



	IAD112N	Units
Load Voltage	350	V
Load Current	100	mA
Max R_{ON}	35	Ω

Features

- 16 Pin Narrow SOIC Package
- Three Functions in One Package
- Bi-Directional Current Sensing
- Bi-Directional Current Switching
- 3750V_{RMS} Input/Output Isolation
- FCC Compatible
- No EMI/RFI Generation
- Machine Insertable, Wave Solderable
- Tape & Reel Versions Available

Applications

- Telecommunications
 - Telecom Switching
 - Tip/Ring Circuits
 - Modem Switching (Laptop, Notebook, Pocket Size)
 - Hookswitch
 - Dial Pulsing
 - Ground Start
 - Ringer Injection
- Instrumentation
 - Multiplexers
 - Data Acquisition
 - Electronic Switching
 - I/O Subsystems
 - Meters (Watt-Hour, Water, Gas)
- Medical Equipment-Patient/Equipment Isolation
- Security
- Aerospace
- Industrial Controls

Description

The IAD112N Multifunction Telecom switch combines a 350V Form A relay and two optocouplers in a single package. The relay uses optically coupled MOSFET technology to provide 1500V of input to output isolation. The efficient MOSFET switch and photovoltaic die use Clare's patented OptoMOS architecture. The optically coupled input uses highly efficient GaAlAs infrared LEDs. IAD112N's allow telecom circuit designers to combine three discrete functions in a single component. The IAD112N's small package uses less space than traditional discrete component solutions.

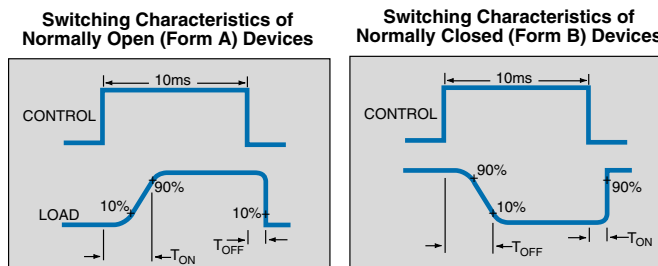
Approvals

- UL Recognized: File Number E76270
- CSA Certified: File Number LR 43639-12
- VDE Compatible
- BSI Certified:
 - BS EN 60950:1992 (BS7002:1992)
Certificate #:7969
 - BS EN 41003:1993
Certificate #:7969

Ordering Information

Part #	Description
IAD112N	16 Pin SOIC (Narrow) (50/Tube)
IAD112N	16 Pin SOIC (Narrow) (1000/Reel)

Pin Configuration



Absolute Maximum Ratings (@ 25° C)

Parameter	Min	Typ	Max	Units
Total Package Dissipation	-	-	1 ¹	W
Isolation Voltage				
Input to Output	3750	-	-	V _{RMS}
Operational Temperature	-40	-	+85	°C
Storage Temperature	-40	-	+125	°C
Soldering Temperature (10 Seconds Max.)	-	-	+220	°C

¹ Above 25° derate linearly 1.67mw/°C

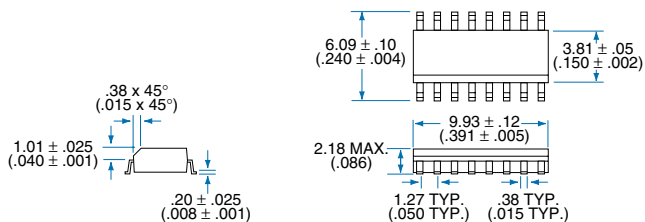
Absolute Maximum Ratings are stress ratings. Stresses in excess of these ratings can cause permanent damage to the device. Functional operation of the device at these or any other conditions beyond those indicated in the operational sections of this data sheet is not implied. Exposure of the device to the absolute maximum ratings for an extended period may degrade the device and effect its reliability.

Electrical Characteristics

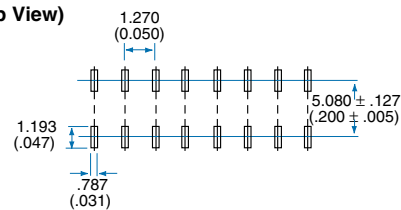
Parameter	Conditions	Symbol	Min	Typ	Max	Units
Relay Portion						
Output Characteristics @ 25°C						
Load Voltage (Peak)	I _L = 1μA	V _L	-	-	350	V
Load Current (Continuous)	-	I _L	-	-	100	mA
Peak Load Current	10ms	I _{LPK}	-	-	350	mA
On-Resistance	I _L = 100mA	R _{ON}	-	-	35	Ω
Off-State Leakage Current	V _L = 350V; T _J = 25°C	I _{LEAK}	-	-	1	μA
Switching Speeds						
Turn-On	I _F = 5mA, V _L = 10V	T _{ON}	-	-	3	ms
Turn-Off	I _F = 5mA, V _L = 10V	T _{OFF}	-	-	3	ms
Output Capacitance	V _L = 50V, f = 1MHz	-	-	25	-	pF
Relay Portion						
Input Characteristics @ 25°C						
Input Control Current	I _L = 100mA	I _F	5	-	50	mA
Input Dropout Current	I _L = 1mA	I _F	0.4	-	-	mA
Input Voltage Drop	I _F = 5mA	V _F	0.9	1.2	1.4	V
Reverse Input Voltage	-	V _R	-	-	5	V
Reverse Input Current	V _R = 5V	I _R	-	-	10	μA
Detector Portion						
Output Characteristics @ 25°C						
Phototransistor Blocking Voltage	I _C = 10μA	BV _{CEO}	20	50	-	V
Phototransistor Dark Current	V _{CE} = 5V, I _F = 0mA	I _{CEO}	-	50	500	nA
Saturation Voltage	I _C = 2mA, I _F = 16mA	V _{SAT}	-	0.3	0.5	V
Current Transfer Ratio	I _F = 6mA, V _{CE} = 0.5V	C _{TR}	33	-	-	%
Detector Portion						
Input Characteristics @ 25°C						
Input Control Current	I _C = 2mA, V _{CE} = 0.5V	I _F	6	2	-	mA
Input Voltage Drop	I _F = 5mA	I _{CEO}	0.9	1.2	1.4	V
Input Current (Detector must be off)	I _C = 1μA, V _{CE} = 5V	-	5	25	-	μA
Input to Output Capacitance	V _L = 50V, f = 1MHz	C _{I/O}	-	3	-	pF
Input to Output Isolation	-	V _{I/O}	3750	-	-	V _{RMS}

