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REPORT

ON

COMPONENT - INFORMATION PROCESSING AND
BUSINESS EQUIPMENT

Maxim Integrated Products
Sunnyvale, CA

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DESCRIPTION

PRODUCT COVERED:

USR CNR -Component integrated circuits, DS32KHZ#, -1210#, -1211#, -1212#, -1218#, -1221#, -1236#, -1238#, -1239#, -1254#, -1259#, -1284#, -12C885#, -12885#, -1302#, -1307#, -1310#, -1311#, -1312#, -13D12#, -1314#, -13D14#, -1315#, -1318#, -1321#, 1323#, -1336#, -1338#, -1339#, **-1339A#, -1339B#,** -1340#, -1359#, -1374#, -1384#, -1388#, -1500#, -1501#, -1602#, -1610#, -1632#, -1670#, -1672#, -1673#, -1677#, -1685#, -1688#, -1689#, -1710#, -1748#, -14285#, -17285#, -17485#, -17885#, -2404#, -5000FP#, -5001#, -5002#, -1643#, -1305#, -1306#, -87C520#, -87C530#, -1553#, -7864#, DS76KHZ#, DS1615#, DS1616#, DS1678#, -5250#, and -5240#, DS3600#, -S3605#, DS3610#, DS3640#, DS3641#, DS3645#, DS3650#, DS3655#, DS12R885#, DS3644#, DS3660#, and DS3665#. MAXQ1050#, MAXQ1103#, MAXQ1740#, MAXQ1850#, MAXQ1959#, **MAX36025#**, MAX32590#, MAXQ1010#, MAXQ1011# and MAXQ1012#. Followed by # sign where # represents any combination of symbols, letters, and/or numbers that describe non-safety related characteristics.

USR CNR -Component - Controller Module, Models DS3816# and DS3832#, where # is any combination of symbols, letters, and/or numbers that describe non-safety related characteristics.

* USR CNR - Component - Real Time Clock, Models DS1308#, DS1343#, DS1344#, and DS1339A#. where # is any combination of symbols, letters, and/or numbers that describe non-safety related characteristics.

GENERAL DESCRIPTION:

The components listed above insure protection against reverse charging current when used in conjunction with lithium battery powered circuits. The suffix # represents form differences only (such as PLCC verse dip package), or denote logic changes.

USR indicates investigation to the UL Standard for Safety of Information Technology Equipment, UL 60950-1 - STANDARD FOR SAFETY FOR INFORMATION TECHNOLOGY EQUIPMENT - SAFETY - PART 1: GENERAL REQUIREMENTS - Edition 1 - Revision Date 2007/10/31

CNR indicates investigation to the Standard for Safety of Information Technology Equipment CSA C22.2 NO. 60950-1 (1ST ED.) - INFORMATION TECHNOLOGY EQUIPMENT SAFETY PART 1: GENERAL REQUIREMENTS - Edition 1 - Revision Date 2006/07/07

TECHNICAL 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.

Conditions Of Acceptability - Consideration should be given to the following when determining the acceptability of these devices in specific applications.

1. These devices are normally intended for use as components where replacement is done by a trained technician.

2. These devices are intended for use as components in low voltage isolated secondary circuits where the case temperature is not expected to exceed 95°C and the voltage on any pin relative to ground is a maximum of 7 V dc. Reverse charge current under these conditions is negligible.

3. These devices are considered to meet the requirements for V-2 or less flammable material as specified for internal materials in the Fifth Edition of UL 478 or by the 3/4 in. Flame Test specified in the Fifth Edition of UL 478. Model DS17485 is considered to meet the requirements for V-0 flammable material. It has been evaluated to Appendix A6 of UL 1950. Test conducted per Appendix A6 of UL 1950 is equivalent to Annex A2 of standard 60950-1

4. These devices are provided with the application reverse charging current protection circuit on the chips.

5. Consideration should be given to Sub-clause 1.7.15 of 60950-1, First Edition.

6. Model DS1254 incorporates two protection IC's models DS1315 and DS1321. These two IC's reverse charging protection inputs are connected in parallel. This connection and return are connected on two of the connections on the corners of the chip, one located on the corner with the molded square notch and the other on the corner diagonal to it. It may be provided with Lithium battery module Model DS3800# which is located in report dated 12-06-1994.

