



1 Form A Solid State Relay with Current Limiting



#### DESCRIPTION

The AD2C111-L is a bi-directional, single-pole, single-throw, normally open multipurpose solid-state relay. It is designed to replace electromechanical relays in general purpose switching applications. The relay consists of IR LED optically coupled to a IC that drives two rugged source-to-source enhancement type DMOS transistors. The 4 pin DIP package offers the combination of reduced package size, with 5kV input to output isolation. This device also includes over-current circuitry that protects the device from high load currents and transient spikes by limiting the amount of current that can pass through its output.

#### FEATURES

- Small 4 pin DIP package outline reduces board space
- Current Limiting protects device from overcurrents
- High input-output isolation (5kV)
- Low input control power consumption (2.5mA TYP)
- 120mA maximum continuous load current
- 40 ohms maximum on-resistance
- Long life/high reliability

# APPLICATIONS

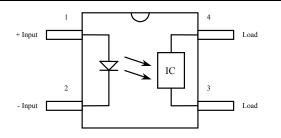
- Reed relay replacement
- Meter reading systems
- Medical equipment
- Battery monitoring
- Multiplexers

#### **OPTIONS/SUFFIXES\***

- -V VDE 0884 compliance (.04" / 10.16mm lead spacing)
- -S Surface mount leadform option (65pcs per tube)
- -TR Tape & Reel Option (2,000 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	-40		150
Operating Temperature	°C	-40		85
Continuous Forward Current	mA			50
Peak Forward Current	A			1
Reverse Voltage	V			5
Output Power Dissipation	mW			500

\*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 E90096



1 Form A Solid State Relay with Current Limiting

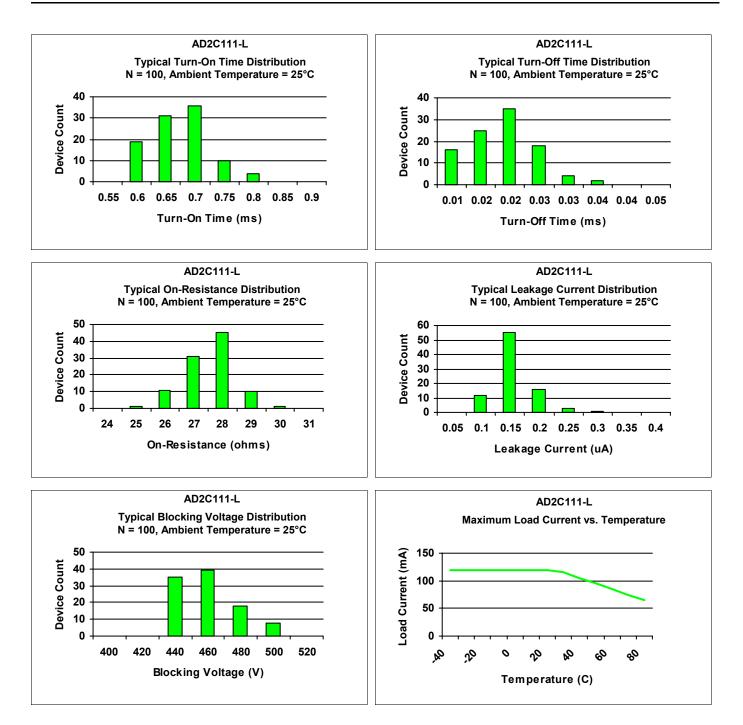
### ELECTRICAL CHARACTERISTICS - 25°C

PARAMETER	UNIT	MIN	TYP	MAX	TEST CONDITIONS
INPUT SPECIFICATIONS					
LED Forward Voltage	V		1.2	1.5	lf = 10mA
LED Reverse Voltage	V	6	12		lr = 10uA
Turn-On Current	m A		2.5	5	lo = 120mA
Turn-Off Current	m A		0.5		
OUTPUT SPECIFICATIONS					
Blocking Voltage	V	400			lo = 1uA
Continuous Load Current	m A			120	lf = 5mA
Current Limit	m A		150	180	lf = 5mA
On-Resistance	Ω		30	40	lo = 120mA
Leakage Current	μA		0.2	1	Vo = 400V
Output Capacitance	рА		25	50	Vo = 25V, f = 1.0MHz
Offset Voltage	m V			0.2	lf = 5mA
COUPLED SPECIFICATIONS					
Isolation Voltage	V	5000			T = 1 minute
Turn-On Time	m s		1.25	3	lf = 5mA, lo = 120mA
Turn-Off Time	m s		0.1	0.5	lf = 0, lo = 120mA
Coupled Capacitance	рF		3		
Contact Transient Ratio	V/µs	2000	7000		dV = 50V



1 Form A Solid State Relay with Current Limiting

### PERFORMANCE DATA

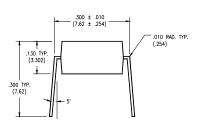




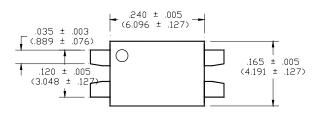
1 Form A Solid State Relay with Current Limiting

### MECHANICAL DIMENSIONS

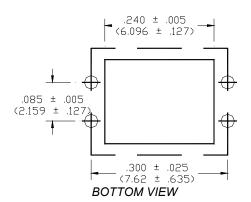
### 4 PIN DUAL IN-LINE PACKAGE



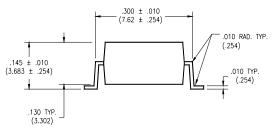
### END VIEW



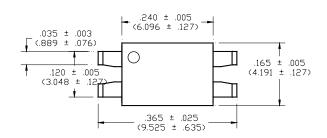
### TOP VIEW



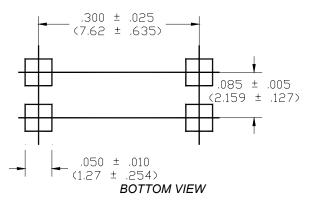
## 4 PIN SURFACE MOUNT DEVICE



END VIEW



TOP VIEW





1 Form A Solid State Relay with Current Limiting

#### DISCLAIMER

Solid State Optronics (SSO) makes no warranties or representations with regards to the completeness and accuracy of this document. SSO reserves the right to make changes to product description, specifications at any time without further notice. SSO shall not assume any liability arising out of the application or use of any product or circuit described herein. Neither circuit patent licenses nor indemnity are expressed or implied.

Except as specified in SSO's Standard Terms & Conditions, SSO disclaims liability for consequential or other damage, and we make no other warranty, expressed or implied, including merchantability and fitness for particular use.

#### LIFE SUPPORT POLICY

SSO does not authorize use of its devices in life support applications wherein failure or malfunction of a device may lead to personal injury or death. Users of SSO devices in life support applications assume all risks of such use and agree to indemnify SSO against any and all damages resulting from such use. Life support devices are defined as devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, and (c) whose failure to perform when used properly in accordance with instructions for use can be reasonably expected to result in significant injury to the user, or (d) a critical component in any component of a life support device or system whose failure can be reasonably expected to cause failure of the life support device or system, or to affect its safety or effectiveness.