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ELECTRONICS

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Jameco Part Number 221892



240W Single Output Industrial DIN RAIL Power Supply

DRP-240 series



■ Features :

- Universal AC input / Full range
- Built in active PFC function
- Protections: Short circuit / Overload / Over voltage / Over temperature
- Cooling by free air convection
- Can be installed on DIN rail TS-35/7.5 or 15
- UL 508(industrial control equipment)approved
- LED indicator for power on
- 100% full load burn-in test
- Fixed switching frequency at 100KHz
- 3 years warranty

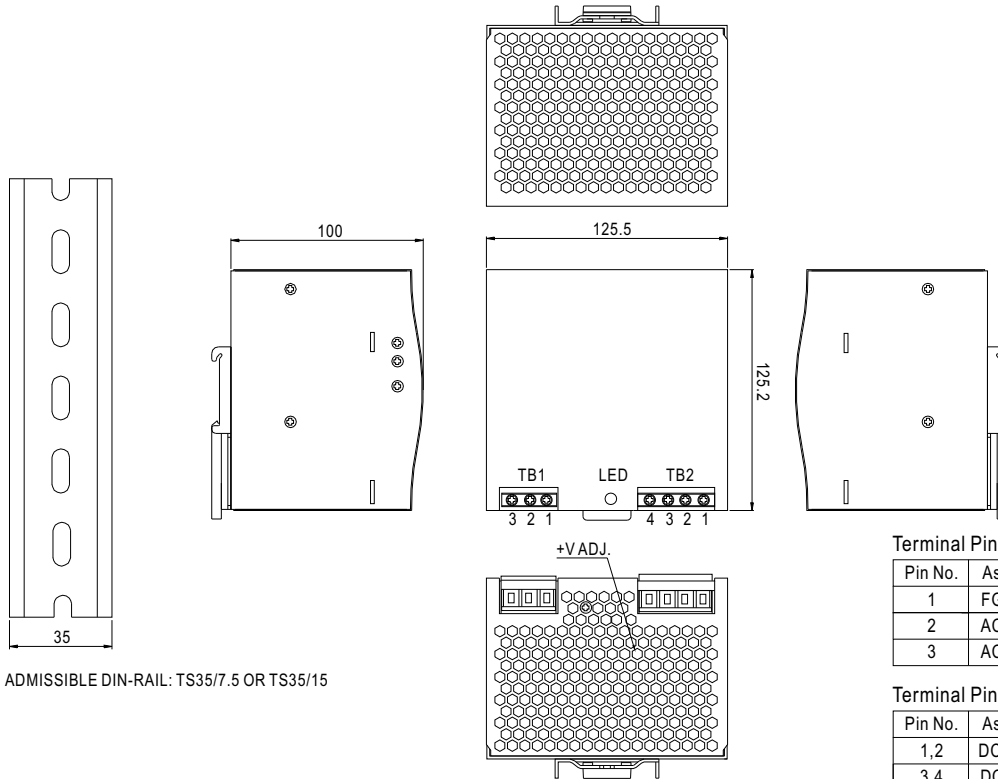


SPECIFICATION

MODEL	DRP-240-24	DRP-240-48	
OUTPUT	DC VOLTAGE	24V	48V
	RATED CURRENT	10A	5A
	CURRENT RANGE	0 ~ 10A	0 ~ 5A
	RATED POWER	240W	240W
	RIPPLE & NOISE (max.) Note.2	80mVp-p	150mVp-p
	VOLTAGE ADJ. RANGE	24 ~ 28V	48 ~ 53V
	VOLTAGE TOLERANCE Note.3	±1.0%	±1.0%
	LINE REGULATION	±0.5%	±0.5%
	LOAD REGULATION	±1.0%	±1.0%
	SETUP, RISE TIME	800ms, 40ms/230VAC	800ms, 40ms/115VAC at full load
HOLD UP TIME (Typ.)	24ms/230VAC	24ms/115VAC at full load	
INPUT	VOLTAGE RANGE Note.5	85 ~ 264VAC	120 ~ 370VDC
	FREQUENCY RANGE	47 ~ 63Hz	
	POWER FACTOR (Typ.)	0.96/230VAC	0.99/115VAC at full load
	EFFICIENCY (Typ.)	84%	85%
	AC CURRENT (Typ.)	2.8A/115VAC	1.4A/230VAC
	INRUSH CURRENT (Typ.)	COLD START 27A/115VAC	45A/230VAC
	LEAKAGE CURRENT	<3.5mA / 240VAC	
PROTECTION	OVERLOAD	105 ~ 150% rated output power	Protection type : Constant current limiting, recovers automatically after fault condition is removed
	OVER VOLTAGE	30 ~ 36V	54 ~ 60V