MODEL DIFFERENCES:

DS1234# is identical to DS1259#.
DS1284# is identical to DS1285#.
DS12R885# is identical to DS12885#.
DS12885# is identical to DS1285#.
DS12C885# is identical to DS12885#.
DS1359# is identical to DS1259#.
DS1384# is identical to DS1284#.
DS1385#, -1395#, -1491#, and -1495# are identical to DS1285#.
DS1585# is identical to DS1485#.
DS1589# is identical to DS1485#.
DS1290XXXXB2 is identical to DS1291#.
DS87C520# is identical to DS87C530#.
DS5001# is identical to DS5002#.
DS1673# and DS1677# are identical to DS1670#

DS1553# is identical to DS1643#.
DS1678# is identical to DS1615#.
DS1338#, -1339#, -1374# and -1388# are identical to DS1672#.
DS1339B# is identical to DS1339A.
DS1340# has identical charging circuitry as DS1339# and DS1374#.
DS13#10 is identical to DS1311#

DS1318# has the identical reverse charging battery protection circuit as Model DS1338#, DS7864# is identical to model DS1321#, DS3600#, DS3605#, DS3610#, DS3640#, DS3641#, DS3644#, DS3645#, DS3650#, DS3655#, DS3660#, DS3665# and **MAX36025** have identical reverse charge protection circuit as DS1388#.

Model DS3816# consists of a printed wiring board incorporating three battery protection IC's, Models DS1312#, DS13D12#, and DS1384. It is intended to be used with power module (package of two lithium batteries) Model DS3800# (described in report dated 12-06-1994). The three IC's provide the necessary battery protection for the two batteries on Model DS3800#.

Model DS3832# consists of a printed wiring board incorporating two battery protection IC's, Models DS1323# and DS13D14. It is intended to be used with power module (package of two lithium batteries) Model DS3800# (described in report dated 12-06-1994). The two IC's provide the necessary battery protection for the two batteries on Model DS3800#.

The battery protection circuit for the following integrated circuits (IC) are the same as for the following lithium battery integrated circuit (LBIC) covered in Vol. 1, Sec. 1, Report issued October 29, 1985.

DS1209# is identical to DS1204#.
DS1237# is identical to DS1204#.
DS1238# is identical to DS5000#.
DS1239# is identical to DS5000#.
DS1380# is identical to DS1204#.

DS1688# is identical to DS1689#.
DS32KHZ# is identical to DS32KHZ BGA.
DS1748# is identical to DS1744#.

DS76KHZ# is identical to DS32KHZ#.

Model DS1343# and DS1344# are low-current real time clocks that incorporate battery reverse charge protection.

Models MAXQ1050#, MAXQ1103#, MAXQ1740#, MAXQ1850#, MAXQ1959#, MAX32590#, MAXQ1010#, MAXQ1011# and MAXQ1012# are similar to Model DS1312#.

Model DS1308# has the identical reverse charging battery protection circuit as Model DS1343#.

Model DS1339A# is identical Model DS1343# except for Model designation.

DS1210 - FIG. 1 (R87-6793)

General - Fig. 1 illustrates the DS1210# chip. See ILLS. 1 and 2 for associated schematics.

DS1211#, -1212#, -1215#, -1218#, -1221#, -1259#, -1285#, -12885#, -1291#, -1359#, -1485#, -1602#, -1610#, -1685#, -1688#, -1689#, -1710#, -2067#, -2404#, DS3640#, DS3641#, DS3650# and DS3655#

FIG. 2 (R88-3202)

General - Fig. 2 shows a view of the following integrated circuits.

