

200V PNP MEDIUM POWER LOW SATURATION TRANSISTOR IN SOT223
Features

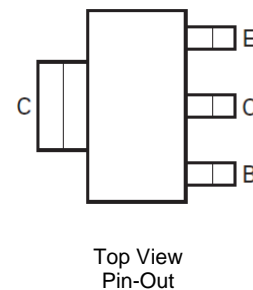
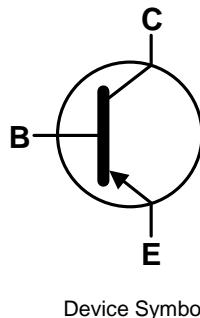
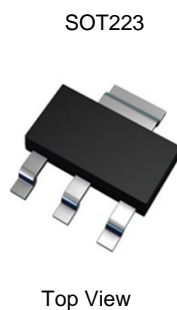
- $BV_{CEO} > -200V$
- $I_C = -2A$ High Continuous Collector Current
- $I_{CM} = -5A$ Peak Pulse Current
- Low Saturation Voltage $V_{CE(sat)} < -160mV$ @ $I_C = -1A$
- $R_{SAT} = 135m\Omega$ for a Low Equivalent On-Resistance
- Enhanced Switching Performance
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

Mechanical Data

- Case: SOT223
- Case Material: Molded Plastic. "Green" Molding Compound; UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208 (E3)
- Weight: 0.112 grams (Approximate)

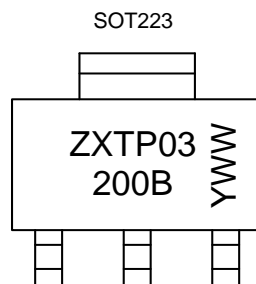
Applications

- DC-DC Conversion


Ordering Information (Note 4)

Product	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
ZXTP03200BGTA	ZXTP03200B	7	12	1,000

- Notes:
1. EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. All applicable RoHS exemptions applied.
 2. See http://www.diodes.com/quality/lead_free.html for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
 3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
 4. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

Marking Information


ZXTP03200B = Product Type Marking Code
 YWW = Date Code Marking
 Y or \bar{Y} = Last Digit of Year (ex: 5 = 2015)
 WW or $\bar{W}W$ = Week Code (01~53)

Absolute Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	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	I _C	-2	A
Peak Pulse Current	I _{CM}	-5	A
Base Current	I _B	-1	A

Thermal Characteristics (@T_A = +25°C, unless otherwise specified.)

