

ZXTP2006E6

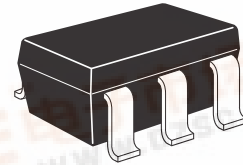
20V PNP LOW SAT MEDIUM POWER TRANSISTOR IN SOT23-6

SUMMARY

$BV_{CEO} = -20V$; $R_{SAT} = 31m\Omega$; $I_C = -3.5A$

DESCRIPTION

Packaged in the SOT23-6 outline this new 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.



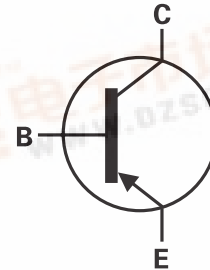
SOT23-6

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

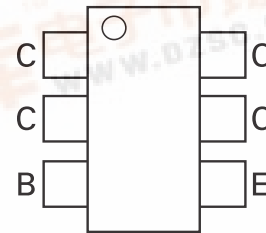
- DC - DC converters
- Battery charging
- Power switches
- Motor control
- Power management functions



ORDERING INFORMATION

DEVICE	REEL SIZE	TAPE WIDTH	QUANTITY PER REEL
ZXTP2006E6TA	7"	8mm embossed	3,000
ZXTP2006E6TC	13"	8mm embossed	10,000

PINOUT



TOP VIEW

DEVICE MARKING

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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 $T_A = 25^\circ\text{C}$ ^(a)	P_D	1.1	W
Linear derating factor		8.8	mW/ $^\circ\text{C}$
Power dissipation at $T_A = 25^\circ\text{C}$ ^(b)	P_D	1.7	W
Linear derating factor		13.6	mW/ $^\circ\text{C}$

THERMAL RESISTANCE

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

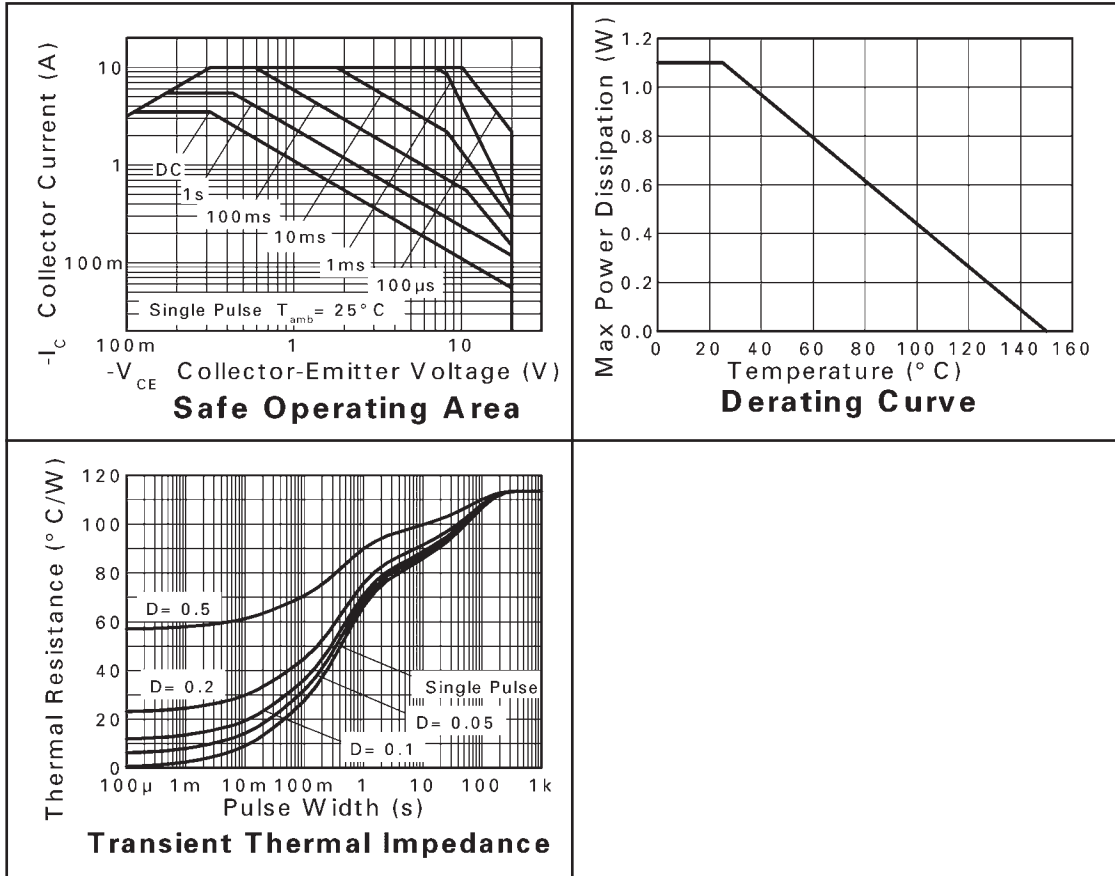
NOTES

(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.