1. DS1211# - See ILLS. 1 and 2 for associated schematic.
2. DS1212# - Same as Item 1.
3. DS1215# - See ILL. 3 for associated schematic.
4. DS1221# - Same as Item 1.
5. DS1259# - See ILL. 4 for associated schematic.
6. DS1285# - See ILL. 5 for associated schematic.
7. DS1485# - Not shown. Refer to File E99151, Vol. 1, Sec. 1, Fig. 8 for figure. Refer to ILL. 8 for associated schematic.
8. DS12885# - Not shown. See ILL. 5 for associated schematic.
9. DS1359# - Not shown. See ILL. 4 for associated schematic.
10. DS1610# - Not shown. See ILL. 10 for associated schematic.
11. DS1218# - Not shown. See ILL. 11 for associated schematic.
12. DS2404# - Not shown. See ILL. 12 for associated schematic.
13. DS1710# - Not shown. See Ill. 16 for associated schematic.
14. DS2067# - Not shown. See Ill. 17 for associated schematic.
15. DS1602# - Not shown. See ILL. 18 for associated schematic.

16. DS 1291# - Not shown. See ILL. 19 for associated schematic.
17. DS 1685# - Not shown. See ILL. 20 for associated schematic.
18. DS 1689# and DS 1688# - Not shown. See ILL. 21 for associated schematic.
19. DS 17485# - Not shown. See ILL. 22 for associated schematic.
20. DS14285# - Not shown. See ILL. 23 for associated schematic.
21. DS1307# - Not shown. See ILL. 24 for associated schematic.
22. DS1336# - Not shown. See ILL. 25 for associated schematic.
23. DS1670#, -1673#, and -1677# - Not shown. See ILL. 26 for associated schematic.
24. DS17285# - Not shown. See ILL. 27 for associated schematic.
25. DS17885# - Not shown. See ILL. 28 for associated schematic.
26. DS1315# - Not shown. See ILL. 29 for associated schematic.
27. DS13D12#, DS1311# and DS13#10 - Not shown. See ILL. 30 for associated schematic.
28. DS1314# - Not shown.
29. DS13D14# - Not shown.
30. DS1321# - Not shown.
31. DS1302# - Not shown.
- *32.
33. DS1643# - Not shown. See ILL. 35 for associated schematic.
34. DS1305# - Not shown. See ILL. 35 for associated schematic.
35. DS1306# - Not Shown. See Ill. 35 for associated schematic.
36. DS1501# - Not shown. See ILL. 37 for associated schematic.
37. **DS32KHZ#** - Not shown. See ILL. 38 for associated schematic.
38. DS87C520# and DS875C530# - Not shown. See ILL. 39 for associated schematic.

39. DS5001# and DS5002# - Not shown. See ILL. 40 for associated schematic.
40. DS1748# - Not shown. See ILL. 41 for associated schematic.
41. DS1672# - Not shown. See ILL. 42 for associated schematic.
42. DS1553# - Not Shown. See ILL. 35 for associated schematic.
43. DS76KHZ# - Not Shown. See ILL. 38 for associated schematic.
44. DS1615# - Not Shown. See ILL. 43 for associated schematic.
45. DS1616# - Not Shown. See ILL. 44 for associated schematic.
46. DS1678# - Not Shown. See ILL. 46 for associated schematic.
47. DS1323# - Not Shown. Identical to Item 30, Page 4.
48. DS1318#, DS1338#, -1339#,, **-1339A**, **-1339B**, -1340#, -1374#, -1388#, - Not shown. See ILL. 47 For associated schematics.
49. DS1500# - Not shown. See ILL. 37A for associated schematic.
50. DS3600#, DS3605# and DS3610# are not shown, See ILL. 47 for associated schematics.
51. DS7864# - Not Shown. Identical to Item 30, Page 4.
52. DS3640#, DS3641#, DS3650# and DS3655# are not shown, see ILL. 47 for associated schematics.
53. DS3645# - Not shown; (identical to DS1338#, Item 48, Page 4A) see ILL. 47 for associated schematics.
54. DS3644#, **MAX36025** DS3660#, and DS3665# are identical to DS3645#, DS3655#, and DS1388#. See ILL 47 for schematics.