	OVER TEMPERATURE	100°C ±5°C (TSW1)detect on heat sink of power transistor	Protection type : Shut down o/p voltage, recovers automatically after temperature goes down
ENVIRONMENT	WORKING TEMP.	-10 ~ +70°C (Refer to output load derating curve)	
	WORKING HUMIDITY	20 ~ 90% RH non-condensing	
	STORAGE TEMP., HUMIDITY	-20 ~ +85°C, 10 ~ 95% RH	
	TEMP. COEFFICIENT	±0.03%/°C (0 ~ 50°C)	
	VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes; Mounting: Compliance to IEC60068-2-6	
SAFETY & EMC (Note 4)	SAFETY STANDARDS	UL508, UL60950-1, TUV EN60950-1 approved	
	WITHSTAND VOLTAGE	I/P-O/P:3KVAC I/P-FG:1.5KVAC O/P-FG:0.5KVAC	
	ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG:100M Ohms/500VDC	
	EMI CONDUCTION & RADIATION	Compliance to EN55011,EN55022 (CISPR22) Class B	
	HARMONIC CURRENT	Compliance to EN61000-3-2,-3	
	EMS IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11, ENV50204, EN55024, EN61000-6-2 (EN50082-2), heavy industry level, criteria A	
OTHERS	MTBF	105.5Khrs min. MIL-HDBK-217F (25°C)	
	DIMENSION	125.5*125.2*100mm (W*H*D)	
	PACKING	1.2Kg; 12pcs/15.5Kg/1.29CUFT	
NOTE	<ol style="list-style-type: none"> 1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature. 2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor. 3. Tolerance : includes set up tolerance, line regulation and load regulation. 4. The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives. 5. Derating may be needed under low input voltages. Please check the derating curve for more details. 		

Mechanical Specification

Case No. 922A Unit:mm



ADMISSIBLE DIN-RAIL: TS35/7.5 OR TS35/15

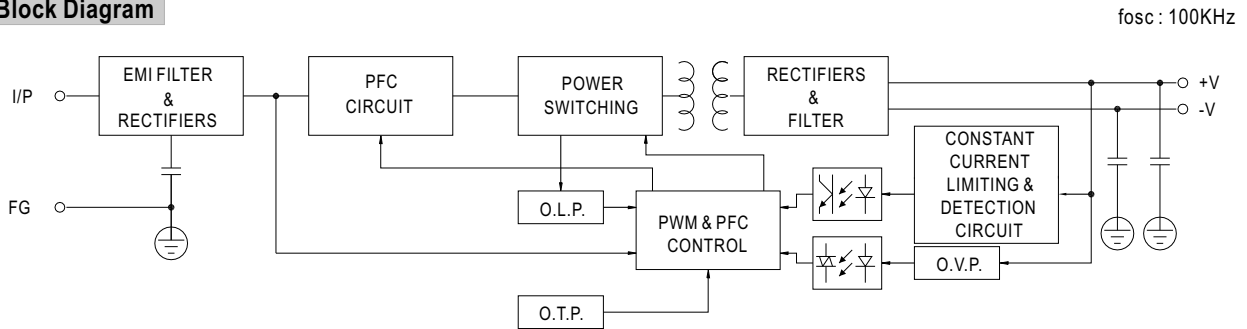
Terminal Pin Number Assignment (TB1)

