SOLID STATE OPTRONICS

# AD8C250


1 Form A
Solid State Relay

## DESCRIPTION

The AD8C250 is a bi-directional, single-pole, single-throw, normally open multipurpose solid-state relay. It is designed to replace electromechanical and reed relays in special applications that call for very fast switching rates. The relay consists of an integrated circuit that drives two special source-to-source enhancement type DMOS transistors with extremely low output capacitance and leakage current. The IC is optically coupled to a light emitting diode which controls its switching. The design of the circuit makes it ideal for switching high frequency signals.

## FEATURES

- High input-to-output isolation
- Low input control power consumption
- 40mA maximum continuous load current
- 300 ohms maximum on-resistance
- Long life/high reliability
- Fast switching speeds
- Low output capacitance

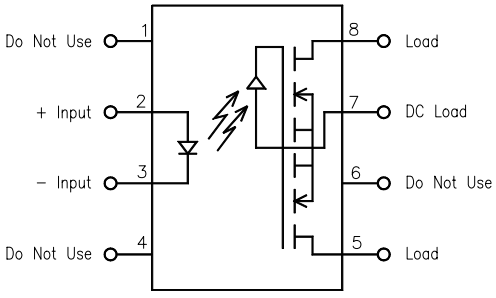
## APPLICATIONS

- 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 #608204:
  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 |
|---|---|---|---|---|---|
| **INPUT SPECIFICATIONS** | | | | | |
| LED Forward Voltage | V | | 1.2 | 1.5 | If = 10mA |
| LED Reverse Voltage | V | 6 | 12 | | Ir = 10uA |
| Turn-On Current | m A | 5 | 2.5 | | Io = 40mA |
| Turn-Off Current | m A | | 0.5 | | |
| **OUTPUT SPECIFICATIONS** | | | | | |
| Blocking Voltage | V | 250 | | | Io = 10uA |
| Continuous Load Current | m A | | | 40 | If = 5mA |
| On-Resistance | Ω | | 225 | 300 | Io = 40mA |
| Leakage Current | n A | | 10 | 100 | Vo = 250V |
| Output Capacitance | p F | | 1.5 | 3 | Vo = 25V, f = 1.0MHz |
| Offset Voltage | m V | | | 0.2 | If = 5mA |
| **COUPLED SPECIFICATIONS** | | | | | |
| Isolation Voltage | V | 2500 | | | T = 1 minute |
| -H Suffix | V | 3750 | | | T = 1 minute |
| Turn-On Time | μ s | | 50 | 500 | If = 5mA, Io = 40mA |
| Turn-Off Time | μ s | | 150 | 500 | If = 5mA, Io = 40mA |
| Isolation Resistance | G Ω | 100 | | | |
| Coupled Capacitance | p F | | 3 | | |
| Contact Transient Ratio | V / μ s | 2000 | 7000 | | dV = 50V |



