File E90700 Vol 2 Issued: 1998-11-17
Revised: 2010-11-05

FOLLOW-UP SERVICE PROCEDURE
(TYPE R)

COMPONENT - OPTICAL ISOLATORS
(FPQU2,FPQU8)

Manufacturer: (153559-001)
LITE-ON ELECTRONICS (THAILAND) CO LTD
38/4 MOO 1 RANGSIT-ONGKARAK RD
BUNGYEETOH
TANYABURI
PHATHUM THANI 12130 THAILAND

Applicant: (725625-001)
FAIRCHILD SEMICONDUCTOR CORP
3030 ORCHARD PKY
SAN JOSE CA 95134

Recognized Company: (725625-001)
SAME AS APPLICANT

This Procedure authorizes the above manufacturer to use the marking specified by Underwriters Laboratories Inc.(UL), or any authorized licensee of UL, only on products covered by this Procedure, in accordance with the applicable UL Services Agreement.

The prescribed Mark or Marking shall be used only at the above manufacturing location on such products which comply with this Procedure and any other applicable requirements.

The Procedure contains information for the use of the above named Manufacturer and representatives of Underwriters Laboratories Inc. and is not to be used for any other purpose. It is lent to the Manufacturer with the understanding that it is not to be copied, either wholly or in part, and that it will be returned to Underwriters Laboratories Inc. (UL) or any authorized licensee of UL, upon request.

This PROCEDURE, and any subsequent revision, is the property of Underwriters Laboratories Inc.(UL) and the authorized licensee of UL and is not transferable.

Underwriters Laboratories Inc.

Stephen Hewson
Senior Vice President
Global Follow-Up Service Operations

William R. Carney
Director
North American Certification Program

Recognized Component Marking Data Page (RCMDP)

(FILE IMMEDIATELY AFTER AUTHORIZATION PAGE)

RECOGNIZED COMPONENT MARKING

Products Recognized under UL's Component Recognition Service are identified by marking elements consisting of:

1. The Recognized Company's identification specified in this document.

2. A catalog, model or other applicable product designation specified in the descriptive sections of this document.

3. The UL Recognized Component Mark shown below is optional unless required elsewhere in the Procedure.

Only those components, which actually bear the Marking, should be considered as being covered under the Recognition Program. The UL Listing or Classification Mark is not authorized for use on or in connection with Recognized Components.

Recognized Component Mark

Minimum size of the Recognized Component Mark is not specified as long as it is legible. Minimum height of the registered symbol ® shall be 3/64 inch but may be omitted if it is out of proportion to the Recognized Component Mark or not legible to the naked eye.

The manufacturer may reproduce the Mark electronically. Any decision regarding the acceptability of the manufacturer's Mark reproduction will be made at the Reviewing Office.

THIS FORM PAGE IS TO BE REVISED BY THE NORTHBROOK LABEL DEPARTMENT ONLY

Recognized Component Marking Data Page (RCMDP)

(FILE IMMEDIATELY AFTER AUTHORIZATION PAGE)

RECOGNIZED COMPONENT MARKING

Products Recognized under UL's Component Recognition Service are identified by marking elements consisting of:

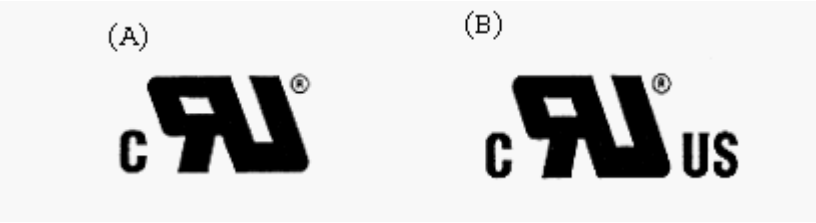
1. The Recognized Company's identification specified in this document.

2. A catalog, model or other applicable product designation specified in the descriptive sections of this document.

3. The UL Recognized Component Mark shown below:
   (A) Recognized only to Canadian safety requirements, or;
   (B) Recognized to both U.S. and Canadian safety requirements.

Only those components, which actually bear the Marking, should be considered as being covered under the Recognition Program. The UL Listing or Classification Mark is not authorized for use on or in connection with Recognized Components.

Recognized Component Mark



Minimum size of the Recognized Component Mark is not specified as long as it is legible. Minimum height of the registered symbol ® shall be 3/64 inch but may be omitted if it is out of proportion to the Recognized Component Mark or not legible to the naked eye.

