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REPORT

ON

COMPONENT - DRIVERS FOR LIGHT-EMITTING-DIODE ARRAYS, MODULES AND CONTROLLERS

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## DESCRIPTION

## PRODUCT COVERED:

USR, CNR - Component LED Drivers for Light-emitting-diode Arrays,  
Modules and Controllers, Suitable for Damp Location.

Note: USR - United States Standard, Recognized  
CNR - Canadian Standard, Recognized

## ELECTRICAL RATINGS:

Model No.	Input Voltage (Vac)	Input Freq (HZ)	Input Current (A)	Max Output Voltage (Vdc)	Max Output Current (A)	Max Output Watt (W)	Driver Type
AC25CD1.25APBME AC-25CD1.25APME AC-25CD1.25APMV AC-25CD700ATM AC25CD1.25APBUM AC25CD1.25APUM AC25CD1.25APUN AC-25CD700AUZ AC-3CD120AWH AC-5CD220AWK AC-13CD350ABRW AC-25CD1.25APA5	120-277	50/60	0.27- 0.11	55	1.25	25	TL
AC-40CD1.4APKV AC-40CD1.4APBKV AC-40CD1.4APMZ AC-40CD1.4APSC AC-40CD1.4APA6 <b>AC-30CD700APXL</b>	120-277	50/60	0.4- 0.18	55	1.4	40	TL
AC-25CD1.25BPME AC25CD1.25BPBME AC-25CD1.25BPMV AC25CD1.25BPBMV	347	50/60	0.097	55	1.25	25	TL
AC-40CD1.4BPKV AC-40CD1.4BPBKV AC-40CD1.4BPBMZ AC-40CD1.4BPMZ	347	50/60	0.143	55	1.4	40	TL
AC-60CD1.4APPU AC-60CD1.4APTPU	120-277	50/60	0.60- 0.26	59	1.4	60	TL
AC-98CD2.1APMX AC-98CD2.1APBMX AC-98CD2.1APMY AC-98CD2.1APTMY	120-277	50/60	0.94- 0.41	58	2.1	98	TL
AC-30CD1.25APNY AC-30CD1.25APUP	120-277	50/60	0.30- 0.13	55	1.25	30	TL
AC-50CD1.4APUQ	120-277	50/60	0.60- 0.26	55	1.4	60	TL
AC-50CD1.4BPTC6	347	50/60	0.2	55	1.4	60	TL
AC-98CD2.75APUR	120-277	50/60	0.93- 0.4	55	2.75	98	TL
AC-50CD1.4APNZ AC-50CD1.4APBNZ AC-50CD1.4APC7	120-277	50/60	0.50- 0.22	55	1.4	50	TL

Note: "x" may be any alphanumeric character, "-" or blank). Where "D" after the model number indicates it is provided with 0-10 V dimming circuitry

## TECHNICAL CONSIDERATIONS (NOT FOR FIELD REPRESENTATIVE'S USE):

Special Considerations - The following items are considerations that were used when evaluating this product.

Use - For use only in (or with) complete equipment where the acceptability of the combination is determined by UL LLC.

USR - Indicates investigation to the United States requirements for the Light Emitting Diode Equipment for Use in Lighting Products, UL 8750, 1st Edition; and the Standard for Class 2 Power Units, UL 1310, 6th Edition.

CNR - Indicates investigation to the Canadian Standard for Power Supplies with Extra-Low-Voltage Class 2 Outputs, CAN/CSA-C22.2 No. 223-M91, 2nd Edition; and the Canadian Standard for Light emitting diode (LED) equipment for lighting applications, CAN/CSA-C22.2 No. 250.13-14, 2nd Edition.

CN - Either the Canadian Standards Association Certification or Component Acceptance Mark or the UL Listing or UL Recognition Mark for Canada.

\* PWB spacings have been evaluated in accordance with an Overvoltage Category II and Pollution Degree 1 (potted enclosure) per Clause 7.8.3 and Table 7.4 of UL 8750 with live parts to enclosure spacings evaluated per

Table 7.6 and CSA C22.2 No. 250.13-12, Clause 8.7.3, Table 5 with live parts to enclosure spacings evaluated per Table 6.

The descriptions of certain components in this Report contain the notation "CN". "CN" indicates that the component has been evaluated to Canadian requirements. Whenever "CN" appears, the Field Representative shall confirm that the component has a CSA Certification Mark or an equivalent identifier or a Canadian UL Listing or Recognition Mark if the product described in this Report bears the UL's Classification Mark for Canada.

