



1 Form A/1 Form B  
Solid State Relay

## DESCRIPTION

The AD4C213 is composed of two isolated relays; one normally open and one normally closed. Each relay has a bi-directional, single-pole, single-throw contact. Completely independent of its counterpart, each consists of an LED driver that activates an integrated circuit, which in turn drives a pair of DMOS transistors. These transistors are protected with free-wheeling diodes that can handle up to 1.5A of inrush current, making the relay ideal for switching lamps and highly inductive loads.

## FEATURES

- High input-to-output isolation
- Low input control power consumption
- 150mA maximum continuous load current
- 25 ohms maximum on-resistance (Form A)
- 25 ohms maximum on-resistance (Form B)
- Long life/high reliability

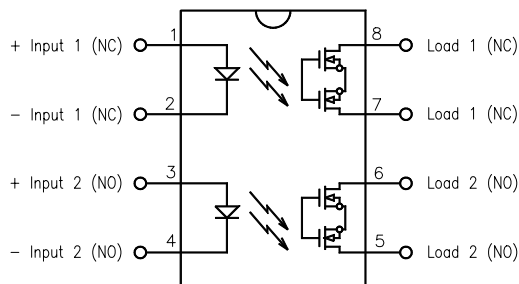
## APPLICATIONS

- Telecom switching
- Tip/Ring control
- PCMCIA modules
- Multiplexers
- Meter reading systems
- Data acquisition
- Medical equipment
- Battery monitoring
- Home/Safety security systems

## OPTIONS/SUFFIXES

- -S Surface Mount Option
- -TR Tape and Reel

## SCHEMATIC DIAGRAM



## MAXIMUM RATINGS

| PARAMETER                     | UNIT | MIN | TYP | MAX |
|-------------------------------|------|-----|-----|-----|
| Storage Temperature           | °C   | -55 |     | 125 |
| Operating Temperature         | °C   | -40 |     | 85  |
| Continuous Input Current      | mA   |     |     | 40  |
| Transient Input Current       | mA   |     |     | 400 |
| Reverse Input Control Voltage | V    | 6   |     |     |
| Output Power Dissipation      | mW   |     |     | 500 |