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Optical Isolator, Type FODB1XX, where XX can be any two numerical digits from 00 to 99. **May be followed by additional numbers and/or letters.**	6	2004-07-20
WITHDRAWN	7	2005-08-05
Withdrawn	8	2007-01-05

MANUFACTURING AND PRODUCTION LINE TESTS

TEST TO BE CONDUCTED BY MANUFACTURER:

Dielectric Voltage-Withstand Test -

Each optical isolator shall withstand, as a routine production-line test, the application of a potential between the input and output terminals. For an optical isolator having an ac isolation voltage rating, the frequency of the applied potential shall be 40 – 70 Hz. A dc test potential shall be applied for an optical isolator having a dc rated dielectric insulation voltage. A dc potential equal to 1.414 times the specified 40 – 70 Hz potential may be used if an ac rated optical isolator has solid state components that may be damaged by an ac potential.

The production-line test potential shall be the rated dielectric insulation voltage for 60 seconds or 120 percent of the rated dielectric insulation voltage for one second. For a double protection optical isolator, the test potential is to be the rated isolation rms voltage or 2500 V, whichever is greater. **A tolerance of –0, +5% is allowed.**

The product may be in a heated or unheated condition for the test.

TEST EQUIPMENT PROVIDED BY MANUFACTURER:

The test equipment for conducting the dielectric voltage-withstand test is to have the following features and characteristics:

a) A means of indicating the test potential, in volts rms,

b) A 40 – 70 Hz test potential that has:

1) A sinusoidal waveform, and

2) A peak value of the waveform that is not to be less than 1.3 and not more than 1.5 times the root-mean-square value.

c) An automatic reject feature that rejects any unacceptable unit or an audible or visual indicator of electrical breakdown. If the indicator of breakdown is audible or visual, the indicator is to remain active until the test equipment is reset manually.

If the output of the test-equipment is less than 500 VA, the equipment is to include a voltmeter in the output circuit to indicate the test potential directly.

If the output of the test-equipment is 500 VA or larger, the test potential may be indicated:

a) By a voltmeter in the primary circuit or in a tertiary-winding circuit,

b) By a selector switch marked to indicate the test potential, or

c) In the case of test equipment that has a single output potential, by a marking in a readily visible location to indicate the test potential. When marking is used without an indicating voltmeter, the equipment is to include a positive means, such as an indicator lamp, to indicate that the manual-reset switch actually resets following a dielectric breakdown.

Test equipment other than that described above may be used if found acceptable to accomplish the intended factory control.

GENERAL

PRODUCT COVERED:

Component-Optical Isolators.

*

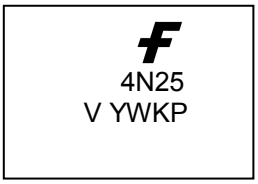
MARKING:

USR - Recognized company name or trademark, and model designation provided on each unit.

CNR - Recognized company name or trademark, model designation, and the Recognized Component Mark for Canada , provided on each unit.

*

F	-	Denotes Company Trademark.
4N25	-	Denotes Designation Type.
V	-	Denotes VDE Approved Part.
XY	-	Denotes One or Two Digit Year Code.
WK	-	Denotes Two Digit Week Code.
P	-	Denotes Package Code.



Note: The space between the V and the Y may very.

TRADE NAME/TRADEMARK:

The following trade name or trademark, "Q" or "QTC" or F, if any, may be used in lieu of the company name to identify Recognized Components covered by this procedure.

Note: Company Trademark can be located Above or Before the "Designation Type".

RATINGS:

Specification Sheet – A specification sheet shall be provided with the product and contain the following information in tabular or graphic format:

1. **Maximum continuous power, a current, and voltage rating for both the photo-emitter and the photo-sensor circuits.**

2. **A dielectric isolation-voltage rating between input and output terminals, specified in volts rms, or dc, as applicable.**

3. **The maximum operating temperature.**

4. **Derating specifications related to ambient temperatures.**

GENERAL CONSTRUCTION:

Corrosion Protection - All ferrous parts are of corrosion resistant material or are plated or painted as corrosion protection.

File E90700
Project 98SC45471

November 17, 1998

REPORT

ON

COMPONENT - OPTICAL ISOLATORS

QT Optoelectronics
Sunnyvale, California

DESCRIPTION

PRODUCT COVERED:

Component - Optical Isolators, Construction Code "Q", six-pin devices.

