



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!



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NPN SILICON PLANAR MEDIUM POWER HIGH GAIN TRANSISTOR

ISSUE 3 – JANUARY 1995

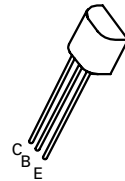
ZTX1047A

FEATURES

- * Very Low Saturation Voltage
- * High Gain
- * 4 Amp Continuous Current

APPLICATIONS

- * DC-DC Convertors
- * Power Management - Supply Switching



**E-Line
TO92 Compatible**

ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	ZTX1047A	UNIT
Collector-Base Voltage	V_{CBO}	35	V
Collector-Emitter Voltage	V_{CEO}	10	V
Emitter-Base Voltage	V_{EBO}	5	V
Peak Pulse Current	I_{CM}	20	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	$^{\circ}C$

ZTX1047A

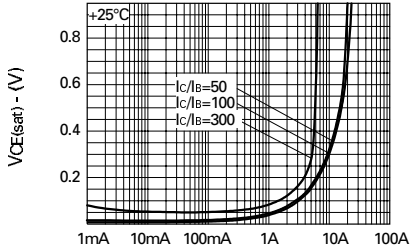
ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^{\circ}\text{C}$ unless otherwise stated).

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	35	55		V	$I_C=100\mu\text{A}$
Collector-Emitter Breakdown Voltage	V_{CES}	35	55		V	$I_C=100\mu\text{A}$
Collector-Emitter Breakdown Voltage	V_{CEO}	10	14		V	$I_C=10\text{mA}$
Collector-Emitter Breakdown Voltage	V_{CEV}	35	55		V	$I_C=100\mu\text{A}$, $V_{EB}=1\text{V}$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	5	8.7		V	$I_E=100\mu\text{A}$
Collector Cut-Off Current	I_{CBO}		0.3	10	nA	$V_{CB}=20\text{V}$
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	$V_{CES}=20\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		23 44 120 130	40 70 185 190	mV mV mV mV	$I_C=0.5\text{A}$, $I_B=10\text{mA}^*$ $I_C=1\text{A}$, $I_B=10\text{mA}^*$ $I_C=3\text{A}$, $I_B=10\text{mA}^*$ $I_C=4\text{A}$, $I_B=20\text{mA}^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		860	950	mV	$I_C=4\text{A}$, $I_B=20\text{mA}^*$
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		810	900	mV	$I_C=4\text{A}$, $V_{CE}=2\text{V}^*$
Static Forward Current Transfer Ratio	h_{FE}	280 300 240 150 60	440 450 380 230 110	1200		$I_C=10\text{mA}$, $V_{CE}=2\text{V}^*$ $I_C=1\text{A}$, $V_{CE}=2\text{V}^*$ $I_C=4\text{A}$, $V_{CE}=2\text{V}^*$ $I_C=10\text{A}$, $V_{CE}=2\text{V}^*$ $I_C=20\text{A}$, $V_{CE}=2\text{V}^*$
Transition Frequency	f_T		150		MHz	$I_C=50\text{mA}$, $V_{CE}=10\text{V}$ $f=50\text{MHz}$
Output Capacitance	C_{obo}		85	110	pF	$V_{CB}=10\text{V}$, $f=1\text{MHz}$
Switching Times	t_{on}		130		ns	$I_C=4\text{A}$, $I_B=40\text{mA}$, $V_{CC}=10\text{V}$
	t_{off}		180		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 $\leq 2\%$

