



Jameco SKU Number: 1943511

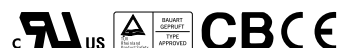
100W Single Output Industrial DIN Rail Power Supply

DR-100 series



■ Features :

- Universal AC input / Full range
- 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
- Isolation class II
- LED indicator for power on
- No load power consumption<1W
- 100% full load burn-in test
- 3 years warranty



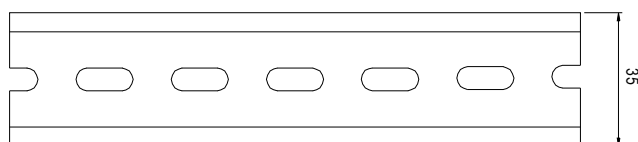
SPECIFICATION

MODEL		DR-100-12		DR-100-15	DR-100-24
OUTPUT	DC VOLTAGE	12V		15V	24V
	RATED CURRENT	7.5A		6.5A	4.2A
	CURRENT RANGE	0 ~ 7.5A		0 ~ 6.5A	0 ~ 4.2A
	RATED POWER	90W		97.5W	100.8W
	RIPPLE & NOISE (max.) Note.2	120mVp-p		120mVp-p	150mVp-p
	VOLTAGE ADJ. RANGE	12 ~ 15V		15 ~ 18V	24 ~ 29V
	VOLTAGE TOLERANCE Note.3	±2.0%		±1.0%	±1.0%
	LINE REGULATION	±1.0%		±1.0%	±1.0%
	LOAD REGULATION	±1.0%		±1.0%	±1.0%
	SETUP, RISE TIME	2700ms, 80ms/230VAC 2700ms, 80ms/115VAC at full load			
	HOLD UP TIME (Typ.)	50ms/230VAC 18ms/115VAC at full load			
INPUT	VOLTAGE RANGE	88 ~ 264VAC 124 ~ 370VDC			
	FREQUENCY RANGE	47 ~ 63Hz			
	EFFICIENCY (Typ.)	87%		87%	89%
	AC CURRENT (Typ.)	3A/115VAC 1.6A/230VAC			
	INRUSH CURRENT (Typ.)	COLD START 30A/115VAC 45A/230VAC			
PROTECTION	OVERLOAD	105 ~ 135% rated output power Protection type : Constant current limiting, recovers automatically after fault condition is removed			
	OVER VOLTAGE	16 ~ 20V		19 ~ 23V	30 ~ 35V
	OVER TEMPERATURE	90℃ ±15℃ (RTH2) detect on heatsink of power transistor Protection type : Shut down o/p voltage, re-power on to recover			
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ENVIRONMENT	WORKING TEMP.	-20 ~ +60℃ (Refer to output load derating curve)			
	WORKING HUMIDITY	20 ~ 90% RH non-condensing			
	STORAGE TEMP., HUMIDITY	-40 ~ +85℃, 10 ~ 95% RH			
	TEMP. COEFFICIENT	±0.03%/℃ (0 ~ 50℃)			
	VIBRATION	Component:10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes; Mounting: Compliance to IEC60068-2-6			
SAFETY & EMC (Note 4)	SAFETY STANDARDS	UL60950-1, TUV EN60950-1 approved, design refer to EN50178			
	WITHSTAND VOLTAGE	I/P-O/P:3KVAC			
	ISOLATION RESISTANCE	I/P-O/P:>100M Ohms/500VDC 25℃ 70%RH			
	EMI CONDUCTION & RADIATION	Compliance to EN61204-3, EN55022 ClassB			
	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, EN61204-3, heavy industry level, criteria A			
OTHERS	MTBF	486K hrs min. MIL-HDBK-217F (25℃)			
	DIMENSION	100*93*56mm (W*H*D)			
	PACKING	0.35Kg; 36pcs/13.6Kg/0.89CUFT			
NOTE	1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25℃ 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. Harmonic current test @ 90% load.				