Types H74C1, H74C2, MCA230, MCA231, MCA255, MCS2, MCS2400, MCT2, MCT2E, MCT26, MCT210, MCT271 through MCT275, MCT277, SOI-8, 107P10139, 107P10124, 374-0135, 385-0002, 480-1 through 480-4, 480-6, 162-18-0 through -8, 162-19-0 through -8, 326802, 335522, 404325, 1853010MTE, 12852153, 0355L1. **May be followed by additional numbers and/or letters.**

Types 01S63, 01S63A, 01S67, 01S67A, TLP531, TLP532. **May be followed by additional numbers and/or letters.**

*Types 4N, CNX, CNY, H11, IL, MC, OPI, SCS, SOC, TIL, **may be** followed by **additional** letters or numbers; Type MOC, **may be** followed by **additional numbers and/or letters**, except 2.

*GENERAL:

This device is a photo-coupled isolator consisting of a photo-emitter such as a light emitting diode, optically coupled to a photo detector such as a transistor. They are intended to be used in applications where the suitability of the combination has been determined by Underwriters Laboratories Inc. Only the insulation function for the rated dielectric insulation voltage between the input and output of the device has been investigated.

RATINGS:

Electrical Ratings for "Q" Package					
Diode Current	Diode Power	Detector Power	Dielectric Voltage (V ac rms)	Double Protection Isolation Rating (V ac rms)	Max Operating Temp (°C)
80 mA	150 mW	150 mW	4170	3500	100

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

These devices are opticallly 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.

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

Conditions of Acceptability - Each device shall be reviewed with respect to the following conditions of acceptability:

1. The short circuit interrupting capacity, or behavior under short circuit conditions, has not been evaluated for these devices. Accordingly, the end-use circuit should contain suitable impedance to eliminate the end for such testing, or appropriate tests should be conducted.

2. The device shall be installed in compliance with the enclosure, mounting, spacings, and segregation requirements of the ultimate application. No spacings are specified for the device.

3. The outer surface temperature ratings recorded above shall be acceptable in the ultimate application.

4. The suitability of use when exposed to oil, chemicals and the like has not been determined by this investigation.

5. The suitability of the connections shall be determined in the end-use application.

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

7. The suitability of the device to be mounted over dead metal or metal of opposite polarity has not been investigated.

8. These devices are intended for factory wiring only.

9. 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.

10. 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.

CONSTRUCTION DETAILS:

The product shall be constructed in accordance with the following description.

All dimensions are approximate unless specified as "max" or "min".

The general design, shape and arrangement shall be as illustrated, except where variations are specifically described.

Corrosion Protection - All ferrous parts are of corrosion resistant material or are plated or painted as corrosion protection.

Markings - Each device or the smallest shipping carton in which the device was shipped is marked with the company's name or "QTC" or "Q" or F above or before a 3 or 4 digit type designation. Below the type designation, there is a 3 or 4 digit date code which may be preceded by the factory code, see Sec. Gen., and is followed by a "Q" for the construction system.

File E90700
Project 01SC02681

April 13, 2001

REPORT

ON

COMPONENT – OPTICAL ISOLATORS

Fairchild Semiconductor Corp.
San Jose, California

DESCRIPTION

PRODUCT COVERED:

* USR, CNR – Double Protection Optical Isolators, **FODM452**, FODM453.

* USR, CNR- Single Protection Optical Isolators , FODM8061, **FODM611**, **FODM8071**, **FODM8801**, **FODM8811**.

USR - Single Protection Optical Isolaters, HMA121#, HMA124#, HMA2701#, HMAA2705#, HMHA2801#, HMHA281# and HMHAA280#, FODMRPXX family: FODM3010, FODM3011, FODM3012, FODM3020, FODM3021, FODM3022, FODM3023, FODM3051, FODM3052 and FODM3053, Package Construction Codes M and M1, four-pin devices, FODMRPXX family.

GENERAL:

* **These devices are** photocoupled **isolators** consisting of a photo-emitter such as a light emitting diode, optically coupled to a photo detector such as a transistor. They are intended to be used in applications where the suitability of the combination has been determined by Underwriters Laboratories Inc. Only the insulation function for the rated dielectric insulation voltage between the input and output of the device has been investigated.

