OPI 2000M
High Speed Opto Isolator
Surface Mount
ATEX / IECEx Certified

This component is RoHS compliant

The OPI 2000M High Speed Optically Coupled Isolator consists of a High Speed Infrared emitter coupled to a silicon photo I.C. The unit is designed for applications requiring high voltage isolation between input & output.

- Surface Mount in Trays // Tape & Reel
- High Speed 2Mb/sec.
- 10KV isolation
- Low Propagation Delay

CERTIFICATE ATEX BAS01ATEX1285U/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 4 this datasheet.

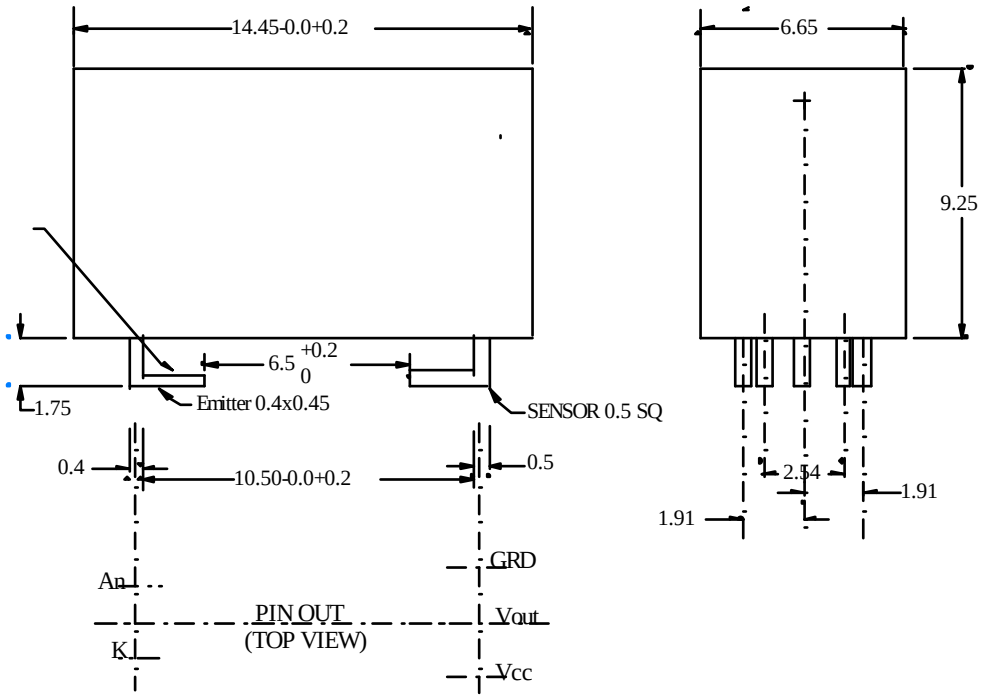
CERTIFICATE IECEx BAS 06.0021U/4

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 4 this datasheet

MECHANICAL DATA

SURFACE MOUNT LEAD FORM
CONDITIONS OF USE APPLY



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

Iss M 20.10.12

This component is RoHS compliant

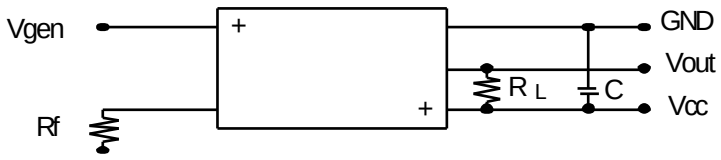
ABSOLUTE MAXIMUM RATINGS (25°C unless otherwise noted)

INPUT DIODE **FORWARD DC CURRENT** **REVERSE DC VOLTAGE** **POWER DISSIPATION**	 100mA 5 Volts 150mW (ii)
OUTPUT IC **MAX SUPPLY VOLTAGE** **POWER DISSIPATION**	 7 Volts 165mW
OPERATING TEMP	-40°C TO +80°C
STORAGE TEMP	-40°C TO +80°C
INPUT-TO-OUTPUT ISOLATION VOLTAGE	± 10KV DC (i)

i) Measured with the input leads and output leads shorted together for one min.
ii) Thermal resistance 450 K/W

Whilst the devices are capable of operating continually at the noted elevated temperatures users should be aware of the possibility of the need to increase the diode current to trigger the device over long periods at high temperatures & currents.

