ZXTP03200BG 200V PNP Low V_{CE}(sat) transistor in SOT223

Summary

BV_{CEO} > -200V

 $BV_{ECO} > -2V$

 $I_{C(cont)} = 2A$

 $V_{CE(sat)} < -160 \text{mV}$ @ -1A

 $R_{CE(sat)} = 135m\Omega$

 $P_D = 3W$



Description

Packaged in the SOT223 outline this new 5th generation low saturation 200V PNP transistor offers extremely low on state losses making it ideal for use in DC-DC circuits and various driving and power management functions

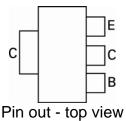
Features

- · 2 Amps continuous current
- · Up to 5 Amps peak current
- · Very low saturation voltage
- · Enhanced switching performance

B E

Applications

• DC-DC conversion



Ordering Information

Device	Reel size (inches)	Tape width (mm)	Quantity per reel
ZXTP03200BGTA	7	12	1000

Device Marking

ZXTP03200BG

Absolute Maximum Ratings

Parameter	Symbol	Limit	Unit
Collector-Base Voltage	V _{CBO}	-220	V
Collector-Emitter Voltage	V _{CEO}	-200	V
Emitter-Base Voltage	V _{EBO}	-7	V
Continuous Collector Current (a)	Ic	-2	А
Base Current	I _B	-1	А
Peak Pulse Current	I _{CM}	-5	А
Power Dissipation at T _A =25°C ^(a) Linear Derating Factor	P _D	1.25 10	W mW/°C
Power Dissipation at T _A =25°C ^(b) Linear Derating Factor	P _D	1.65 13.2	W mW/°C
Power Dissipation at T _A =25°C ^(c) Linear Derating Factor	P _D	3 24	W mW/°C
Power Dissipation at T _A =25°C ^(d) Linear Derating Factor	P _D	5.8 46.5	W mW/°C
Power Dissipation at T _C =25°C ^(e) Linear Derating Factor	P _D	11.9 95.2	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)	$R_{ heta JA}$	100	°C/W
Junction to Ambient ^(b)	$R_{ heta JA}$	76	°C/W
Junction to Ambient (c)	$R_{ heta JA}$	41.6	°C/W
Junction to Ambient ^(d)	$R_{ heta JA}$	21.5	°C/W
Junction to Lead ^(e)	$R_{ heta JL}$	10.5	°C/W

NOTES:

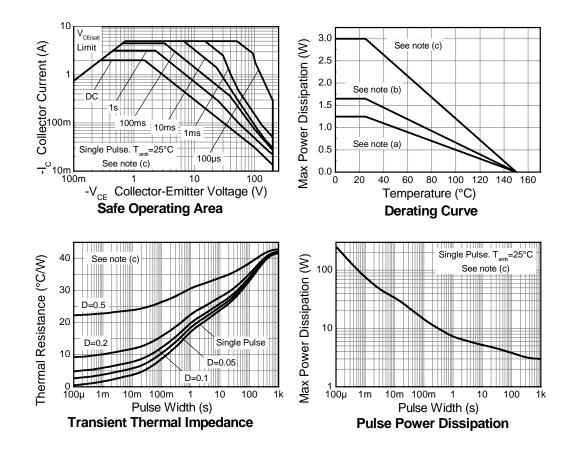
⁽a) For a device surface mounted on 15mm x 15mm x 1.6mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions.

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

 ⁽c) Mounted on 50mm x 50mm x 1.6mm FR4 PCB with high coverage of single sided 2oz copper, in still air conditions.
(d) As (c) above measured at t<5 seconds.

⁽e) Junction to Lead from Collector Tab. Typical

Thermal Characteristics



ZXTP03200BG

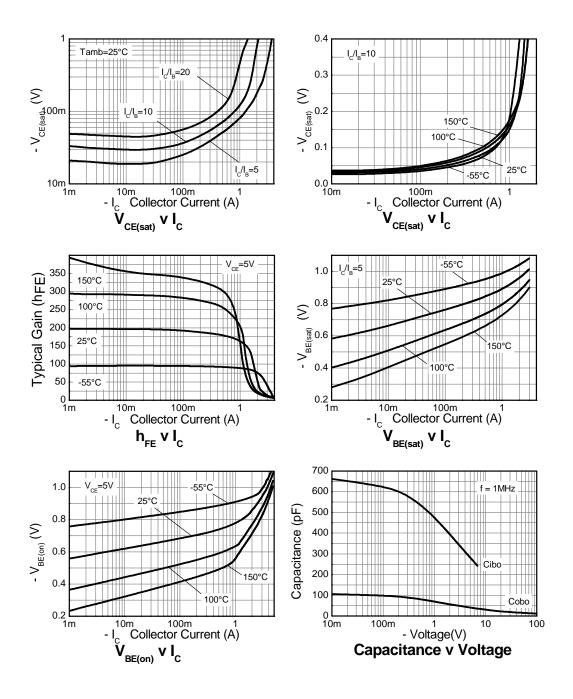
Electrical Characteristics (at T_{amb} = 25°C unless otherwise stated)

