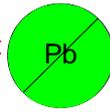


This component is RoHS compliant



OPI-110 Series

Optically Coupled Isolators ATEX and IECEx CERTIFIED

The OPI-110, A/B/C and D are a family of optically coupled isolators, each consisting of an infrared light emitting diode, coupled to an NPN silicon phototransistor sealed in an injection moulded plastic housing. This series is designed for applications requiring high voltage isolation between input and output.

- All electrical parameters are 100% tested by manufacturing.
- Specifications are guaranteed to a 0.65% AQL.
- 10 KV electrical rating
- High current transfer ratio - 100% min @ 1mA If.



Certificate No. - BAS01ATEX1278U/5

Confirmed conform to:-
EN60079-0:2012
EN60079-11:2012
EN60079-26:2007

Conditions of use apply:- See 'Schedule of limitations' on certificate / Details repeated on Page 2 of this datasheet.

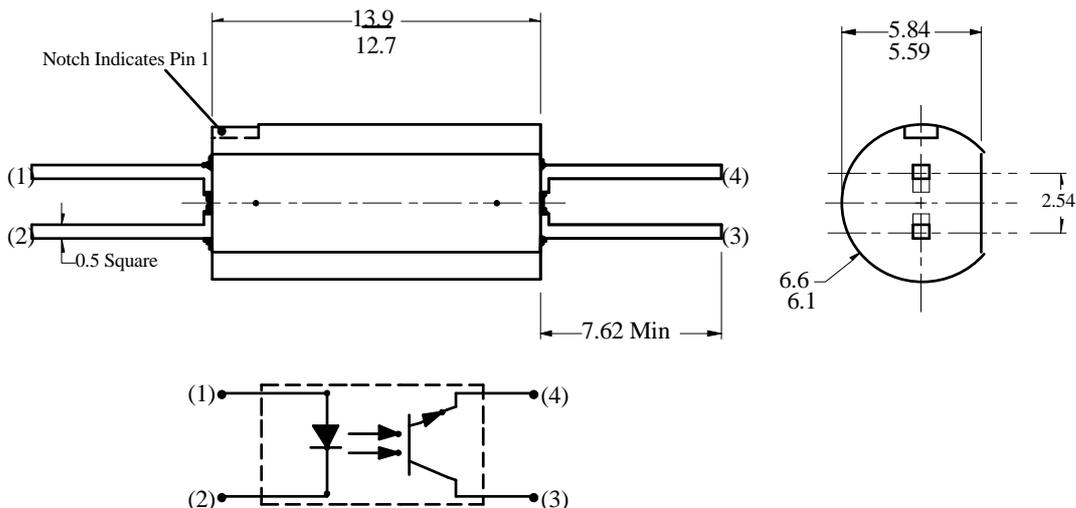


Certificate No.- IECEx BAS 06.0021U/4

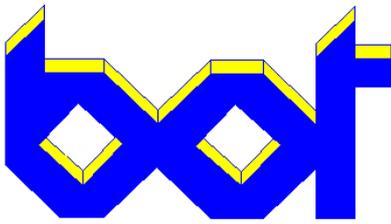
Confirmed conform to:-
IEC 60079-0:2011 Edition 6
IEC 60079-11:2011 Edition 6
IEC 60079-26:2006 Edition 2

Conditions of use apply:- See Schedule of limitations on certificate / Details repeated on Page 2 of this datasheet.

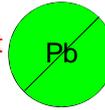
MECHANICAL DATA



BEDFORD OPTO TECHNOLOGY LTD
1, BIGGAR BUSINESS PARK, BIGGAR, LANARKSHIRE, ML12 6FX
Tel: +44 (0) 1899 221221 Fax: +44 (0) 1899 221009
Website: bot.co.uk E-mail: bill@bot.co.uk



This component is RoHS compliant



ABSOLUTE MAXIMUM RATINGS (25°C unless otherwise noted)

INPUT DIODE	
FORWARD DC CURRENT	50mA
REVERSE DC VOLTAGE	2V
POWER DISSIPATION	100mW (3)
OUTPUT PHOTOTRANSISTOR	
COLLECTOR-EMITTER VOLTAGE	30 V
EMITTER-COLLECTOR VOLTAGE	5 V
POWER DISSIPATION	100 mW (4)
OPERATING TEMP	-40°C TO +85°C
STORAGE TEMP	-40°C TO +85°C
INPUT-TO-OUTPUT ISOLATION VOLTAGE	±10KV DC (1)
LEAD SOLDERING TEMP (2) (1.6mm) from case for 5sec with soldering iron	240°C

NOTES

- 1- Measured with input diode leads shorted together and output leads shorted together.
- 2- RMA Flux is recommended. Duration can be extended to 10 sec. max. when flow soldering.
- 3- Derate linearly 1.33 mW/ C above 25 C
- 4- Derate linearly 1.33 mW/ C above 25 C

Whilst the devices are capable of operating continually at the noted elevated temperatures users should be aware of the possibility of a reduction in CTR over long periods at high temperatures & currents.

