



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



NPN SILICON PLANAR MEDIUM POWER HIGH GAIN TRANSISTOR

ZTX1051A

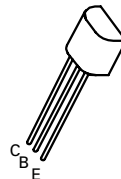
ISSUE 3 – FEBRUARY 95

FEATURES

- * $B_{CEV}=150V$
- * Very Low Saturation Voltage
- * High Gain
- * Inherently Low Noise

APPLICATIONS

- * Emergency Lighting
- * Low Noise Audio



E-Line
TO92 Compatible

ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V_{CBO}	150	V
Collector-Emitter Voltage	V_{CEO}	40	V
Emitter-Base Voltage	V_{EBO}	5	V
Peak Pulse Current	I_{CM}	10	A
Continuous Collector Current	I_C	4	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	$^{\circ}C$

ZTX1051A

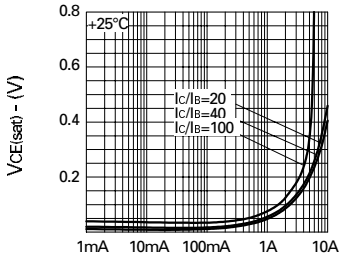
ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^{\circ}\text{C}$ unless otherwise stated).

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	150	190		V	$I_C=100\mu\text{A}$
Collector-Emitter Breakdown Voltage	V_{CES}	150	190		V	$I_C=100\mu\text{A}$
Collector-Emitter Breakdown Voltage	V_{CEO}	40	60		V	$I_C=10\text{mA}$
Collector-Emitter Breakdown Voltage	V_{CEV}	150	190		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	$V_{CB}=120\text{V}$
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	$V_{CES}=120\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		17 75 165	25 110 210	mV mV mV	$I_C=0.2\text{A}$, $I_B=10\text{mA}^*$ $I_C=1\text{A}$, $I_B=10\text{mA}^*$ $I_C=4\text{A}$, $I_B=100\text{mA}^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		920	1000	mV	$I_C=4\text{A}$, $I_B=100\text{mA}^*$
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		825	950	mV	$I_C=4\text{A}$, $V_{CE}=2\text{V}^*$
Static Forward Current Transfer Ratio	h_{FE}	290 300 190 45	440 450 310 70	1200		$I_C=10\text{mA}$, $V_{CE}=2\text{V}^*$ $I_C=1\text{A}$, $V_{CE}=2\text{V}^*$ $I_C=4\text{A}$, $V_{CE}=2\text{V}^*$ $I_C=10\text{A}$, $V_{CE}=2\text{V}^*$
Transition Frequency	f_T		155		MHz	$I_C=50\text{mA}$, $V_{CE}=10\text{V}$ $f=100\text{MHz}$
Output Capacitance	C_{obo}		27	40	pF	$V_{CB}=10\text{V}$, $f=1\text{MHz}$
Switching Times	t_{on}		100		ns	$I_C=4\text{A}$, $I_B=40\text{mA}$, $V_{CC}=10\text{V}$
	t_{off}		300		ns	$I_C=4\text{A}$, $I_B=\pm 40\text{mA}$, $V_{CC}=10\text{V}$

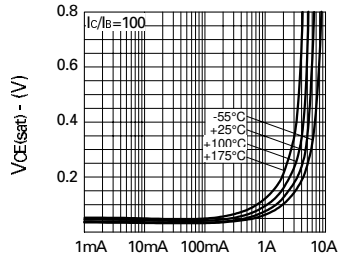
*Measured under pulsed conditions. Pulse width=300 μs . Duty cycle $\leq 2\%$

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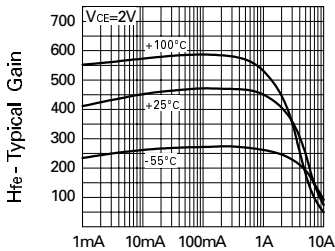
TYPICAL CHARACTERISTICS