CIRCUIT



R_L=560 ohm C=0.01uF

Packing

Waffle Trays - 100 per tray 290mm x 200mm.
Tape & Reel - 300 Devices per 13" Diam Reel with 7" Hub 24mm Wide tape.

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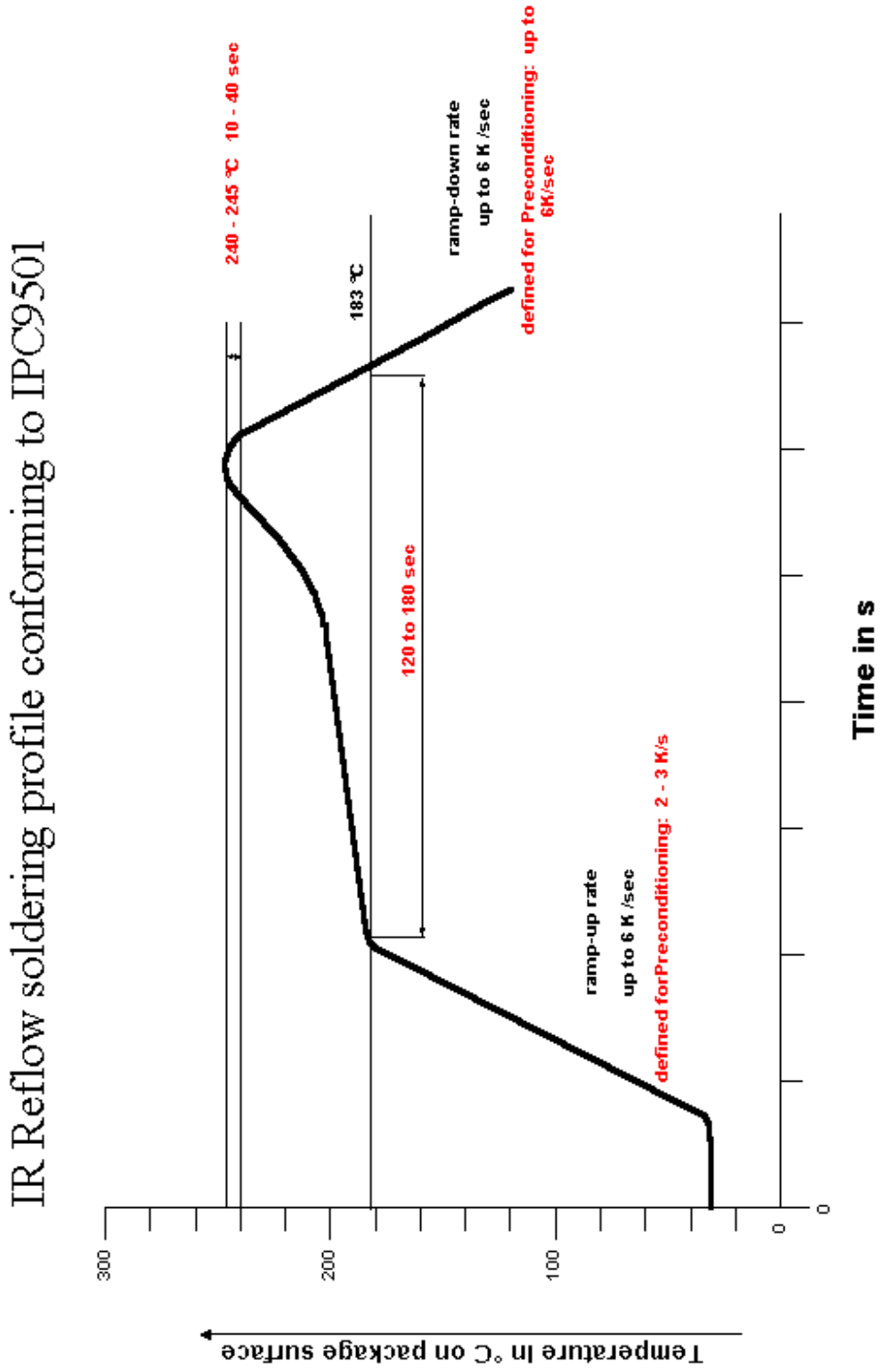
Pb

