## 40V PNP MEDIUM POWER HIGH GAIN TRANSISTOR IN D-PAK

### **SUMMARY**

 $BV_{CEO}$  = -40V :  $R_{SAT}$  = 83m $\Omega$ ;  $I_{C}$  = -3A

### **DESCRIPTION**

Packaged in the D-Pak outline this high gain 40V PNP transistor offers low on state losses making it ideal for use in DC-DC circuits and various driving and power management functions.



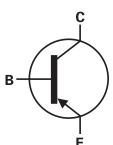
**DPAK** 

### **FEATURES**

- 3 Amps continuous current
- Up to 6 Amps peak current
- Low saturation voltages
- High gain

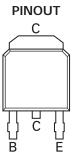
### **APPLICATIONS**

- DC DC Converters
- MOSFET gate drivers
- · Charging circuits
- Power switches
- Siren drivers



### **ORDERING INFORMATION**

DEVICE	REEL SIZE	TAPE WIDTH	QUANTITY PER REEL
ZXT790AKTC	13"	16mm embossed	2500 units



#### **DEVICE MARKING**

ZXT790A



### **ABSOLUTE MAXIMUM RATINGS**

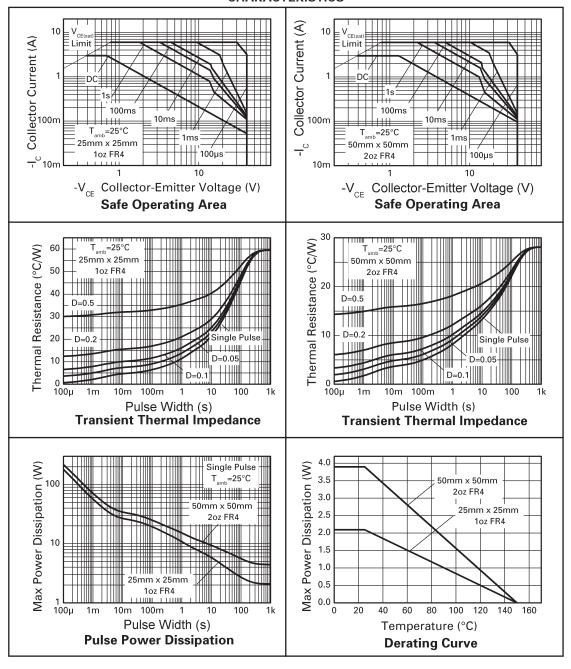
PARAMETER	SYMBOL	LIMIT	UNIT
Collector-Base Voltage	BV <sub>CBO</sub>	-50	V
Collector-Emitter Voltage	BV <sub>CEO</sub>	-40	V
Emitter-Base Voltage	BV <sub>EBO</sub>	-5	V
Continuous Collector Current	I <sub>C</sub>	-3	Α
Peak Pulse Current	I <sub>CM</sub>	-6	Α
Base Current	I <sub>B</sub>	-0.5	А
Power Dissipation at TA =25°C (a)	P <sub>D</sub>	2.1	W
Linear Derating Factor		16.8	mW/°C
Thermal Resistance Junction to Ambient		59	°C/W
Power Dissipation at TA =25°C (b)	P <sub>D</sub>	3.0	W
Linear Derating Factor		24.4	mW/°C
Thermal Resistance Junction to Ambient		41	°C/W
Power Dissipation at TA =25°C (c)	P <sub>D</sub>	3.9	W
Linear Derating Factor		30.9	mW/°C
Thermal Resistance Junction to Ambient		32	°C/W
Operating and Storage Temperature Range	T <sub>j</sub> , T <sub>stg</sub>	-55 to 150	°C

#### NOTES

- (a) For a device surface mounted on 25mm x 25mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions.
- (b) For a device surface mounted on 50mm x 50mm FR4 PCB with high coverage of single sided 1oz copper in still air conditions.
- (c) For a device surface mounted on 50mm x 50mm FR4 PCB with high coverage of single sided 2oz copper in still air conditions.



