ZTX1049A

NPN SILICON PLANAR MEDIUM POWER HIGH GAIN TRANSISTOR

FEATURES

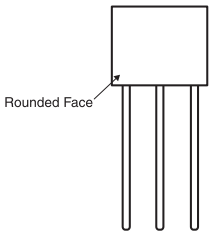
- V_{CEV} = 80V
- Very low saturation voltages
- High gain
- 20 amps pulse current

APPLICATIONS

- LCD backlight converters
- Emergency lighting
- DC-DC converters

E-Line

PINOUT



SIDE VIEW

ABSOLUTE MAXIMUM RATINGS

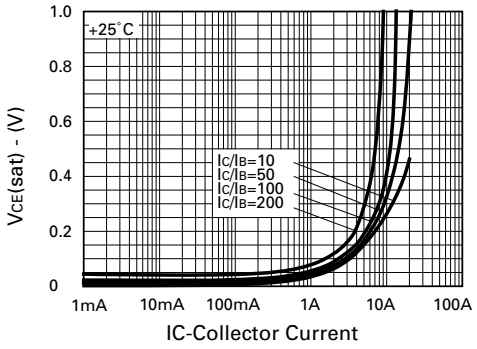
PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V_{CBO}	80	V
Collector-Emitter Voltage	V_{CEO}	25	V
Emitter-Base Voltage	V_{EBO}	5	V
Peak Pulse Current	I_{CM}	20	A
Continuous Collector Current	I_C	4	A
Base Current	I_B	500	mA
Power Dissipation at T_{amb}=25°C	P_{tot}	1	W
Operating and Storage Temperature Range	T_j:T_{stg}	-55 to +200	°C

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

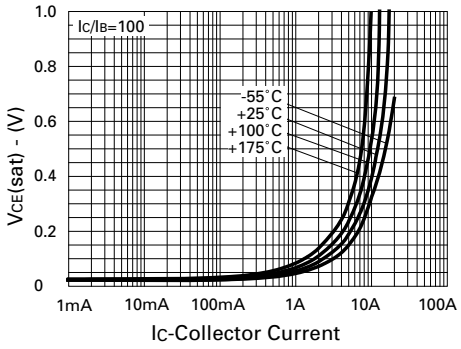
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	80	120		V	I_C=100μA
Collector-Emitter Breakdown Voltage	V_{CES}	80	120		V	IC=100μA
Collector-Emitter Breakdown Voltage	V_{CEO}	25	30		V	IC=10mA
Collector-Emitter Breakdown Voltage	V_{CEV}	80	120		V	IC=100μA, V_{EB}=1V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	5	8.75		V	I_E=100μA
Collector Cut-Off Current	I_{CBO}		0.3	10	nA	V_{CB}=50V
Emitter Cut-Off Current	I_{EBO}		0.3	10	nA	V_{EB}=4V
Collector Emitter Cut-Off Current	I_{CES}		0.3	10	nA	VCES=50V
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		30 60 125 155	45 80 180 220	mV mV mV mV	I_C=0.5A, I_B=10mA* I_C=1A, I_B=10mA* I_C=2A, I_B=10mA* I_C=4A, I_B=50mA*
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		890	950	mV	I_C=4A, I_B=50mA*
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		820	900	mV	IC=4A, V_{CE}=2V*
Static Forward Current Transfer Ratio	h_{FE}	250 300 300 200 35	430 450 450 350 70	1200		I_C=10mA, V_{CE}=2V* I_C=0.5A, V_{CE}=2V* I_C=1A, V_{CE}=2V* I_C=4A, V_{CE}=2V* I_C=20A, V_{CE}=2V*
Transition Frequency	f_T		180		MHz	I_C=50mA, V_{CE}=10V f=50MHz
Output Capacitance	C_{obo}		45	60	pF	V_{CB}=10V, f=1MHz
Turn - On Time	t_{on}		125		ns	I_C=4A, I_B=40mA, V_{CC}=10V
Turn -Off Time	t_{off}		380		ns	I_C=4A, I_B=±40mA, V_{CC}=10V