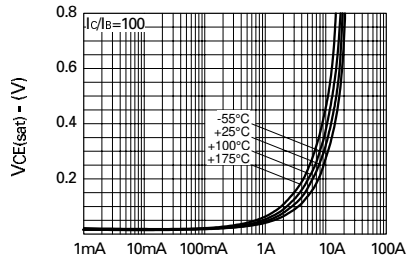
ZTX1047A

TYPICAL CHARACTERISTICS



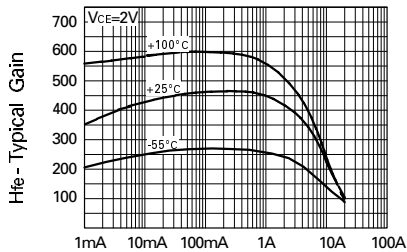
I_C -Collector Current

$V_{CE(sat)}$ v I_C



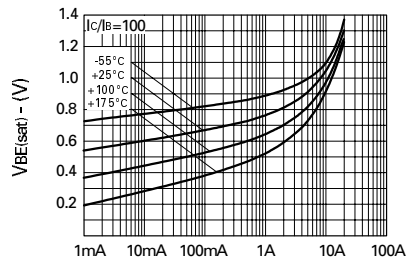
I_C -Collector Current

$V_{CE(sat)}$ v I_C



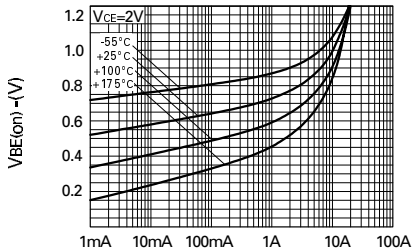
I_C -Collector Current

h_{FE} v I_C



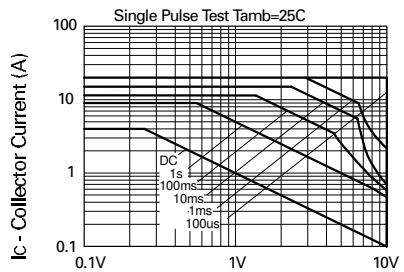
I_C -Collector Current

$V_{BE(sat)}$ v I_C



I_C -Collector Current

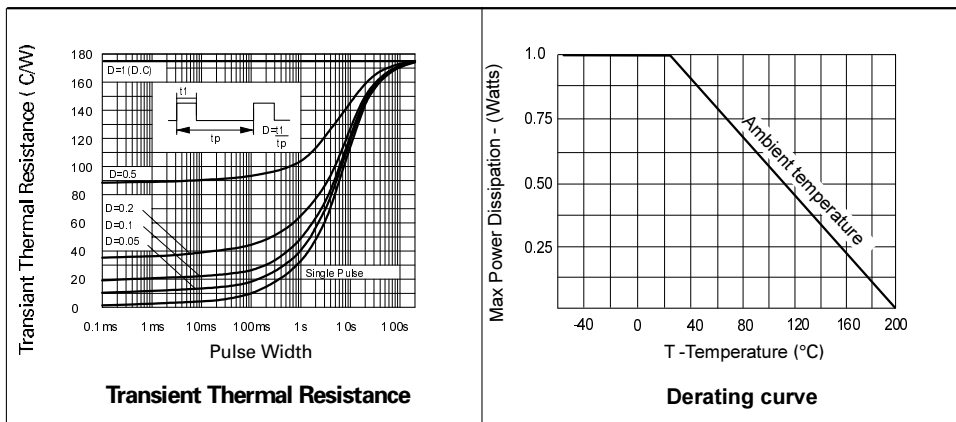
$V_{BE(on)}$ v I_C



V_{CE} - Collector Voltage

Safe Operating Area

ZTX1047A



SPICE PARAMETERS

*ZETEX ZTX1047A Spice model Last revision 20/01/95

*

.MODEL ZTX1047A NPN IS=9.73E-13 NF=1.0 BF=550 IKF=8.0 VAF=120

+ ISE=2.6E-13 NE=1.38 NR=1.0 BR=400 IKR=5 VAR=15

+ ISC=8E-13 NC=1.4 RB=0.1 RE=0.017 RC=0.010

+ CJC=195.4E-12 CJE=540.4E-12 MJC=0.257 MJE=0.359

+ VJC=0.390 VJE=0.753 TF=450E-12 TR=1.2E-9

*

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