SOLID STATE OPTRONICS

# AD6C641



1 Form A
Solid State Relay

RoHS compliant

## DESCRIPTION

The AD6C641 is a bi-directional, single-pole, single-throw, normally open multipurpose relay. The relay consists of a GaAlAs LED optically coupled to a Photo Diode Array that drives two extremely low on-resistance, rugged drain-to-drain enhancement type DMOS transistors. Total device output resistance is guaranteed to be less than 0.5 ohms, making this device the ideal choice where minimal signal attenuation is required.

## FEATURES

- Low on-resistance (0.35 ohm TYP)
- High Load Current Rating (1.5A MAX continuous load current)
- Low input power consumption
- High Input-to-Output isolation
- Long life-high reliability

## APPLICATIONS

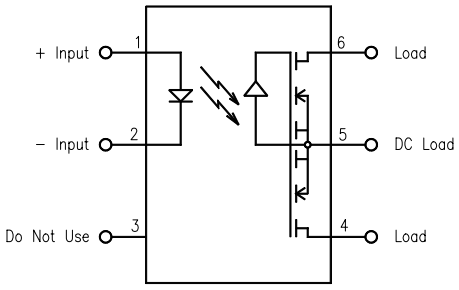
- Multiplexers
- Meter reading systems
- Data Acquisition
- Medical Equipment
- Battery Monitoring
- Home Safety / Security Systems

## OPTIONS/SUFFIXES*

- -S Surface Mount Leadform Option (50 pcs / tube)
- -TR Tape & Reel Option (1000 pcs / reel)

NOTE: Suffixes listed above are not included in marking on device for part number identification.

## SCHEMATIC DIAGRAM




## ABSOLUTE MAXIMUM RATINGS*

| PARAMETER | UNIT | MIN | TYP | MAX |
|---|---|---|---|---|
| Storage Temperature | °C | -55 | | 125 |
| Operating Temperature | °C | -40 | | 85 |
| Continuous Input Current | mA | | | 50 |
| Transient Input Current | mA | | | 400 |
| Reverse Input Control Voltage | V | 6 | | |
| Output Power Dissipation | mW | | | 800 |
| Solder Temperature - Wave (10s) | ºC | | | 260 |
| Solder Temperature - IR Reflow (10s) | ºC | | | 260 |

*The values indicated are absolute stress ratings. Functional operation of the device is not implied at these or any conditions in excess of those defined in electrical characteristics section of this document. Exposure to Absolute Ratings may cause permanent damage to the device and may adversely affect reliability.

