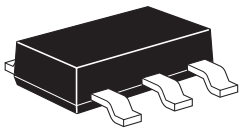
100V PNP MEDIUM POWER LOW SATURATION TRANSISTOR IN SOT223

SUMMARY

BV_{CEO} = -100V : R_{SAT} = 60mΩ; I_C = -5A

DESCRIPTION

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



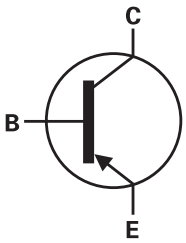
SOT223

FEATURES

- 5 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)



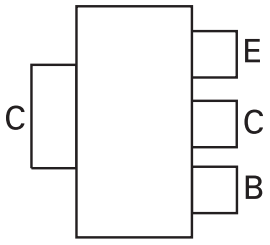
ORDERING INFORMATION

DEVICE	REEL SIZE	TAPE WIDTH	QUANTITY PER REEL
ZX5T953GTA	7”	12mm embossed	1000 units
ZX5T953GTC	13”		4000 units

DEVICE MARKING

- X5T953

PINOUT



TOP VIEW

ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	LIMIT	UNIT
Collector-base voltage	BV_{CBO}	-140	V
Collector-emitter voltage	BV_{CEO}	-100	V
Emitter-base voltage	BV_{EBO}	-7	V
Continuous collector current [a]	I_C	-5	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

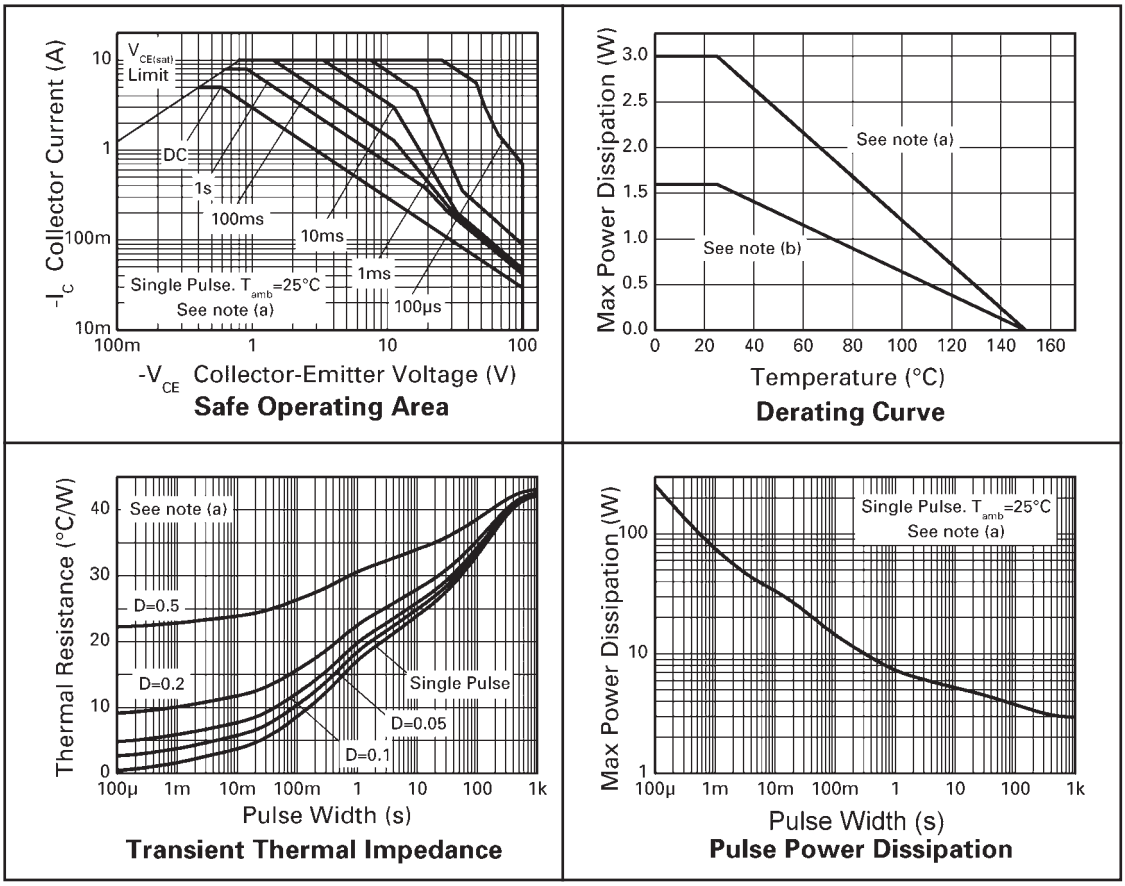
PARAMETER	SYMBOL	VALUE	UNIT
Junction to ambient [a]	$R_{\Theta JA}$	42	°C/W