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

Ratings:

	Current (mA)		Power (mW)			Max Operating	Max Junction
Package Code/ Models	Diode	Detector	Diode	Detector	Isolation Voltage	Temperature (C)	Temperature (C)
M/ HMA121#, HMA124#, HMA2701#, HMAA2705#,	50	80	70	150	3750	100	125
M/ FODM452, FODM453 Double Protection	50	80	70	150	3750	110	125
M1/ HMHA2801#, HMHA281#, HMHAA280#	50	50	60	150	3750	100	125
M/ FODM8061, FODM611	20	50	40	85	3750	110	125
M/ FODM8071	20	10	40	70	3750	110	125
FODM8801, FODM8811	**30**	**50**	**40**	**150**	**3750**	**125**	**150**

Ratings Continued:

Device Type Designation Package code M	Current (mA)		Power (mW)		Isolation Voltage	Max Operating Temperature °C	Max Junction Temperature °C
	Diode	Detector	Diode	Detector			
FODMRPXX Family: FODM3010 FODM3011 FODM3012 FODM3020 FODM3021 FODM3022 FODM3023 FODM3051 FODM3052 FODM3053	60	70	100	300	3750	100	125

See table below for models covered under each package code.

Package Code	Device Type Number
M	HMA121#, HMA124#, HMA2701#, HMAA2705#, FODM452, FODM453, FODM8061, FODM611, FODM8071, FODMRPXX family
M1	HMHA2801#, HMHA281#, HMHAA280#

 # - May be followed by a letter from A to Z

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

These devices are optically coupled isolating switches with 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.

Conditions 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 temperature on the case should not exceed the maximum operating temperature rating specified in the ratings table.

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.**

CONSTRUCTION DETAILS:

General – The product shall be constructed in accordance with the following description. All dimensions are approximate unless specified as "max" or "min".

The general design, shape and arrangement shall be as illustrated, except where variations are specifically described.

Corrosion Protection – All ferrous parts are of corrosion resistant material or are plated or painted as corrosion protection.

Markings – See Section General for Markings.

Model Differences – All models have identical insulation systems. The only difference is the leadframe design or the size of the IC devices.

Abbreviation – R/C – Recognized Component

Pin Connections – See ILLS. 4 and 4A for details.

Package Dimensions – See ILLS. 5 and 5A for details.

Leadframe Design – See ILLS. 3, 3A, 6, 6A, 7, 8, 8A, 9, 10, 11, and 12, for details.
For Engineering use only.

See illustration 14 for package dimensions, leadframe design and pin connections for models type FODM8061, FODM611, FODM8071, FODM452 and FODM453.

File E90700
Project 01SC13002

January 31, 2002

REPORT

ON

COMPONENT - OPTICAL ISOLATORS

Fairchild Semiconductor Corp.
San Jose, California

DESCRIPTION

PRODUCT COVERED:

Component - Optical Isolators, Construction Code A, six-pin devices.

RATINGS:

	Current, mA		Power, mW		Isolation	Junction	Maximum
Package Code	Diode	Detector ac/dc	Diode	Detector	Voltage (ac)	Temp.,°C	Operating Temp., °C
A	80	190/320	150	375	4170	125	100

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

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.

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

CONDITIONS OF ACCEPTABILITY -

Each device shall be reviewed with respect to the following conditions of acceptability:

1. The short circuit interrupting capacity or behavior under short circuit conditions has not been evaluated for these devices. Accordingly, the end-use circuit should contain suitable impedance to eliminate the need for such testing or appropriate tests should be conducted.

2. The device shall be installed in compliance with the enclosure, mounting, spacings and segregation requirements of the ultimate application. No spacings are specified for the device.

3. The suitability of use when exposed to oil, chemicals and the like has not been determined by this investigation.

4. The electrical and outer surface temperature ratings shall be acceptable in the ultimate application.

5. The suitability of the connections shall be determined in the end-use application.

CONDITIONS OF ACCEPTABILITY – (Cont'd)

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

7. The suitability of the device to be mounted over dead metal or metal of opposite polarity has not been investigated.

8. These devices are intended for factory wiring only.

CONSTRUCTION DETAILS:

General - The general design, shape and arrangement shall be as illustrated in the following descriptive pages and illustrations. All dimensions are approximate.

* Markings – See Section General for Markings.

Specification Sheet - Specification sheet shall be available at the manufacturing facility and shall contain the following information in tabular or graphic format:

1. Maximum continuous power, a current and a voltage rating for both the photo-emitter and the photo-detector.

2. A dielectric insulation-voltage rating between input and output terminals. This should be the same as the isolation V ac in the ratings above.

3. The maximum operating temperature of the device case.

4. Derating specification related to ambient temperatures.

Model Differences - All models have identical insulation systems. The only difference is the leadframe design or the size of the IC devices.

Abbreviation - R/C = Recognized Component.

Model Numbers and Ratings – See Table A for models covered under package Code A.

Pin Connections - See ILL. 1 for details.