Parameter	Symbol	Min.	Тур.	Max.	Unit	Conditions
Collector-Base Breakdown Voltage	BV _{CBO}	-220	-245		V	$I_C = -100 \mu A$
Collector-Emitter Breakdown Voltage	BV _{CER}	-220	-245		V	I _C = -1μA, R _{BE} ≤ 1kΩ
Collector-Emitter Breakdown voltage	BV _{CEO}	-200	-225		V	I _C = -10mA ^(*)
Emitter-Base Breakdown Voltage	BV _{EBO}	-7	-8.4		V	$I_E = -100 \mu A$
Collector-Base Cut-off	I _{CBO}		<1	-50	nA	V _{CB} = -200V
Current				-0.5	μΑ	V _{CB} = -200V,T _{amb} =100°C
Emitter Cut-off Current	I _{EBO}		<1	-10	nA	V _{EB} = -6V
Collector-Emitter Saturation	V _{CE(sat)}		-37	-50	mV	$I_C = -0.1A$, $I_B = -10mA$ (*)
Voltage			-130	-155	mV	$I_C = -0.5A, I_B = -25mA_{(*)}^{(*)}$
			-135	-160	mV	$I_C = -1A$, $I_B = -100 \text{mA}^{\binom{n}{2}}$
			-180	-275	mV	$I_C = -2A$, $I_B = -400 \text{mA}^{(*)}$
Base-Emitter Saturation Voltage	V _{BE(sat)}		-955	-1100	mV	$I_C = -2A$, $I_B = -400 \text{mA}^{(*)}$
Base-Emitter Turn-On Voltage	V _{BE(on)}		-860	-1000	mV	$I_C = -2A$, $V_{CE} = -5V^{(*)}$
Static Forward Current	hFE	100	195			$I_C = -10 \text{mA}, V_{CE} = -5 \text{V}^{\binom{*}{*}}$
Transfer Ratio		100	170	300		$I_C = -1A$, $V_{CE} = -5V_{(*)}^{(*)}$
		20	50			$I_C = -2A$, $V_{CE} = -5V_{(*)}^{(*)}$
			5			$I_C = -5A, V_{CE} = -5V^{(*)}$
Transition Frequency	f _T		105		MHz	I _C = -100mA, V _{CE} = -10V f = 50MHz
Output Capacitance	C _{obo}		31		pF	$V_{CB} = -10V, f = 1MHz^{(*)}$
Delay Time	t _d		21		ns	
Rise Time	t _r		18		ns	I _C = -1A, V _{CC} = -50V,
Storage Time	t _S		680		ns	$I_{B1} = -I_{B2} = -100 \text{mA}$
Fall Time	t _f		75		ns	

NOTES:

(*) Measured under pulsed conditions. Pulse width $\leq 300 \mu s;$ duty cycle $\leq 2\%.$

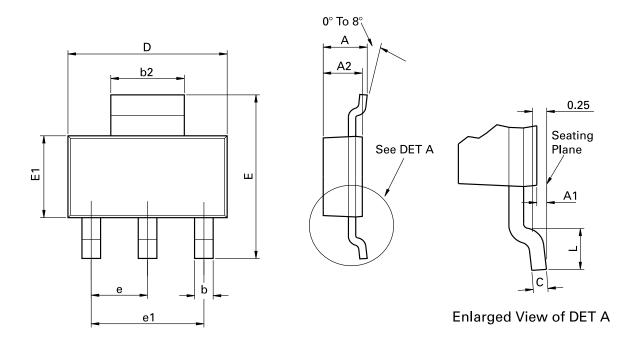
Typical Characteristics



ZXTP03200BG

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Package Information - SOT223



Conforms to JEDEC TO-261 AA Issue B

DIM	Millim	neters	Inc	hes	DIM	Millimeters		Inches	
	Min	Max	Min	Max		Min	Max	Min	Max
Α	-	1.80	-	0.071	е	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	Е	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
С	0.23	0.33	0.009	0.013	Ĺ	0.90	-	0.355	-
D	6.30	6.70	0.248	0.264	-	-	-	-	-

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