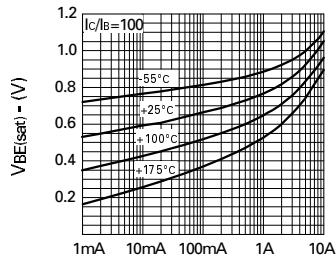
I_C -Collector Current
 $V_{CE(sat)}$ v I_C



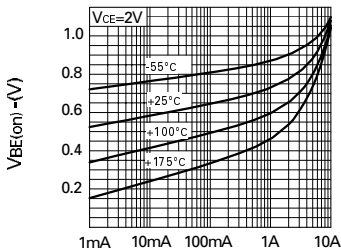
I_C -Collector Current
 $V_{CE(sat)}$ v I_C



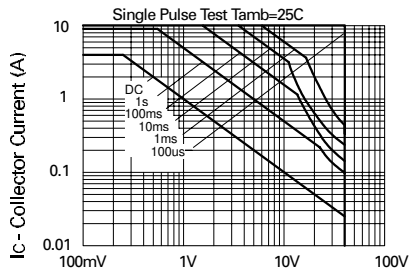
I_C -Collector Current
 h_{FE} v I_C



I_C -Collector Current
 $V_{BE(sat)}$ v I_C

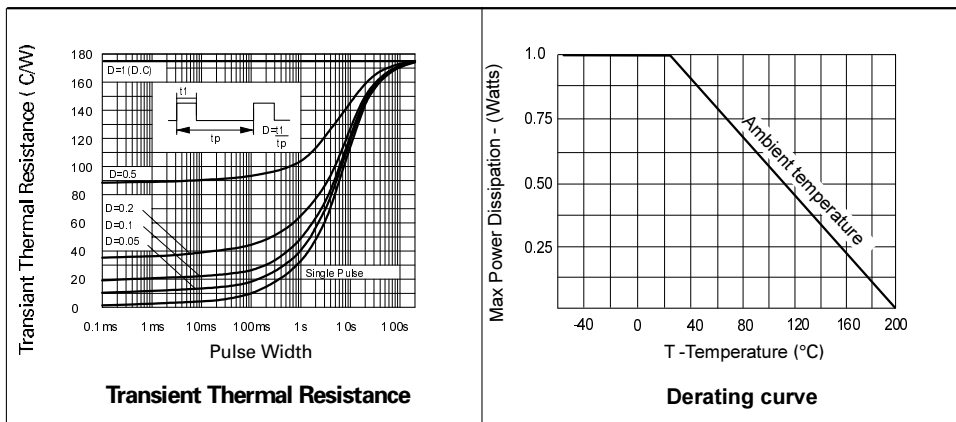


I_C -Collector Current
 $V_{BE(on)}$ v I_C



V_{CE} - Collector Voltage
Safe Operating Area

ZTX1051A



SPICE PARAMETERS

*ZETEX ZTX1051A Spice model Last revision 16/12/94

*

.MODEL ZTX1051A NPN IS=1.35E-12 NF=1.0 BF=600 IKF=5.0 VAF=120

+ ISE=0.6E-13 NE=1.25 NR=1.0 BR=150 IKR=3 VAR=15

+ ISC=1.0E-10 NC=1.7 RB=0.1 RE=0.023 RC=0.010

+ CJC=90.36E-12 CJE=547.5E-12 MJC=0.385 MJE=0.357

+ VJC=0.5 VJE=0.741 TF=600E-12 TR=8E-9

*

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Zetex plc.
Fields New Road, Chadderton, Oldham, OL9-8NP, United Kingdom.
Telephone: (44)161-627 5105 (Sales), (44)161-627 4963 (General Enquiries)
Facsimile: (44)161-627 5467

Zetex GmbH
Streitfeldstraße 19
D-81673 München
Telefon: (49) 89 45 49 49 0
Fax: (49) 89 45 49 49 49

Zetex Inc.
87 Modular Avenue
Commack NY11725
Telephone: (516) 543-7100
Fax: (516) 864-7630

Zetex (Asia) Ltd.
3510 Metroplaza, Tower 2
Hing Fong Road, Kwai Fong
Telephone: (852) 26100 611
Fax: (852) 24250 494

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