ZX5T2E6

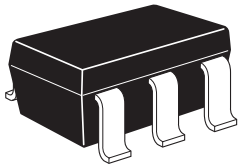
20V PNP LOW SAT MEDIUM POWER TRANSISTOR IN SOT23-6

SUMMARY

BV_{CEO} = -20V : R_{SAT} = 31mΩ; I_C = -3.5A

DESCRIPTION

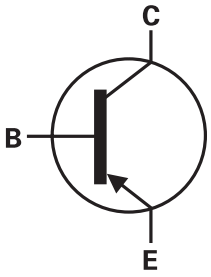
Packaged in the SOT23-6 outline this new 5th generation low saturation 20V PNP transistor offers extremely low on state losses making it ideal for use in DC-DC circuits and various driving and power management functions.



SOT23-6

FEATURES

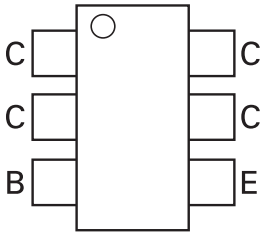
- 3.5 Amps continuous current
- Extremely low saturation voltage (-70mV max @ 1A/100mA)
- Up to 10 Amps peak current
- Very low saturation voltages



APPLICATIONS

- DC - DC converters
- Battery charging
- Power switches
- Motor control
- Power management functions

PINOUT



TOP VIEW

ORDERING INFORMATION

DEVICE	REEL SIZE	TAPE WIDTH	QUANTITY PER REEL
ZX5T2E6TA	7"	8mm embossed	3,000
ZX5T2E6TC	13"	8mm embossed	10,000

DEVICE MARKING

- 52

ZX5T2E6

ABSOLUTE MAXIMUM RATINGS

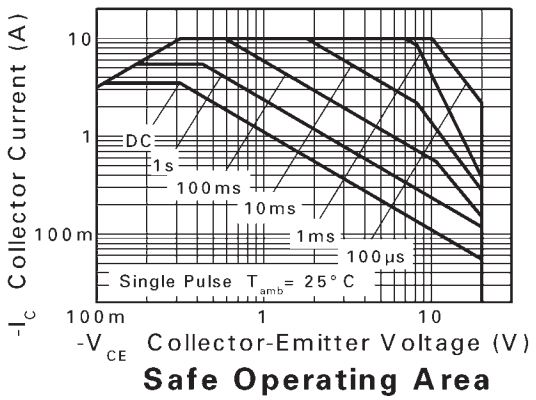
PARAMETER	SYMBOL	LIMIT	UNIT
Collector-base voltage	BV_{CBO}	-25	V
Collector-emitter voltage	BV_{CEO}	-20	V
Emitter-base voltage	BV_{EBO}	-7.5	V
Continuous collector current	I_C	-3.5	A
Peak pulse current	I_{CM}	-10	A
Power dissipation at T_A = 25° C (a) Linear derating factor	P_D	1.1 8.8	W mW/° C
Power dissipation at T_A = 25° C (b) Linear derating factor	P_D	1.7 13.6	W mW/° C
Operating and storage temperature range	T_j, T_{stg}	-55 to + 150	° C

THERMAL RESISTANCE

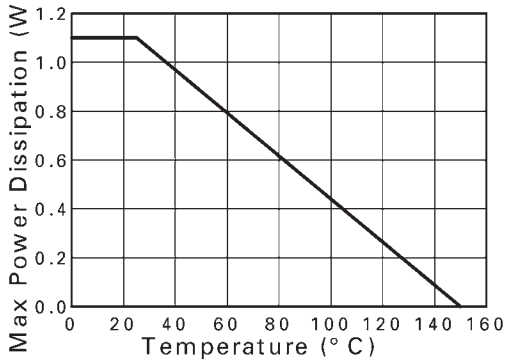
PARAMETER	SYMBOL	VALUE	UNIT
Junction to ambient (a)	$R_{\theta JA}$	113	° C/W
Junction to ambient (b)	$R_{\theta JC}$	73	° C/W

NOTES
(a) For a device surface mounted on 25mm x 25mm x 0.6mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions.
(b) As above measured at t< 5 seconds.

