



Parameter	Rating	Units
Typical Open Circuit Voltage	5.5	V
Typical Short Circuit Current	2.5	$\mu$ A
Input Control Current	5	mA

### Features

- Optically Isolated, Input to Output
- Dual Independent, Floating Outputs for Parallel, Series, or Isolated Configuration
- 5mA Control Current
- May Be Configured for AC and DC Switching
- Replacement of Discrete Components
- VDE Compatible
- Solid State Reliability
- No EMI/RFI Generation
- Machine Insertable, Wave Solderable
- Surface Mount and Tape & Reel Version Available

### Applications

- MOSFET Driver
- Programmable Control
- Process Control
- Instrumentation
- Telecommunications

### Description

The FDA215 is a dual photovoltaic MOSFET driver that uses a pair of optically coupled GaAlAs LEDs to drive two photodiode arrays. When the input current is applied to the LED, the light emitted activates the photodiode array, and generates a voltage at the output. The photodiode arrays are capable of generating a floating source voltage and current sufficient to drive high power MOSFET transistors. The optical coupling provides a high level of input to output isolation. The FDA215 is well suited for use in discrete solid state relay designs and other isolated switching applications.

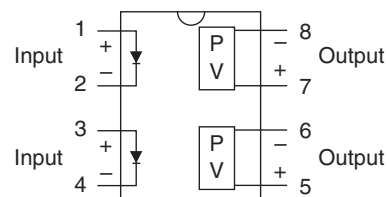
### Approvals

- EN/IEC 60950-1 Certified Component:  
TUV Certificate B 10 05 49410 006

### Ordering Information

Part #	Description
FDA215	8-Pin DIP (50/tube)
FDA215S	8-Pin Surface Mount (50/tube)
FDA215STR	8-Pin Surface Mount (1000/reel)

### Pin Configuration



**Absolute Maximum Ratings @ 25°C**

Parameter	Ratings	Units
Reverse Input Voltage	5	V
Input Control Current Peak (10ms)	100	mA
	1	A
Input Power Dissipation <sup>1</sup>	150	mW
Total Power Dissipation <sup>2</sup>	500	mW
Capacitance, Input to Output	1	pF
Isolation Voltage, Input to Output	3750	V <sub>rms</sub>
Operational Temperature	-40 to +85	°C
Storage Temperature	-40 to +125	°C

*Absolute Maximum Ratings are stress ratings. Stresses in excess of these ratings can cause permanent damage to the device. Functional operation of the device at conditions beyond those indicated in the operational sections of this data sheet is not implied.*

<sup>1</sup> Derate linearly 1.33 mW / °C

<sup>2</sup> Derate linearly 6.67 mW / °C

**Electrical Characteristics @ 25°C**

Parameter	Conditions	Symbol	Min	Typ	Max	Units
<b>Output Characteristics</b>						
Open Circuit Voltage	I <sub>F</sub> =5mA	V <sub>OC</sub>	3	5.5	8	V
Short Circuit Current	I <sub>F</sub> =5mA	I <sub>SC</sub>	1	2.5	9	μA
	I <sub>F</sub> =25mA		2.5	3.5	20	
Switching Speeds	I <sub>F</sub> =5mA, C <sub>LOAD</sub> =200pF	t <sub>on</sub>	-	-	5	ms
Turn-Off			t <sub>off</sub>	-	-	
Offstate Clamping Resistance	V <sub>L</sub> =1V	R <sub>CL</sub>	100	250	3300	Ω
<b>Input Characteristics</b>						
Input Control Current	-	I <sub>F</sub>	-	-	5	mA
Input Voltage Drop	I <sub>F</sub> =5mA	V <sub>F</sub>	0.9	1.2	1.4	V
Reverse Input Current	V <sub>R</sub> =5V	I <sub>R</sub>	-	-	10	μA
<b>Common Characteristics</b>						
Capacitance, Input to Output	-	-	-	3	-	pF

**Manufacturing Information**

**Moisture Sensitivity**



All plastic encapsulated semiconductor packages are susceptible to moisture ingress. Clare classified all of its plastic encapsulated devices for moisture sensitivity according to the latest version of the joint industry standard, **IPC/JEDEC J-STD-020**, in force at the time of product evaluation. We test all of our products to the maximum conditions set forth in the standard, and guarantee proper operation of our devices when handled according to the limitations and information in that standard as well as to any limitations set forth in the information or standards referenced below.

