



# THE DATASHEET OF LCDA15



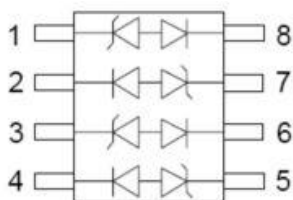
## LCDA03 THRU LCDA24 TVS ARRAY SERIES



### Description

The LCDAXX series of TVS array are designed to protect sensitive electronics from damage or latch-up due to ESD and other voltage-induced transient events. Each device will protect two high-speed lines. They are bi-directed devices and may be used on lines where the signal polarities are above and below ground

### Schematic & Pin Configuration



### Features

- Protects 3.3, 5, 12, 15, 24 V Components
- Bidirectional
- Low capacitance for high-speed data lines
- 300 W @ 8/20 us
- Protect 2 I/O Lines
- SO-8 Packaging
- Solid-state silicon avalanche technology
- “-A” is an AEC-Q101 qualified device
- This is a Pb – Free Device
- All SMC parts are traceable to the wafer lot
- Additional testing can be offered upon request

### Mechanical Characteristics

- SO-8 Surface Mount Package
- Approximate Weight: 0.1 grams
- PIN #1 Indicator: DOT on top of package
- Packaging: Tubes or Tape & Reel per EIA Standard 481

### Application

- High-Speed Data Lines
- Microprocessor Based Equipment
- Universal Serial Bus(USB) Port Protection
- Notebooks, Desktops, & Servers
- Instrumentation
- LAN/WAN Equipment
- Peripherals

### Absolute Maximum Ratings:

Parameter	Symbol	Value	Units
Peak Pulse Power, 8/20 $\mu$ s Wave shape	P	300	W
Operating Temperature	T <sub>J</sub>	-55 to +125	°C
Storage Temperature	T <sub>stg</sub>	-55 to +150	°C
Lead Soldering Temperature	T <sub>L</sub>	260 (10 Sec.)	°C

**Electrical Characteristics@25°C**

Part Number	Stand-off Voltage $V_{wm}$ (V) Max	Breakdown Voltage $V_{BR}$ @1mA (V) Min	Clamping Voltage $V_c$ @ 1 A (V) Max	Leakage Current $I_R$ @ $V_{wm}$ (uA) Max	Capacitance (f = 1MHz) C @ 0V (pF) Max	Temperature Coefficient of $V_{BR}$ a( $V_{BR}$ ) mv/°C Max
LCDA03	3.3	4	7	200	5	-5
LCDA05	5.0	6	9.8	20	5	1
LCDA12	12.0	13.3	19	1	5	8
LCDA15	15.0	16.7	24	1	5	11
LCDA24	24.0	26.7	43	1	5	28

**Ratings and Characteristics Curves**

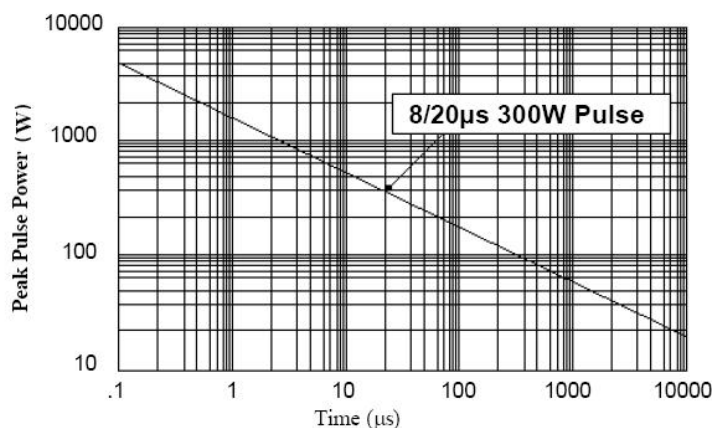


Figure 1. Peak Pulse Power Vs Pulse Time (µs)