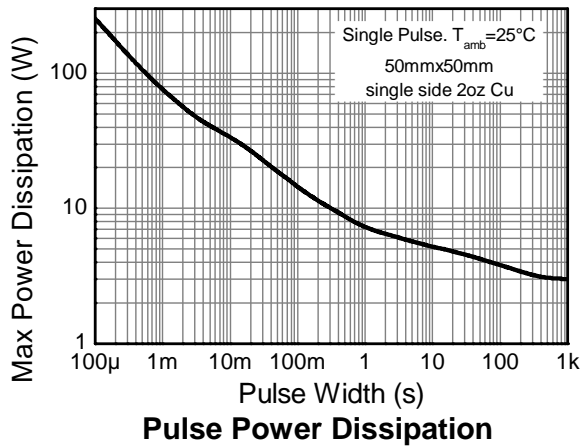
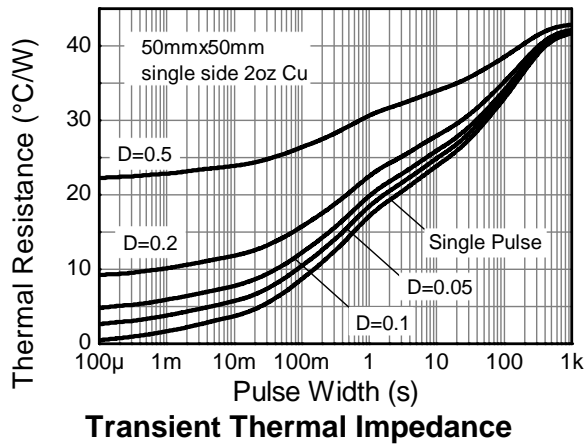
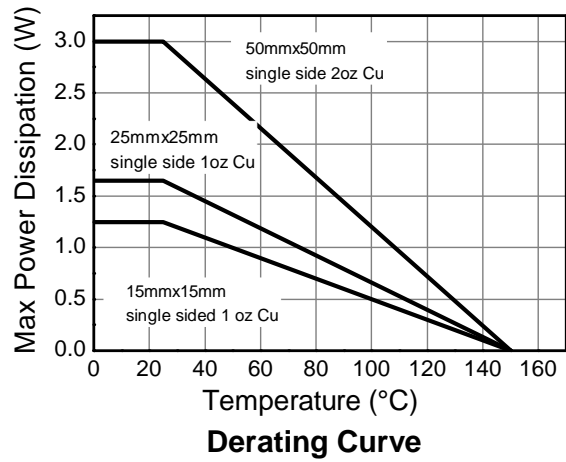
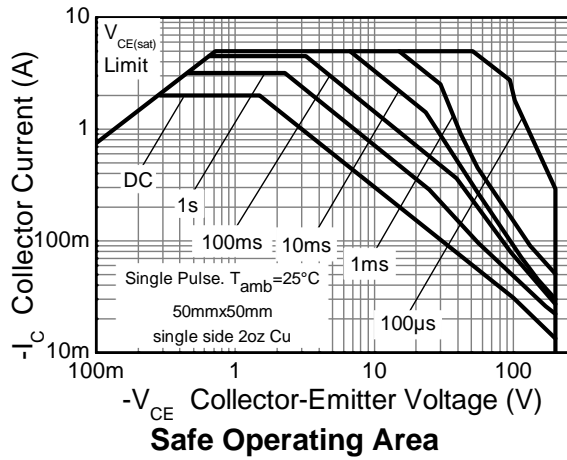
Characteristic	Symbol	Value	Unit
Power Dissipation	P _D	(Note 5)	1.25
		(Note 6)	1.65
		(Note 7)	3.0
		(Note 8)	5.8
Thermal Resistance, Junction to Ambient	R _{θJA}	(Note 5)	100
		(Note 6)	76
		(Note 7)	41.6
		(Note 8)	21.5
Thermal Resistance, Junction to Lead	R _{θJL}	10.5	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

ESD Ratings (Note 10)

Characteristic	Symbol	Value	Unit	JEDEC Class
Electrostatic Discharge - Human Body Model	ESD HBM	4,000	V	3A
Electrostatic Discharge - Machine Model	ESD MM	400	V	C

- Notes:
- For a device mounted with the collector lead on 15mm x 15mm 1oz. copper that is on a single-sided 1.6mm FR4 PCB; device is measured under still air conditions whilst operating in a steady-state.
 - Same as Note 5, except the device is mounted on 25mm x 25mm 1oz. copper.
 - Same as Note 5, except the device is mounted on 50mm x 50mm 2oz. copper.
 - Same as Note 7, except measured at t<5 seconds.
 - Thermal resistance from junction to solder-point (at the end of the collector lead).
 - Refer to JEDEC specification JESD22-A114 and JESD22-A115.