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CHARACTERISTICS



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

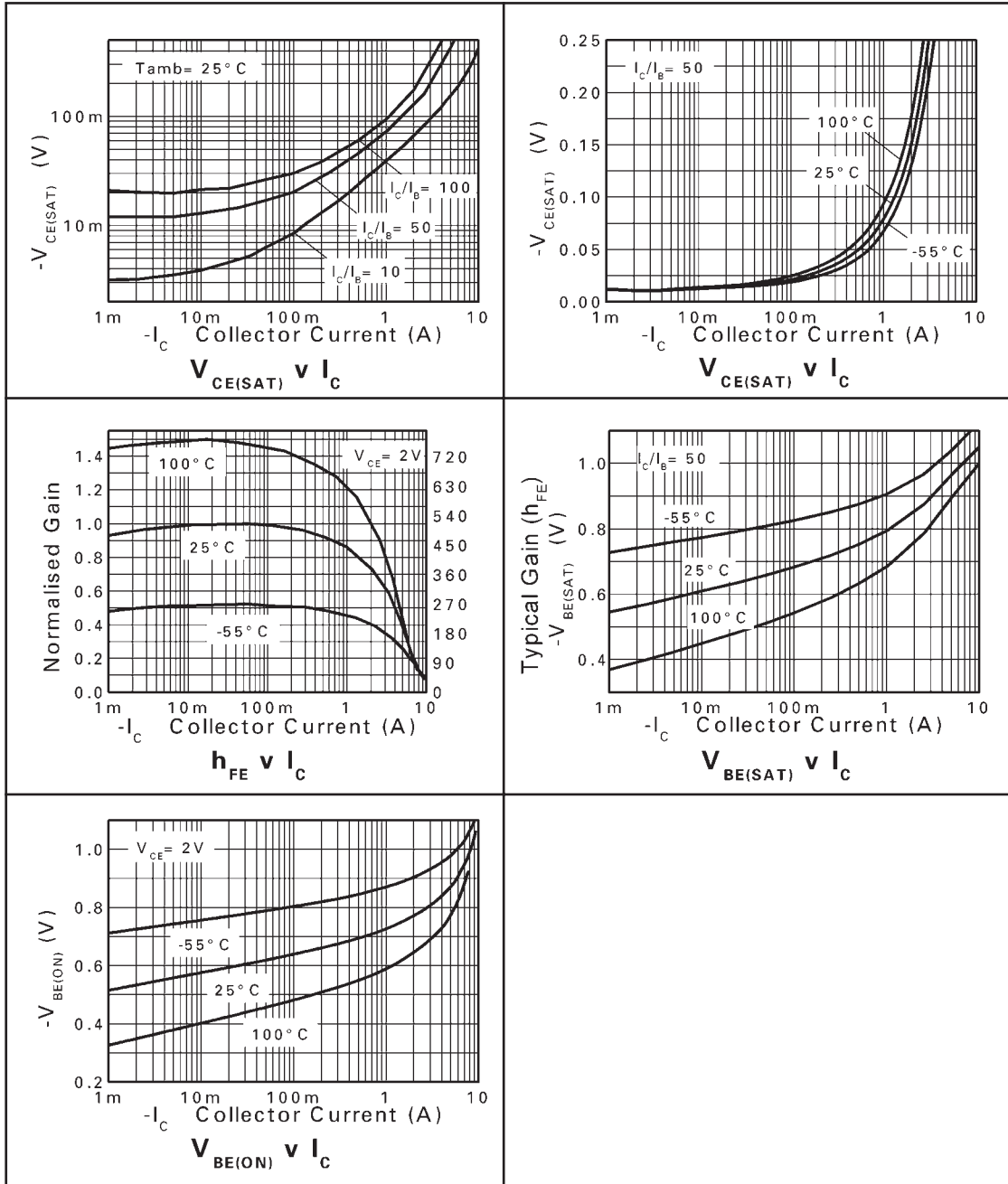
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS
Collector-base breakdown voltage	BV_{CBO}	-25	-49		V	$I_C = -100\mu\text{A}$
Collector-emitter breakdown voltage	BV_{CEO}	-20	-43		V	$I_C = -10\text{mA}^*$
Emitter-base breakdown voltage	BV_{EBO}	-7.5	-8.4		V	$I_E = -100\mu\text{A}$
Collector cut-off current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

NOTES

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

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TYPICAL CHARACTERISTICS



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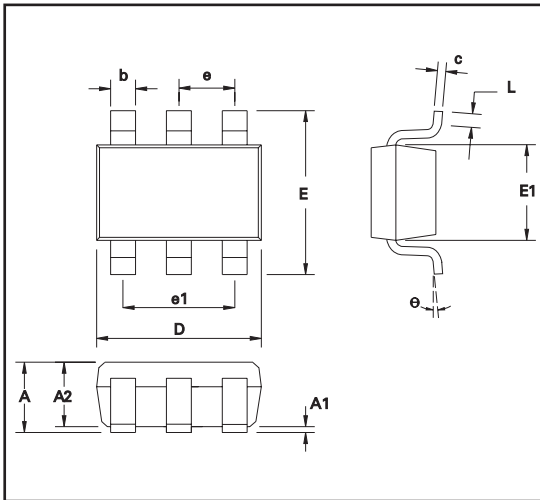
NOTES:

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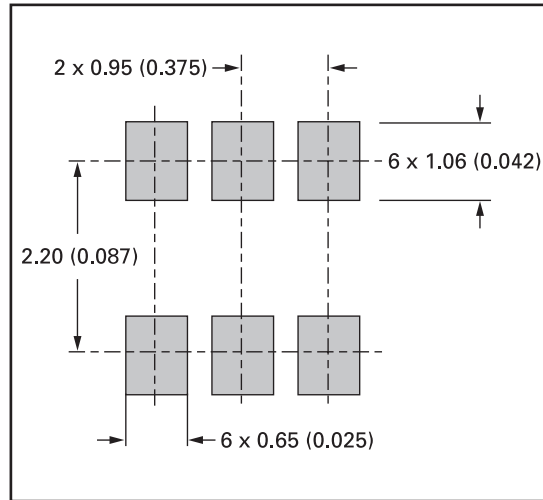
NOTES:

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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°

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