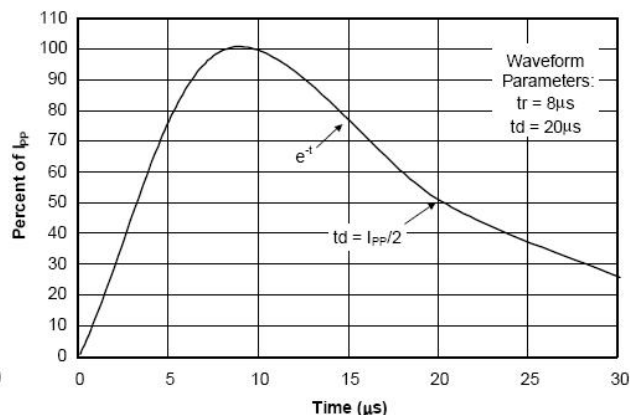


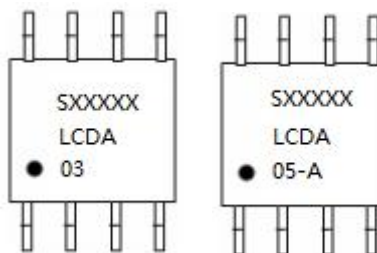
Figure 2. Pulse Wave Form

**Ordering Information**

Device	Package	Shipping
LCDA03 THRU LCDA24	SO-8 (Pb-Free)	2500pcs / reel
LCDA03TR THRU LCDA24TR	SO-8 (Pb-Free)	2500pcs / reel

For information on tape and reel specifications, including part orientation and tape sizes, please refer to our tape and reel packaging specification.

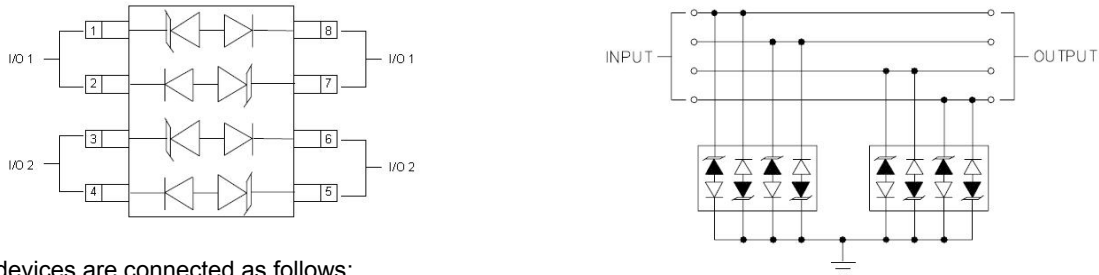
**Marking Diagram**



Where XXXXX is YYWWL

LCDA03 = Part Name  
-A = AEC-Q101  
S = S  
YY = Year  
WW = Weak  
L = Lot Number

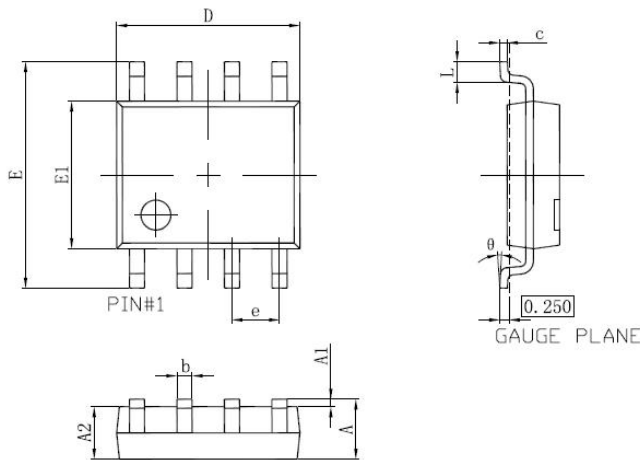
**Circuit Diagram**



The devices are connected as follows:

