

ZXT790AK

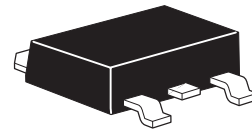
40V PNP MEDIUM POWER HIGH GAIN TRANSISTOR IN D-PAK

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.



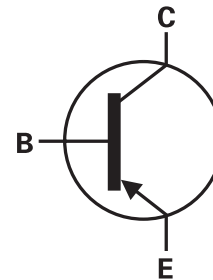
DPAK

FEATURES

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

APPLICATIONS

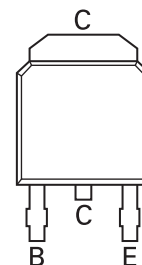
- DC - DC Converters
- MOSFET gate drivers
- Charging circuits
- Power switches
- Siren drivers



ORDERING INFORMATION

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

PINOUT



DEVICE MARKING

- ZXT790A

ZXT790AK

ABSOLUTE MAXIMUM RATINGS

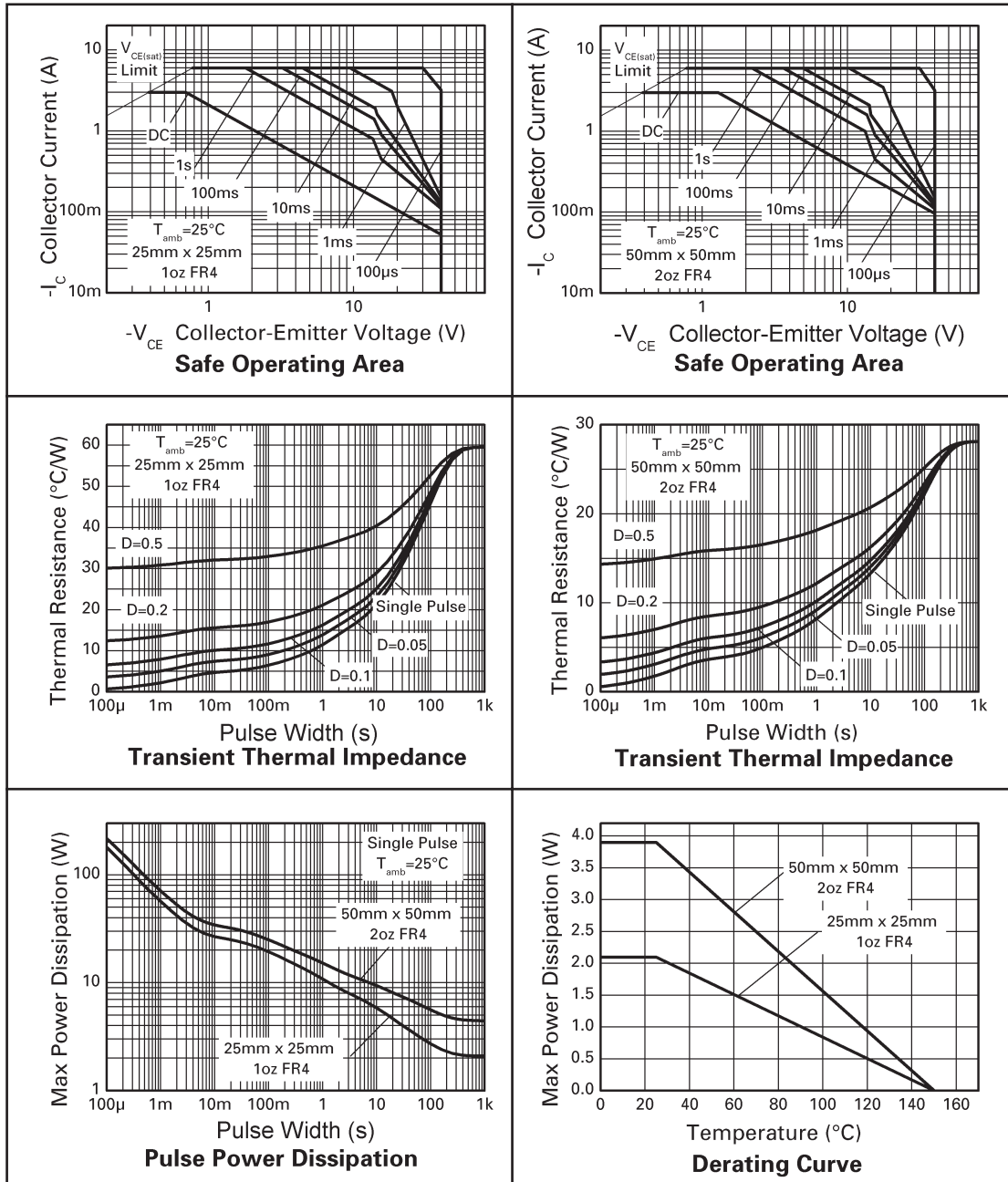
PARAMETER	SYMBOL	LIMIT	UNIT
Collector-Base Voltage	BV_{CBO}	-50	V
Collector-Emitter Voltage	BV_{CEO}	-40	V
Emitter-Base Voltage	BV_{EBO}	-5	V
Continuous Collector Current	I_C	-3	A
Peak Pulse Current	I_{CM}	-6	A
Base Current	I_B	-0.5	A
Power Dissipation at $T_A = 25^\circ\text{C}$ ^(a)	P_D	2.1	W
Linear Derating Factor		16.8	mW/°C
Thermal Resistance Junction to Ambient		59	°C/W
Power Dissipation at $T_A = 25^\circ\text{C}$ ^(b)	P_D	3.0	W
Linear Derating Factor		24.4	mW/°C
Thermal Resistance Junction to Ambient		41	°C/W
Power Dissipation at $T_A = 25^\circ\text{C}$ ^(c)	P_D	3.9	W
Linear Derating Factor		30.9	mW/°C
Thermal Resistance Junction to Ambient		32	°C/W
Operating and Storage Temperature Range	T_j, T_{stg}	-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.