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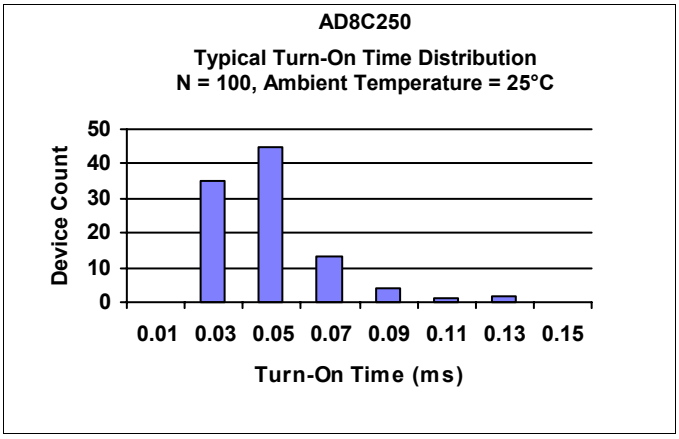
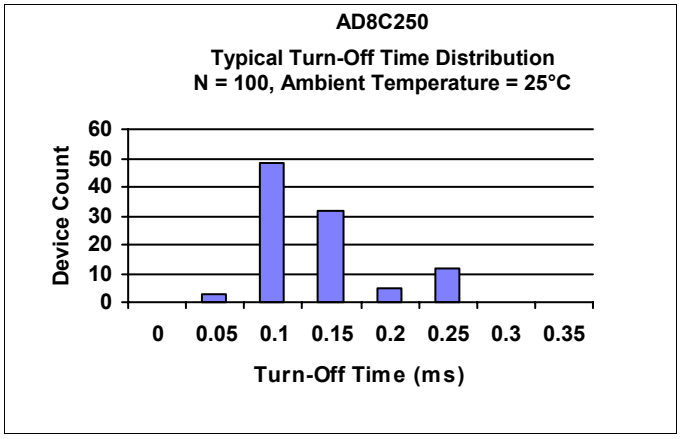
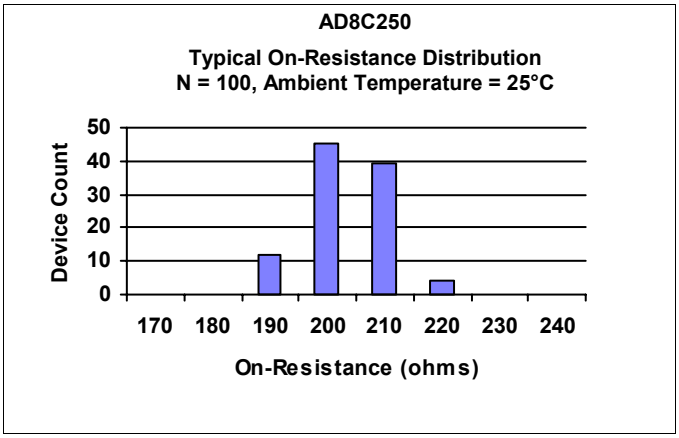
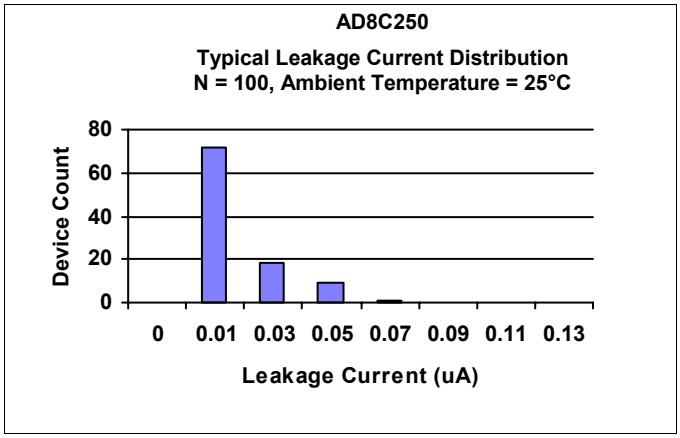
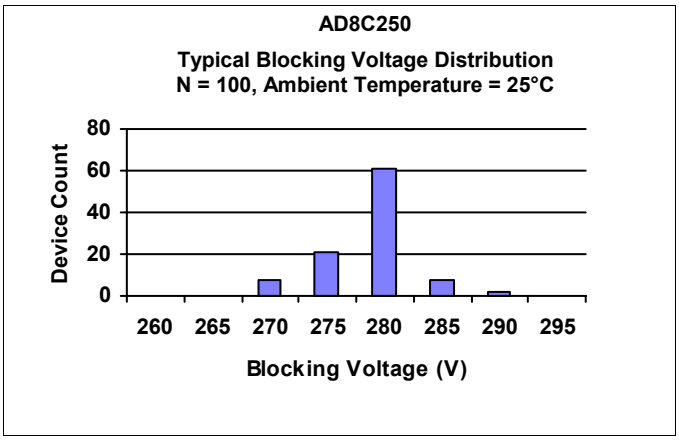
*PERFORMANCE DATA*

