GET-10806

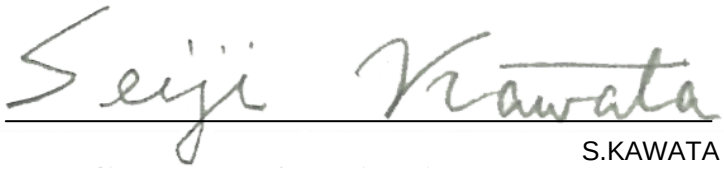
Safety Standard Certificate for Photocouplers

PS2701, PS2701A, PS2702, PS2703, PS2705, PS2705A, PS2706, PS2711, PS2715, PS2733, PS2761B, PS2801, PS2801A, PS2801C, PS2802, PS2805, PS2805A, PS2805C, PS2806, PS2811, PS2815, PS2833, PS2841, PS2845, PS2861B, PS8101, PS9113, PS9117A, PS9121, PS9122, PS9123, PS9124, PS9151

● UL Certificate

Standard UL 1577

File No. E72422 Vol.1, Sec.42



S.KAWATA

Senior Manager
General Purpose Analog and Power Solution Department
General Purpose Analog and Power Business Division
2nd Solution Business Unit
Renesas Electronics Corporation

July 3, 2014

DESCRIPTION

PRODUCT COVERED:

The following optical isolators may or may not include prefix PS and may be followed by additional numbers and/or letters. The order of the established suffixes may be interchangeable.

USR – Single Protection Optical Isolator, Types 9114, 9117, 9117A, 9151, 9121, 9122, 9123 and PS9124.

USR, CNR – Single protection optical isolators, Type 9113.

USR – **Single protection** Types 2701, 2701A, 2702, 2703, 2705, 2705A, 2706, 2711, 2715; may be followed by -1; may be followed by -E3, -E4, -F3, -F4.

USR - **Single protection** Type PS 28XX-4 Series, may be followed by -V, may be followed by -F3 or -F4. XX may be numbers 01, 02, 05, 06, 11, 15, 31, or 33. Type PS28XX-1 Series, may be followed by -V, may be followed by -F3 or -F4. XX may be 01, 02, 05, 06, 11, 15, or 33.

USR - **Single protection** Optical Isolators, Single Protection, Type PS2801A-1, PS2801C-1, PS2801A-4, PS2801C-4, PS2805A-1, PS2805C-1, PS2805A-4, and PS2805C-4.

USR - **Single protection** Optical Isolator, Type 2733, may be followed by -1; may be followed by -E3, -E4, -F3, -F4.

USR - Single Protection Optical Isolator, Model PS9115, may be followed by -V, may be followed by -F3.

USR, Component – Single Protection Optical Isolator, Type PS2761B-1.

USR, Component – Double Protection Optical Isolators, Type PS2761B-1

*USR - Single Protection Optical Isolator, Type 2861B-1, may be followed by -F3 or –F4, may be followed by -V.

USR - **Single protection** Optical Isolator, Type PS2841-4A, PS2841-4B and PS2845-4A.

USR - Single Protection Optical Isolator, Type PS8101
; may be followed by -F3 or -F4.

