ZX5T853G

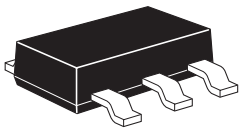
100V NPN LOW SAT MEDIUM POWER LOW SATURATION TRANSISTOR IN SOT223

SUMMARY

BV_{CEO} = 100V : R_{SAT} = 36mΩ; I_C = 6A

DESCRIPTION

Packaged in the SOT223 outline this new 5th generation low saturation 100V NPN transistor offers extremely low on state losses making it ideal for use in DC-DC circuits and various driving and power management functions.



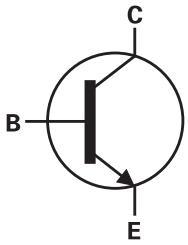
SOT223

FEATURES

- 6 amps continuous current
- Up to 10 amps peak current
- Very low saturation voltages

APPLICATIONS

- Motor driving
- Line switching
- High side switches
- Subscriber line interface cards (SLIC)



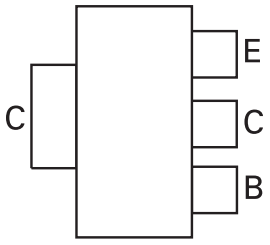
ORDERING INFORMATION

DEVICE	REEL SIZE	TAPE WIDTH	QUANTITY PER REEL
ZX5T853GTA	7”	12mm embossed	1000 units
ZX5T853GTC	13”		4000 units

DEVICE MARKING

- X5T853

PINOUT



TOP VIEW

ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	LIMIT	UNIT
Collector-base voltage	BV_{CBO}	200	V
Collector-emitter voltage	BV_{CEO}	100	V
Emitter-base voltage	BV_{EBO}	7	V
Continuous collector current [a]	I_C	6	A
Peak pulse current	I_{CM}	10	A
Power dissipation at T_A =25°C [a]	P_D	3.0	W
Linear derating factor		24	mW/°C
Power dissipation at T_A =25°C [b]	P_D	1.6	W
Linear derating factor		12.8	mW/°C
Operating and storage temperature range	T_j, T_{stg}	-55 to +150	°C

THERMAL RESISTANCE

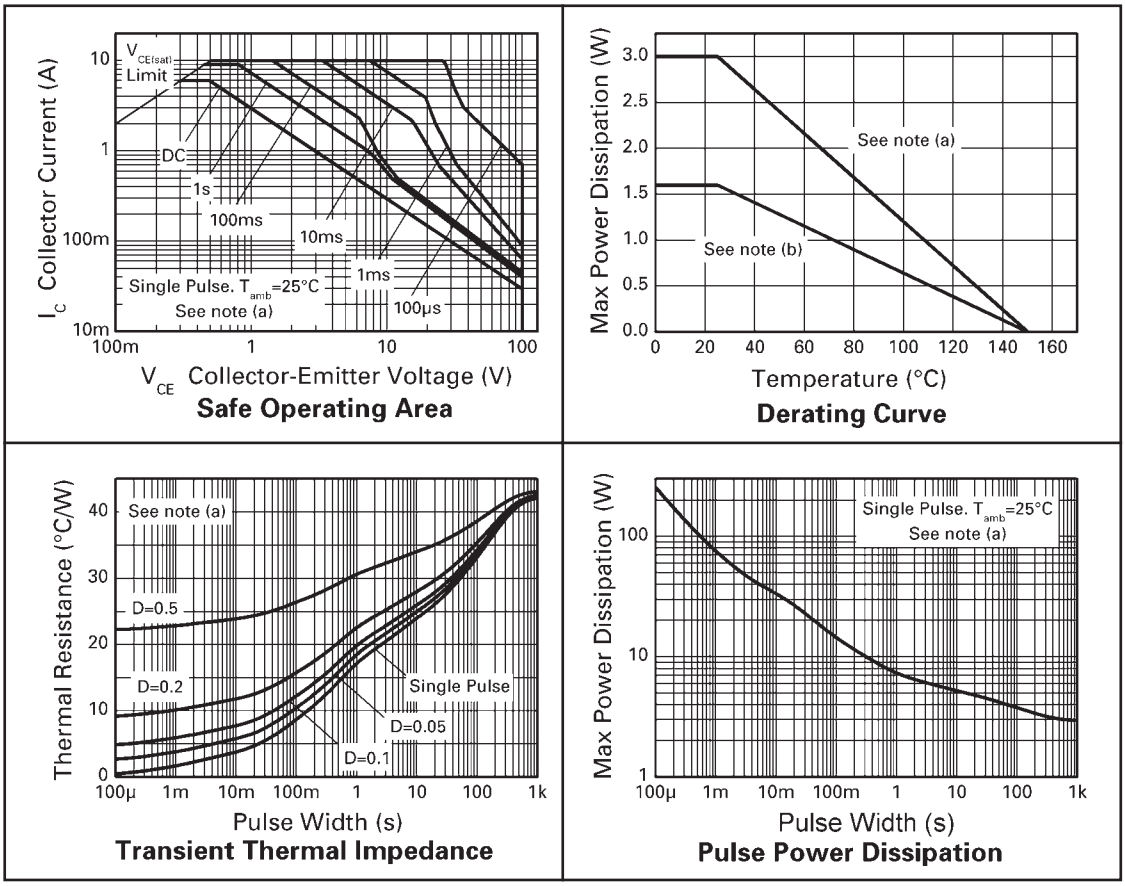
PARAMETER	SYMBOL	VALUE	UNIT
Junction to ambient [a]	$R_{\Theta JA}$	42	°C/W