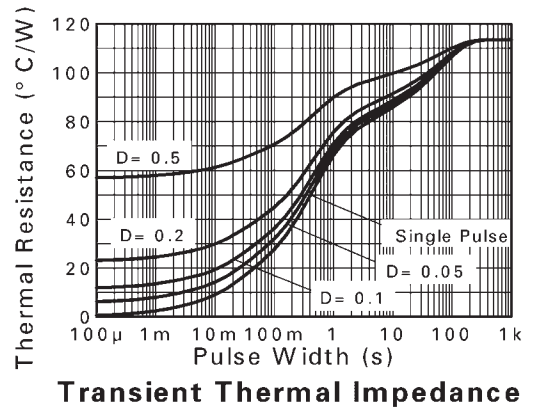
CHARACTERISTICS



Safe Operating Area



Derating Curve



Transient Thermal Impedance

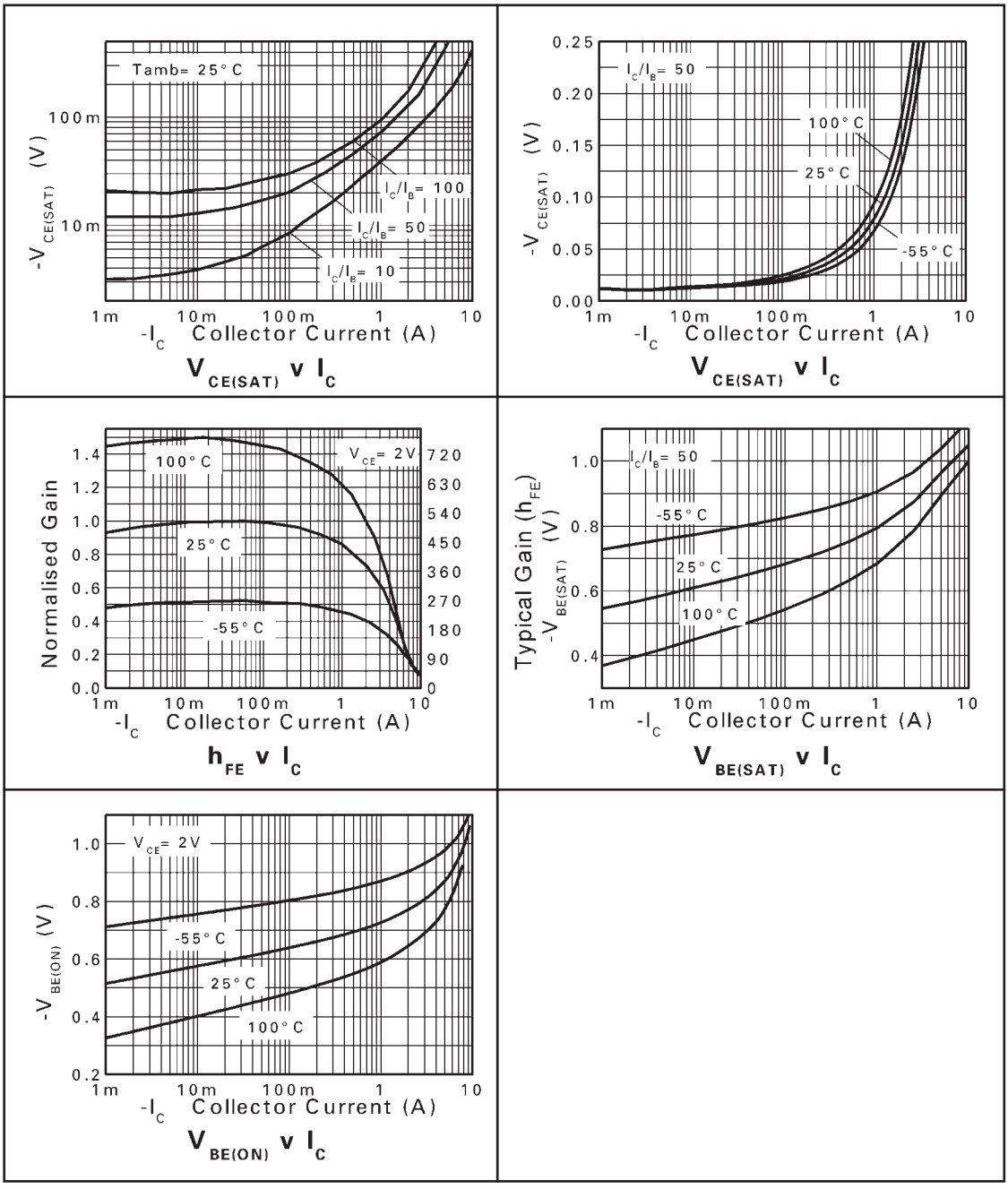
ELECTRICAL CHARACTERISTICS (at T_{amb} = 25° C unless otherwise stated)