## APPROVALS

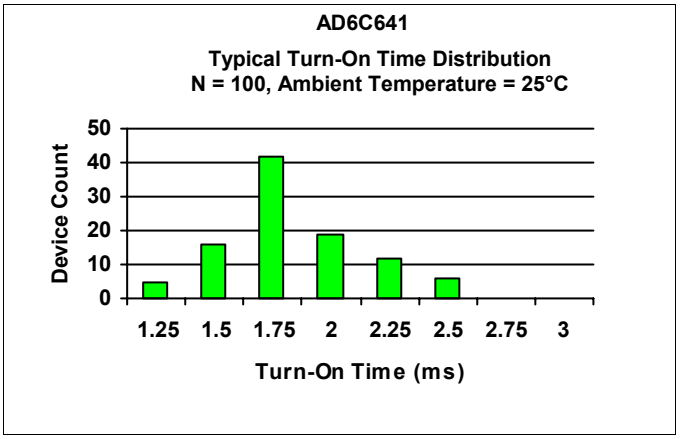
- UL/C-UL Approved: File # E201932

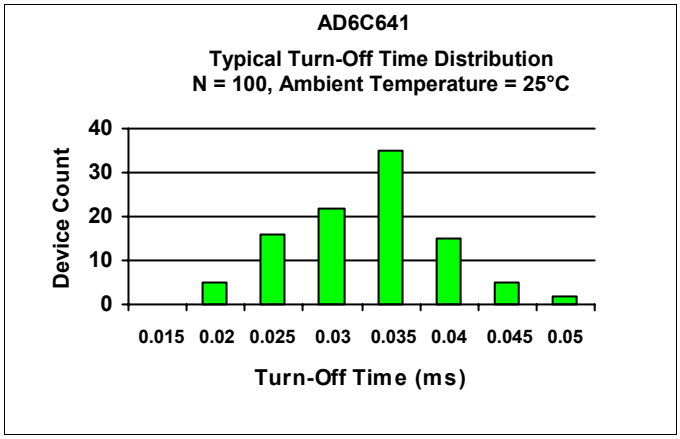
*ELECTRICAL CHARACTERISTICS - 25°C*

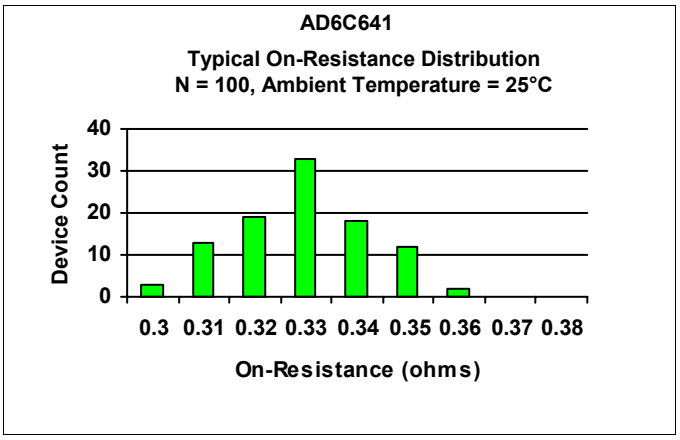
| PARAMETER | UNIT | MIN | TYP | MAX | TEST CONDITIONS |
|---|---|---|---|---|---|
| **INPUT SPECIFICATIONS** | | | | | |
| LED Forward Voltage | V | | 1.2 | 1.5 | If = 5mA |
| LED Reverse Voltage | V | 6 | 12 | | Ir = 10uA |
| Turn-On Current | m A | | 2.5 | 5 | Io = 1.5A |
| Turn-Off Current | m A | | 1 | | |
| **OUTPUT SPECIFICATIONS** | | | | | |
| Blocking Voltage | V | 60 | | | Io = 1uA |
| Continuous Load Current | A | | | 1.5 | If = 5mA |
| On Resistance | Ω | | 0.25 | 0.5 | Io = 1.5A |
| Leakage Current | μ A | | 0.2 | 1 | Vo = 60V |
| Output Capacitance | p F | | 125 | 200 | Vo = 25V, f = 1.0MHz |
| Offset Voltage | m V | | | 0.2 | If = 5mA |
| **COUPLED SPECIFICATIONS** | | | | | |
| Isolation Voltage | V | 3750 | | | T= 1 minute |
| Turn-On Time | m s | | 2.5 | 5 | If = 5mA, Io = 1.5A |
| Turn-Off Time | m s | | 0.2 | 0.5 | If = 0mA, Io = 1.5A |
| Isolation Resistance | G Ω | 100 | | | |
| Coupled Capacitance | p F | | 2 | | |
| Contact Transient Ratio | V / μ s | 2000 | 7000 | | dV = 50V |

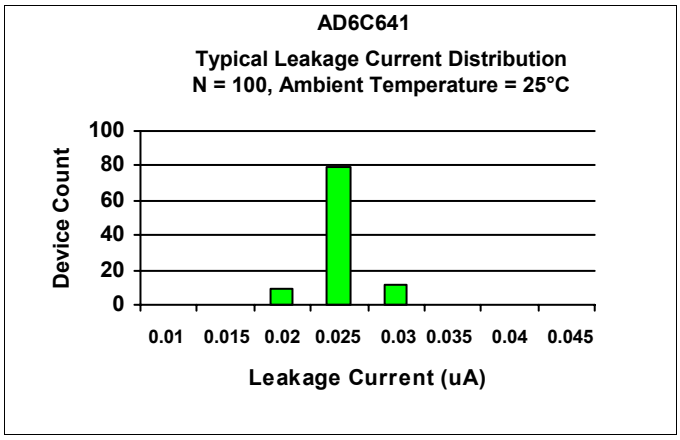
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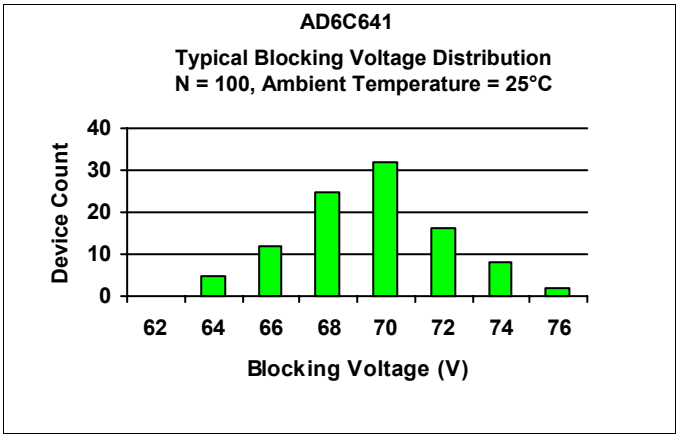
*PERFORMANCE DATA*

