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With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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Features

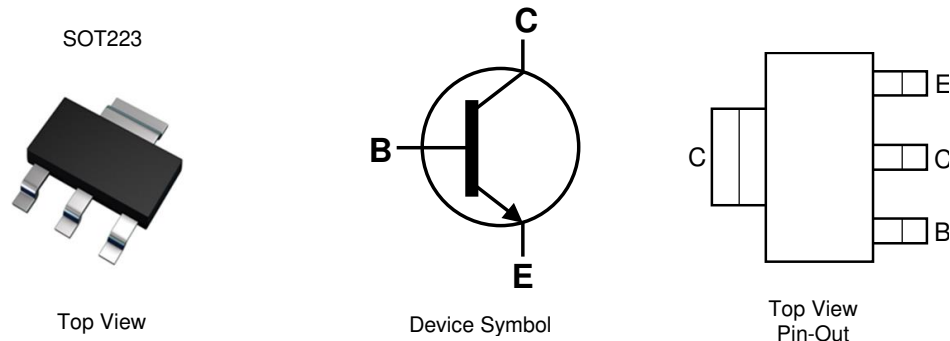
- $BV_{CEX} > 180V$
- $BV_{CEO} > 100V$
- $BV_{ECO} > 6V$
- $I_C = 3A$ High Continuous Current
- Low Saturation Voltage $V_{CE(sat)} < 100mV @ 1A$
- $R_{CE(sat)} = 85m\Omega$
- Complementary PNP Type: ZXTP19100CG
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**
- **PPAP Capable (Note 4)**

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 (Ⓢ)
- Weight: 0.112 grams (Approximate)

Applications

- PSU Start-Up Circuit
- DC-DC Converters
- Motor Drive
- Relay, Lamp and Solenoid Drive

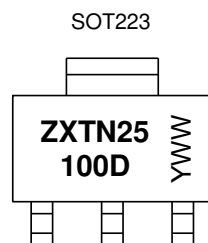


Ordering Information (Notes 4 & 5)

Product	Compliance	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
ZXTN25100DGTA	AEC-Q101	ZXTN25100D	7	12	1,000
ZXTN25100DGQTA	Automotive	ZXTN25100D	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. Automotive products are AEC-Q101 qualified and are PPAP capable. Automotive, AEC-Q101 and standard products are electrically and thermally the same, except where specified. For more information, please refer to http://www.diodes.com/quality/product_compliance_definitions/.
 5. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

Marking Information



ZXTN25100D = 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}	180	V
Collector-Emitter Voltage (forward blocking)	V _{CEX}	180	V
Collector-Emitter Voltage	V _{CEO}	100	V
Emitter-Collector Voltage (reverse blocking)	V _{ECO}	6	V
Emitter-Base Voltage	V _{EBO}	7	V
Continuous Collector Current	I _C	3	A
Base Current	I _B	1	A
Peak Pulse Current	I _{CM}	3.5	A