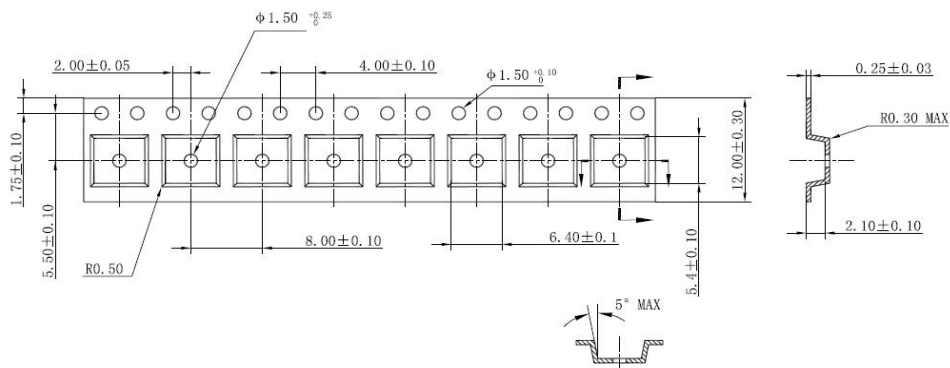
- ✓ Pins 1 and 2 are tied together and pins 7 and 8 are tied together providing the protection circuit for one I/O line. Pins 3 and 4 are tied together and pins 5 and 6 are tied together providing the protection circuit for the second I/O line. Since the device is electrically symmetrical, either side of the connected pairs may be used to protect the lines. The other side of the pair is used to make the ground connection. The ground connections should be made directly to the ground plane for best results. The path length is kept as short as possible to reduce the effects of parasitic inductance in the board traces.

**Mechanical Dimensions SO-8**



SYMBOL	Millimeters		Inches	
	MIN.	MAX.	MIN.	MAX.
A	1.350	1.800	0.053	0.071
A1	0.100	0.250	0.004	0.010
A2	1.350	1.750	0.053	0.069
b	0.306	0.510	0.012	0.020
c	0.150	0.300	0.006	0.012
D	4.720	5.120	0.186	0.202
e	1.140	1.400	0.045	0.055
E	5.700	6.300	0.224	0.248
E1	3.750	4.150	0.148	0.163
L	0.300	1.270	0.012	0.050
θ	0°	8°	0°	8°

**Carrier Tape Specification SO-8**





**DISCLAIMER:**

- 1- The information given herein, including the specifications and dimensions, is subject to change without prior notice to improve product characteristics. Before ordering, purchasers are advised to contact the SMC Diode Solutions sales department for the latest version of the datasheet(s).
- 2- In cases where extremely high reliability is required (such as use in nuclear power control, aerospace and aviation, traffic equipment, medical equipment, and safety equipment), safety should be ensured by using semiconductor devices that feature assured safety or by means of users' fail-safe precautions or other arrangement.
- 3- In no event shall SMC Diode Solutions be liable for any damages that may result from an accident or any other cause during operation of the user's units according to the datasheet(s). SMC Diode Solution assumes no responsibility for any intellectual property claims or any other problems that may result from applications of information, products or circuits described in the datasheets.
- 4- In no event shall SMC Diode Solutions be liable for any failure in a semiconductor device or any secondary damage resulting from use at a value exceeding the absolute maximum rating.
- 5- No license is granted by the datasheet(s) under any patents or other rights of any third party or SMC Diode Solutions.
- 6- The datasheet(s) may not be reproduced or duplicated, in any form, in whole or part, without the expressed written permission of SMC Diode Solutions.
- 7- The products (technologies) described in the datasheet(s) are not to be provided to any party whose purpose in their application will hinder maintenance of international peace and safety nor are they to be applied to that purpose by their direct purchasers or any third party. When exporting these products (technologies), the necessary procedures are to be taken in accordance with related laws and regulations..

## Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

-  [View LCDA15](#) on WIN SOURCE
-  [SMC Diode Solutions](#) Information

## Optimize Your Supply Chain with WIN SOURCE Solutions

-  Global Sourcing Solution
-  Obsolete Management
-  Cost Control Management
-  Shortage Management
-  Alternative Solution
-  Excess Inventory Management