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

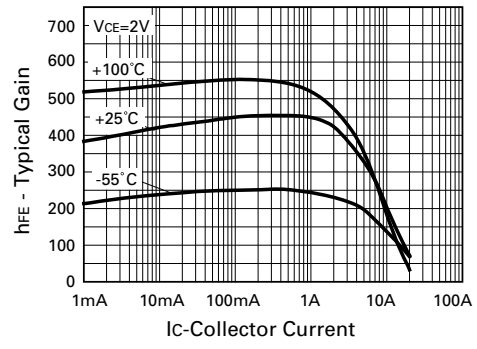
TYPICAL CHARACTERISTICS



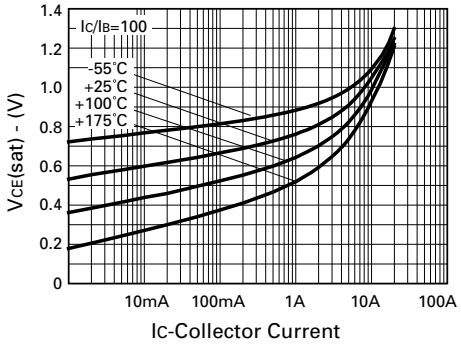
VCE(sat) v IC



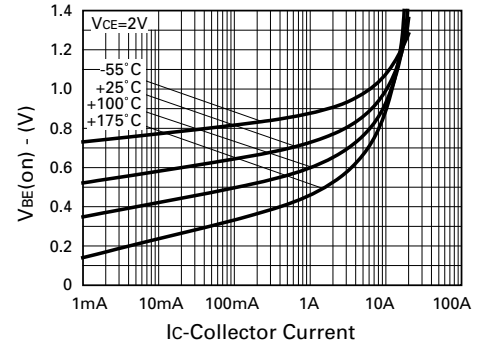
VCE(sat) v IC



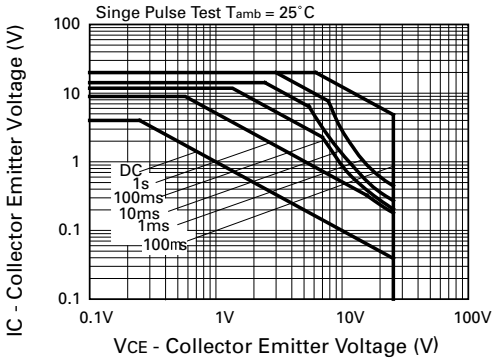
hFE V IC



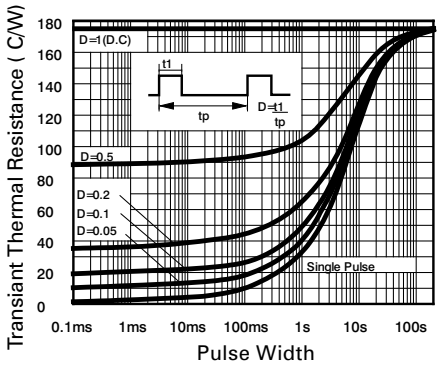
VBE(sat) v IC



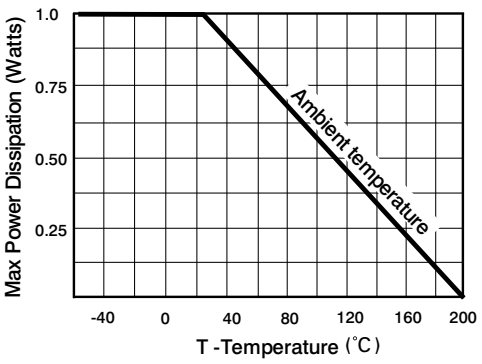
VBE(on) v IC



Safe Operating Area



Transient Thermal Resistance



Derating curve

SPICE PARAMETERS

*ZETEX ZTX1049A Spice model v1.0 Last revision 10/1/97

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.MODEL ZTX1149A PNP IS=9.5e-13 NF=1.002 ISE=1.2e-13 NE=1.4 BF=520

+ VAF=24.97 IKF=5 NR=0.997 ISC=4.5E-13 NC=1.25 BR=40

+ VAR=2.51 IKR=0.7 RE=20e-3 RB=150e-3 RC=10e-3

+ CJE=490e-12 CJC=150e-12 VJC=1.094 MJC=0.4739

+ TF=1e-9 TR=3.5e-9

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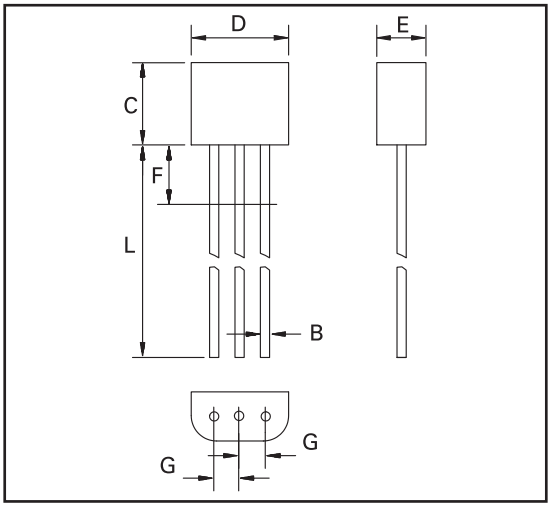
PACKAGE OUTLINE



Controlling dimensions are in millimeters. Approximate conversions are given in inches

PACKAGE DIMENSIONS

DIM	Millimeters		Inches	
	Min	Max	Min	Max
A	0.41	0.495	0.016	0.0195
B	0.41	0.495	0.016	0.0195
C	3.61	4.01	0.142	0.158
D	4.37	4.77	0.172	0.188
E	2.16	2.41	0.085	0.095
F	—	2.50	—	0.098
G	1.27 NOM		0.050 NOM	
L	13.00	13.97	0.512	0.550

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