Pin No.	Assignment
1	FG ⊕
2	AC/N
3	AC/L

Terminal Pin Number Assignment (TB2)

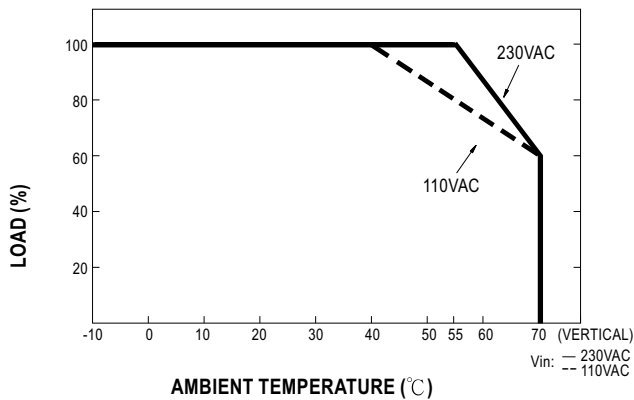
Pin No.	Assignment
1,2	DC OUTPUT +V
3,4	DC OUTPUT -V

Block Diagram

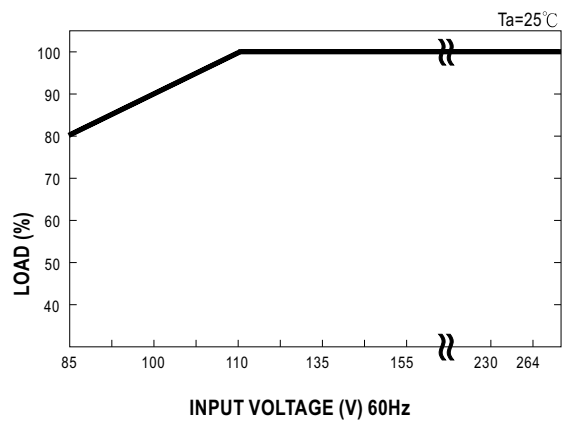


fosc : 100KHz

Derating Curve



Output derating VS input voltage



Quality Engineering Test Report

SERIES: DRP-240 240W AC-DC SINGLE OUTPUT SWITCHING POWER SUPPLY

SAMPLE: A. DRP-240-24 24V/10A B. DRP-240-48 48V/5A

NO	TEST ITEM	TEST CONDITION / SPECIFICATION	RESULT	VERDICT												
1	MAX. INRUSH CURREN	I/P:230VAC SPEC:50A O/P: FULL LOAD	A: 27.22A B: 27.44A	P												
2	SET UP TIME	I/P:230VAC SPEC:800mS O/P:FULL LOAD	A: 313mS B: 317.86mS	P												
3	RISE TIME	I/P:230VAC SPEC:40mS O/P:FULL LOAD	A: 18.69mS B: 18.32mS	P												
4	HOLD UP TIME	I/P:230VAC SPEC:20mS O/P:FULL LOAD	A: 29.02mS B: 26.99mS	P												
5	LINE REGULATION	I/P:110~264VAC SPEC: A: ± 0.5 % O/P:FULL LOAD B: ± 0.5 %	A. +0.02 % ~ +0.02 % B. +0.012 % ~ +0.024 %	P												
6	LOAD REGULATION	I/P:230VAC SPEC: A: ± 1 % O/P:MIN. TO FULL LOAD B: ± 1 %	A. -0.103 % ~ +0.103 % B. -0.012 % ~ +0.00 %	P												
7	OUTPUT VOLTAGE TOLERANCE	I/P:85~264VAC SPEC: A: ± 1 % O/P:0% TO FULL LOAD B: ± 1 %	A. -0.259 % ~ +0.00 % B. +0.00 % ~ +0.012 %	P												
8	OVER LOAD PROTECTION	I/P:230VAC SPEC: A: 105 %~ 150 % O/P:TESTING B: 105 %~ 150 %	A: 137% B: 132%	P												
9	AC INPUT VOLTAGE RANGE	I/P:TESTING SPEC:85~264VAC O/P:FULL LOAD	A. 70.0V ~ 264 VAC B. 53.4V ~ 264 VAC	P												
10	RIPPLE&NOISE	I/P:230VAC SPEC: A: 80 mVp-p O/P:FULL LOAD B: 150 mVp-p	A: 19 mVp-p B: 24 mVp-p	P												
11	AC INPUT CURRENT	I/P:230VAC SPEC:1.8A O/P:FULL LOAD	A: 1.272 A B: 1.247 A	P												
12	EFFICIENCY	I/P:230VAC SPEC: A: 84 % O/P:FULL LOAD B: 85 %	A: 85.73% B: 86.74%	P												
