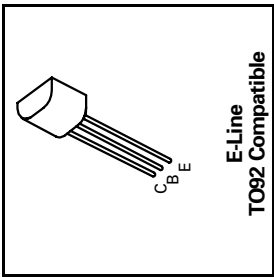
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