■ Mechanical Specification

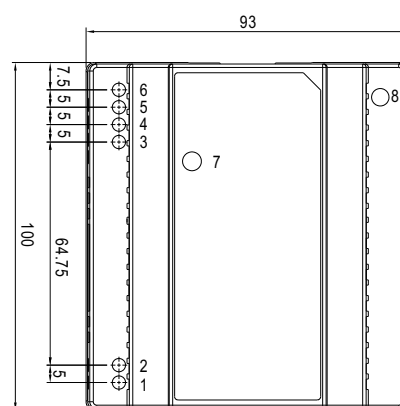
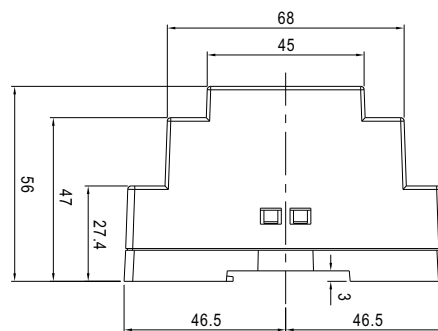
Terminal Pin No. Assignment

Pin No.	Assignment	Pin No.	Assignment
1	AC/L	5,6	-V
2	AC/N	7	LED
3,4	+V	8	+VADJ.

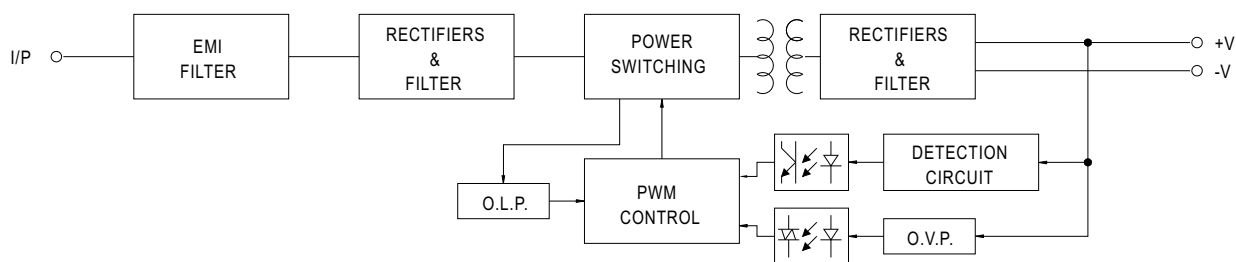


ADMISSIBLE DIN-RAIL:TS35/7.5 OR TS35/15

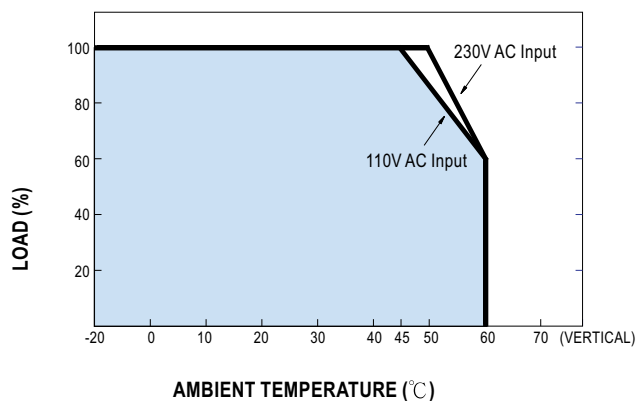
Case No.970A Unit:mm



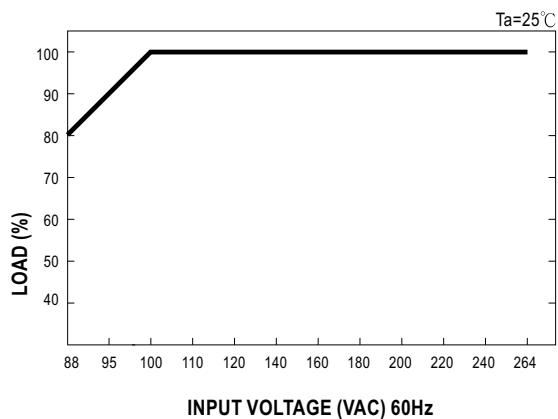
■ Block Diagram



■ Derating Curve VS Ambient Temperature



■ Output Derating VS Input Voltage



MODEL : DR-100-12

OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	RIPPLE & NOISE	V1: 120 mVp-p (Max)	I/P: 230VAC O/P:FULL LOAD Ta:25℃	V1: 35 mVp-p (Max)	P
2	OUTPUT VOLTAGE ADJUST RANGE	CH1: 12 V~ 15V	I/P: 230 VAC I/P: 115 VAC O/P:MIN LOAD Ta:25℃	11.17 V~ 16.43 V/ 230 VAC 11.17 V~ 16.43 V/ 115 VAC	P
3	OUTPUT VOLTAGE TOLERANCE	V1: 2 %~ -2 % (Max)	I/P: 88 VAC / 264 VAC O/P:FULL/ MIN LOAD Ta:25℃	V1: 0.4 %~ -0.4 %	P
4	LINE REGULATION	V1: 1 %~ -1 % (Max)	I/P: 88VAC ~ 264 VAC O/P:FULL LOAD Ta:25℃	V1: 0.21 %~ -0.21 %	P
5	LOAD REGULATION	V1: 1 %~ -1 % (Max)	I/P: 230 VAC O/P:FULL ~MIN LOAD Ta:25℃	V1: 0.21 %~ -0.21 %	P
6	SET UP TIME	230VAC: 2700 ms (Max) 115 VAC: 2700 ms (Max)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25℃	230VAC/ 2350 ms 115VAC/ 2350 ms	P