13	OVER VOLTAGE PROTECTION	I/P:230VAC SPEC: A: 30~36V O/P:MIN LOAD B: 54~60V	A: 34.1V B: 56V	P												
14	O/P VOLTAGE ADJ.RANGE	I/P:230VAC SPEC: A: 24 V ~ 28 V O/P:MIN. LOAD B: 48 V ~ 53 V	A. 20.86 V ~ 29.46 V B. 39.06 V ~ 55.0 V	P												
15	GROUND LEAKAGE CURRENT	I/P:240VAC SPEC: L-FG--<3.5mA N-FG--<3.5mA	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20px;">A:</td> <td>L-FG: 1.05mA</td> </tr> <tr> <td></td> <td>N-FG: 1.00mA</td> </tr> <tr> <td>B:</td> <td>L-FG: 1.05mA</td> </tr> <tr> <td></td> <td>N-FG: 1.00mA</td> </tr> </table>	A:	L-FG: 1.05mA		N-FG: 1.00mA	B:	L-FG: 1.05mA		N-FG: 1.00mA	P				
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	N-FG: 1.00mA															
B:	L-FG: 1.05mA															
	N-FG: 1.00mA															
16	DIELECTRIC / WITHSTAND VOLTAGE	SPEC: I/P- O/P: 3KVAC/ 1 min. I/P - FG: 1.5KVAC/ 1 min. O/P -FG: 0.5KVAC/ 1 min.	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20px;">A:</td> <td>I/P-O/P: 7.15mA</td> </tr> <tr> <td></td> <td>I/P-FG: 5.43mA</td> </tr> <tr> <td></td> <td>O/P-FG: 15.14mA</td> </tr> <tr> <td>B:</td> <td>I/P-O/P: 7.35mA</td> </tr> <tr> <td></td> <td>I/P-FG: 5.59mA</td> </tr> <tr> <td></td> <td>O/P-FG: 15.22mA</td> </tr> </table>	A:	I/P-O/P: 7.15mA		I/P-FG: 5.43mA		O/P-FG: 15.14mA	B:	I/P-O/P: 7.35mA		I/P-FG: 5.59mA		O/P-FG: 15.22mA	P
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B:	I/P-O/P: 7.35mA															
	I/P-FG: 5.59mA															
	O/P-FG: 15.22mA															
17	INSULATION RESISTANCE	SPEC: I/P-O/P: 500VDC/100MOhms MIN. I/P-FG: 500VDC/100MOhms MIN. O/P-FG: 500VDC/100MOhms MIN.	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20px;">A:</td> <td style="text-align: center;">TEST OK</td> </tr> <tr> <td>B:</td> <td style="text-align: center;">TEST OK</td> </tr> </table>	A:	TEST OK	B:	TEST OK	P								
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B:	TEST OK															