ADVISED SOLDERING CONDITIONS



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OPTO ELECTRONIC DATA (TA = 25°C)

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
INPUT DIODE						
Forward Voltage	V_F	-	1.35	1.6	V	If=100mA tp=20mS
Reverse Voltage	V_R	5.0	-	-	V	Ir = 100uA
OUTPUT IC (Vcc=4.75 to 5.25)						
High level Output Current	I_{CH}		-	100	uA	Ic = 10 uA
Low Level Output Voltage	V_{OL}		-	0.6	V	I_F=10mA I_{OL}=2.6mA
High Level Supply Current	I_{CCH}			15	mA	$I_{F=0}$
Low Level Supply Current	I_{CCL}			18	mA	$I_{F=7.5mA}$
COUPLED(Vcc=5volts)						
Propagation Delay to Low Output level	t_{PLH}			800	nSecs	RL=560ohms C=0.01uF
Propagation Delay to High Output Level	t_{PHL}			800	nSecs	ditto
Input/Output Isolation Voltage	Vi-o	10kV			Volts	Input and output leads shorted

SCHEDULE OF LIMITATIONS

EC TYPE EXAMINATION CERTIFICATE No. BAS01ATEX1285U/5 28th September 2012 SCHEDULE OF LIMITATIONS

1) - The surface mounted Opto Isolator OPI2000M must be mounted on a p.c.b. having a CTI of at least 175 so that creepage and clearance distances are not impaired. The surface mounted device is designed for the pins to be soldered to the pads on the same side of the printed circuit board as the component and must only be used either:-
   a) on a printed circuit board which is potted provided that the pad segregation maintains at least 2mm under potting.
   OR
   b) on a printed circuit board which is coated provided that the pad segregation mainyains at least 3.3mm under coating. Where the coating shall seal the connections after soldering and shall be two coats if applied by spraying OR a single coat if dipped, brushed or vacuum impregnated. A CTI of at least 175 shall apply to both the pcb substrate and the coating material.
   This condition 1), does not apply to the through hole version, OPI2000MTH for voltages up to 375V peak or d.c. provided that the mounting arrangement does not reduce the creepage distances to less than 10mm.
2) - The Opto Isolators OPI2000M and OPI2000MTH 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 Isolators OPI2000M and OPI2000MTH 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 Isolators are 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 Isolators OPI2000M and OPI2000MTH 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.

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

4. **Surface Mount OPI2000M only and in addition to above:**
   The surface mount OPI2000M must only be used on a printed circuit board that is either:
   a) potted, providing the pad segregation remains at least 2mm under the potting
   OR
   b) conformally coated, provided the pad segregation remains at least 3.3mm under the coating. The conformal coating must have CTI in excess of 175.
5. The Opto Isolator must be installed with external power limiting components as specified in:- IEC60079-11:2011 Ed 6, Clause 8.9.2.

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Iss M 20.10.12

CONFORMITY STATEMENT
OPI2000M

This component is RoHS compliant

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:-
BAS01ATEX1285U – Latest supplement BAS01ATEX1285U/***5*** issued ***Sept 2012***

Provisions of the Directive fulfilled by the component:-

	Ex ia IIC Ga (-40℃ ≤ Ta ≤ +80℃)
II 1 GD	Ex ia IIIC Da (-40℃ ≤ Ta ≤ +80℃)

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

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e-mail:- info@baseefa.com

Harmonised Standards used:-

EN60079-0:***2012***
EN60079-11:***2012***
EN60079-26:2007

Other Standards used:-

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***.

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Mr R.W.Stott
Managing Director PP-

Iss M 20.10.12