Failure to adhere to the warnings or limitations as established by the listed specifications could result in reduced product performance, reduction of operable life, and/or reduction of overall reliability.

This product carries a **Moisture Sensitivity Level (MSL) rating** as shown below, and should be handled according to the requirements of the latest version of the joint industry standard **IPC/JEDEC J-STD-033**.

Device	Moisture Sensitivity Level (MSL) Rating
FDA215 / FDA215S	MSL 1

**ESD Sensitivity**



This product is **ESD Sensitive**, and should be handled according to the industry standard **JESD-625**.

**Reflow Profile**

This product has a maximum body temperature and time rating as shown below. All other guidelines of **J-STD-020** must be observed.

Device	Maximum Temperature x Time
FDA215 / FDA215S	250°C for 30 seconds

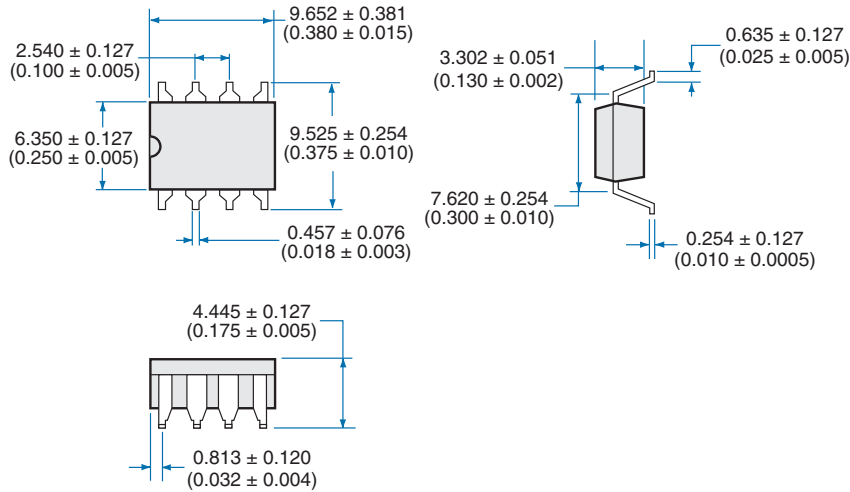
**Board Wash**

Clare recommends the use of no-clean flux formulations. However, board washing to remove flux residue is acceptable. Since Clare employs the use of silicone coating as an optical waveguide in many of its optically isolated products, the use of a short drying bake may be necessary if a wash is used after solder reflow processes. Chlorine-based or Fluorine-based solvents or fluxes should not be used. Cleaning methods that employ ultrasonic energy should not be used.