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

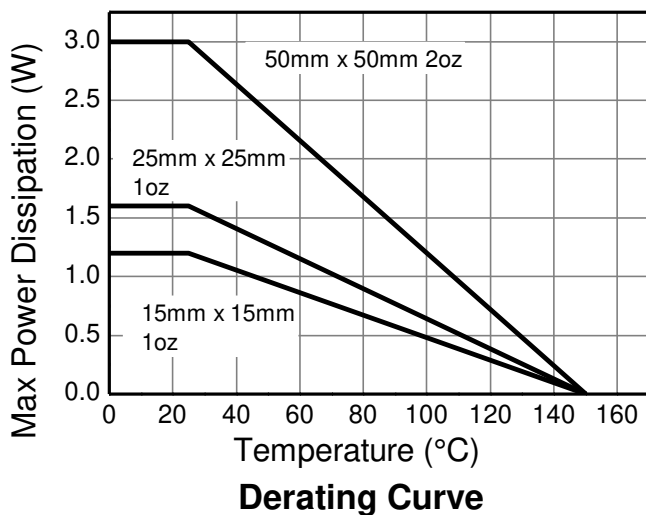
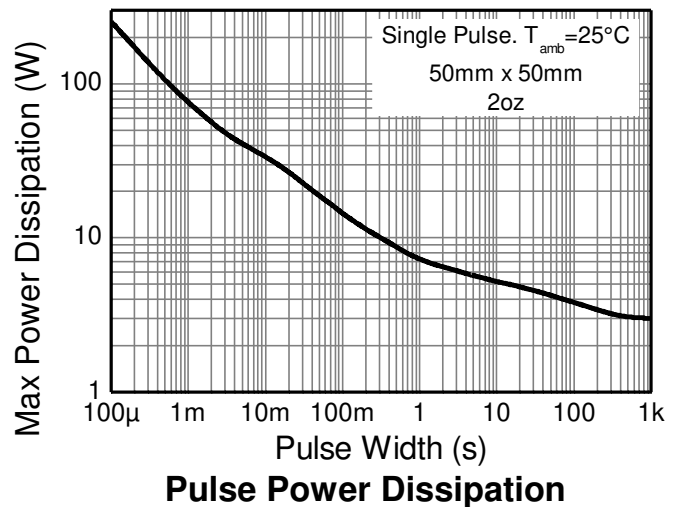
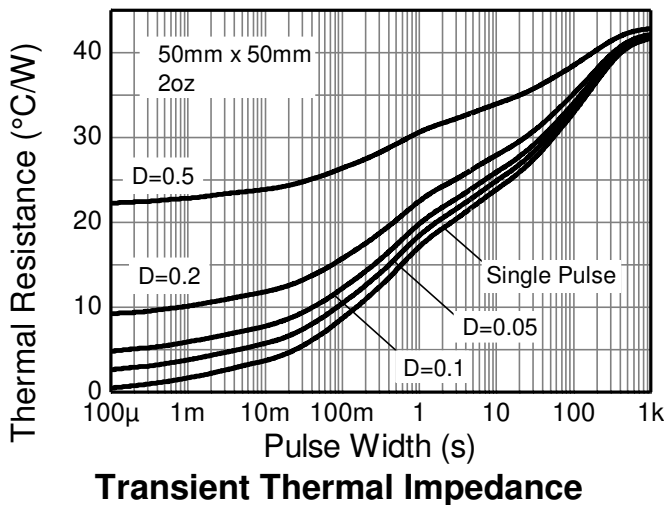
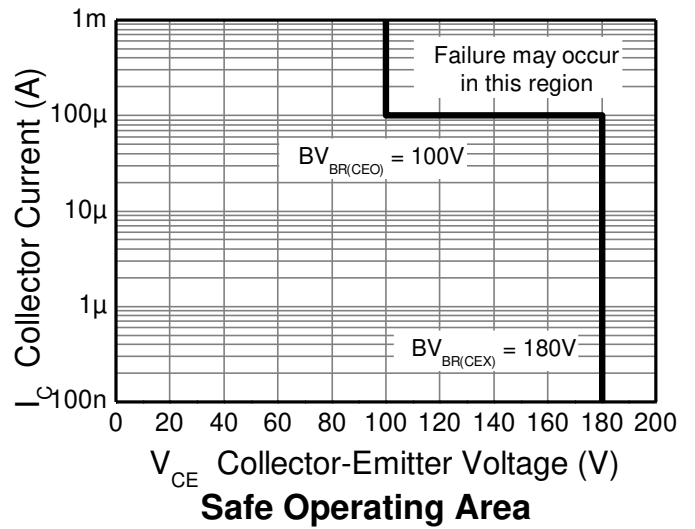
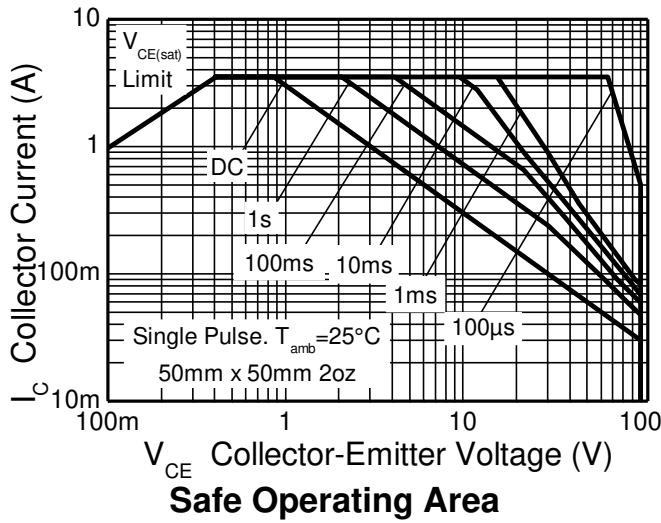
Characteristic	Symbol	Value	Unit
Power Dissipation Linear Derating Factor	P _D	1.2	W mW/°C
		9.6	
		1.6	
		12.8	
		3	
Thermal Resistance, Junction to Ambient	R _{θJA}	24	°C/W
		5.3	
		42	
		104	
Thermal Resistance, Junction to Lead	R _{θJL}	78	°C/W
		42	
		23.5	
Thermal Resistance, Junction to Solder Point	R _{θJS}	16	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