Package Dimensions - See ILL. 2 for details.

TABLE A
MODELS UNDER PACKAGE CODE A

Model No.	Current, mA		Power, mW		Isolation	Junction	Maximum
	Diode	Detector Ac/Dc	Diode	Detector	Voltage (ac)	Temperature °C	Operating Temp. °C
HSR312	80	190/320	150	375	4170	125	100
HSR312L	80	170/300	150	375	4170	125	100
HSR412	80	140/210	150	375	4170	125	100
HSR412L	80	120/200	150	375	4170	125	100
FOD1518AN	80	190/320	150	550	4170	125	100
FOD1518A	80	170/300	150	550	4170	125	100
FOD1540AN	80	140/270	150	550	4170	125	100
FOD1540A	80	120/250	150	550	4170	125	100

Note: Models HSR312, HRS312L, HSR412 and HSR412L, shown in Fig. 1, ILLs. 1 and 2, correspond to Models FOD1518AN, FOD1518A, FOD1540AN and FOD1540A respectively. **May be followed by additional numbers and/or letters.**

File E90700
Project 02SC04973

April 17, 2002

REPORT

ON

COMPONENT - OPTICAL ISOLATORS

Fairchild Semiconductor Corp.
San Jose, California

DESCRIPTION

PRODUCT COVERED:

USR, CNR Component – Double Protection Optical Isolators, Construction Code "B", eight-pin devices, Models as shown in the Ratings table. **May be followed by additional numbers and/or letters.**

* **USR, CNR – Single Protection Optical Isolator, Construction Code "B", Models FOD318, FOD3120 and FOD3150, may be followed by additional numbers and/or letters.**

RATINGS:

Model No.	Current, mA		Power, mW		Isolation Voltage (V Ac Rms)	Junction Temp. °C	Max Operating Temp. °C
	Diode	Detector	Diode	Detector			
FOD2711, FOD2711A	20	50	145	85	5000	125	100
FOD2721A	20	50	145	85	5000	125	100
FOD2721B	20	50	145	85	5000	125	100
FOD2721C	20	50	145	85	5000	125	100
FOD2721D	20	50	145	85	5000	125	100
FOD2741A	20	50	145	85	5000	125	100
FOD2741B	20	50	145	85	5000	125	100
FOD2741C	20	50	145	85	5000	125	100
FOD2741D	20	50	145	85	5000	125	100
FOD250L	25	8	45	100	5000	125	100
FOD270L	25	60	45	100	5000	125	100
6N135	25	8	45	100	5000	125	100
6N136	25	8	45	100	5000	125	100
HCPL-2501	25	8	45	100	5000	125	100
HCPL-2502	25	8	45	100	5000	125	100
HCPL-2503	25	8	45	100	5000	125	100
HCPL-4502	25	8	45	100	5000	125	100
HCPL-4503	25	8	45	100	5000	125	100
6N138	25	60	45	100	5000	125	100
6N139	25	60	45	100	5000	125	100
FOD2743A	20	50	145	85	5000	125	100

RATINGS (continued):

Model No.	Current, mA		Power, mW		Isolation Voltage (V Ac Rms)	Junction Temp. °C	Max Operating Temp. °C
	Diode	Detector	Diode	Detector			
FOD2743B	20	50	145	85	5000	125	100
FOD2743C	20	50	145	85	5000	125	100
FOD2200	10	25	45	150	5000	125	85
FOD2219	10	25	45	150	5000	125	85
FOD2708	20	2	40	85	5000	125	100
6N137M	20	50	40	85	5000	125	100
HCPL2601M	20	50	40	85	5000	125	100
HCPL2611M	20	50	40	85	5000	125	100
FOD261N	20	50	40	85	5000	125	100
FOD261A	20	50	40	85	5000	125	100
FOD260L	20	50	40	85	5000	125	100
FOD261NL	20	50	40	85	5000	125	100
FOD261AL	20	50	40	85	5000	125	100

Model	Current (mA)		Power (mW)		Max. Transfer Speed	Isolation Voltage (AC)	Max Operating Temp (°C)	Max Junction Temp(°C)	Max Storage Temp(°C)
	Emitter	Sensor	Emitter	Sensor					
FOD3120	25	2500	45	250	100 KHz	5000	100	125	125
FOD3150	25	800	45	250	100 KHz	5000	100	125	125
*FOD318	25	2500	45	250	250 KHz	5000	100	125	125

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

These devices are optically coupled isolating switches consisting of a photo-emitter such as light emitting diodes optically coupled to photo detectors such as transistors. The solid state portion of these devices is encapsulated in a silicone 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. Only the insulation function for the rated Dielectric Insulation Voltage between the input and output of the device has been investigated.