NOTES

(a) For a device surface mounted on 52mm x 52mm x 1.6mm FR4 PCB with high coverage of single sided 2oz copper, in still air conditions.

(b) For a device surface mounted on 25mm x 25mm x 1.6mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions.

CHARACTERISTICS

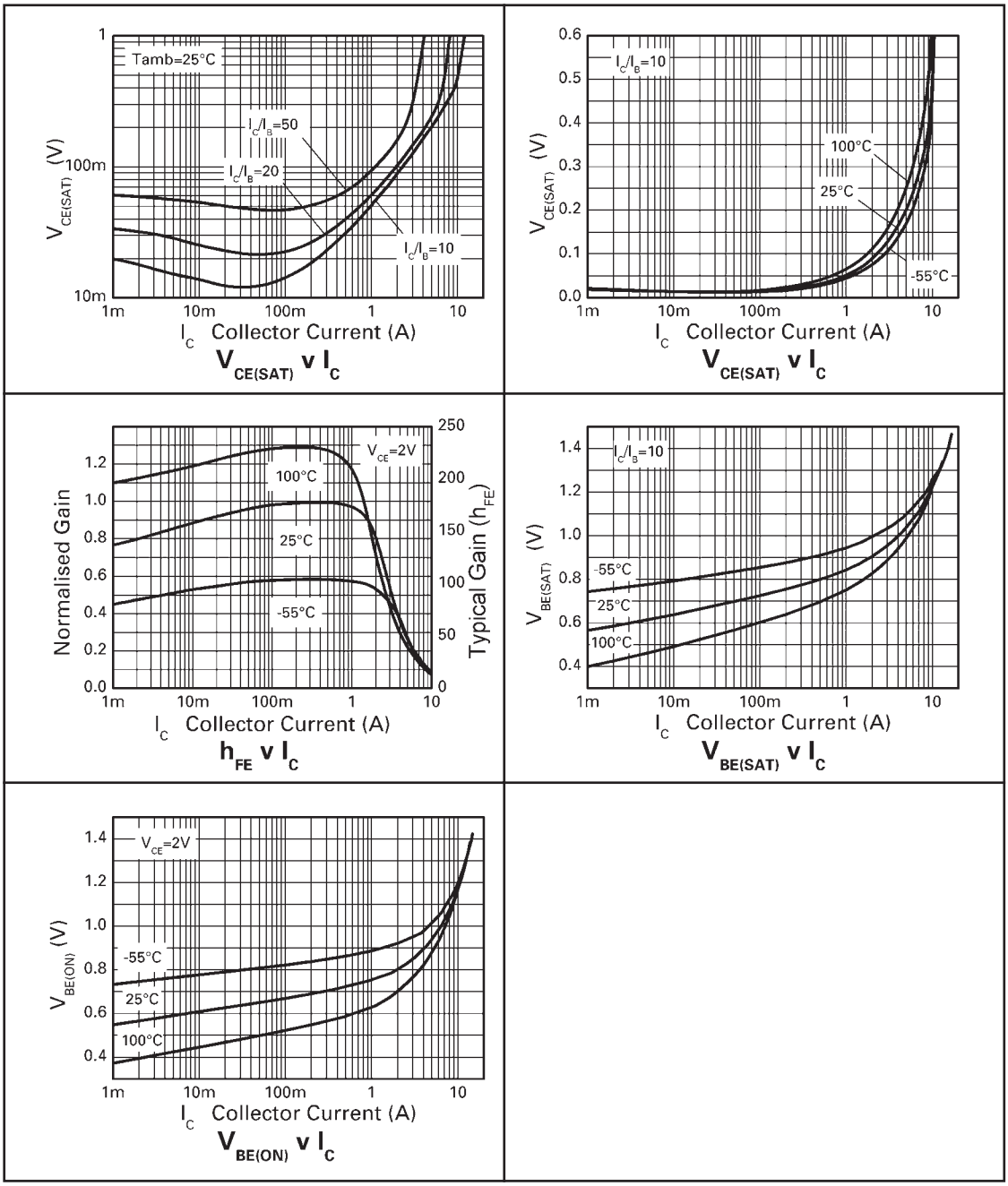


ELECTRICAL CHARACTERISTICS (at T_{amb} = 25°C unless otherwise stated)