Mechanical Dimensions

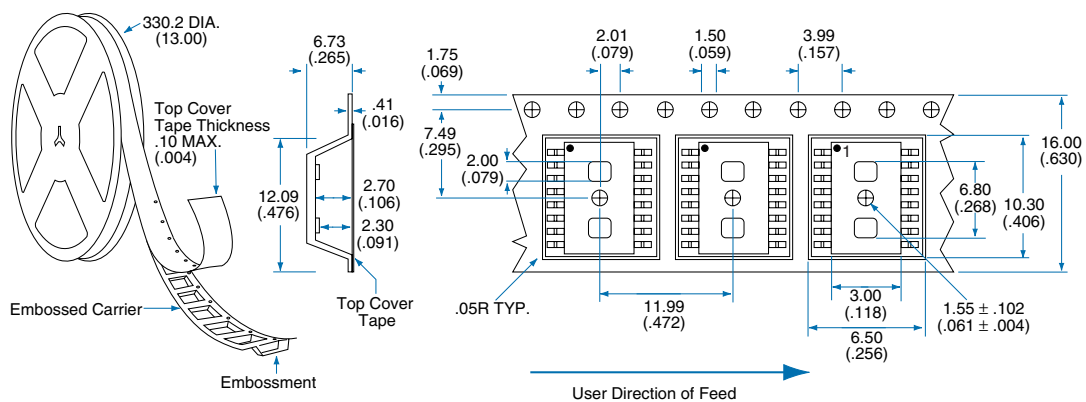
16 Pin SOIC Narrow ("N" Suffix)



PC Board Pattern (Top View)



Tape and Reel Packaging for 8 and 16 Pin Narrow SOIC Package



Dimensions
mm
(inches)

CLARE LOCATIONS

Clare Headquarters
78 Cherry Hill Drive
Beverly, MA 01915
Tel: 1-978-524-6700
Fax: 1-978-524-4900
Toll Free: 1-800-27-CLARE

Clare Micronix Division
145 Columbia
Aliso Viejo, CA 92656-1490
Tel: 1-949-831-4622
Fax: 1-949-831-4628

SALES OFFICES

AMERICAS

Americas Headquarters

Clare
78 Cherry Hill Drive
Beverly, MA 01915
Tel: 1-978-524-6700
Fax: 1-978-524-4900
Toll Free: 1-800-27-CLARE

Eastern Region

Clare
P.O. Box 856
Mahwah, NJ 07430
Tel: 1-201-236-0101
Fax: 1-201-236-8685
Toll Free: 1-800-27-CLARE

Central Region

Clare Canada Ltd.
3425 Harvester Road, Suite 202
Burlington, Ontario L7N 3N1
Tel: 1-905-333-9066
Fax: 1-905-333-1824

Western Region

Clare
1852 West 11th Street, #348
Tracy, CA 95376
Tel: 1-209-832-4367
Fax: 1-209-832-4732
Toll Free: 1-800-27-CLARE

Canada

Clare Canada Ltd.
3425 Harvester Road, Suite 202
Burlington, Ontario L7N 3N1
Tel: 1-905-333-9066
Fax: 1-905-333-1824

EUROPE

European Headquarters

CP Clare nv
Bampslaan 17
B-3500 Hasselt (Belgium)
Tel: 32-11-300868
Fax: 32-11-300890

France

Clare France Sales
Lead Rep
99 route de Versailles
91160 Champlan
France
Tel: 33 1 69 79 93 50
Fax: 33 1 69 79 93 59

Germany

Clare Germany Sales
ActiveComp Electronic GmbH
Mitterstrasse 12
85077 Manching
Germany
Tel: 49 8459 3214 10
Fax: 49 8459 3214 29

Italy

C.L.A.R.E.s.a.s.
Via C. Colombo 10/A
I-20066 Melzo (Milano)
Tel: 39-02-95737160
Fax: 39-02-95738829

Sweden

Clare Sales
Comptronic AB
Box 167
S-16329 Spånga
Tel: 46-862-10370
Fax: 46-862-10371

United Kingdom

Clare UK Sales
Marco Polo House
Cook Way
Bindon Road
Taunton
UK-Somerset TA2 6BG
Tel: 44-1-823 352541
Fax: 44-1-823 352797

ASIA/PACIFIC

Asian Headquarters

Clare
Room N1016, Chia-Hsin, Bldg II,
10F, No. 96, Sec. 2
Chung Shan North Road
Taipei, Taiwan R.O.C.
Tel: 886-2-2523-6368
Fax: 886-2-2523-6369

<http://www.clare.com>

Clare cannot assume responsibility for use of any circuitry other than circuitry entirely embodied in this Clare product. No circuit patent licenses nor indemnity are expressed or implied. Clare reserves the right to change the specification and circuitry, without notice at any time. The products described in this document are not intended for use in medical implantation or other direct life support applications where malfunction may result in direct physical harm, injury or death to a person.