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS
Collector-base breakdown voltage	BV_{CBO}	-25	-49		V	I_C = -100μA
Collector-emitter breakdown voltage	BV_{CEO}	-20	-43		V	I_C = -10mA *
Emitter-base breakdown voltage	BV_{EBO}	-7.5	-8.4		V	I_E = -100μA
Collector cut-off current	I_{CBO}			-100	nA	V_{CB} = -20V
Collector cut-off current	I_{CES}			-100	nA	V_{CB} = -20V
Emitter cut-off current	I_{EBO}			-100	nA	V_{EB} = -6V
Collector-emitter saturation voltage	$V_{CE(SAT)}$		-10	-15	mV	I_C = -0.1A, I_B = -10mA*
			-100	-140	mV	I_C = -1A, I_B = -10mA*
			-110	-130	mV	I_C = -3.5A, I_B = -350mA*
Base-emitter saturation voltage	$V_{BE(SAT)}$		-0.96	-1.1	V	I_C = -3.5A, I_B = -350mA*
Base-emitter turn-on voltage	$V_{BE(ON)}$		-0.8	-0.9	V	I_C = -3.5A, V_{CE} = -2V *
Static forward current transfer ratio	h_{FE}	300	575			I_C = -10mA, V_{CE} = -2V *
		300	450	900		I_C = -1A, V_{CE} = -2V *
		150	285			I_C = -3.5A, V_{CE} = -2V *
		10	40			I_C = -10A, V_{CE} = -2V *
Transition frequency	f_T		110			I_C = -50mA, V_{CE} = -10V f = 50MHz
Output capacitance	C_{OBO}		45		pF	V_{CB} = -10V, f = 1MHz *
Switching times	t_{ON}		90		ns	I_C = -2A, V_{CC} = -10V,
	t_{OFF}		325		ns	I_{B1} = I_{B2} = -40mA

NOTES

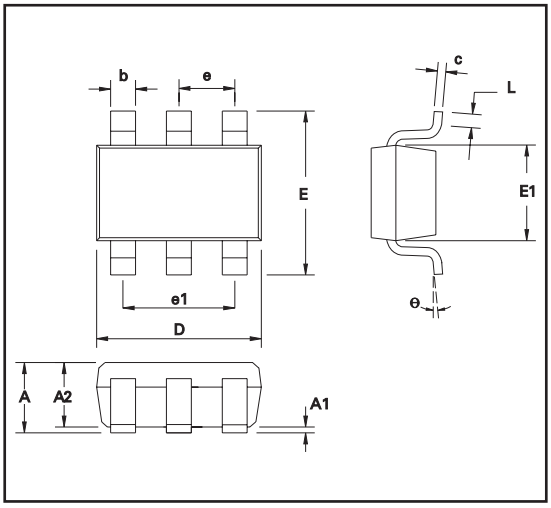
* Measured under pulsed conditions. Pulse width ≤ 300μs; duty cycle ≤2%.

TYPICAL CHARACTERISTICS

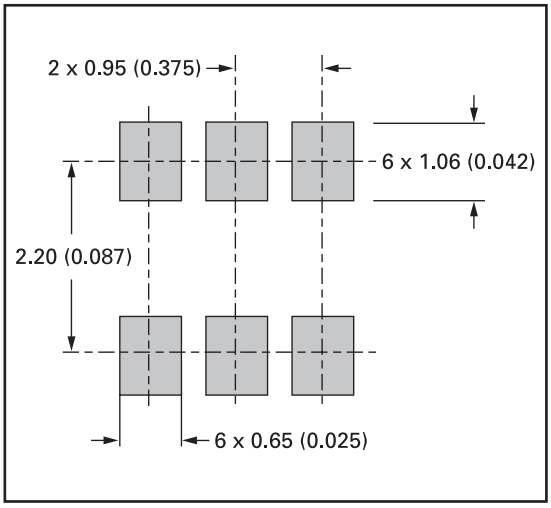


ZX5T2E6

PACKAGE OUTLINE



PAD LAYOUT DETAILS



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

PACKAGE DIMENSIONS

DIM	Millimeters		Inches		DIM	Millimeters		Inches	
	Min	Max	Min	Max		Min	Max	Min	Max
A	0.90	1.45	0.035	0.057	E	2.20	3.20	0.0866	0.118
A1	0.00	0.15	0.00	0.006	E1	1.30	1.80	0.0511	0.071
A2	0.90	1.30	0.035	0.051	L	0.10	0.60	0.004	0.024
b	0.20	0.50	0.008	0.020	e	0.95 REF		0.037 REF	
C	0.09	0.26	0.003	0.010	e1	1.90 REF		0.075 REF	
D	2.70	3.10	0.106	0.122	θ	0°	30°	0°	30°

Europe	Americas	Asia Pacific	Corporate Headquaters
Zetex GmbH Streitfeldstraße 19 D-81673 München Germany	Zetex Inc 700 Veterans Memorial Hwy Hauppauge, NY 11788 USA	Zetex (Asia) Ltd 3701-04 Metroplaza Tower 1 Hing Fong Road, Kwai Fong Hong Kong	Zetex Semiconductors plc Zetex Technology Park, Chadderton Oldham, OL9 9LL United Kingdom
Telefon: (49) 89 45 49 49 0 Fax: (49) 89 45 49 49 49 europe.sales@zetex.com	Telephone: (1) 631 360 2222 Fax: (1) 631 360 8222 usa.sales@zetex.com	Telephone: (852) 26100 611 Fax: (852) 24250 494 asia.sales@zetex.com	Telephone (44) 161 622 4444 Fax: (44) 161 622 4446 hq@zetex.com

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