ZXT790AK

CHARACTERISTICS



ZXT790AK

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

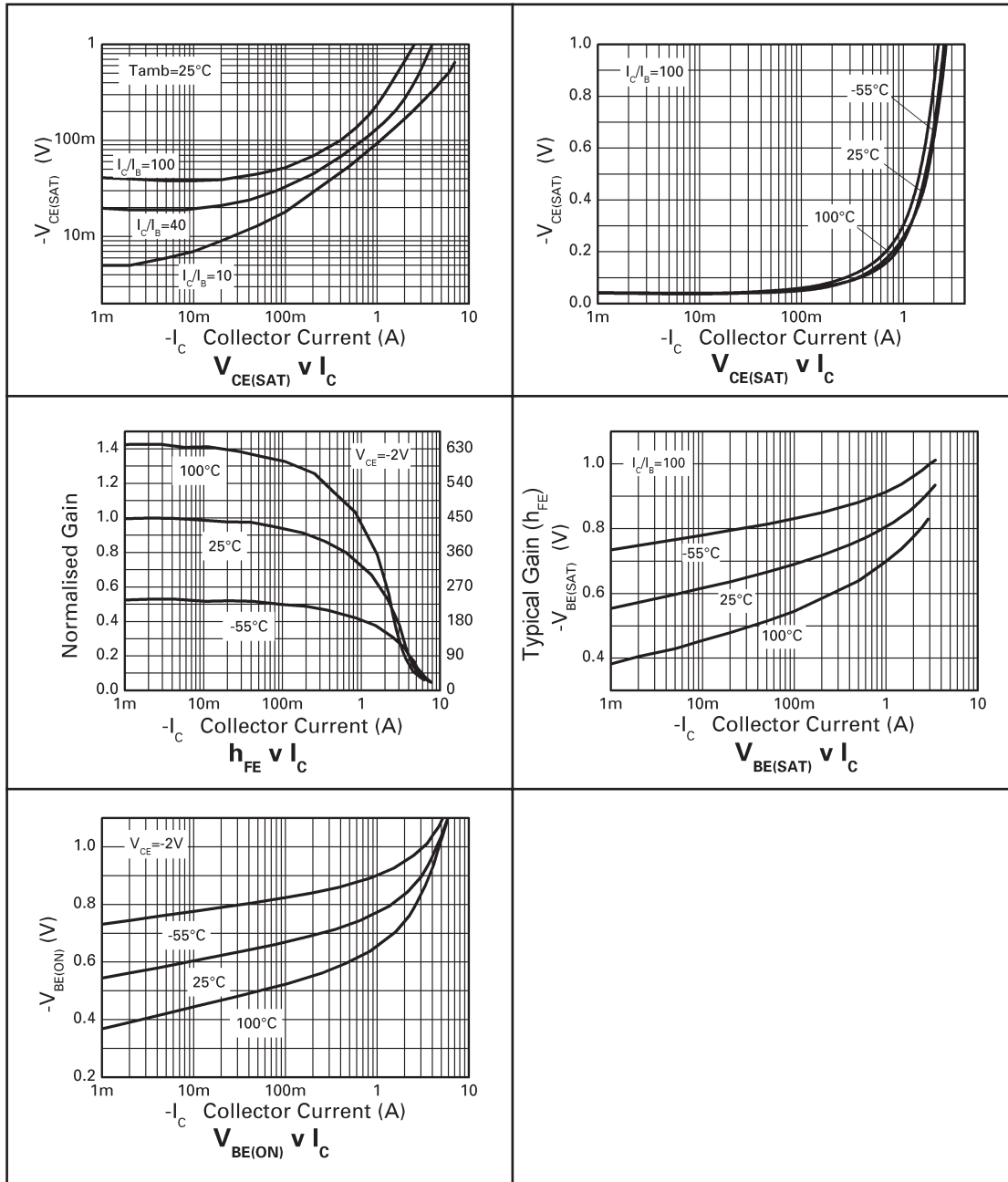
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS
Collector-Base Breakdown Voltage	BV_{CBO}	-50	-70		V	$I_C = -100\mu\text{A}$
Collector-Emitter Breakdown Voltage	BV_{CEO}	-40	-60		V	$I_C = -10\text{mA}$ ⁽¹⁾
Emitter-Base Breakdown Voltage	BV_{EBO}	-5	-8.3		V	$I_E = -100\mu\text{A}$
Collector Cut-Off Current	I_{CBO}		<1	-20	nA	$V_{CB} = -30\text{V}$
Collector Cut-Off Current	I_{CES}		<1	-20	nA	$V_{CB} = -30\text{V}$
Emitter Cut-Off Current	I_{EBO}		<1	-20	nA	$V_{EB} = -4\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$		-110	-170	mV	$I_C = -0.5\text{A}, I_B = -5\text{mA}$ ⁽¹⁾
			-220	-350	mV	$I_C = -1\text{A}, I_B = -10\text{mA}$ ⁽¹⁾
			-260	-450	mV	$I_C = -2\text{A}, I_B = -50\text{mA}$ ⁽¹⁾
			-250	-450	mV	$I_C = -3\text{A}, I_B = -300\text{mA}$ ⁽¹⁾
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$		-1.05	-1.15	V	$I_C = -3\text{A}, I_B = -300\text{mA}$ ⁽¹⁾
Base-Emitter Turn-On Voltage	$V_{BE(ON)}$		-0.9	-1.0	V	$I_C = -3\text{A}, V_{CE} = -2\text{V}$ ⁽¹⁾
Static Forward Current Transfer Ratio	h_{FE}	300	450	800		$I_C = -10\text{mA}, V_{CE} = -2\text{V}$ ⁽¹⁾
		250	390			$I_C = -500\text{mA}, V_{CE} = -2\text{V}$ ⁽¹⁾
		200	350			$I_C = -1\text{A}, V_{CE} = -2\text{V}$ ⁽¹⁾
		150	280			$I_C = -2\text{A}, V_{CE} = -2\text{V}$ ⁽¹⁾
		80	170			$I_C = -3\text{A}, V_{CE} = -2\text{V}$ ⁽¹⁾
Transition Frequency	f_T	100			MHz	$I_C = -50\text{mA}, V_{CE} = -5\text{V}$ $f = 50\text{MHz}$
Output Capacitance	C_{OBO}		24		pF	$V_{CB} = -10\text{V}, f = 1\text{MHz}$ ⁽¹⁾
Switching Times	t_{ON}		35		ns	$I_C = -500\text{mA}, V_{CC} = -10\text{V},$
	t_{OFF}		600		ns	$I_{B1} = I_{B2} = -50\text{mA}$