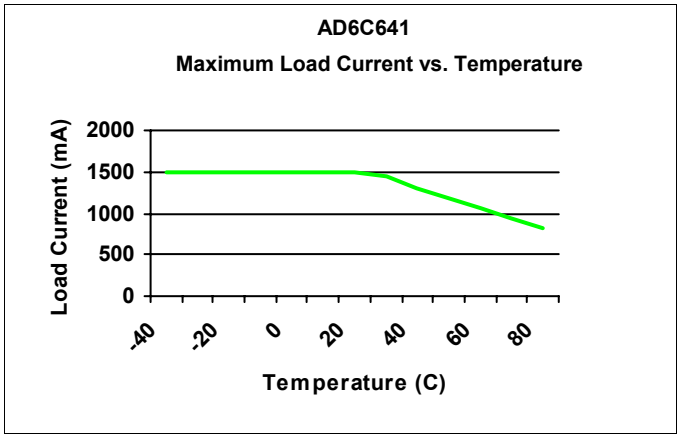


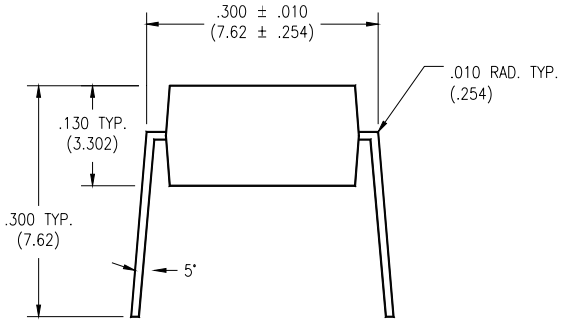



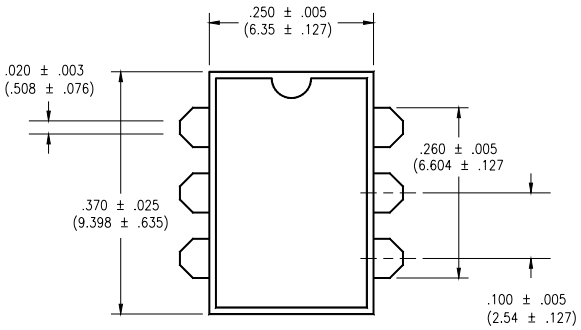



## *MECHANICAL DIMENSIONS*

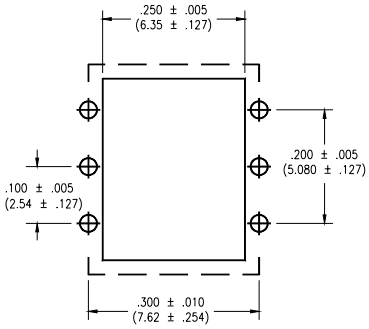
### *6 PIN DUAL IN-LINE PACKAGE*




*END VIEW*

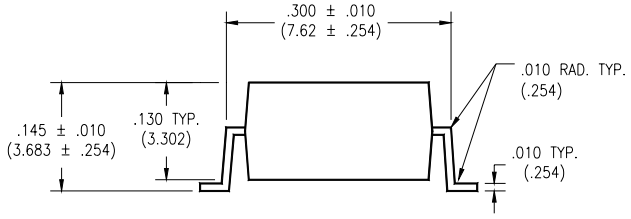



*TOP VIEW*

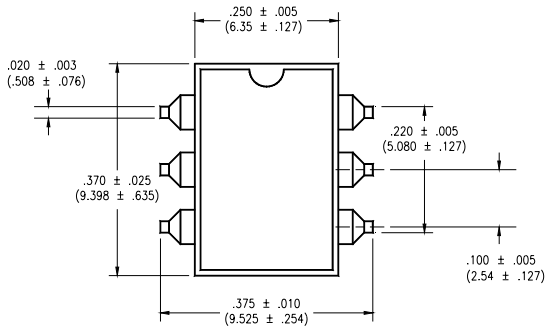



*BOTTOM VIEW/*
*BOARD PATTERN*

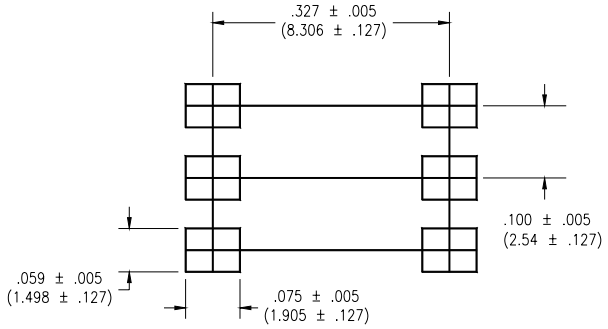
### *6 PIN SURFACE MOUNT DEVICE*




*END VIEW*




*TOP VIEW*




*BOTTOM VIEW/*
*BOARD PATTERN*

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