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS
Collector-base breakdown voltage	BV_{CBO}	200	235		V	I_C=100μA
Collector-emitter breakdown voltage	BV_{CER}	200	235		V	I_C=1μA, RB≤1kΩ
Collector-emitter breakdown voltage	BV_{CEO}	100	115		V	I_C=10mA*
Emitter-base breakdown voltage	BV_{EBO}	7	8.1		V	I_E=100μA
Collector cut-off current	I_{CBO}			20	nA	V_{CB}=150V
				0.5	μA	V_{CB}=150V,T_{amb}=100°C
Collector cut-off current	I_{CER}			20	nA	V_{CB}=150V
	R ≤ 1kΩ			0.5	μA	V_{CB}=150V,T_{amb}=100°C
Emitter cut-off current	I_{EBO}			10	nA	V_{EB}=6V
Collector-emitter saturation voltage	$V_{CE(SAT)}$		21	35	mV	I_C=0.1A, I_B=5mA*
			50	65	mV	I_C=1A, I_B=100mA*
			95	125	mV	I_C=2A, I_B=100mA*
			180	220	mV	I_C=5A, I_B=500mA*
Base-emitter saturation voltage	$V_{BE(SAT)}$		1020	1120	mV	I_C=5A, I_B=500mA*
Base-emitter turn-on voltage	$V_{BE(ON)}$		920	1000	mV	I_C=5A, V_{CE}=2V*
Static forward current transfer ratio	H_{FE}	100	230			I_C=10mA, V_{CE}=2V*
		100	200	300		I_C=2A, V_{CE}=2V*
		30	60			I_C=5A, V_{CE}=2V*
		10	20			I_C=10A, V_{CE}=2V*
Transition frequency	f_T		130		MHz	I_C=100mA, V_{CE}=10V
						f=50MHz
Output capacitance	C_{OBO}		26		pF	V_{CB}=10V, f=1MHz*
Switching times	t_{ON}		41		ns	I_C=1A, V_{CC}=10V,
	t_{OFF}		1010			I_{B1}=I_{B2}=100mA

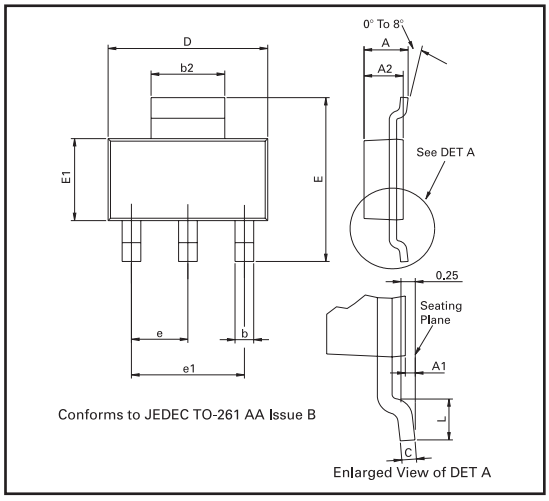
* Measured under pulsed conditions. Pulse width ≤ 300μs; duty cycle ≤2%.

TYPICAL CHARACTERISTICS

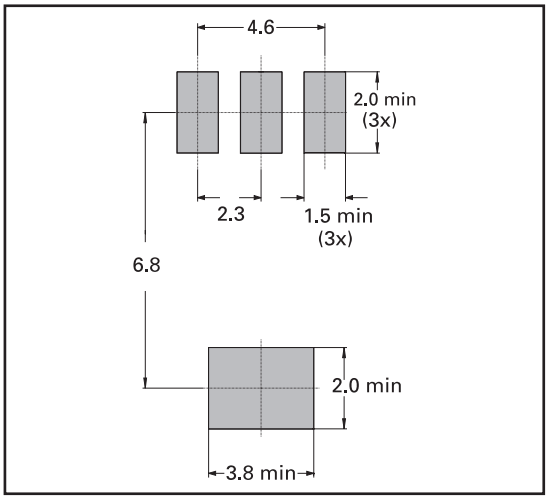


ZX5T853G

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	-	1.80	-	0.071	e	2.30 BSC		0.0905 BSC	
A1	0.02	0.10	0.0008	0.004	e1	4.60 BSC		0.181 BSC	
b	0.66	0.84	0.026	0.033	E	6.70	7.30	0.264	0.287
b2	2.90	3.10	0.114	0.122	E1	3.30	3.70	0.130	0.146
C	0.23	0.33	0.009	0.013	L	0.90	-	0.355	-
D	6.30	6.70	0.248	0.264	-	-	-	-	-

© 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 2 - SEPTEMBER 2003