NOTES

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

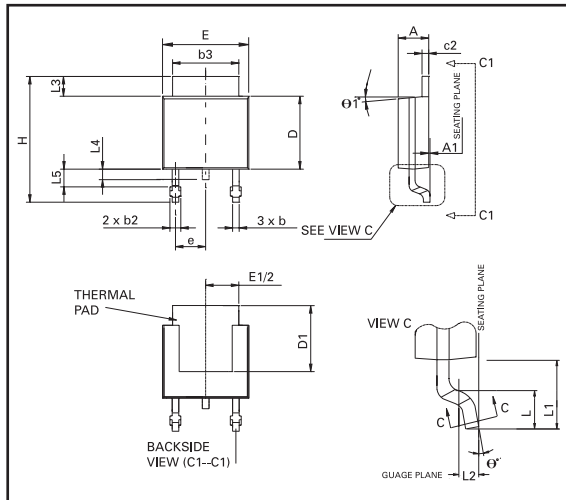
ZXT790AK

TYPICAL CHARACTERISTICS



ZXT790AK

PACKAGE OUTLINE



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

DIM	MILLIMETRES		INCHES	
	MIN	MAX	MIN	MAX
A	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
c	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	—
e	2.30 BSC		0.090 BSC	
H	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
θ_1°	0°	10°	0°	10°
θ°	0°	15°	0°	15°

© Zetex plc 2003

Europe

Zetex plc
Fields New Road
Chadderton
Oldham, OL9 8NP
United Kingdom
Telephone: (44) 161 622 4444
Fax: (44) 161 622 4446
hq@zetex.com

Zetex GmbH
Streitfeldstraße 19
D-81673 München
Germany
Telefon: (49) 89 45 49 49 0
Fax: (49) 89 45 49 49 49
europe.sales@zetex.com

Americas

Zetex Inc
700 Veterans Memorial Hwy
Hauppauge, NY 11788
USA
Telephone: (1) 631 360 2222
Fax: (1) 631 360 8222
usa.sales@zetex.com

Asia Pacific

Zetex (Asia) Ltd
3701-04 Metroplaza Tower 1
Hing Fong Road
Kwai Fong
Hong Kong
Telephone: (852) 26100 611
Fax: (852) 24250 494
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



ISSUE 1 - JUNE 2003