ZXT790AK

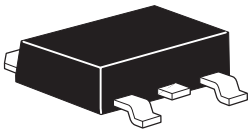
40V PNP MEDIUM POWER HIGH GAIN TRANSISTOR IN D-PAK

SUMMARY

BV_{CEO} = -40V : R_{SAT} = 83mΩ; I_C = -3A

DESCRIPTION

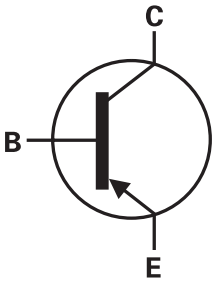
Packaged in the D-Pak outline this high gain 40V PNP transistor offers low on state losses making it ideal for use in DC-DC circuits and various driving and power management functions.



DPAK

FEATURES

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



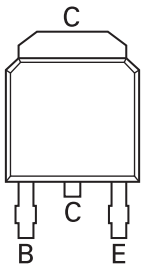
APPLICATIONS

- 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

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 TA =25°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 TA =25°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 TA =25°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

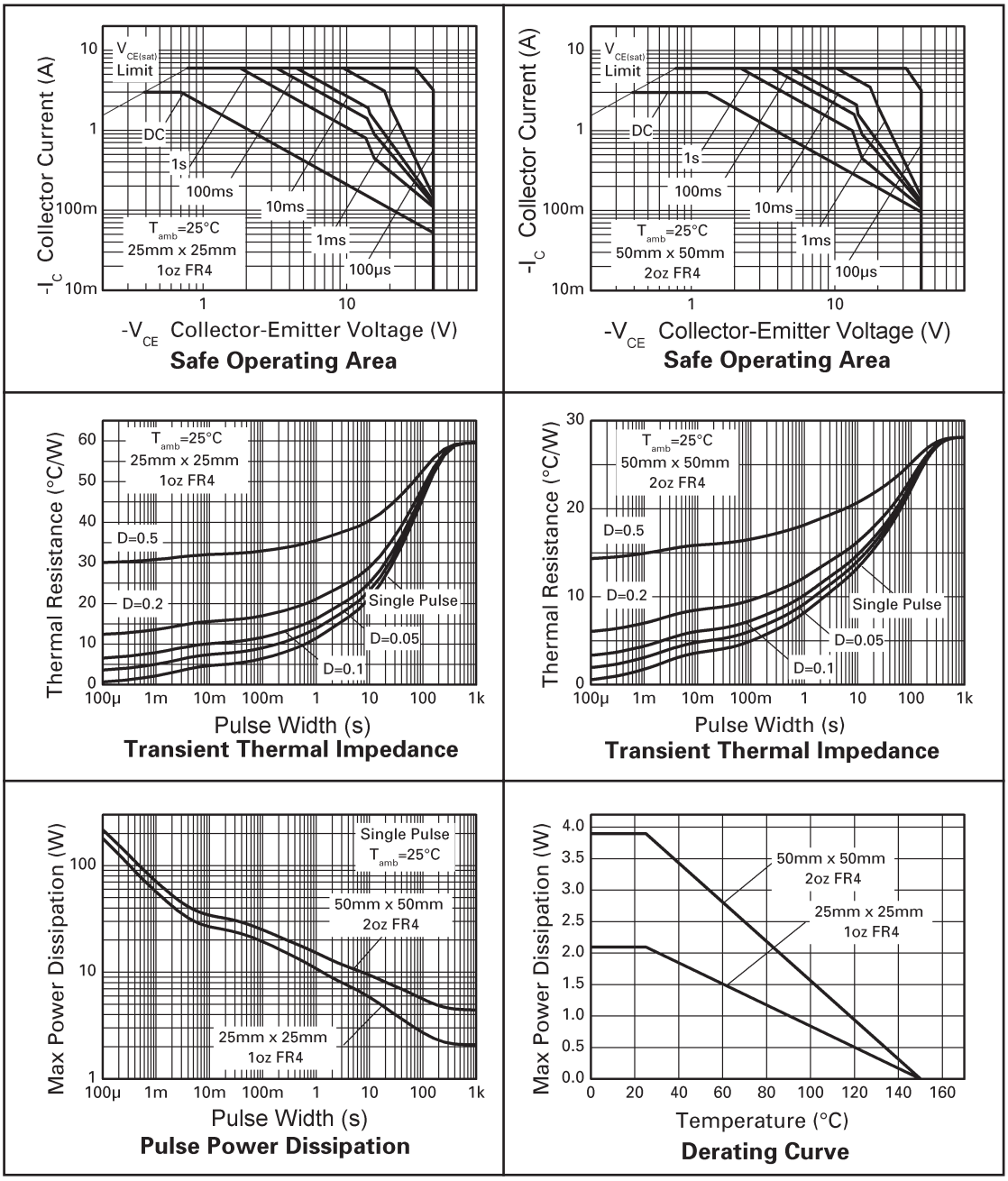
NOTES

(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.

