

35V NPN SURFACE MOUNT TRANSISTOR

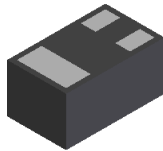
Features

- Ultra-Small Leadless Surface Mount Package
- ESD: HBM 8kV, MM 400V
- 3.0A Maximum Peak Collector Current
- **Totally Lead-Free & Fully RoHS compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

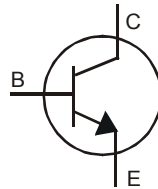
Mechanical Data

- Case: X1-DFN1006-3
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish — NiPdAu over Copper leadframe. Solderable per MIL-STD-202, Method 208 Ⓔ
- Weight: 0.0009 grams (Approximate)

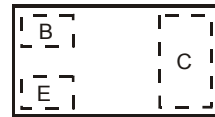
X1-DFN1006-3



Bottom View



Device Symbol



Top View
Device Schematic

Ordering Information (Note 4)

Product	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
ZXTN3035CLP-7B	4S	7	8	10,000

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
 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>.

Marking Information



Top View

4S = Product Type Marking Code
Bar Denotes Base and Emitter Side

Maximum Ratings @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	35	V
Collector-Emitter Voltage	V_{CEO}	35	V
Emitter-Base Voltage	V_{EBO}	7	V
Emitter-Collector Voltage	V_{ECO}	6	V
Collector Current - Continuous	I_C	500	mA
Peak Pulse Collector Current (Note 5)	I_{CM}	3.0	A
Peak Pulse Base Current (Note 5)	I_{BM}	1.0	A
Emitter-Base Repetitive Avalanche Energy (Note 6)	$E_{EB(AR)}$	50	μJ

Thermal Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 7)	P_D	460	mW
Power Dissipation (Note 8)	P_D	1	W
Thermal Resistance, Junction to Ambient (Note 7)	$R_{\theta JA}$	272	$^\circ\text{C}/\text{W}$
Thermal Resistance, Junction to Ambient (Note 8)	$R_{\theta JA}$	120	$^\circ\text{C}/\text{W}$
Thermal Resistance, Junction to Lead (Note 9)	$R_{\theta JL}$	110	$^\circ\text{C}/\text{W}$
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

- Notes:
- Under pulsed conditions with $> 1\text{s}$ between pulses. Pulse width $< 10\mu\text{s}$. Duty cycle $\leq 0.001\%$.
 - Same as note 5, with no measurable degradation in high-current gain at 2.5A after 100×10^3 cycles of $< 50\mu\text{J}$ of energy per pulse. Low-current gain will be degraded.
 - For a device surface mounted on minimum recommended pad layout FR-4 PCB with single sided 1oz copper, in still air conditions; the device is measured when operating in a steady-state condition. The entire exposed collector pad is attached to the heatsink.
 - Same as note 7, except device is surface mounted on 25mm X 25mm collector pad heatsink with 1oz copper.
 - Thermal resistance from junction to solder-point (at the end of the collector lead).