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

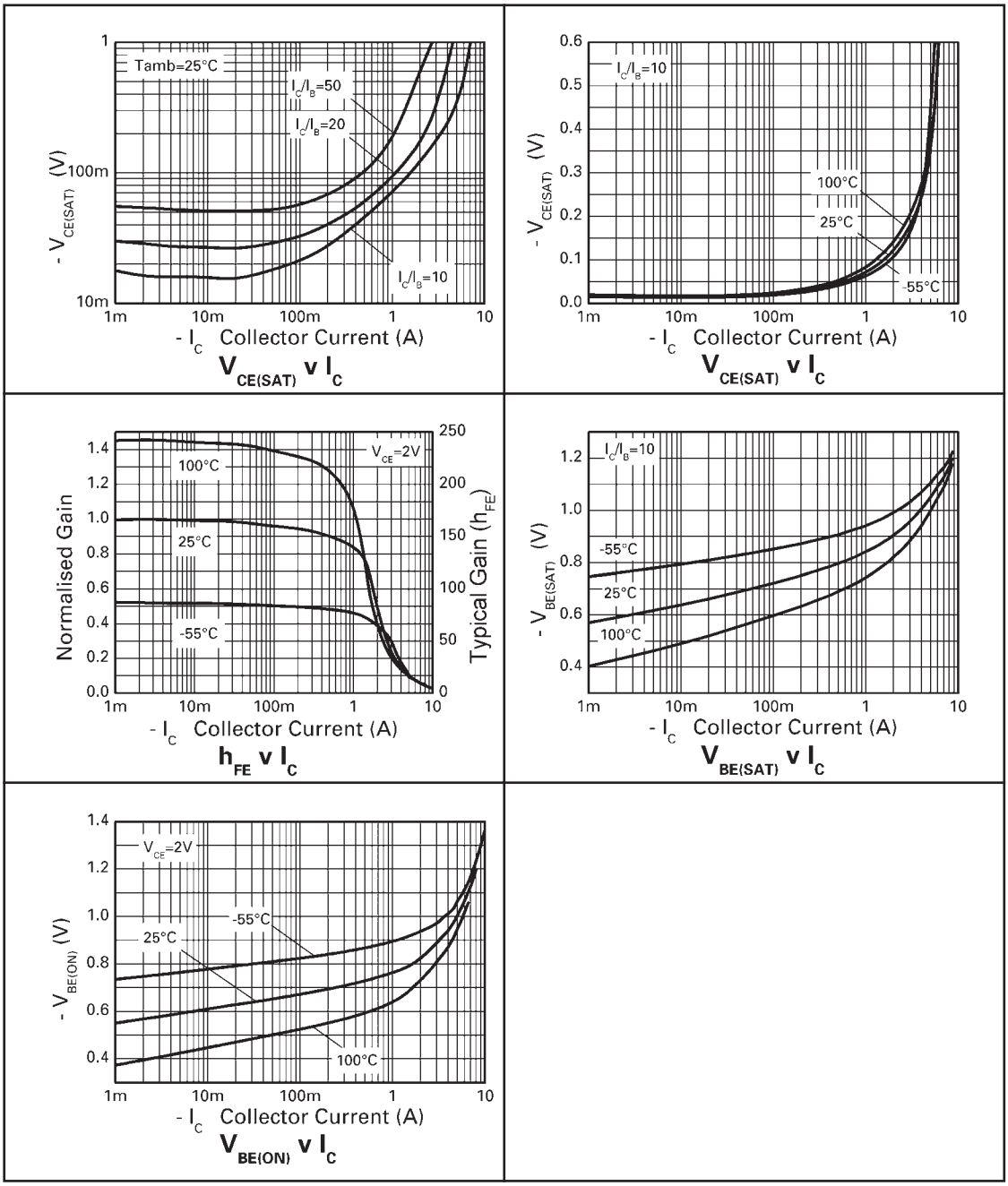


ELECTRICAL CHARACTERISTICS (at T_{amb} = 25°C unless otherwise stated)