Thermal Characteristics and Derating Information

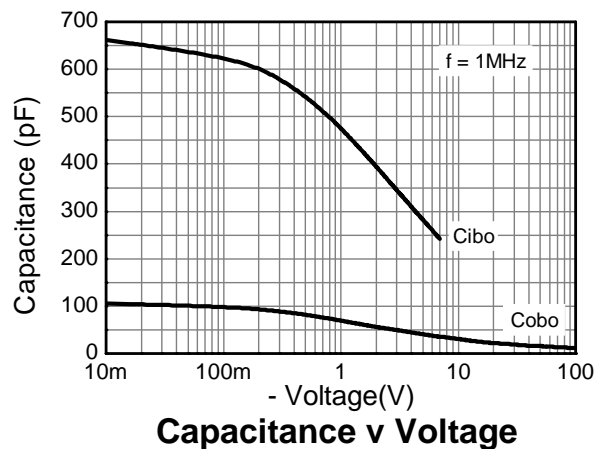
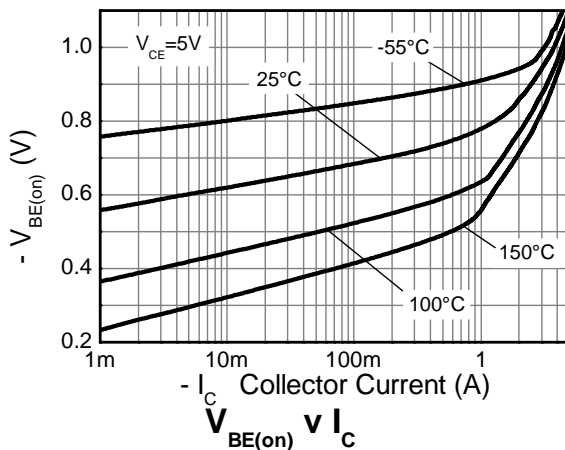
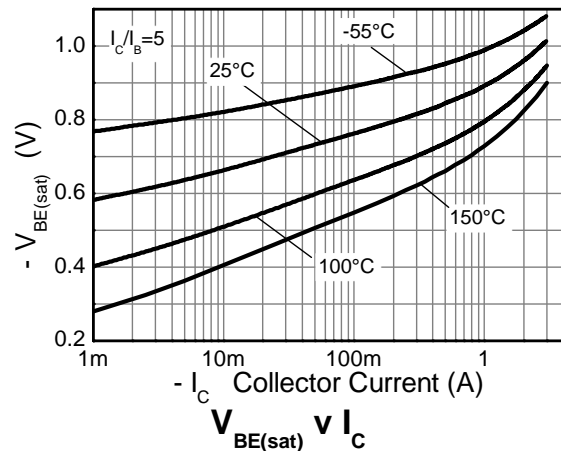
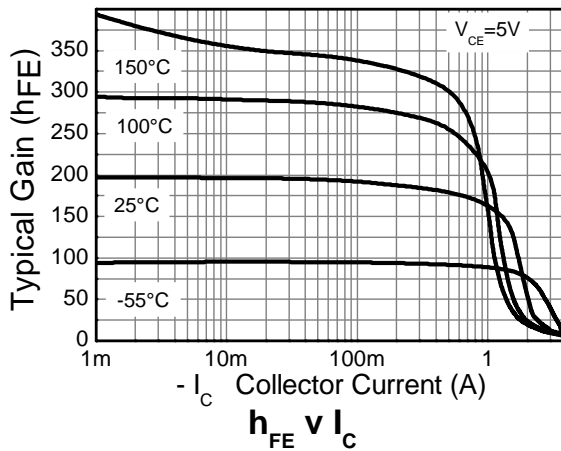
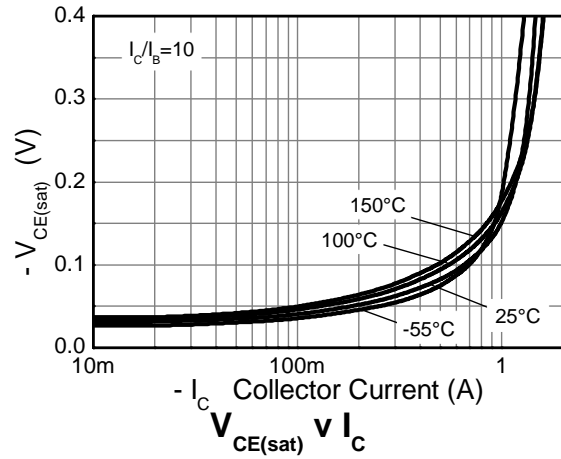
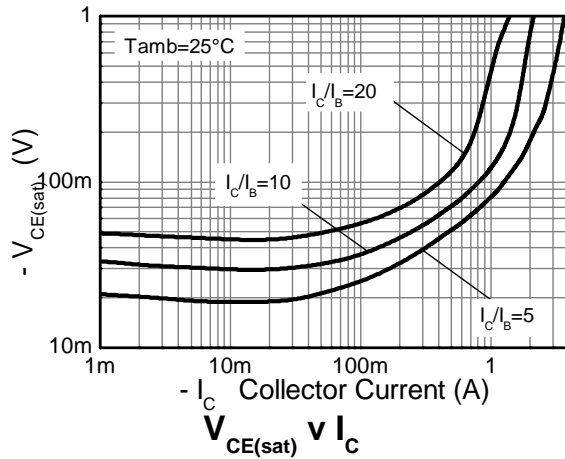


Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ.	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV _{CB0}	-220	-245	-	V	I _C = -100μA
Collector-Emitter Breakdown Voltage (Note 11)	BV _{CER}	-220	-245	-	V	I _C = -1μA, R _B ≤ 1kΩ
Collector-Emitter Breakdown Voltage (Note 11)	BV _{CEO}	-200	-225	-	V	I _C = -10mA
Emitter-Base Breakdown Voltage	BV _{EBO}	-7	-8.4	-	V	I _E = -100μA
Collector Cut-Off Current	I _{CB0}	-	< -1	-50	nA	V _{CB} = -200V
Emitter Cut-Off Current	I _{EBO}	-	< -1	-10	nA	V _{CB} = -200V, T _A = +100°C
DC Current Transfer Static Ratio (Note 11)	h _{FE}	100	195	-	-	I _C = -10mA, V _{CE} = -5V
		100	170	300		I _C = -1A, V _{CE} = -5V
		20	50	-		I _C = -2A, V _{CE} = -5V
		-	5	-		I _C = -5A, V _{CE} = -5V
Collector-Emitter Saturation Voltage (Note 11)	V _{CE(sat)}	-	-37	-50	mV	I _C = -0.1A, I _B = -10mA
		-	-130	-155		I _C = -0.5A, I _B = -25mA
		-	-135	-160		I _C = -1A, I _B = -100mA
		-	-180	-275		I _C = -2A, I _B = -400mA
Base-Emitter Saturation Voltage (Note 11)	V _{BE(sat)}	-	-955	-1,100	mV	I _C = -2A, I _B = -400mA
Base-Emitter Turn-On Voltage (Note 11)	V _{BE(on)}	-	-860	-1,000	mV	I _C = -2A, V _{CE} = -5V
Transitional Frequency (Note 11)	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	V _{CC} = -50V, I _C = -1A, I _{B1} = -I _{B2} = -100mA
Rise Time	t _r	-	18	-		
Storage Time	t _s	-	680	-		
Fall Time	t _f	-	75	-		

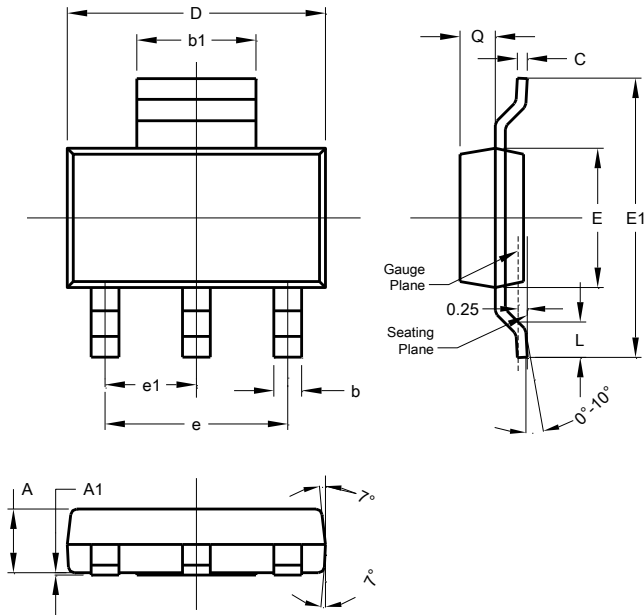
Note: 11. Measured under pulsed conditions. Pulse width ≤ 300μs. Duty cycle ≤ 2%.

Typical Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)



Package Outline Dimensions

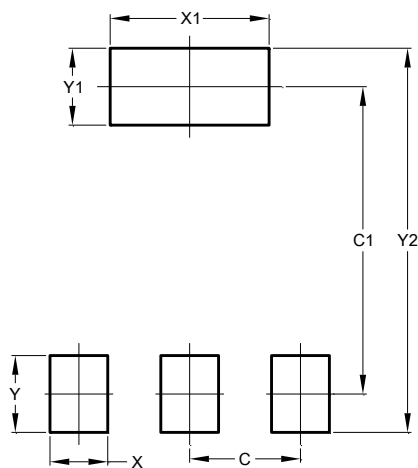
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version.



SOT223			
Dim	Min	Max	Typ
A	1.55	1.65	1.60
A1	0.010	0.15	0.05
b	0.60	0.80	0.70
b1	2.90	3.10	3.00
C	0.20	0.30	0.25
D	6.45	6.55	6.50
E	3.45	3.55	3.50
E1	6.90	7.10	7.00
e	-	-	4.60
e1	-	-	2.30
L	0.85	1.05	0.95
Q	0.84	0.94	0.89
All Dimensions in mm			

Suggested Pad Layout

Please see AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> for the latest version.



Dimensions	Value (in mm)
C	2.30
C1	6.40
X	1.20
X1	3.30
Y	1.60
Y1	1.60
Y2	8.00

For high voltage applications, the appropriate industry sector guidelines should be considered with regards to creepage and clearance distances between device terminals and PCB tracking.

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