CHARACTERISTICS



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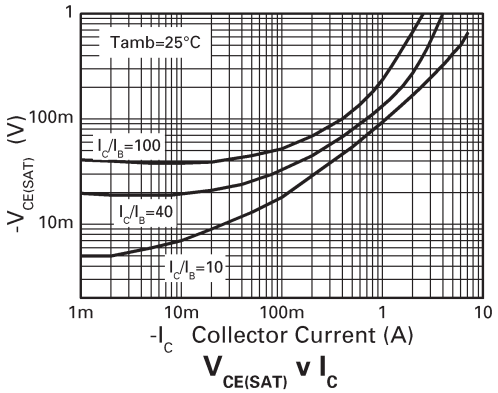
ELECTRICAL CHARACTERISTICS (at T_{amb} = 25°C unless otherwise stated)

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

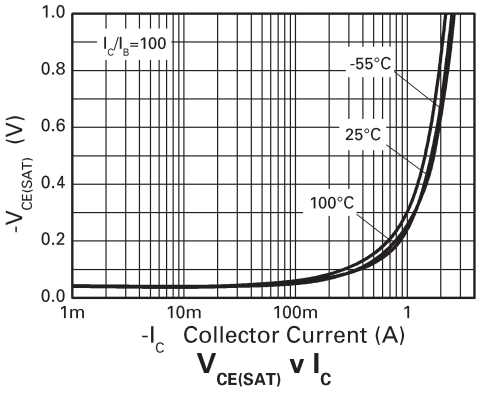
NOTES

(1) Measured under pulsed conditions. Pulse width ≤ 300μs; duty cycle ≤ 2%.

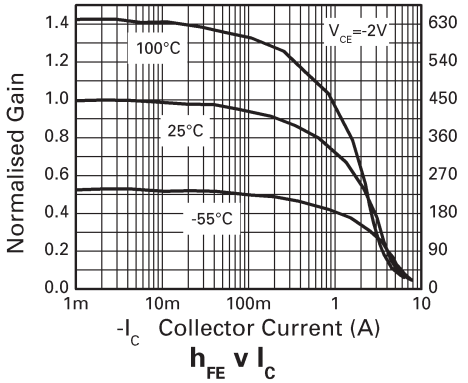
TYPICAL CHARACTERISTICS



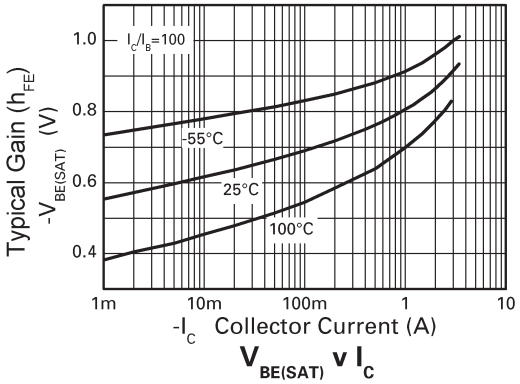
$V_{CE(SAT)}$ v I_C



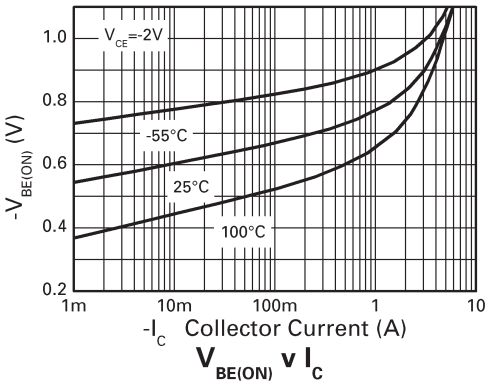
$V_{CE(SAT)}$ v I_C



h_{FE} v I_C



$V_{BE(SAT)}$ v I_C



$V_{BE(ON)}$ v I_C

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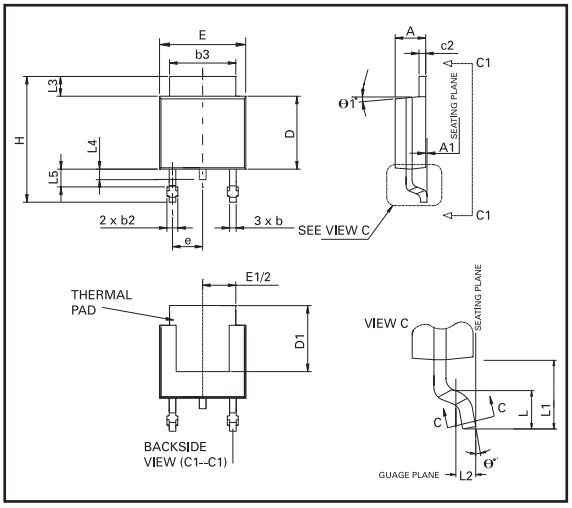
PACKAGE OUTLINE



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
θ1°	0°	10°	0°	10°
θ°	0°	15°	0°	15°

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