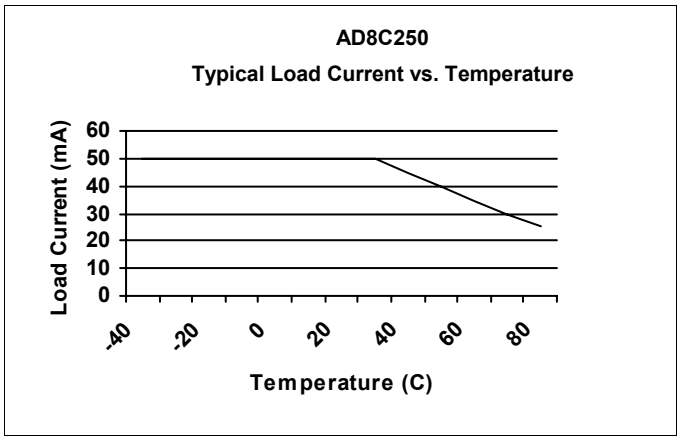


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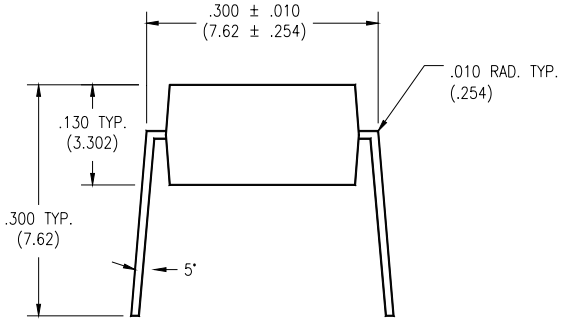
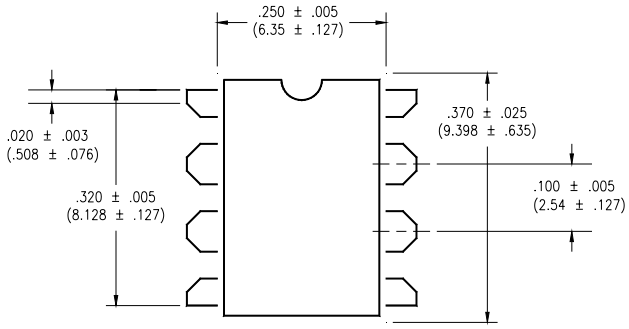
## *MECHANICAL DIMENSIONS*

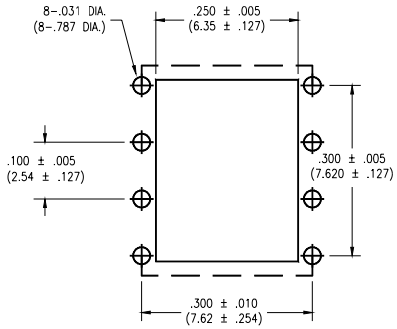
### *8 PIN DUAL IN-LINE PACKAGE*




*END VIEW*

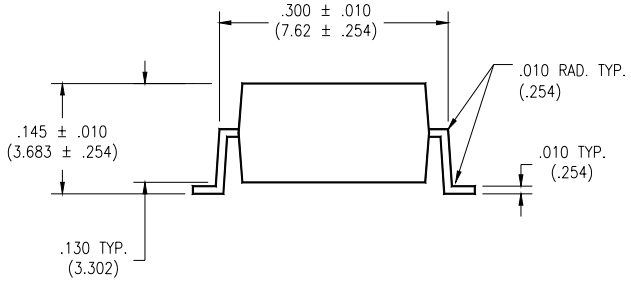



*TOP VIEW*

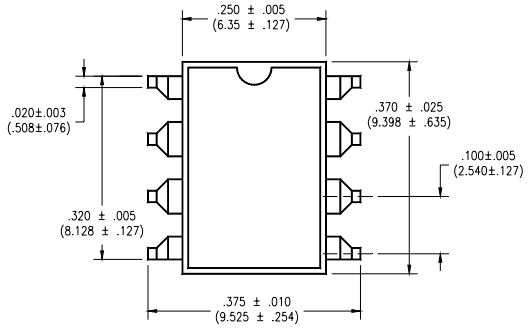



*BOTTOM VIEW/*
*BOARD PATTERN*

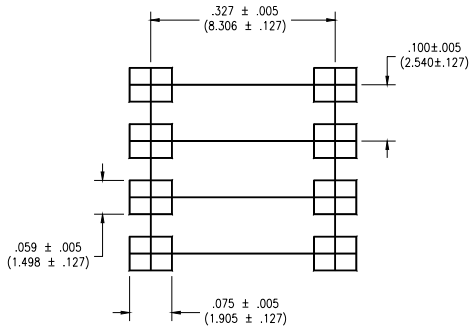
### *8 PIN SURFACE MOUNT DEVICE*




*END VIEW*




*TOP VIEW*




*BOTTOM VIEW/*
*BOARD PATTERN*



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