NO	TEST ITEM	TEST CONDITION / SPECIFICATION	RESULT	VERDICT																																								
18	BURN-IN TEST	I/P: 230VAC O/P: FULL LOAD TA:26.1°C BURN-IN DURATION : 1.5 hrs	A:NON BREAK	P																																								
19	ENVIRONMENT TEST	1.LOW TEMPERATURE TEST I/P:230VAC O/P:FULL LOAD AMBIENT TEMPERATURE:-13.8°C	AFTER 14.5hrs POWER ON <u>OK</u>	P																																								
		2.HIGH AMBIENT TEMPERATURE FULL LOAD TEST I/P:230VAC O/P:FULL LOAD AMBIENT TEMPERATURE:52.2°C	AFTER 6.5 hrs NON BREAK																																									
		3.High Humidity High Voltage On/Off Test I/P:267VAC O/P:FULL LOAD AMBIENT TEMPERATURE:26.7°C AMBIENT HUMIDITY:95%	AFTER 14hrs POWER ON NON BREAK																																									
20	TEMPERATURE RISE TEST Trise OF PARTS	<p style="text-align: center;">A: I/P :230VAC O/P :FULL LOAD TA:25.2°C AFTER 2.5 hr BURN-IN</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th>POSITION</th> <th>P/N</th> <th>TEMP</th> <th>Trise</th> </tr> </thead> <tbody> <tr> <td></td> <td>BD1</td> <td>BRIDGE DIODE</td> <td>59.2°C</td> <td>34.0°C</td> </tr> <tr> <td></td> <td>Q2</td> <td>MAIN TRANSISTOR</td> <td>70.1°C</td> <td>44.9°C</td> </tr> <tr> <td></td> <td>T1</td> <td>MAIN TRANSFORMER WIRE</td> <td>79.2°C</td> <td>54.0°C</td> </tr> <tr> <td></td> <td>C52</td> <td>O/P FILTER CAPACITOR</td> <td>48.5°C</td> <td>23.3°C</td> </tr> <tr> <td></td> <td>L2</td> <td>O/P CHOCK</td> <td>68.8C</td> <td>43.6°C</td> </tr> <tr> <td></td> <td>C5</td> <td>I/P FILTER CAPACITOR</td> <td>74.7°C</td> <td>49.5°C</td> </tr> <tr> <td></td> <td>LF3</td> <td>I/P FILTER TRANSFORMER</td> <td>63.3°C</td> <td>38.1°C</td> </tr> </tbody> </table>			POSITION	P/N	TEMP	Trise		BD1	BRIDGE DIODE	59.2°C	34.0°C		Q2	MAIN TRANSISTOR	70.1°C	44.9°C		T1	MAIN TRANSFORMER WIRE	79.2°C	54.0°C		C52	O/P FILTER CAPACITOR	48.5°C	23.3°C		L2	O/P CHOCK	68.8C	43.6°C		C5	I/P FILTER CAPACITOR	74.7°C	49.5°C		LF3	I/P FILTER TRANSFORMER	63.3°C	38.1°C	P
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21	CRITICAL COMPONENT RECORD (FOR QC INSPECTION REFERENCE ONLY)	A: FUSE :5A/250V BRIDGE DIODE :KBJ608G 6A/800V LINE FILTER :35066H ET-28 TRANSFOMER TF-805 POWER SWITCHER :2SK1358 9A/900V OUTPUT CAPACITOR :N.C.C 1500u/35V KY 105°C INPUT CAPACITOR :220u/450VMXR 105°C P.C.B :DRP-240A																																										
22	LIFE CYCLE	A: SUPPOSE C52 IS THE MOST CRITICAL COMPONENT I/P:230VAC O/P:FULL LOAD Ta:25°C Tc52:48.3°C Life: 373577.6hrs I/P:230VAC O/P:FULL LOAD Ta:55°C Tc52:76.5°C Life: 52907hrs		P																																								
DATE	SAMPLE	TEST RESULT	TEST	APPROVAL																																								
20020116	RD SAMPLE 24V,48V	PASS	VINCENT	MAX LIN																																								
20020423	PRODUCT SAMPLE A202B03 24V,48V	PASS	VINCENT	MAX LIN																																								
20020605	PRODUCT SAMPLE A205B22 24V	PASS	VINCENT	MAX LIN																																								
20021206	PRODUCT SAMPLE A2010B27 24V	PASS	VINCENT	MAX LIN																																								