SCHEDULE OF LIMITATIONS

EC TYPE EXAMINATION CERTIFICATE No. BAS01ATEX1278U/5

28th September 2012

SCHEDULE OF LIMITATIONS

- 1 - The Opto Isolator must be mounted on a p.c.b. having a CTI of at least 175 such that creepage and clearance distances are not impaired. i.e.: on an uncoated printed circuit board that maintains at least 10mm in air.
- 2 - The Opto Isolator may be used to provide isolation between either:-
 - (i) A non-intrinsically safe circuit and an intrinsically safe circuit, (Non IS:IS), where the IS circuit voltage is not greater than 75 Volts peak or d.c..
 - OR
 - (ii) Two intrinsically safe circuits (IS:IS), where the sum of the two circuit voltages is not greater than 375 Volts peak or d.c..
- 3 - The Opto Isolator must be installed such that the connection pins are provided with a degree of protection of at least IP20 where gasses and vapours may be present. If the Opto Isolator is to be installed where dusts represent a hazard, then it must be provided with a degree of protection of at least IP54 and the overall apparatus must be appropriately certified for the requirements for Dusts.
- 4 - The Opto Isolator must be installed with external power limiting components as specified in:- EN60079-11:2012, Clause 8.9.2.

CERTIFICATE No.:- IECEx BAS 06.0021U

Date of Issue:- 2012-10-02

ISSUE No.:- 4

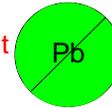
SCHEDULE OF LIMITATIONS

- 1. When used in intrinsically safe apparatus it will be necessary to determine a surface temperature classification for the opto-isolator:-
- 2. The Opto Isolator must be mounted on a printed circuit board such that creepage and clearance distances are not impaired.
- 3. The Opto Coupler must be installed such that the connection pins are provided with a degree of protection of IP20 where gasses and vapours may be present. If the Opto Coupler is to be installed within apparatus where flammable dusts represent the hazard then it must be provided with a degree of protection of IP54 and the apparatus must be appropriately certified for dust hazards.
- 5. The Opto Isolator must be installed with external power limiting components as specified in:- IEC60079-11:2011 Ed 6, Clause 8.9.2.

Opto-isolator type	Thermal resistivity °C/W
OPI110	77
OPI1000L	52
OPI1264	70
OPI2000M	87

OPTO ELECTRONIC DATA (TA = 25°C)

This component is RoHS compliant



PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
INPUT DIODE						
Forward Voltage	V _F			1.5	V	I _f = 20mA
Reverse Current	I _R			100	uA	V _R = 2V
OUTPUT PHOTOTRANSISTOR						
Collector-Emitter Breakdown Voltage	V _{(BR)CEO}	30			V	I _c = 1mA I _f = 0
Emitter-Collector Breakdown Voltage	V _{(BR)ECO}	5			V	I _e = 100uA
Collector-Emitter Dark Current	I _{CEO}			100	nA	V _{ce} = 10V
COUPLED CHARACTERISTICS						
DC Current transfer ratio	I _c /I _f					
OPI 110A		25			%	I _f =10mA, V _{ce} =5V
OPI 110B		50			%	I _f =10mA, V _{ce} =5V
OPI 110C		100			%	I _f =10mA, V _{ce} =5V
OPI 110D		100			%	I _f =1mA, V _{ce} =5V
Isolation Voltage	V _{ISO}	10			KV	See Note (1)
Collector-emitter saturation voltage	V _{CE(SAT)}			0.4	V	I _f =10mA, I _c =1.6mA
Input-output capacitance	C _{io}		0.06		pF	
Turn-on time	t _{on}		5		uS	I _c =10mA, V _{cc} =10V, R _L =100ohm
Turn-off time	t _{off}		5		uS	I _c =10mA, V _{cc} =10V, R _L =100ohm

NOTE:

Measured with input diode leads shorted together and output leads shorted together. (Sample testing only).

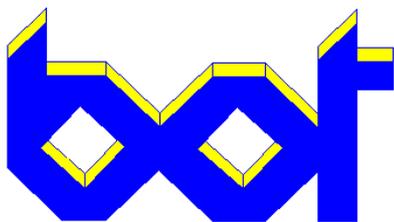
BEDFORDOPTO TECHNOLOGY LTD

1 BIGGAR BUSINESS PARK, BIGGAR, LANARKSHIRE, ML12 6FX

Tel: +44 (0) 1899 221221 Fax: +44 (0) 1899 221009

Website: bot.co.uk E-mail: bill@bot.co.uk

3/4



CONFORMITY STATEMENT
OPI110 SERIES

Manufacturer:- BEDFORD OPTO TECHNOLOGY LTD

Address:- 1 Biggar Business Park, Market Road, Biggar,
Lanarkshire, ML12 6FX, Scotland

Directive 94/9/EC

EC-Type Examination Certificate:-

BAS01ATEX1278U – Latest supplement BAS01ATEX1278U/5 issued **Sept. 2012**

Provisions of the Directive fulfilled by the component:-

 Ex ia IIC Ga (-40°C ≤ Ta ≤ +85°C)
Ex ia IIIC Da (-40°C ≤ Ta ≤ +85°C)

Notified Body for EC-Type Examination & Production:- BASEEFA Ltd. – No.1180

BASEEFA Ltd.

Rockhead Business Park,

Staden Lane,

Buxton,

Derbyshire SK17 9RZ,

England

Tel:- +44 (0)1298 766600

Fax:- +44 (0)1298 766601

e-mail:- info@baseefa.com

Harmonised Standards used:-

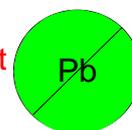
EN60079-0:2012

EN60079-11:2012

EN60079-26:2007

Other Standards used:-

This
component
is RoHS
compliant



On Behalf of Bedford Opto Technology Ltd., I declare that, the date the component accompanied by this statement is placed on the market, the component conforms with all technical and regulatory requirements of the ATEX Directive 94/9/EC **and the RoHS Directive 2011/65/EU.**

Mr R.W.Stott

Managing Director pp:-