Thermal Characteristics

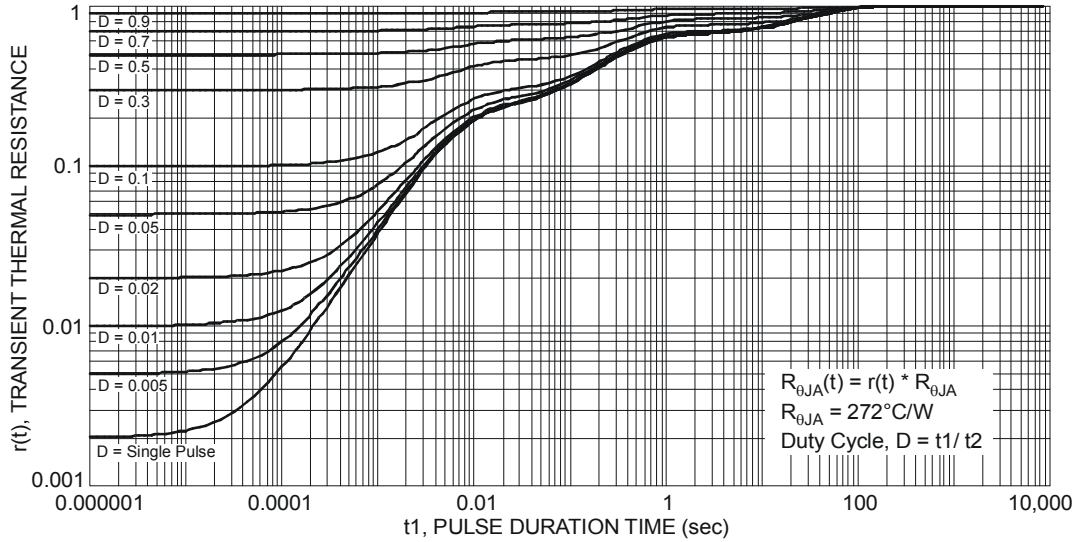


Fig. 1 Transient Thermal Resistance

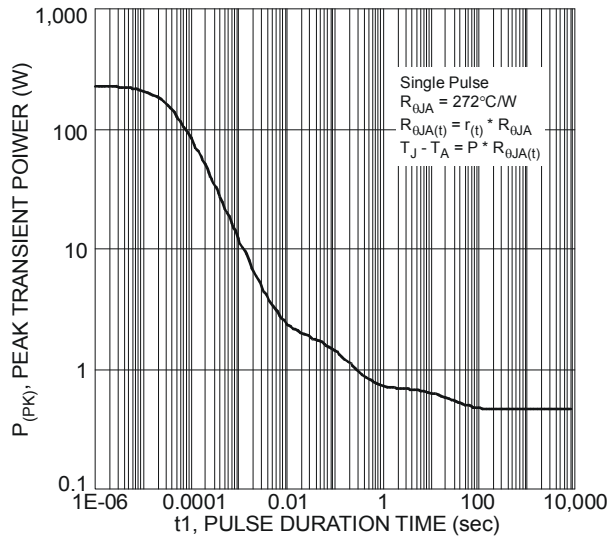


Fig. 2 Single Pulse Maximum Power Dissipation

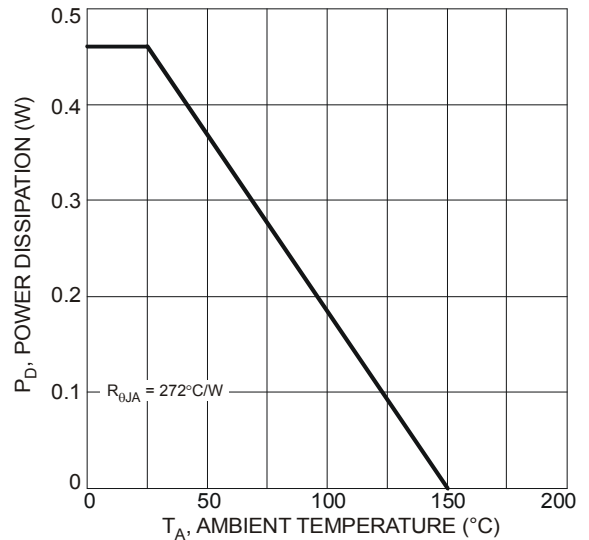


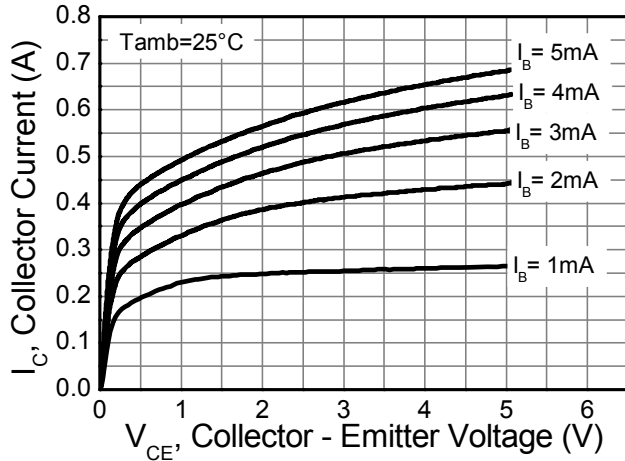
Fig. 3 Power Dissipation vs. Ambient Temperature

Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

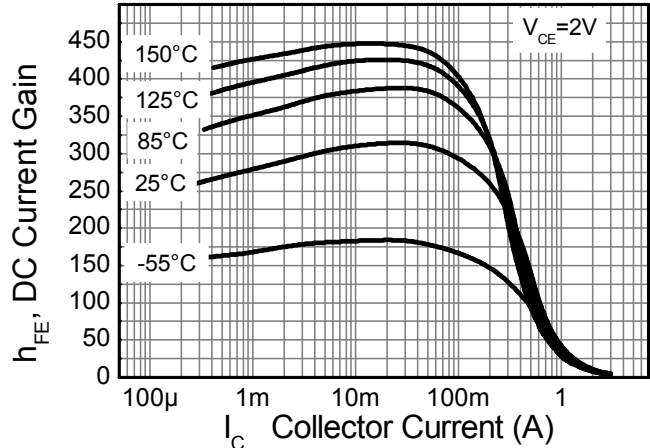
Characteristic	Symbol	Min	Max	Unit	Test Condition
OFF CHARACTERISTICS					
Collector-Base Breakdown Voltage	BV_{CBO}	35	—	V	$I_C = 100\mu\text{A}, I_E = 0$
Collector-Emitter Breakdown Voltage (Note 8)	BV_{CEO}	35	—	V	$I_C = 10\text{mA}, I_B = 0$
Emitter-Base Breakdown Voltage	BV_{EBO}	7	—	V	$I_E = 100\mu\text{A}, I_C = 0$
Emitter-Collector Breakdown Voltage	BV_{ECO}	6	—	V	$I_E = 100\mu\text{A}, I_B = 0$
Collector Cutoff Current	I_{CBO}	—	100 50	nA μA	$V_{CB} = 30\text{V}, I_E = 0$ $V_{CB} = 30\text{V}, I_E = 0, T_A = 150^\circ\text{C}$
Emitter Cutoff Current	I_{EBO}	—	100	nA	$V_{EB} = 5\text{V}, I_C = 0$
ON CHARACTERISTICS (Note 8)					
DC Current Gain	h_{FE}	150 150 50 3	— — — —	—	$V_{CE} = 2\text{V}, I_C = 10\text{mA}$ $V_{CE} = 2\text{V}, I_C = 100\text{mA}$ $V_{CE} = 2\text{V}, I_C = 500\text{mA}$ $V_{CE} = 5\text{V}, I_C = 2.5\text{A}$ (Note 9)
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	—	500	mV	$I_C = 500\text{mA}, I_B = 50\text{mA}$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	—	1.5	V	$I_C = 500\text{mA}, I_B = 50\text{mA}$
Base-Emitter Turn On Voltage	$V_{BE(on)}$	—	1.1	V	$V_{CE} = 2\text{V}, I_C = 100\text{mA}$
SMALL SIGNAL CHARACTERISTICS					
Output Capacitance	C_{obo}	—	6	pF	$V_{CB} = 10\text{V}, f = 1.0\text{MHz}$
Current Gain-Bandwidth Product	f_T	250	—	MHz	$V_{CE} = 5\text{V}, I_C = 100\text{mA}, f = 100\text{MHz}$

Notes: 8. Measured under pulsed conditions. Pulse width = 300 μs . Duty cycle $\leq 2\%$.
9. Measured under pulsed conditions. Pulse width = 50 μs . Duty cycle $\leq 0.005\%$.

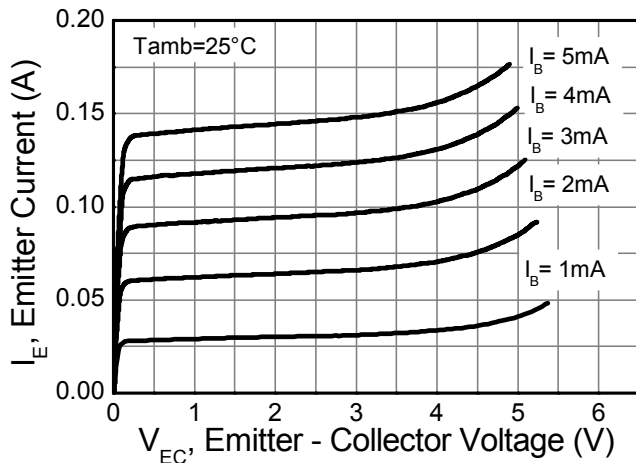
Typical Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified