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

USR indicates that the optical isolators have been evaluated to the US Standard for Optical Isolators, UL 1577, 4th Edition.

CNR indicates that the optical isolators have been evaluated to the Canadian Standard for Optical Isolators, Component Acceptance Service No. 5A.

Conditions 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 temperature on the case should not exceed the maximum operating temperature rating specified in the ratings table.**

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.**

*

CONSTRUCTION DETAILS:

General - The general design, shape and arrangement shall be as illustrated in the following descriptive pages and illustrations. All dimensions are approximate, unless specified as "maximum" or "minimum."

Corrosion Protection – All ferrous parts are of corrosion resistant material or are plated or painted as corrosion protection.

Markings – – Each component is marked with the company's name or "Q" or ⨍, above or before the type designation. The package code will be specified after a four-digit date code. See the nomenclature below for more details. Markings may appear on the smallest shipping container.

Example device marking:

ⱡ
250L
VYYXXB

Nomenclature:

ⱡ or Q denotes Company logo.

2712: Denotes device type. The '250L' is the marking for the FOD250L device. The prefix 'FOD' will be ignored in the device marking.

YYXX: Denotes Date code,
where YY = Two digit year code, Example: 03 indicates year 2003.
XX = Two digit work week code

B: Denotes Package Code B

V: Optional - Denotes VDE 0884 approval mark

Specification Sheet - Specification sheet shall be available at the manufacturing facility and shall contain the following information in tabular or graphic format:

1. Maximum continuous power, a current and a voltage rating for both the photo-emitter and the photo-detector.

2. A dielectric insulation-voltage rating between input and output terminals. This should be the same as the isolation V ac in the ratings above.

3. The maximum operating temperature of the device case.

4. Derating specification related to ambient temperatures.

Model Differences - All models have identical insulation systems. The only difference is the leadframe design or the size of the IC devices. Models FOD2743A/B/C are identical to models FOD2741A/B/C except the orientation of the die inside the package is reversed.

Abbreviation - R/C = Recognized Component.

Pin Connections - See ILL. 1 for details.

Package Dimensions - See ILLS. 2, 3 and 4 for details.

Model FOD318X is identical to Model **FOD2711A** except for the leadframe design or the size of the IC devices.

File E90700
Project 02SC09316

August 7, 2002

REPORT

ON

COMPONENT - OPTICAL ISOLATORS

Fairchild Semiconductor Corp.
San Jose, California

DESCRIPTION

PRODUCT COVERED:

USR Component - Optical Isolators, Construction Code S and S1, eight-pin devices, Models as shown in the ratings Table. **"X" may be any number. "Y" may be A, B, C or D. All models may be followed by additional numbers and/or letters.**

RATINGS:

MODELS UNDER PACKAGE CODE S

	EMITTER		DETECTOR		Isolation	Junction	Maximum
Model No.	Current (mA)	Power (mW)	Current (mA)	Power (mW)	Voltage (V ac rms)	Temp °C	Operating Temp. °C
FOD27X2Y	20	145	50	85	2500	125	125
HCPL-05XX	50	45	16	100	2500	125	125
HCPL-04XX	50	45	16	100	2500	125	125
HCPL-07XX	40	35	60	100	2500	125	125
HCPL-06XX	20	20	50	85	2500	125	125
MOC2XX	60	90	150	150	2500	125	125
MOCD2XX	60	90	150	150	2500	125	125
FOD050L	25	45	8	100	2500	125	100
FOD053L	25	45	8	100	2500	125	100
HCPL-0530	25	45	8	100	2500	125	100
HCPL-0531	25	45	8	100	2500	125	100
HCPL-0534	25	45	8	100	2500	125	100
HCPL-0453	25	45	8	100	2500	125	100
FOD070L	25	45	60	100	2500	125	100
FOD073L	25	45	60	100	2500	125	100
HCPL-0730	25	45	60	100	2500	125	100
HCPL-0731	25	45	60	100	2500	125	100
FOD0708	20	2	40	85	2500	125	100
FOD0708L	20	2	40	85	2500	125	100
FOD0738	20	2	40	65	2500	125	100
FOD0738L	20	2	40	65	2500	125	100
HCPL0611	20	50	40	85	2500	125	100
FOD061N	20	50	40	85	2500	125	100
FOD061A	20	50	40	85	2500	125	100
FOD060L	20	50	40	85	2500	125	100
FOD061NL	20	50	40	85	2500	125	100
FOD061AL	20	50	40	85	2500	125	100
HCPL0630	20	50	40	65	2500	125	100
HCPL-0631	20	50	40	65	2500	125	100
HCPL-0661	20	50	40	65	2500	125	100
FOD063N	20	50	40	65	2500	125	100
FOD063A	20	50	40	65	2500	125	100