ESD Ratings (Note 11)

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 steady-state.
 - Same as Note 6, except the device is mounted on 25mm x 25mm 1oz copper.
 - Same as Note 6, except the device is mounted on 50mm x 50mm 2oz copper.
 - Same as Note 8 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 (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

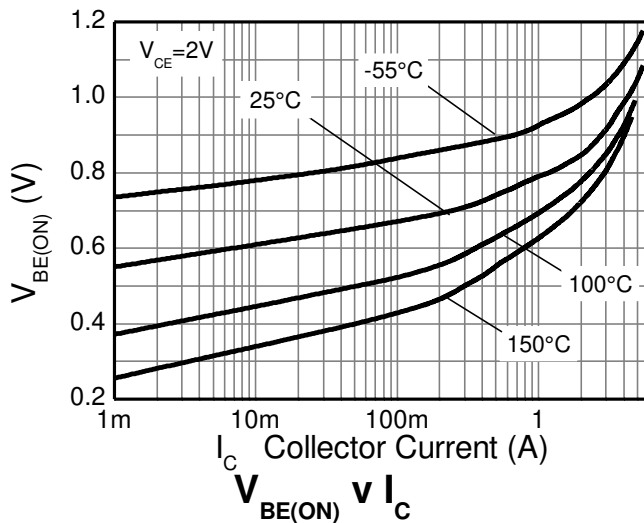
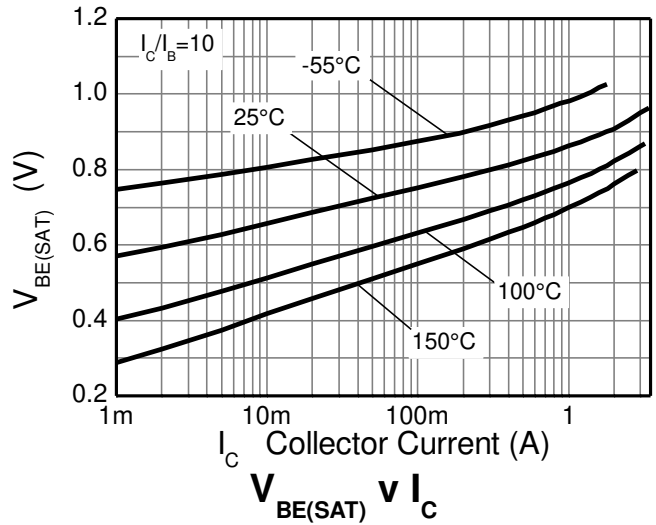
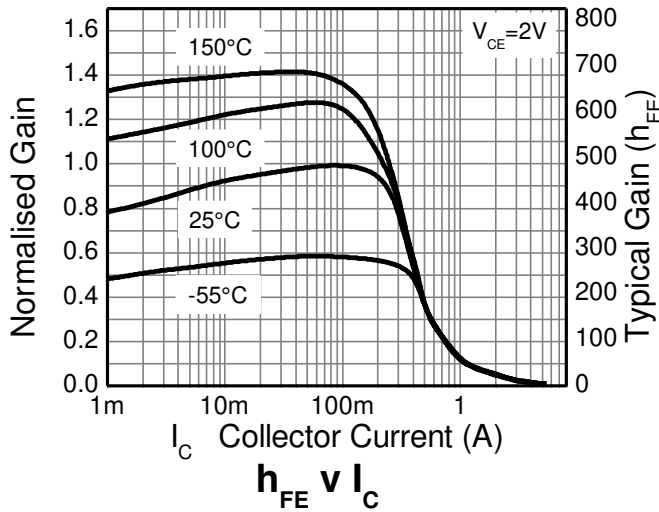
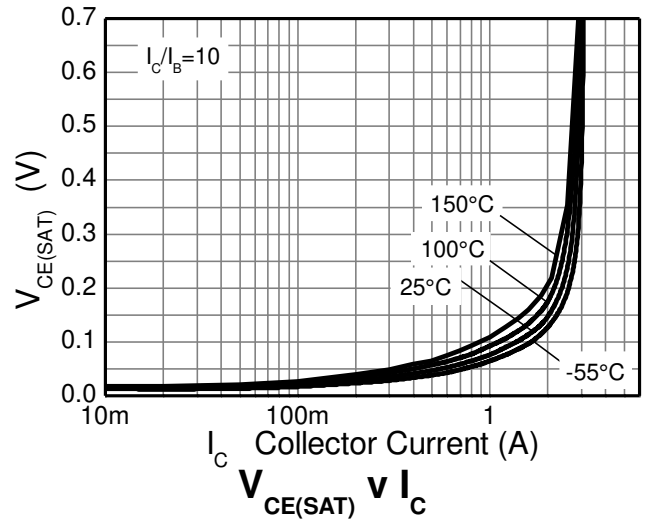
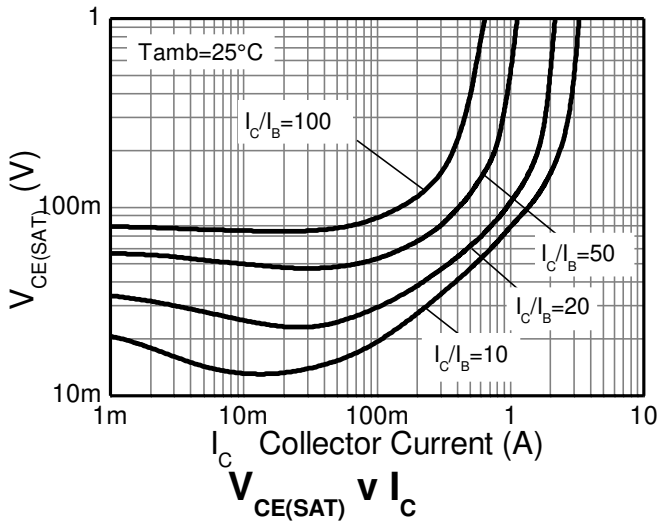


Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV_{CBO}	180	220	–	V	$I_C = 100\mu\text{A}$
Collector-Emitter Breakdown Voltage (forward blocking)	BV_{CEX}	180	220	–	V	$I_C = 100\mu\text{A}$, $R_{BE} < 1\text{k}\Omega$ or $-1\text{V} < V_{BC} > 0.25\text{V}$
Collector-Emitter Breakdown Voltage (Note 12)	BV_{CEO}	100	130	–	V	$I_C = 10\text{mA}$
Emitter-Collector Breakdown Voltage (reverse blocking)	BV_{ECX}	6	8.2	–	V	$I_C = 100\mu\text{A}$, $R_{BC} < 1\text{k}\Omega$ or $0.25\text{V} < V_{BC} > -0.25\text{V}$
Emitter-Collector Breakdown Voltage (reverse blocking)	BV_{ECO}	6	8.7	–	V	$I_E = 100\mu\text{A}$
Emitter-Base Breakdown Voltage	BV_{EBO}	7	8.3	–	V	$I_E = 100\mu\text{A}$
Collector Cut-Off Current	I_{CBO}	–	< 1	50	nA	$V_{CB} = 180\text{V}$
		–	–	0.5	μA	$V_{CB} = 180\text{V}$, $T_A = 105^\circ\text{C}$
Collector-Emitter Cut-Off Current	I_{CEX}	–	–	100	nA	$V_{CE} = 100\text{V}$, $R_{BE} < 1\text{k}\Omega$ or $-1\text{V} < V_{BC} > 0.25\text{V}$
Emitter Cut-Off Current	I_{EBO}	–	< 1	50	nA	$V_{EB} = 5.6\text{V}$
Collector-Emitter Saturation Voltage (Note 12)	$V_{CE(sat)}$	–	120	170	mV	$I_C = 0.5\text{A}$, $I_B = 10\text{mA}$
		–	80	100	mV	$I_C = 1\text{A}$, $I_B = 100\text{mA}$
		–	215	345	mV	$I_C = 2.5\text{A}$, $I_B = 250\text{mA}$
		–	200	500	mV	$I_C = 3\text{A}$, $I_B = 600\text{mA}$
Base-Emitter Saturation Voltage (Note 12)	$V_{BE(sat)}$	–	1020	1100	mV	$I_C = 3\text{A}$, $I_B = 600\text{mA}$
Base-Emitter Turn-On Voltage (Note 12)	$V_{BE(on)}$	–	905	1000	mV	$I_C = 3\text{A}$, $V_{CE} = 2\text{V}$
DC Current Gain (Note 12)	h_{FE}	300	450	900	–	$I_C = 10\text{mA}$, $V_{CE} = 2\text{V}$
		120	170	–	–	$I_C = 0.5\text{A}$, $V_{CE} = 2\text{V}$
		40	60	–	–	$I_C = 1\text{A}$, $V_{CE} = 2\text{V}$
		–	10	–	–	$I_C = 3\text{A}$, $V_{CE} = 2\text{V}$
Current Gain-Bandwidth Product (Note 12)	f_T	–	175	–	MHz	$V_{CE} = 10\text{V}$, $I_C = 50\text{mA}$, $f = 100\text{MHz}$
Input Capacitance (Note 12)	C_{ibo}	–	154	250	pF	$V_{EB} = 0.5\text{V}$, $f = 1\text{MHz}$
Output Capacitance (Note 12)	C_{obo}	–	8.7	15	pF	$V_{CB} = 10\text{V}$, $f = 1\text{MHz}$
Delay Time	t_d	–	16.4	–	ns	$I_C = 500\text{mA}$, $V_{CC} = 10\text{V}$, $I_{B1} = -I_{B2} = 50\text{mA}$
Rise Time	t_r	–	115	–	ns	
Storage Time	t_s	–	763	–	ns	
Fall Time	t_f	–	158	–	ns	