7	RISE TIME	230VAC: 80 ms (Max) 115VAC: 80 ms (Max)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25℃	230VAC/ 3 ms 115VAC/ 3 ms	P
8	HOLD UP TIME	230VAC: 50 ms (TYP) 115VAC: 18 ms (TYP)	I/P: 230 VAC I/P: 115 VAC O/P:FULL LOAD Ta:25℃	230VAC/ 94 ms 115VAC/ 19.4 ms	P
9	OVER/UNDERSHOOT TEST	< ±5%	I/P: 230 VAC O/P:FULL LOAD Ta:25℃	TEST: <5 %	P
10	DYNAMIC LOAD	V1: 1200 mVp-p	I/P: 230 VAC O/P:FULL /Min LOAD 90%DUTY/1KHZ Ta:25℃	190 mVp-p	P

INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	INPUT VOLTAGE RANGE	88VAC~264 VAC)	I/P: TESTING O/P: FULL LOAD Ta: 25°C	61 V~264V	P
			I/P: LOW-LINE-3V= 85 V HIGH-LINE+15%=300 V O/P: FULL/MIN LOAD ON: 30 Sec . OFF: 30 Sec 10MIN (AC POWER ON/OFF NO DAMAGE)	TEST: OK	
2	INPUT FREQUENCY RANGE	47HZ ~63 HZ NO DAMAGE OSC	I/P: 88 VAC ~ 264 VAC O/P: FULL~MIN LOAD Ta: 25°C	TEST: OK	P
3	EFFICIENCY	87 % (TYP)	I/P: 230 VAC O/P: FULL LOAD Ta: 25°C	87.6 %	P
4	INPUT CURRENT	230V/ 1.6 A (TYP) 115V/ 3 A (TYP)	I/P: 230 VAC I/P: 115 VAC O/P: FULL LOAD Ta: 25°C	I = 0.87 A/ 230 VAC I = 1.56 A/ 115 VAC	P
5	INRUSH CURRENT	230V/ 45 A (TYP) 115V/ 30 A (TYP) COLD START	I/P: 230 VAC I/P: 115 VAC O/P: FULL LOAD Ta: 25°C	I = 34 A/ 230 VAC I = 17 A/ 115 VAC	P
6	NO LOAD POWER CONSUMPTION	<1W	I/P: 240 VAC O/P: NO LOAD Ta: 25°C	0.87 W	P

PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	OVER LOAD PROTECTION	105 %~ 135 %	I/P: 230 VAC I/P: 115 VAC O/P: TESTING Ta: 25°C	123 %/ 230 VAC 122 %/ 115 VAC Constant Current Limiting	P
2	OVER VOLTAGE PROTECTION	CH1: 16 V~ 20 V	I/P: 230 VAC I/P: 115 VAC O/P: MIN LOAD Ta: 25°C	19 V/ 230 VAC 19 V/ 115 VAC Shunt down Re- power ON	P
3	SHORT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE	I/P: 264 VAC O/P: FULL LOAD Ta: 25°C	NO DAMAGE Constant Current Limiting	P
4	OVER TEMPERATURE PROTECTION	SPEC: RTH2: 90 ± 15°C O.T.P. NO DAMAGE	I/P: 230 VAC O/P: FULL LOAD	O.T.P. Active Shunt down Re-power ON	P

ENVIRONMENT TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT																																																																											
1	TEMPERATURE RISE TEST	MODEL : DR-100-24 1. ROOM AMBIENT BURN-IN : 2.5HRS I/P: 230VAC O/P: FULL LOAD Ta= 32.5℃ 2. HIGH AMBIENT BURN-IN : 2.5 HRS I/P: 230VAC O/P: FULL LOAD Ta= 45.4℃ <table><tr><th>NO</th><th>Position</th><th>P/N</th><th>ROOM AMBIENT Ta= 32.5℃</th><th>HIGH AMBIENT Ta= 45.4℃</th></tr><tr><td>1</td><td>U1</td><td>TEA1552</td><td>76.4℃</td><td>88.5℃</td></tr><tr><td>2</td><td>C5</td><td>220U/400V 105℃ HU</td><td>59.9℃</td><td>72.0℃</td></tr><tr><td>3</td><td>BD1</td><td>US4K80 4A/800V</td><td>73.8℃</td><td>86.1℃</td></tr><tr><td>4</td><td>LF1</td><td>TR-781</td><td>76.3℃</td><td>88.8℃</td></tr><tr><td>5</td><td>Q1</td><td>SPA11N65C3 11A/730V</td><td>77.0℃</td><td>89.8℃</td></tr><tr><td>6</td><td>T1 COIL</td><td>TF-1617</td><td>80.1℃</td><td>92.0℃</td></tr><tr><td>7</td><td>D2</td><td>1N4007GP 1A/1KV</td><td>86.6℃</td><td>98.5℃</td></tr><tr><td>8</td><td>C52</td><td>47U/35V 105℃ ZLH</td><td>75.9℃</td><td>88.2℃</td></tr><tr><td>9</td><td>L100</td><td>TR-624</td><td>65.7℃</td><td>78.6℃</td></tr><tr><td>10</td><td>C108</td><td>680U/35V 105℃ ZLH</td><td>64.7℃</td><td>77.5℃</td></tr><tr><td>11</td><td>Q101</td><td>IRF3415 43A/150V</td><td>73.3℃</td><td>86.6℃</td></tr><tr><td>12</td><td>PCB</td><td>TI 與 D2 間</td><td>83.6℃</td><td>96.0℃</td></tr><tr><td>13</td><td>RTH2</td><td>220KΩ 1%</td><td>74.7℃</td><td>87.0℃</td></tr><tr><td>14</td><td>內 TA</td><td>U2 上方</td><td>72.7℃</td><td>85.8℃</td></tr></table>			NO	Position	P/N	ROOM AMBIENT Ta= 32.5℃	HIGH AMBIENT Ta= 45.4℃	1	U1	TEA1552	76.4℃	88.5℃	2	C5	220U/400V 105℃ HU	59.9℃	72.0℃	3	BD1	US4K80 4A/800V	73.8℃	86.1℃	4	LF1	TR-781	76.3℃	88.8℃	5	Q1	SPA11N65C3 11A/730V	77.0℃	89.8℃	6	T1 COIL	TF-1617	80.1℃	92.0℃	7	D2	1N4007GP 1A/1KV	86.6℃	98.5℃	8	C52	47U/35V 105℃ ZLH	75.9℃	88.2℃	9	L100	TR-624	65.7℃	78.6℃	10	C108	680U/35V 105℃ ZLH	64.7℃	77.5℃	11	Q101	IRF3415 43A/150V	73.3℃	86.6℃	12	PCB	TI 與 D2 間	83.6℃	96.0℃	13	RTH2	220KΩ 1%	74.7℃	87.0℃	14	內 TA	U2 上方	72.7℃	85.8℃	P
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2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR (MIN)	I/P: 230 VAC O/P: 120 % LOAD Ta:25℃	TEST : OK	P																																																																											
3	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P: 230 VAC O/P: 100 % LOAD Ta= -20 ℃	TEST : OK	P																																																																											
4	HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST	AFTER 12 HOURS IN CHAMBER ON CONTROL 50 ℃ NO DAMAGE	I/P: 272 VAC O/P:FULL LOAD Ta= 50 ℃ HUMIDITY= 95 %R.H	TEST : OK	P																																																																											
5	TEMPERATURE COEFFICIENT	± 0.03 %(0~50℃)	I/P: 230 VAC O/P:FULL LOAD	± 0.013 %(0~50℃)	P																																																																											
6	VIBRATION TEST	1 Carton & 1 Set (1) Waveform: Sine Wave (2) Frequency:10~500Hz (3) Sweep Time:10min/sweep cycle (4) Acceleration:2G (5) Test Time:1 hour in each axis (X.Y.Z) (6) Ta:25℃		TEST : OK	P																																																																											