MODELS UNDER PACKAGE CODE S

Model No.	EMITTER		DETECTOR		Isolation Voltage (V ac rms)	Junction Temp °C	Maximum Operating Temp. °C
	Current (mA)	Power (mW)	Current (mA)	Power (mW)			
FOD063L	20	50	40	65	2500	125	100
FOD063NL	20	50	40	65	2500	125	100
FOD063AL	20	50	40	65	2500	125	100
FOD0710	10	116.7	10	116.7	2500	125	100
FOD0720	10	116.7	10	116.7	2500	125	100
FOD0721	10	116.7	10	116.7	2500	125	100
FOD072L	10	115.0	9.0	115.0	2500	125	105
FOD8001	10	115.0	9.0	115.0	2500	125	105

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MODELS UNDER PACKAGE CODE S1

Model No.	EMITTER		DETECTOR		Isolation Voltage (V ac rms)	Junction Temp °C	Maximum Operating Temp. °C
	Current (mA)	Power (mW)	Current (mA)	Power (mW)			
FOD0708	20	2	40	85	3750	125	100
FOD0708L	20	2	40	85	3750	125	100
FOD0738	20	2	40	65	3750	125	100
FOD0738L	20	2	40	65	3750	125	100
HCPL0611	20	50	40	85	3750	125	100
FOD061N	20	50	40	85	3750	125	100
FOD061A	20	50	40	85	3750	125	100
FOD060L	20	50	40	85	3750	125	100
FOD061NL	20	50	40	85	3750	125	100
FOD061AL	20	50	40	85	3750	125	100
HCPL0630	20	50	40	65	3750	125	100
HCPL-0631	20	50	40	65	3750	125	100
HCPL-0661	20	50	40	65	3750	125	100
FOD063N	20	50	40	65	3750	125	100
FOD063A	20	50	40	65	3750	125	100
FOD063L	20	50	40	65	3750	125	100
FOD063NL	20	50	40	65	3750	125	100
FOD063AL	20	50	40	65	3750	125	100
FOD0710	10	116.7	10	116.7	3750	125	100
FOD0720	10	116.7	10	116.7	3750	125	100
FOD0721	10	116.7	10	116.7	3750	125	100
FOD072L	10	115.0	9.0	115.0	3750	125	105
FOD8001	10	115.0	9.0	115.0	3750	125	105
FOD8012	10	70	10	70	3750	125	110

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

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.

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

CONDITIONS OF ACCEPTABILITY –

Each device shall be reviewed with respect to the following conditions of acceptability:

1. The short circuit interrupting capacity or behavior under short circuit conditions has not been evaluated for these devices. Accordingly, the end-use circuit should contain suitable impedance to eliminate the need for such testing or appropriate tests should be conducted.

2. The device shall be installed in compliance with the enclosure, mounting, spacings and segregation requirements of the ultimate application. No spacings are specified for the device.

3. The suitability of use when exposed to oil, chemicals and the like has not been determined by this investigation.

4. The electrical and outer surface temperature ratings shall be acceptable in the ultimate application.

5. The suitability of the connections shall be determined in the end-use application.

CONDITIONS OF ACCEPTABILITY – (Cont'd)

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

7. The suitability of the device to be mounted over dead metal or metal of opposite polarity has not been investigated.

8. These devices are intended for factory wiring only.

CONSTRUCTION DETAILS:

General - The general design, shape and arrangement shall be as illustrated in the following descriptive pages and illustrations. All dimensions are approximate.

Markings – Each component is marked with the company's name or "Q" or ƒ, above or before the type designation. The package code will be specified after a three-digit date code. See the nomenclature below for more details. Markings may appear on the smallest shipping container.

Example device marking:

ƒ2712
YXXS

Nomenclature:

ƒ or Q denotes Company logo.

2712: Denotes device type. The '2712' is the marking for the FOD2712 device. The prefix 'FOD' will be ignored in the device marking. If the type number starts with a 0 then the 0 will be omitted from the marking. Example: For model FOD050L, the type number would be indicated in the device marking as ƒ50L.