### **CHARACTERISTICS**





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

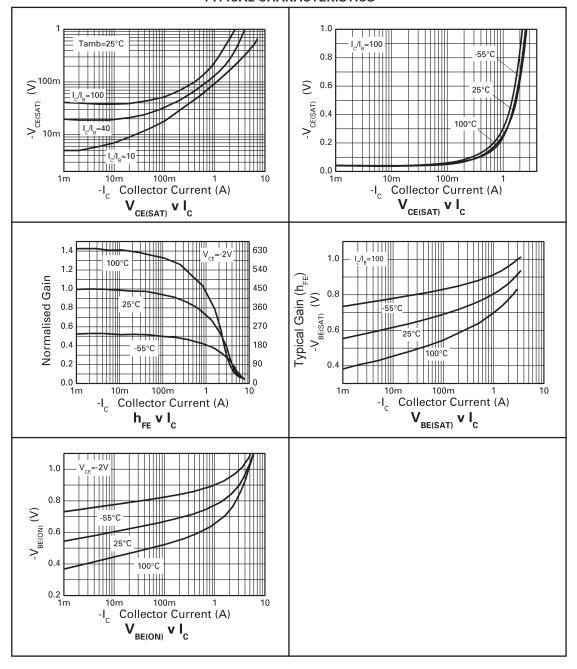
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS
Collector-Base Breakdown Voltage	BV <sub>CBO</sub>	-50	-70		V	I <sub>C</sub> = -100μA
Collector-Emitter Breakdown Voltage	BV <sub>CEO</sub>	-40	-60		V	I <sub>C</sub> = -10mA <sup>(1)</sup>
Emitter-Base Breakdown Voltage	BV <sub>EBO</sub>	-5	-8.3		V	I <sub>E</sub> = -100μA
Collector Cut-Off Current	I <sub>CBO</sub>		<1	-20	nA	V <sub>CB</sub> = -30V
Collector Cut-Off Current	I <sub>CE</sub> S		<1	-20	nA	V <sub>CB</sub> = -30V
Emitter Cut-Off Current	I <sub>EBO</sub>		<1	-20	nA	V <sub>EB</sub> = -4V
Collector-Emitter Saturation Voltage	V <sub>CE(SAT)</sub>		-110	-170	mV	I <sub>C</sub> = -0.5A, I <sub>B</sub> = -5mA <sup>(1)</sup>
			-220	-350	mV	$I_C = -1A, I_B = -10mA^{(1)}$
			-260	-450	mV	$I_C = -2A$ , $I_B = -50mA^{(1)}$
			-250	-450	mV	$I_C = -3A$ , $I_B = -300 \text{mA}^{(1)}$
Base-Emitter Saturation Voltage	V <sub>BE(SAT)</sub>		-1.05	-1.15	V	I <sub>C</sub> = -3A, IB = -300mA <sup>(1)</sup>
Base-Emitter Turn-On Voltage	V <sub>BE(ON)</sub>		-0.9	-1.0	V	I <sub>C</sub> = -3A, VCE = -2V <sup>(1)</sup>
Static Forward Current Transfer Ratio	h <sub>FE</sub>	300	450	800		I <sub>C</sub> = -10mA, V <sub>CE</sub> = -2V <sup>(1)</sup>
		250	390			$I_C = -500 \text{mA}, V_{CE} = -2V^{(1)}$
		200	350			$I_C = -1A$ , $V_{CE} = -2V^{(1)}$
		150	280			$I_C = -2A, V_{CE} = -2V^{(1)}$
		80	170			$I_C = -3A, V_{CE} = -2V^{(1)}$
Transition Frequency	f <sub>T</sub>	100			MHz	I <sub>C</sub> = -50mA, V <sub>CE</sub> = -5V
						f = 50MHz
Output Capacitance	СОВО		24		pF	V <sub>CB</sub> = -10V, f = 1MHz <sup>(1)</sup>
Switching Times	t <sub>ON</sub>		35		ns	I <sub>C</sub> = -500mA, V <sub>CC</sub> = -10V,
	t <sub>OFF</sub>		600		ns	$I_{B1} = I_{B2} = -50 \text{mA}$

#### NOTES

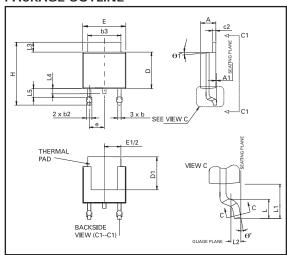
(1) Measured under pulsed conditions. Pulse width  $\leq 300 \mu s$ ; duty cycle  $\leq 2\%$ .



### TYPICAL CHARACTERISTICS



## **PACKAGE OUTLINE**



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

DIM	MILLIMETRES		INC	HES
	MIN	MAX	MIN	MAX
Α	2.18	2.38	0.086	0.094
A1	_	0.127	_	0.005
b	0.635	0.89	0.025	0.035
b2	0.762	1.114	0.030	0.045
b3	5.20	5.46	0.205	0.215
С	0.457	0.609	0.018	0.024
c2	0.457	0.584	0.018	0.023
D	5.97	6.22	0.235	0.245
D1	5.20	_	0.205	_
E	6.35	6.73	0.250	0.265
E1	4.32	_	0.170	_
е	2.30 BSC		0.090 BSC	
Н	9.40	10.41	0.370	0.410
L	1.40	1.78	0.055	0.070
L1	2.74 REF		0.108 REF	
L2	0.051 BSC		0.020 BSC	
L3	0.89	1.27	0.035	0.050
L4	0.635	1.01	0.025	0.040
L5	1.14	1.52	0.045	0.060
θ1°	0°	10°	0°	10°
θ°	0°	15°	0°	15°

### © Zetex plc 2003

<u> </u>			
Europe		Americas	Asia Pacific
Zetex plc	Zetex GmbH	Zetex Inc	Zetex (Asia) Ltd
Fields New Road	Streitfeldstraße 19	700 Veterans Memorial Hwy	3701-04 Metroplaza Tower 1
Chadderton	D-81673 München	Hauppauge, NY 11788	Hing Fong Road
Oldham, OL9 8NP			Kwai Fong
United Kingdom	Germany	USA	Hong Kong
Telephone (44) 161 622 4444	Telefon: (49) 89 45 49 49 0	Telephone: (1) 631 360 2222	Telephone: (852) 26100 611
Fax: (44) 161 622 4446	Fax: (49) 89 45 49 49 49	Fax: (1) 631 360 8222	Fax: (852) 24250 494
hq@zetex.com	europe.sales@zetex.com	usa.sales@zetex.com	asia.sales@zetex.com

These offices are supported by agents and distributors in major countries world-wide.

This publication is issued to provide outline information only which (unless agreed by the Company in writing) may not be used, applied or reproduced for any purpose or form part of any order or contract or be regarded as a representation relating to the products or services concerned. The Company reserves the right to alter without notice the specification, design, price or conditions of supply of any product or service.

For the latest product information, log on to www.zetex.com