Condition of Acceptability - When installed in the end use equipment, the following are among the considerations to be made:

1. The LED drivers have been evaluated using resistive load resulting in output currents, which are equal to each output rated current. The need for repeating tests related to heating and the Isolated Class 2 output shall be considered in the end product if the loads used result in the current exceeding the rated marked current.
2. The LED drivers have been tested at 50°C ambient. Acceptable operation at a higher temperature should be determined in end products.
3. The units are intended for factory installation only.
- \* 4. All models are intended for using in damp location, other uses shall be considered in the end products.
5. 5. These LED drivers AC25CD1.25APBME, AC-25CD1.25APME, AC-25CD1.25APMV, AC-25CD700ATM, AC25CD1.25APBUM, AC25CD1.25APUM, AC25CD1.25APUN, AC-25CD700AUZ, AC-3CD120AWH, AC-5CD220AWK, AC-13CD350ABRW, AC-25CD1.25APA5, AC-40CD1.4APKV, AC-40CD1.4APBKV, AC-40CD1.4APMZ, AC-40CD1.4APSC, AC-40CD1.4APA6, **AC-30CD700APXL**, AC-25CD1.25BPME, AC25CD1.25BPBME, AC-25CD1.25BPMV, AC25CD1.25BPBMV, AC-40CD1.4BPKV, AC-40CD1.4BPBKV, AC-40CD1.4BPBMZ, AC-40CD1.4BPMZ, AC-98CD2.1APMX, AC-98CD2.1APBMX, AC-98CD2.1APMY, AC-98CD2.1APTIX, AC-60CD1.4APPU, AC-60CD1.4APTPU AC-50CD1.4APUQ, AC-50CD1.4BPTC6, AC-50CD1.4APNZ AC-50CD1.4APBNZ AC-50CD1.4APC7 are provided with Class 2 output complies with UL 1310 and CSA C22.2, No.223.
6. These LED drivers are provided with isolated output.
7. The suitability of enclosure shall be determined in the end-use product and comply with the enclosure, mounting, spacing, casualty, and segregation requirements of the end product application.
8. The grounding wires are to be used for bonding in the end product only (not for supply ground connection).

9. The following models were evaluated per the Temperature Limited (Type TL) requirements per Supplement SB of UL8750 and the measured Tref max temperature associated with the measured Tc and Ta values are as follows:

Model	Measured Tref Value (°C)	Tref max Value (°C)
AC25CD1.25APBME AC-25CD1.25APME AC-25CD1.25APMV AC-25CD700ATM AC25CD1.25APBUM AC25CD1.25APUM AC25CD1.25APUN AC-25CD700AUZ AC-3CD120AWH AC-5CD220AWK AC-13CD350ABRW AC-25CD1.25APA5 AC-40CD1.4APKV AC-40CD1.4APBKV AC-40CD1.4APMZ AC-40CD1.4APSC AC-40CD1.4APA6 <b>AC-30CD700APXL</b>	58.2	90
AC-25CD1.25BPME AC25CD1.25BPBME AC-25CD1.25BPMV AC25CD1.25BPBMV AC- 40CD1.4BPKV AC-40CD1.4BPBKV AC-40CD1.4BPBMZ AC-40CD1.4BPMZ	48.5	90
AC-60CD1.4APPU AC-60CD1.4APTPU	53.0	90
AC-98CD2.1APMX AC-98CD2.1APBMX AC-98CD2.1APMY AC-98CD2.1APTMX	55.4	90
AC-30CD1.25APNY AC-30CD1.25APUP AC-50CD1.4APUQ	59.1	90
AC-50CD1.4BPTC6	59.5	90
AC-98CD2.75APUR	59.9	90
AC-50CD1.4APNZ AC-50CD1.4APBNZ AC-50CD1.4APC7	61.7	90

10. All units utilize a Class F insulation system for the isolation transformer (T2).

The maximum recorded temperatures for Model AC-40CD1.4APKV, AC-40CD1.4APBKV, AC-40CD1.4APMZ, AC-40CD1.4APSC, AC-40CD1.4APA6 (represents Model AC25CD1.25APBME, AC-25CD1.25APME, AC-25CD1.25APMV, AC-25CD700ATM, AC25CD1.25APBUM, AC25CD1.25APUM, AC25CD1.25APUN, AC-25CD700AUZ) Were as follows when tested at an ambient of 50°C.

Transformer T2 Coil: 102.0°C  
Tc Point on Case above T1: 68.2°C

The maximum recorded temperatures for Models AC-40CD1.4BPVKV, AC-40CD1.4BPBMZ, AC-40CD1.4BPMZ, (represents Model AC-25CD1.25BPME, AC25CD1.25BPBME, AC-25CD1.25BPMV, AC25CD1.25BPBMV) were as follows when tested at an ambient of 50°C.

Transformer T2 Coil: 77.8°C  
Tc Point on Case above T2: 58.5°C

The maximum recorded temperatures for Model AC-60CD1.4APPU, AC-60CD1.4APTPU were as follows when tested at an ambient of 40°C.

Transformer T2 Coil: 71.7°C  
Tc Point on Case above T2: 66.4°C

The maximum recorded temperatures for Model AC-98CD2.1APMX, AC-98CD2.1APBMX, AC-98CD2.1APMY, AC-98CD2.1APTMX Were as follows when tested at an ambient of 40°C.