***MAXIMUM RATINGS PER CHANNEL (at 25°C ambient) ($):**

Model	Current (Ma)		Power (Mw)		Isolation Voltage	Max Operating (Ambient) Temp (°C)	Max Junction Temp (°C)	Max Storage Temp (°C)
	Emitter	Sensor	Emitter	Sensor				
PS9113	25	15	45 @1 Mbps	100 @1 Mbps	3750	100	125	125
PS9114	30	25	105 @10 Mbps	40 @10 Mbps	3750	85	125	125
PS9117	30	25	105 @10 Mbps	40 @10 Mbps	3750	85	125	125
PS9117A	30	25	105 @10 Mbps	40 @10 Mbps	3750	100	125	125
PS9151	20	2	45 @15 Mbps	40 @15 Mbps	3750	100	125	125
PS9121	30	25	60 @15 Mbps	40 @15 Mbps	3750	85	125	125
PS9122	25	20	50 @1 Mbps	40 @1 Mbps	3750	100	125	125
PS9123	20	13	50	130	3750	100	125	125
PS9124	25	25	105	200	3750	110	125	125
PS2701, PS2705, PS2711, PS2715	50	80	80	150	3750	100	125	150
PS2702, PS2706	50	200	80	150	3750	100	125	150
PS2703	50	30	80	150	3750	100	125	150
PS2701A, PS2705A	50	30	80	150	3750	100	125	150
PS2801-1	50	50	60	120	2500	100	125	**150**
PS2801-4	50	50	80	120	2500	100	125	**150**
PS2801A-*1	30	30	60	120	2500	100	125	**150**
PS2801A-4	30	30	80	120	2500	100	125	**150**
PS2801C-1	30	30	60	120	2500	100	125	**150**
PS2801C-4	30	30	80	120	2500	100	125	**150**
PS2802-1	50	90	60	120	2500	100	125	**150**
PS2802-4	50	100	80	120	2500	100	125	**150**
PS2805-1	±50	50	60	120	2500	100	125	**150**
PS2805-4	±50	50	80	120	2500	100	125	**150**
PS2805A-1	±30	30	60	120	2500	100	125	**150**
PS2805A-4	±30	30	80	120	2500	100	125	**150**
PS2805C-1	±30	30	60	120	2500	100	125	**150**
PS2805C-4	±30	30	80	120	2500	100	125	**150**
PS2806-1	±50	90	60	120	2500	100	125	**150**
PS2806-4	±50	100	80	120	2500	100	125	**150**
PS2811-1	50	40	60	120	2500	100	125	**150**
PS2811-4	50	40	70	120	2500	100	125	**150**
PS2815-1	±50	40	60	120	2500	100	125	**150**
PS2815-4	±50	40	70	120	2500	100	125	**150**
PS2831-4	50	120	80	120	2500	100	125	**150**
*								**150**
*								**150**
PS2833-1	50	60	60	120	2500	100	125	**150**
PS2833-4	50	60	80	120	2500	100	125	**150**

RATINGS (Cont.):

Model	Current (mA)		Power (mW)		Isolation Voltage	Max Operating (Ambient) Temp (°C)	Max Junction Temp (°C)	Max Storage Temp (°C)
2733-1	50	200	80	150	2500	100	125	**150**
PS9115	30	13	45 @ 10 Mbps	130 @ 10 Mbps	3750	85	125	**125**
PS2761B-1	50	50	80	150	3750	110	125	150
PS2841-4A	20	20	24	40	1500	100	125	100
PS2841-4B	20	20	24	40	1500	100	125	100
PS2845-4A	20	20	24	40	1500	100	125	100
*								
PS2861B-1	50	50	60	120	3750	110	125	150
PS8101	25	8	45 @1 Mbps	100 @ 1 Mbps	3750	100	125	125

($) - For ambient temperatures higher than 25°C and up to Tmoa, refer to manufacturer's specifications and/or thermal derating curve data for complete electrical ratings.

GENERAL:

These devices are optically coupled isolating switches with gallium arsenide light emitting diodes optically coupled to photo detectors. The solid state portion of these devices is encapsulated in a silicon or epoxy compound. The light emitting diode and detector are separated by an insulating window. Internal "chips" are provided with terminals molded into the enclosure.

ENGINEERING CONSIDERATIONS (NOT FOR FIELD REPRESENTATIVE'S USE):

Use - For use only in products where the acceptability of the combination is determined by Underwriters Laboratories Inc.

USR indicates this product was investigated under the UL Standard for Safety for Optical Isolators, UL 1577, Fourth Edition, revised January 20, 2010.