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS
Collector-base breakdown voltage	BV_{CBO}	-140	-160		V	I_C=-100μA
Collector-emitter breakdown voltage	BV_{CER}	-140	-160		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}		<1	-20	nA	V_{CB}=-100V
				-0.5	μA	V_{CB}=-100V,T_{amb}=100°C
Collector cut-off current	I_{CER}		<1	-20	nA	V_{CB}=-100V
	R ≤ 1kΩ			-0.5	μA	V_{CB}=-100V,T_{amb}=100°C
Emitter cut-off current	I_{EBO}		<1	-10	nA	V_{EB}=-6V
Collector-emitter saturation voltage	$V_{CE(SAT)}$		-20	-30	mV	I_C=-0.1A, I_B=-10mA*
			-70	-90	mV	I_C=-1A, I_B=-100mA*
			-120	-150	mV	I_C=-2A, I_B=-200mA*
			-240	-340	mV	I_C=-4A, I_B=-400mA*
Base-emitter saturation voltage	$V_{BE(SAT)}$		-985	-1100	mV	I_C=-4A, I_B=-400mA*
Base-emitter turn-on voltage	$V_{BE(ON)}$		-920	-1050	mV	I_C=-4A, V_{CE}=-2V*
Static forward current transfer ratio	H_{FE}	100	250			I_C=-10mA, V_{CE}=-1V*
		100	200	300		I_C=-1A, V_{CE}=-1V*
		25	50			I_C=-3A, V_{CE}=-1V*
		15	30			I_C=-4A, V_{CE}=-1V*
			5			I_C=-10A, V_{CE}=-1V*
Transition frequency	f_T		125		MHz	I_C=-100mA, V_{CE}=-10V
						f=50MHz
Output capacitance	C_{OBO}		42		pF	V_{CB}=-10V, f=1MHz*
Switching times	t_{ON}		42		ns	I_C=-1A, V_{CC}=-10V,
	t_{OFF}		540			I_{B1}=I_{B2}=-100mA

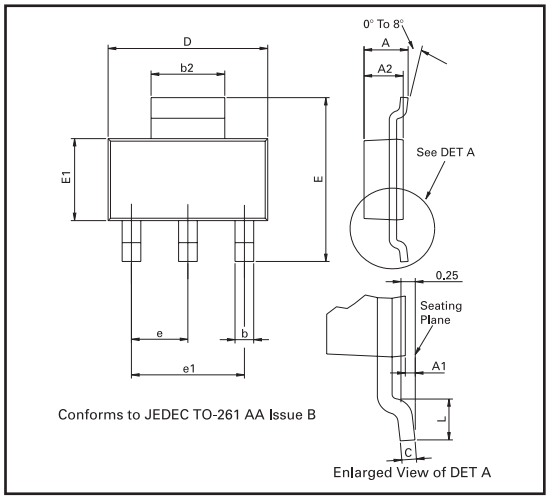
*** Measured under pulsed conditions. Pulse width** ≤ 300μs; duty cycle ≤2%.

TYPICAL CHARACTERISTICS

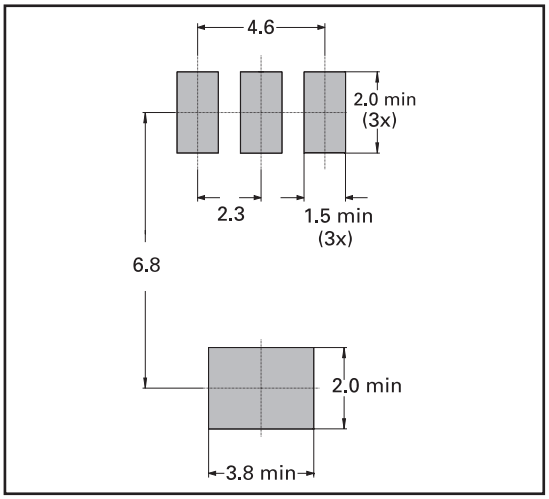


ZX5T953G

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	-	-	-	-	-

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