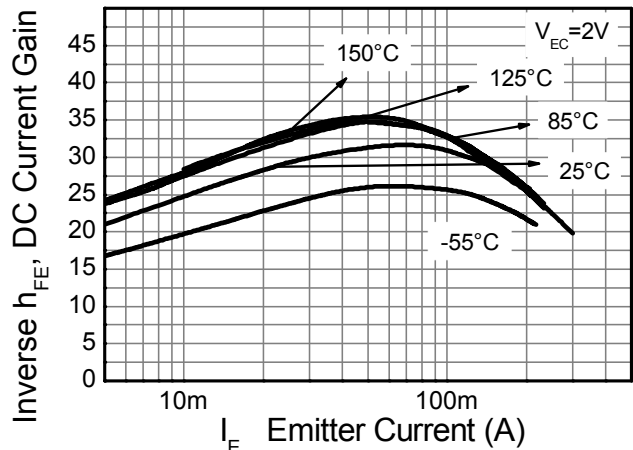
$I_C \text{ v } V_{CE}$



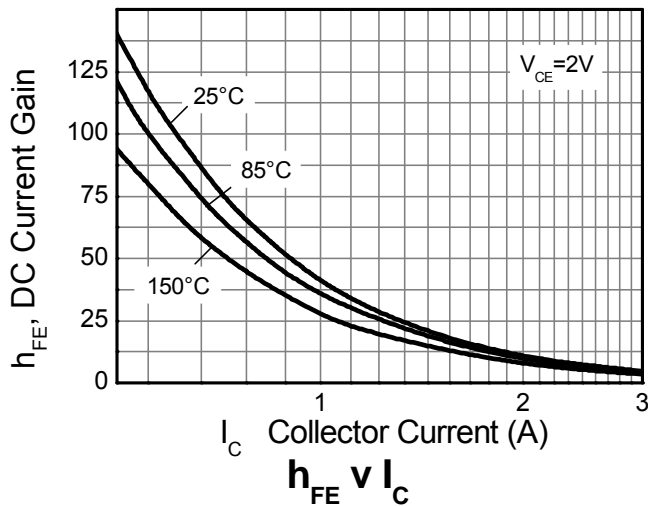
$h_{FE} \text{ v } I_C$



$I_E \text{ v } V_{EC}$

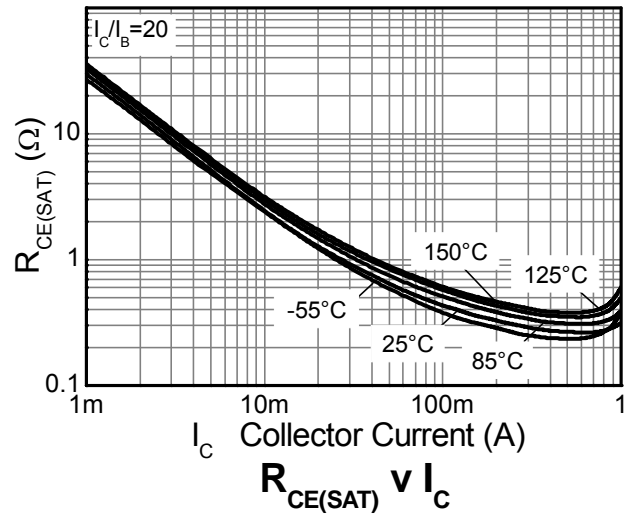
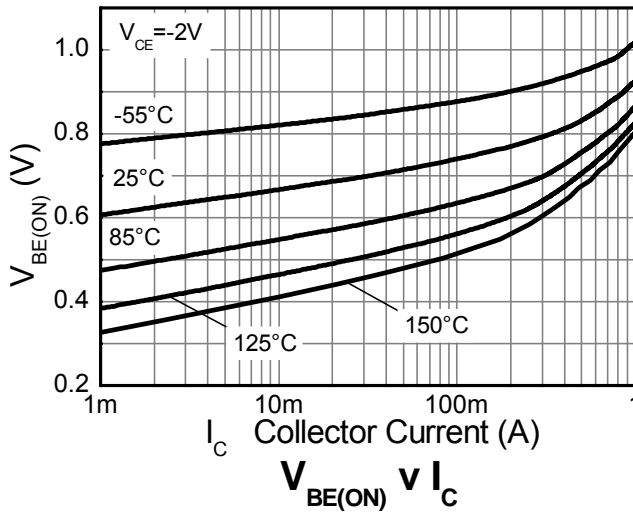
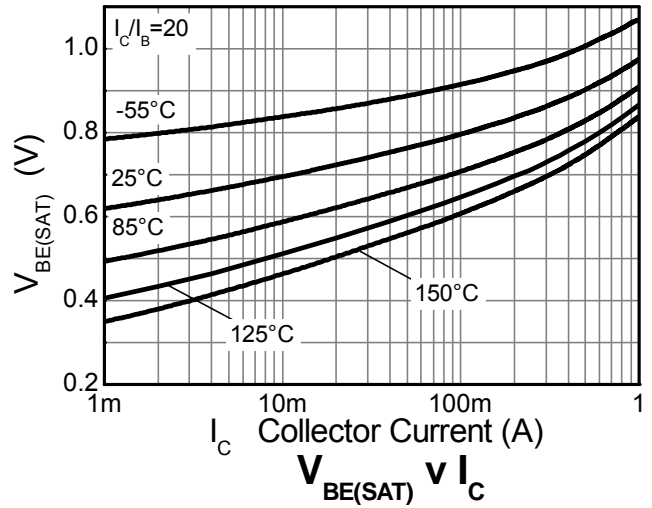
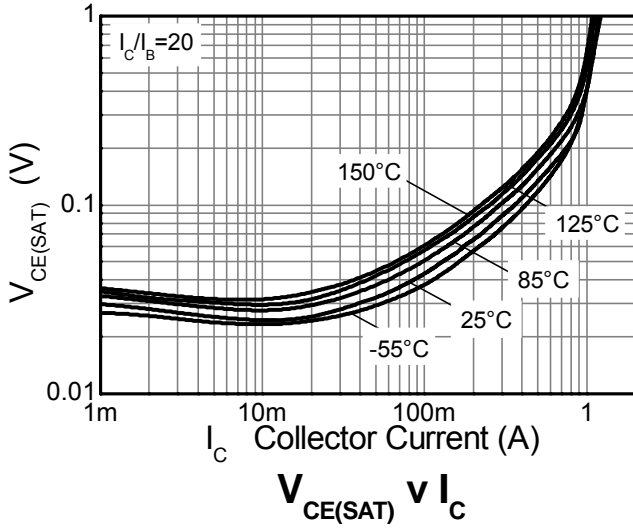


Inverse $h_{FE} \text{ v } I_E$

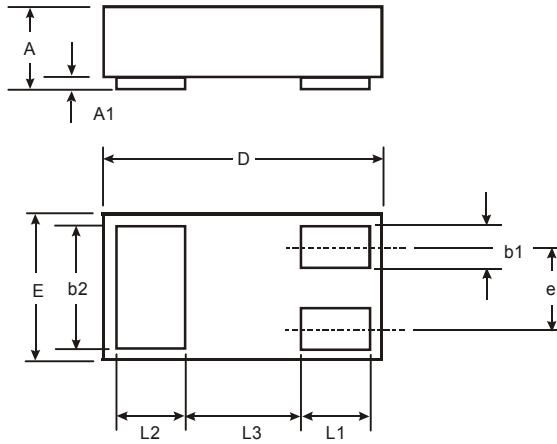


$h_{FE} \text{ v } I_C$

Typical Electrical Characteristics - Continued

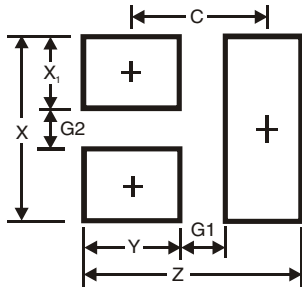


Package Outline Dimensions



X1-DFN1006-3			
Dim	Min	Max	Typ
A	0.47	0.53	0.50
A1	0	0.05	0.03
b1	0.10	0.20	0.15
b2	0.45	0.55	0.50
D	0.95	1.075	1.00
E	0.55	0.675	0.60
e	—	—	0.35
L1	0.20	0.30	0.25
L2	0.20	0.30	0.25
L3	—	—	0.40
All Dimensions in mm			

Suggested Pad Layout



Dimensions	Value (in mm)
Z	1.1
G1	0.3
G2	0.2
X	0.7
X1	0.25
Y	0.4
C	0.7

IMPORTANT NOTICE

DIODES INCORPORATED MAKES NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, WITH REGARDS TO THIS DOCUMENT, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE (AND THEIR EQUIVALENTS UNDER THE LAWS OF ANY JURISDICTION).