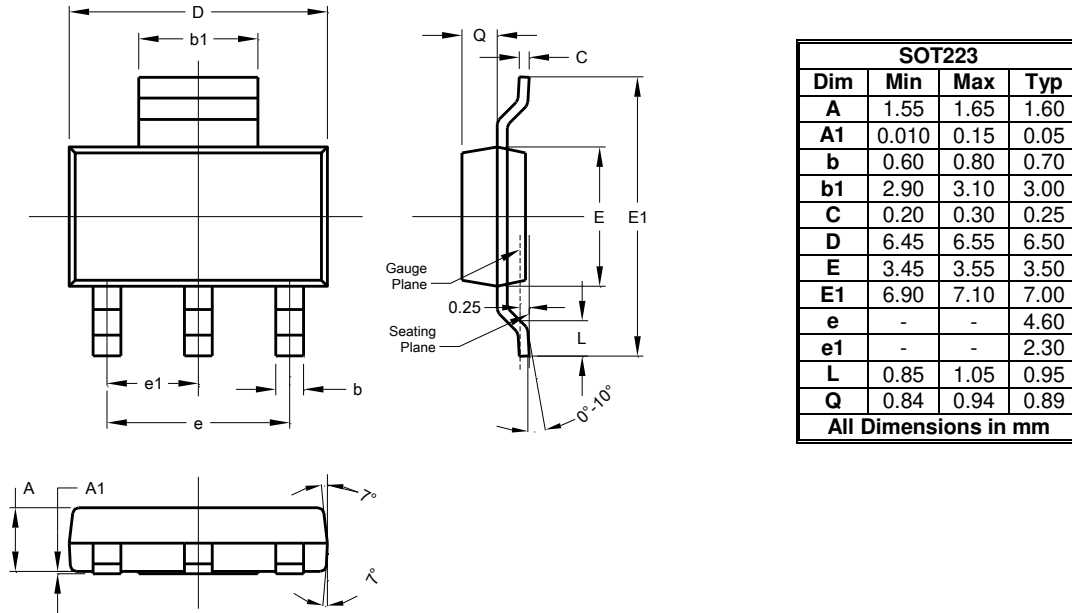
Note: 12. Measured under pulsed conditions. Pulse width $\leq 300\mu\text{s}$. Duty cycle $\leq 2\%$.

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



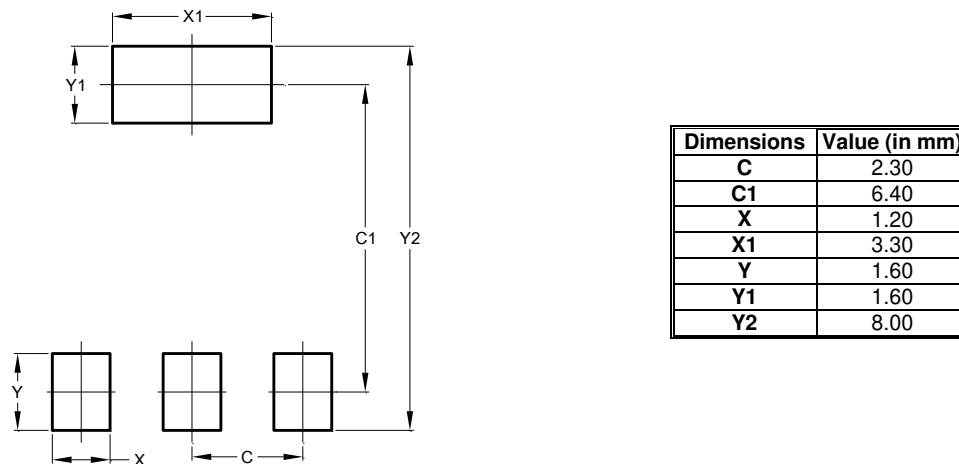
Package Outline Dimensions

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



Suggested Pad Layout

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



Note: 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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