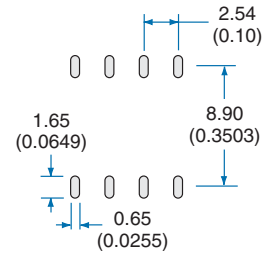


**MECHANICAL DIMENSIONS**

**FDA215S**

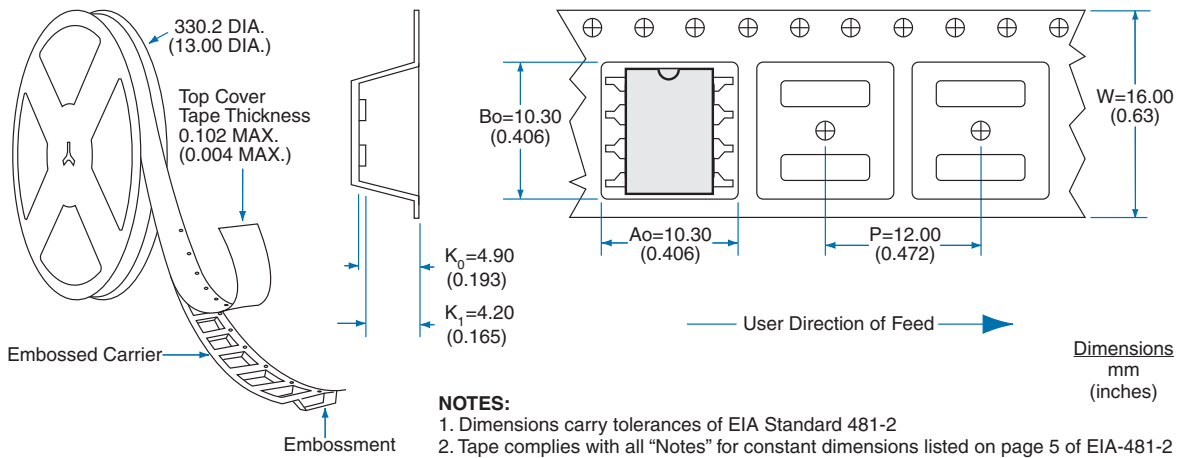


**PCB Land Pattern**



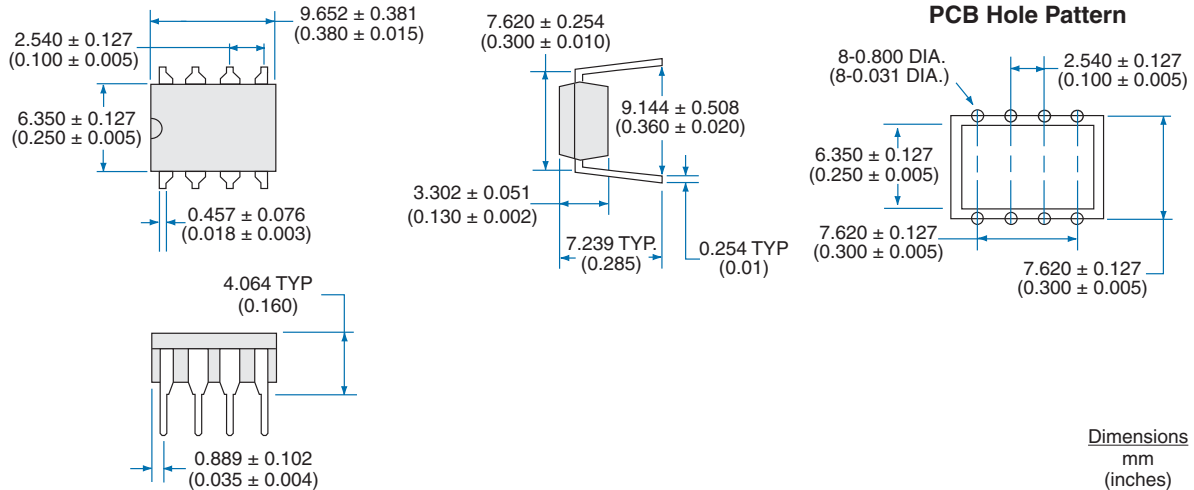
Dimensions  
mm  
(inches)

**FDA215S Tape & Reel**



Dimensions  
mm  
(inches)

**FDA215**



**For additional information please visit our website at: [www.clare.com](http://www.clare.com)**

Clare, Inc. makes no representations or warranties with respect to the accuracy or completeness of the contents of this publication and reserves the right to make changes to specifications and product descriptions at any time without notice. Neither circuit patent licenses nor indemnity are expressed or implied. Except as set forth in Clare's Standard Terms and Conditions of Sale, Clare, Inc. assumes no liability whatsoever, and disclaims any express or implied warranty, relating to its products including, but not limited to, the implied warranty of merchantability, fitness for a particular purpose, or infringement of any intellectual property right.

The products described in this document are not designed, intended, authorized or warranted for use as components in systems intended for surgical implant into the body, or in other applications intended to support or sustain life, or where malfunction of Clare's product may result in direct physical harm, injury, or death to a person or severe property or environmental damage. Clare, Inc. reserves the right to discontinue or make changes to its products at any time without notice.

Specification: DS-FDA215-R05  
©Copyright 2011, Clare, Inc.  
OptoMOS® is a registered trademark of Clare, Inc.  
All rights reserved. Printed in USA.  
5/11/2011