Diodes Incorporated and its subsidiaries reserve the right to make modifications, enhancements, improvements, corrections or other changes without further notice to this document and any product described herein. Diodes Incorporated does not assume any liability arising out of the application or use of this document or any product described herein; neither does Diodes Incorporated convey any license under its patent or trademark rights, nor the rights of others. Any Customer or user of this document or products described herein in such applications shall assume all risks of such use and will agree to hold Diodes Incorporated and all the companies whose products are represented on Diodes Incorporated website, harmless against all damages.

Diodes Incorporated does not warrant or accept any liability whatsoever in respect of any products purchased through unauthorized sales channel. Should Customers purchase or use Diodes Incorporated products for any unintended or unauthorized application, Customers shall indemnify and hold Diodes Incorporated and its representatives harmless against all claims, damages, expenses, and attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized application.

Products described herein may be covered by one or more United States, international or foreign patents pending. Product names and markings noted herein may also be covered by one or more United States, international or foreign trademarks.

LIFE SUPPORT

Diodes Incorporated products are specifically not authorized for use as critical components in life support devices or systems without the express written approval of the Chief Executive Officer of Diodes Incorporated. As used herein:

A. Life support devices or systems are devices or systems which:

1. are intended to implant into the body, or
2. support or sustain life and whose failure to perform when properly used in accordance with instructions for use provided in the labeling can be reasonably expected to result in significant injury to the user.

B. A critical component is any component in a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or to affect its safety or effectiveness.

Customers represent that they have all necessary expertise in the safety and regulatory ramifications of their life support devices or systems, and acknowledge and agree that they are solely responsible for all legal, regulatory and safety-related requirements concerning their products and any use of Diodes Incorporated products in such safety-critical, life support devices or systems, notwithstanding any devices- or systems-related information or support that may be provided by Diodes Incorporated. Further, Customers must fully indemnify Diodes Incorporated and its representatives against any damages arising out of the use of Diodes Incorporated products in such safety-critical, life support devices or systems.

Copyright © 2012, Diodes Incorporated

www.diodes.com

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for [diodes](#) incorporated [manufacturer](#):

Other Similar products are found below :

[1.5KE62A-T](#) [MMSZ5232BQ-13-F](#) [DMN2065UW-7](#) [AH3782-SA-7](#) [AP7365-39WG-7](#) [6A10-T](#) [AZ1117EH-5.0TRG1](#) [AZV3002S-13](#)
[BAV116WSQ-7](#) [BCP5510TA](#) [BZT52C10-7-F](#) [BZT52C18-7-F](#) [PAM2863EV1](#) [SBRT25U60SLP-13](#) [LM2904AQM8-13](#) [GBPC1506](#)
[BAS116-7-F](#) [BAT40V-7](#) [BAV20WS-7-F](#) [BAV23A-7-F](#) [BCR401UW6-7](#) [DMP4013LFG-7](#) [DMTH6009LK3Q-13](#) [SB560-T](#) [APX809-26SAG-](#)
[7](#) [AL8807EV3](#) [B350A-13-F](#) [B560C-13-F](#) [AZV832MMTR-G1](#) [BAS70-05-7-F](#) [BAV23S-7-F](#) [BC847BW-7-F](#) [BC847CT-7-F](#) [BC847CW-7-F](#)
[BC848C-7-F](#) [BC848CW-7-F](#) [BC858B-7-F](#) [BC858C-7-F](#) [BCP52TA](#) [BCX53TA](#) [BCX56TA](#) [B550C-13-F](#) [BAV20W-7-F](#) [BC847A-7-F](#)
[BC847PN-7-F](#) [6A6-T](#) [BC857BT-7-F](#) [BS170FTA](#) [BCP5216TA](#) [BCP5310TA](#)