## APPROVALS

- BABT CERTIFICATE #607836:  
BS EN 60950, BS EN 41003, BS EN 60065
- CSA CERTIFICATE #LR111581-1
- UL FILE #E90096



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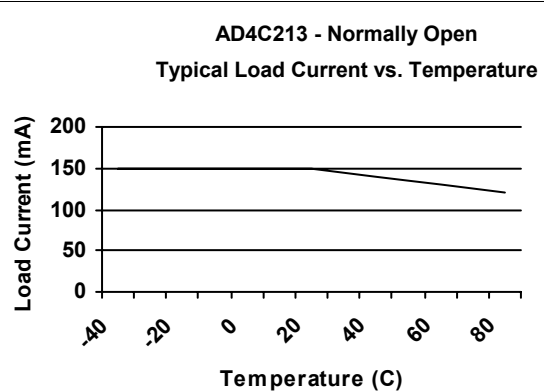
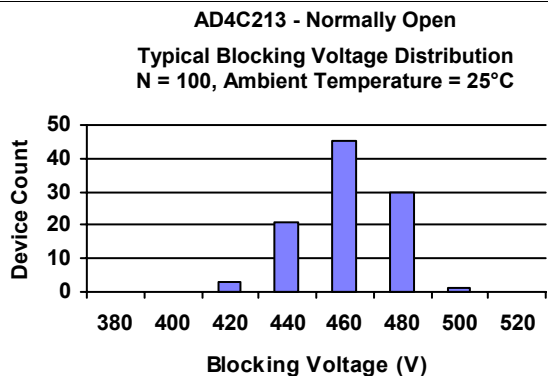
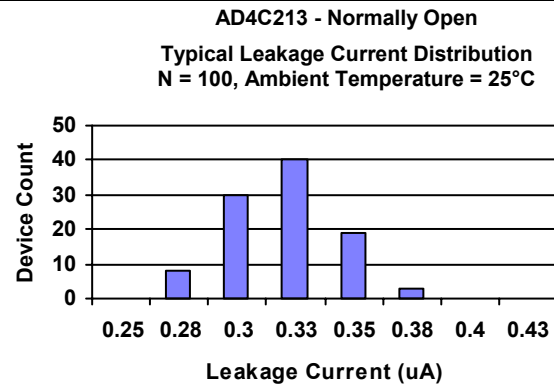
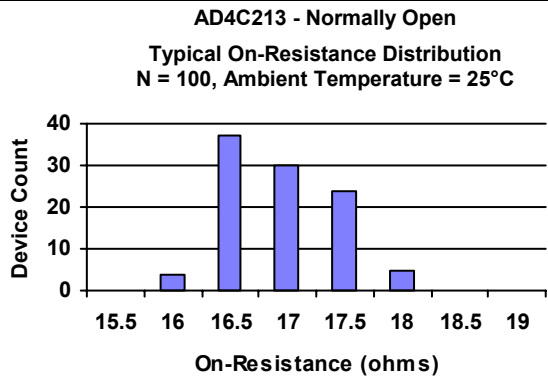
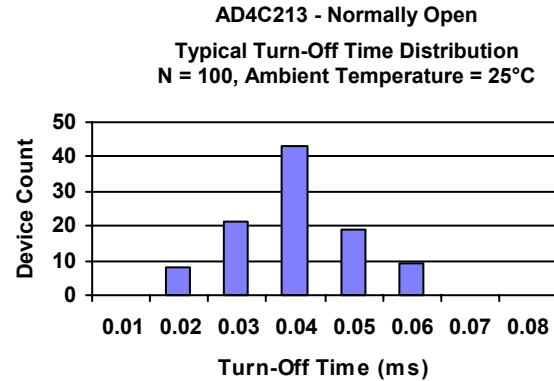
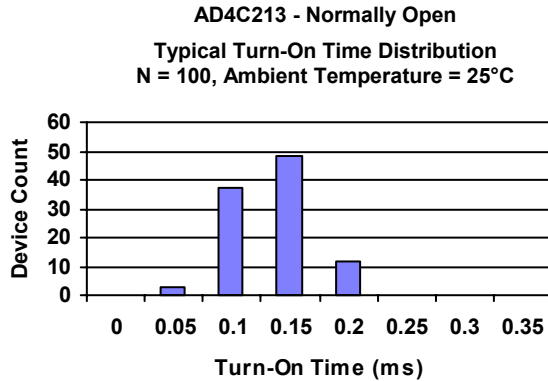
## ELECTRICAL CHARACTERISTICS - 25°

| PARAMETER                                      | UNIT    | MIN  | TYP  | MAX | TEST CONDITIONS      |
|------------------------------------------------|---------|------|------|-----|----------------------|
| <b>INPUT SPECIFICATIONS</b>                    |         |      |      |     |                      |
| LED Forward Voltage                            | V       |      | 1.2  | 1.5 | If = 10mA            |
| LED Reverse Voltage                            | V       | 6    | 12   |     | Ir = 10uA            |
| Turn-On Current (Form A)                       | m A     |      | 2.5  | 5   | Io = 150mA           |
| Turn-On Current (Form B)                       | m A     |      | 0.5  |     | Io = 150mA           |
| Turn-Off Current (Form A)                      | m A     |      | 0.5  |     |                      |
| Turn-Off Current (Form B)                      | m A     |      | 2.5  |     |                      |
| <b>OUTPUT SPECIFICATIONS (NORMALLY OPEN)</b>   |         |      |      |     |                      |
| Blocking Voltage                               | V       | 400  |      |     | 10uA                 |
| Continuous Load Current                        | m A     |      |      | 150 | If = 5mA             |
| On-Resistance                                  | Ω       |      | 20   | 25  |                      |
| Leakage Current                                | μ A     |      | 0.2  | 10  | Vo = 400V            |
| Output Capacitance                             | p F     |      | 25   | 50  | Vo = 25V, f = 1.0MHz |
| Offset Voltage                                 | m V     |      |      | 0.2 | If = 5mA             |
| Turn-On Time                                   | m s     |      | 0.5  | 1   | If = 5mA, Io = 150mA |
| Turn-Off Time                                  | m s     |      | 0.1  | 0.5 | If = 5mA, Io = 150mA |
| <b>OUTPUT SPECIFICATIONS (NORMALLY CLOSED)</b> |         |      |      |     |                      |
| Blocking Voltage                               | V       | 400  |      |     | Io = 10mA, If = 5mA  |
| Continuous Load Current                        | m A     |      |      | 150 | If = 0mA             |
| On-Resistance                                  | Ω       |      | 20   | 25  | Io = 150mA           |
| Leakage Current                                | μ A     |      | 0.2  | 10  | Vo = 400V, If = 5mA  |
| Output Capacitance                             | p F     |      | 15   | 20  | Vo = 25V, f = 1.0MHz |
| Offset Voltage                                 | m V     |      |      | 0.2 |                      |
| Turn-On Time                                   | m s     |      | 0.2  | 1   | If = 0mA, Io = 150mA |
| Turn-Off Time                                  | m s     |      | 0.5  | 1   | If = 5mA, Io = 150mA |
| <b>COUPLED SPECIFICATIONS</b>                  |         |      |      |     |                      |
| Isolation Voltage                              | V       | 2500 |      |     | T = 1 minute         |
| -H Suffix                                      | V       | 3750 |      |     | T = 1 minute         |
| Isolation Resistance                           | G Ω     | 100  |      |     |                      |
| Coupled Capacitance                            | p F     |      |      | 2   |                      |
| Contact Transient Ratio                        | V / μ s | 2000 | 7000 |     | dV = 50V             |