YXX: Denotes Date code,
where Y = One digit year code, Example: 3 indicates year 2003.
XX = Two digit week code

S: Denotes Package Code S

V: Optional - Denotes VDE 0884 approval mark

Specification Sheet - Specification sheet shall be available at the manufacturing facility and shall contain the following information in tabular or graphic format:

1. Device Pin Connections.

2. Maximum continuous power, a current and a voltage rating for both the photo-emitter and the photo-detector.

3. A dielectric insulation-voltage rating between input and output terminals. This should be the same as the isolation V ac in the ratings above.

4. The maximum operating temperature of the device case.

5. Derating specification related to ambient temperatures.

Model Differences - All models have identical insulation systems. The only difference is the lead-frame design or the size of the IC devices.

Abbreviation - R/C = Recognized Component.

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Package Dimensions - See ILL 1 for details.

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File E90700
Project 04SC04300

July 20, 2004

REPORT

ON

COMPONENT - OPTICAL ISOLATORS

FAIRCHILD SEMICONDUCTOR CORP
San Jose, CA

DESCRIPTION

PRODUCT COVERED:

USR, CNR - Optical Isolator, Types FODB1XX, where XX can be any two numerical digits from 00 to 99. **May be followed by additional numbers and/or letters.**

RATINGS:

	Current, mA		Power, mW		Isolation	Maximum
Model No.	Diode	Detector	Diode	Detector	Voltage (ac)	Operating Temp., °C
***FODB1XX**	30	50	40	150	2500	125

The junction temperature of the models described in this section is 130°C.

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

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 silicone 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.

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

USR indicates investigation to the U.S. Standard for Safety for Optical Isolators, UL 1577, 4th Edition dated May 10, 2000.

CNR indicates investigation to the Canadian Component Acceptance Service No. 5A for Optical Isolators dated January 23, 1998.

Conditions of Acceptability - When installed in the end-product, each device shall be reviewed with respect to the following conditions of acceptability:

1. The short circuit interrupting capacity or behavior under short circuit conditions has not been evaluated for these devices. Accordingly, the end-use circuit should contain suitable impedance to eliminate the need for such testing or appropriate tests should be conducted.

2. The device shall be installed in compliance with the enclosure, mounting, spacings and segregation requirements of the ultimate application. No spacings are specified for the device.

3. The suitability of use when exposed to oil, chemicals and the like has not been determined by this investigation.

4. The electrical and outer surface temperature ratings shall be acceptable in the ultimate application.

5. The suitability of the connections shall be determined in the end-use application.

CONSTRUCTION DETAILS:

General - The general design, shape and arrangement shall be as illustrated in the following descriptive pages and illustrations. All dimensions are approximate.

Marking - Recognized company name or trademark and type designation provided on each unit.

Specification Sheet - Specification sheets shall be available at the manufacturing facility and shall contain the following information in tabular or graphic format.

1. Maximum continuous power, a current and a voltage rating for both the photo-emitter and the photo-sensor.

2. A dielectric insulation-voltage rating between input and output terminals. This should be the same as the isolation V ac shown in this section.

3. The maximum operating temperature of the device case.

4. Derating specification related to ambient temperatures.

Abbreviation - R/C = Recognized Component.

Pin Connections - See ILLs. 1 and 2 for details.

Model Dimensions - See ILL. 1 for details.

Model Differences – All models are identical in construction and ratings, except differ by an electrically screened parameter.

File E90700
Project 11CA46030

January 12, 2012

REPORT

on

COMPONENT - Optical Isolators

Fairchild Semiconductor Corp
SAN JOSE, CA

DESCRIPTION

PRODUCT COVERED:

USR - Single Protection, Optical Isolator, Models FOD8316, FOD8318, FOD8320, FOD8321, may be followed by additional numbers and/or letters.

MAXIMUM RATINGS (at nominal operating temperature):

Model	Current (mA)		Power (mW)		Isolation Voltage (Vac)	Max Operating (Ambient) Temp (°C)	Max Junction Temp (°C)	Max Storage Temp (°C)
	Emitter	Sensor	Emitter	Sensor				
FOD8316	-	-	100	600	4243	100	125	125
FOD8318	-	-	100	600	4243	100	125	125
FOD8320	25	2500	45	500	5000	100	125	125
FOD8321	25	2500	45	500	5000	100	125	125

GENERAL:

These devices are photocoupled isolators consisting of a photo-emitter such as a light emitting diode, optically coupled to a photo-sensor, such as a transistor. The emitter and sensor are separated by an insulating window. Internal "chips" are connected to lead frames that are 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.