Transformer T2 Coil: 82.5°C  
Tc Point on Case above T2: 80.0°C

The maximum recorded temperatures for Model AC-50CD1.4APUQ (Represents Model AC-30CD1.25APNY, AC-30CD1.25APUP) were as follows when tested at an ambient of 50°C.

Transformer T2 Coil: 83.5°C  
Tc Point on Case above T2: 59.1°C

The maximum recorded temperatures for Model AC-50CD1.4BPTC6 were as follows when tested at an ambient of 50°C.

Transformer T2 Coil: 84.4°C  
Tc Point on Case above T2: 59.5°C

The maximum recorded temperatures for Model AC-98CD2.75APUR were as follows when tested at an ambient of 50°C. Transformer T2 Coil: 87.4°C Tc Point on Case above T2: 59.9°C

The maximum recorded temperatures for Model AC-50CD1.4APNZ, AC-50CD1.4APBNZ, AC-50CD1.4APC7 were as follows when tested at an ambient of 50°C.

Transformer T2 Coil: 88.5°C  
Tc Point on Case above T2: 61.7°C

11. These products were tested while connected to a 20A branch circuit.
12. The Leakage current test was only conducted between exposed Conductive surface and the grounded pole of the supply circuit.
13. The enclosure is required to be grounded in the end-use application.
14. The temperatures on the input (CON1) and output (CON2) connectors shall not exceed 105°C respectively for Models AC-30CD1.25APNY, AC-30CD1.25APUP, AC-50CD1.4APNZ, AC-50CD1.4APBNZ, AC-50CD1.4APC7, and AC-50CD1.4BPTC6
15. The temperatures on the input (J1) and output (JP2) connectors shall not exceed 105°C respectively for Model AC-AC-98CD2.75APUR,
16. Models AC25CD1.25APBME - AC-25CD700AUZ, AC-40CD1.4APKV, AC-40CD1.4APBKV, AC-40CD1.4APMZ, AC-40CD1.4APSC, AC-40CD1.4APA6 **AC-30CD700APXL**, AC-25CD1.25BPME, AC25CD1.25BPBME, AC-25CD1.25BPMV AC25CD1.25BPBMV, AC-40CD1.4BPKV, AC-40CD1.4BPBKV, AC-40CD1.4BPBMZ AC-40CD1.4BPMZ, AC-98CD2.1APMX, AC-98CD2.1APBMX, AC-98CD2.1APMY, AC-98CD2.1APTMX, AC-60CD1.4APPU, AC-60CD1.4APTPU AC-50CD1.4APUQ AC-50CD1.4BPTC6, AC-50CD1.4APNZ, AC-50CD1.4APBNZ AC-50CD1.4APC7 had a measured maximum output more than 42.4 Vdc but less than 60 Vdc on no load condition. See tabulation for details. These outputs comply with the definition of Class 2 per the Canadian Electrical Code. These outputs cannot be accessible based on maximum voltage restrictions for Class 2 circuits in the Canadian Electrical Code. These products have accessible output terminals. The output terminals of the end products should be evaluated to confirm compliance with this accessibility requirement, either based on output terminal design or based on manufacturer specifications for their use in restricted access areas only.

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Model	Maximum measured output voltage, Vdc
AC25CD1.25APBME AC-25CD1.25APME AC-25CD1.25APMV AC-25CD700ATM AC25CD1.25APBUM AC25CD1.25APUM AC25CD1.25APUN AC-25CD700AUZ AC-3CD120AWH AC-5CD220AWK AC-13CD350ABRW AC-25CD1.25APA5	56.0
AC-40CD1.4APKV AC-40CD1.4APBKV AC-40CD1.4APMZ AC-40CD1.4APSC AC-40CD1.4APA6 <b>AC-30CD700APXL</b>	56.7
AC25CD1.25APBME AC-25CD1.25APME AC-25CD1.25APMV AC-25CD700ATM AC25CD1.25APBUM AC25CD1.25APUM AC25CD1.25APUN AC-25CD700AUZ AC-3CD120AWH AC-5CD220AWK AC-13CD350ABRW AC-25CD1.25APA5	55.5
AC-40CD1.4BPKV AC-40CD1.4BPBKV AC-40CD1.4BPBMZ AC-40CD1.4BPMZ	55.6
AC-60CD1.4APPU AC-60CD1.4APTPU	59.0
AC-98CD2.1APMX AC-98CD2.1APBMX AC-98CD2.1APMY AC-98CD2.1APTMX	58.0
AC-30CD1.25APNY AC-30CD1.25APUP	55.2
AC-50CD1.4APUQ	55.0
AC-50CD1.4BPTC6	55.1
AC-50CD1.4APNZ AC-50CD1.4APBNZ AC-50CD1.4APC7	54.1