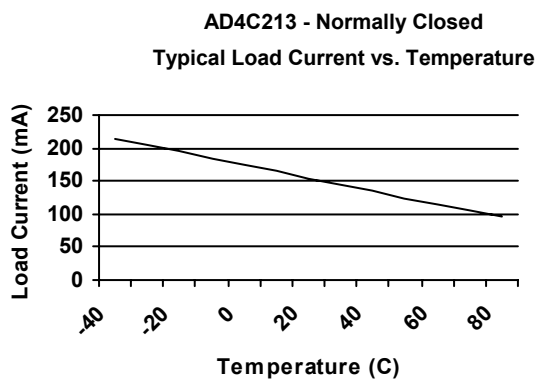
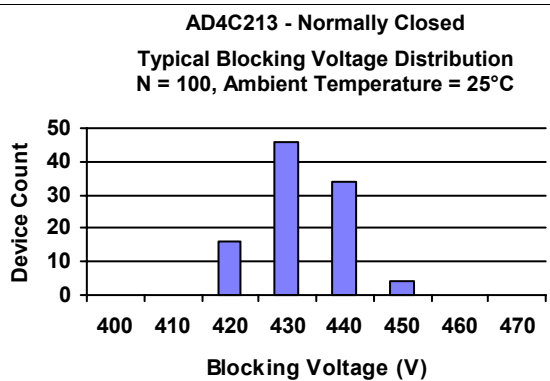
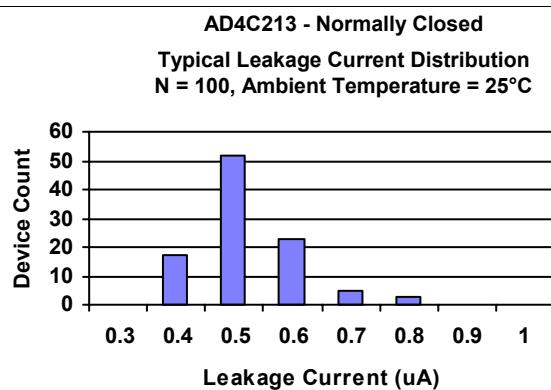
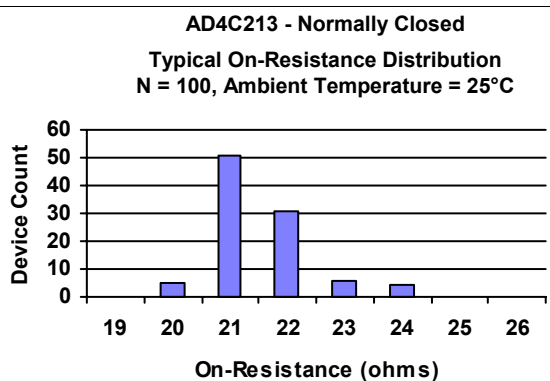
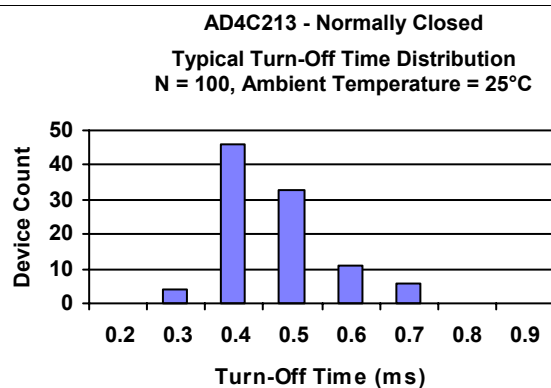
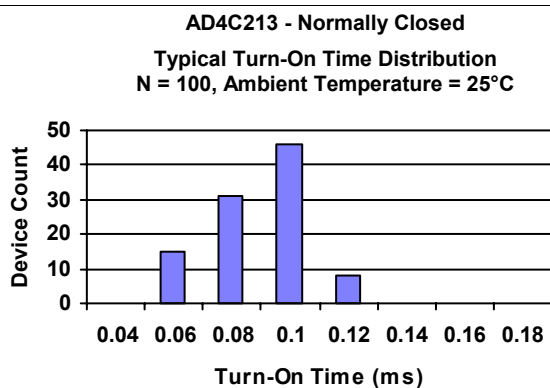
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## PERFORMANCE DATA