MODELS DS1632# AND DS1236# - FIG. 4 (R92-5225)

General - Fig. 4 is an overall view of the subject units.

*1. Housing - QMFZ2 (Sumitomo, EME6300) flame rated **minimum V-2**. Refer to ILL. 13 for schematic of Model DS1632# and ILL. 14 for schematic of Model DS1236#.

* Alternate - QMFZ2, Celanex, Type No. 3216, rated **V-2** or better.

Alternate - QMFZ2, rated V-2 or better.

MODELS DS-5000FP#, -5311# AND -5340# - FIG. 5 (R92-5226)
(ALSO REPRESENTS MODEL DS5303#)

1. Housing - QMFZ2, Sumitomo Bakelite Co., Ltd., EME-6300, rated min. 94V-2.
Refer to ILL. 15 for associated schematics.

Alternate - QMFZ2, Celanex, Type No. 3216, rated 94V-2 or better.

Alternate - QMFZ2, rated V-2 or better.

MODEL DS1312#

1. Housing - QMFZ2, Sumitomo Bakelite Co., Ltd., EME-6300, rated min. 94V-2.
Refer to ILL. 29 for associated schematics.

Alternate - QMFZ2, Celanex, Type No. 3216, rated 94V-2 or better.

Alternate - QMFZ2, rated V-2 or better.

MODELS DS5250#, DS5240#

1. Housing - QMFZ2, Sumitomo Bakelite Co., Ltd., Type 6600CR, rated 94V-0.
Refer to ILL. 45 for associated schematics.

Alternate - QMFZ2, rated V-2 or better.

MODEL DS1254# - FIG. 6 (R99-4579)

General - Fig. 6 shows the internal and external views of model DS1254#, see ILL. 36 for details.

- *1. Printed Wiring Assembly - ZPMV2, flame rated **minimu V-0** at the thickness used.
2. Integrated Circuits - NWGQ2, Dallas Semiconductor, Models DS1315#, and DS1321, may be followed by alphanumeric characters. (These two IC's reverse charging protection inputs are connected in parallel. This connection and return are connected on two of the connections on the corners of the chip, one located on the corner with the molded square notch and the other on the corner diagonal to it).
- *3. Marking - Paint stenciled or adhesive backed label with Recognized Company's Name or Trademark "DS" and Model Number. When no identifier is provided, the prefix "DS" of the part number will act as identifier of Recognized **Company**. See Sec Gen for details.
4. Lithium Battery Module - Optional. Not shown. NWGQ2, Dallas Semiconductor, Model DS-3800 may be followed by alphanumeric characters. Secured to model by snap-fit and four integral pins on the corners of the Module.

MODEL DS1343# - FIG. 7

(ALSO REPRESENTS MODELS **DS1308#**, **DS1339A#** & DS1344#)

1. Housing - QMFZ2, Sumitomo Bakelite Co., Ltd., Type G600 or G700K, rated minimum V-2. Refer to ILL.48 for associated schematics.

Alternate - QMFZ2, Hitachi, Type No. CEL8240HF-LXC, rated minimum V-2.

Alternate - QMFZ2, rated V-2 or better.

MODEL MAXQ1050# - FIG. 11

(ALSO REPRESENTS MODELS MAXQ1103#, 1740#, 1850#, 1959#; MAX32590#)

1. Housing - QMFZ2, Sumitomo Bakelite Co., Ltd., Type G700L or G770HJ, rated minimum V-2. Refer to ILL.49 for associated schematics.

Alternate - QMFZ2, Kyocera, Type KE-G1250, rated minimum V-2.

Alternate - QMFZ2, rated V-2 or better.

MODEL MAXQ1010# - FIG. 11

(ALSO REPRESENTS MODELS MAXQ1011# AND MAXQ1012#)

1. Housing - QMFZ2, Sumitomo Bakelite Co., Ltd., Type G700L or G770HJ, rated minimum V-2. Refer to ILL.50 for associated schematics.

Alternate - QMFZ2, rated V-2 or better.