CNR indicates this product was investigated under the Canadian Certification Notice, CSA Component Acceptance Service No. 5A.

CONDITION OF ACCEPTABILITY - Each device shall be reviewed with respect to the following conditions of acceptability:

1. **The capability of the device to control a load has not been investigated.**

2. **These devices should be installed in a suitable end product enclosure.**

3. **The maximum junction temperature shall not be exceeded.**

4. **For single protection devices, the insulation to the case has not been evaluated. For double protection devices, the insulation to the case has been evaluated to the isolation voltage specified in the ratings table.**

5. **In addition to meeting single protection requirements, double protection optical isolators have also been investigated for use in up to 250 V, 50/60 Hz circuits in audio, video, and similar equipment in applications in which breakdown of the optical isolator may result in a risk of fire, electrical shock, or injury to persons.**

*

CERTIFICATE OF COMPLIANCE

Certificate Number	20140603-E72422
Report Reference	E72422-20010706
Issue Date	2014-JUNE-03

Issued to:	RENESAS ELECTRONICS CORPORATION GENERAL PURPOSE ANALOG AND POWER BUSINESS DIV COMPOUND SEMICONDUCTOR DESIGN DEPT 1753 SHIMONUMABE,NAKAHARA-KU KAWASAKI KANAGAWA 211-8668 JAPAN
This is to certify that representative samples of	COMPONENT - OPTICAL ISOLATORS See addendum page for models
	Have been investigated by UL in accordance with the Standard(s) indicated on this Certificate.
Standard(s) for Safety:	See addendum page for standards
Additional Information:	See the UL Online Certifications Directory at www.ul.com/database for additional information

Only those products bearing the UL Recognized Component Marks for the U.S. and Canada should be considered as being covered by UL's Recognition and Follow-Up Service and meeting the appropriate U.S. and Canadian requirements.

The UL Recognized Component Mark for the U.S. generally consists of the manufacturer's identification and catalog number, model number or other product designation as specified under "Marking" for the particular Recognition as published in the appropriate UL Directory. As a supplementary means of identifying products that have been produced under UL's Component Recognition Program, UL's Recognized Component Mark: , may be used in conjunction with the required Recognized Marks. The Recognized Component Mark is required when specified in the UL Directory preceding the recognitions or under "Markings" for the individual recognitions. The UL Recognized Component Mark for Canada consists of the UL Recognized Mark for Canada: and the manufacturer's identification and catalog number, model number or other product designation as specified under "Marking" for the particular Recognition as published in the appropriate UL Directory.

Recognized components are incomplete in certain constructional features or restricted in performance capabilities and are intended for use as components of complete equipment submitted for investigation rather than for direct separate installation in the field. The final acceptance of the component is dependent upon its installation and use in complete equipment submitted to UL LLC.

Look for the UL Recognized Component Mark on the product.

William R. Carney

William R. Carney, Director, North American Certification Programs

UL LLC

CERTIFICATE OF COMPLIANCE

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Issue Date	2014-JUNE-03

This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements.

Standards for safety

UL 1577 - Standard for Optical Isolators
CSA Component Acceptance Service Notice No. 5 - Component Acceptance Service for Optocouplers and Related Devices

Product/model

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USR - Single Protection Optical Isolator, Model PS9115, may be followed by -V, may be followed by -F3.

USR, Component – Single Protection Optical Isolator, Type PS2761B-1.

USR, Component – Double Protection Optical Isolators, Type PS2761B-1

William R. Carney

William R. Carney, Director, North American Certification Programs

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USR - Single Protection Optical Isolator, Type 2861B-1, may be followed by -F3 or –F4, may be followed by -V.

USR - Single protection Optical Isolator, Type PS2841-4A, PS2841-4B and PS2845-4A.

USR - Single Protection Optical Isolator, Type PS8101 ; may be followed by -F3 or -F4.

William R. Carney

William R. Carney, Director, North American Certification Programs

UL LLC