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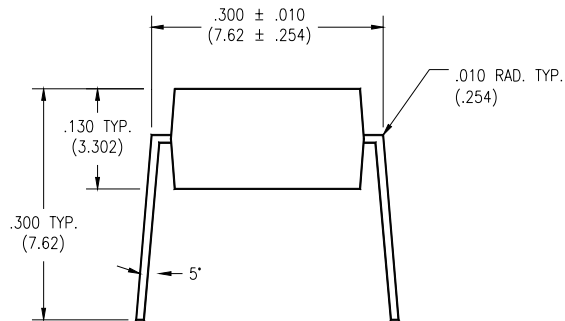




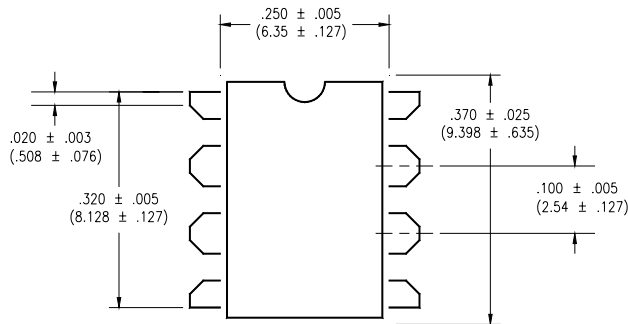
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## MECHANICAL DIMENSIONS

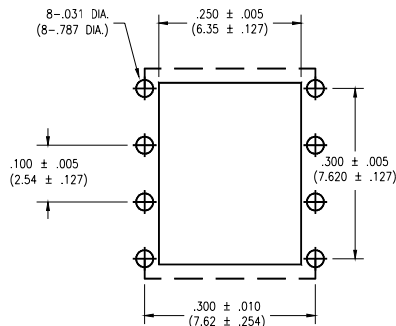
### 8 PIN DUAL IN-LINE PACKAGE



END VIEW

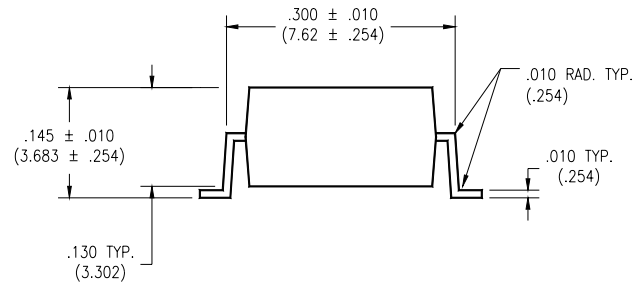


TOP VIEW

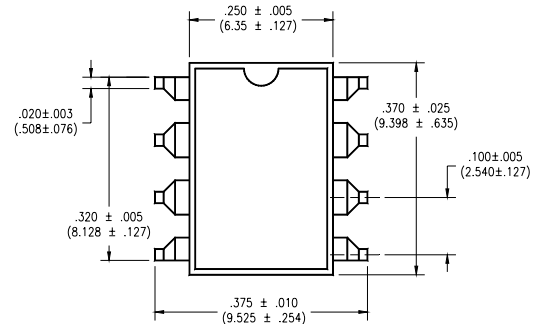


BOTTOM VIEW/  
BOARD PATTERN

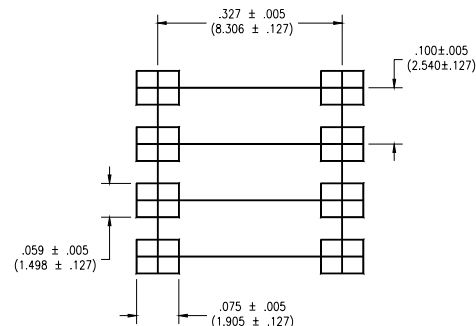
### 8 PIN SURFACE MOUNT DEVICE



END VIEW



TOP VIEW



BOTTOM VIEW/  
BOARD PATTERN