SAFETY TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	WITHSTAND VOLTAGE	I/P-O/P: 3 KVAC/min	I/P-O/P: 3.6 KVAC/min Ta:25℃	I/P-O/P: 2.14 mA NO DAMAGE	P
2	ISOLATION RESISTANCE	I/P-O/P:500VDC>100MΩ	I/P-O/P: 500 VDC Ta:25℃	I/P-O/P: 30 GΩ NO DAMAGE	P
3	APPROVAL	TUV: Certificate NO : R50113593 UL: File NO : E183223			P

E.M.C TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	HARMONIC	EN61000-3-2 CLASS A	I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25℃	PASS	P
2	CONDUCTION	EN55022 CLASS B	I/P: 230 VAC (50HZ) O/P:FULL/50% LOAD Ta:25℃	PASS Test by certified Lab	P
3	RADIATION	EN55022 CLASS B	I/P: 230 VAC (50HZ) O/P:FULL LOAD Ta:25℃	PASS Test by certified Lab	P
4	E.S.D	EN61000-4-2 INDUSTRY AIR:8KV / Contact:4KV	I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25℃	CRITERIA A	P
5	E.F.T	EN61000-4-4 INDUSTRY INPUT: 2KV	I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25℃	CRITERIA A	P
6	SURGE	IEC61000-4-5 INDUSTRY L-N :2KV L,N-PE:4KV	I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25℃	CRITERIA A	P
7	Test by certified Lab & Test Report Prepare				

M.T.B.F & LIFE CYCLE CALCULATION

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	CAPACITOR LIFE CYCLE	DR-100-24 : SUPPOSE C108 IS THE MOST CRITICAL COMPONENT I/P: 230VAC O/P:FULL LOAD Ta= 25 °C LIFE TIME= 330738 HRS I/P: 230VAC O/P:FULL LOAD Ta= 50 °C LIFE TIME= 58875 HRS			P
2	MTBF	MIL-HDBK-217F NOTICES2 PARTS COUNT TOTAL FAILURE RATE:486K HRS			P

COMPONENT STRESS TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	Power Transistor (D to S) or (C to E) Peak Voltage	Q1 Rated SPA11N65C3 11A/730V	I/P:High-Line +3V = 267 V O/P: (1)Full Load Turn on (2) Full Load (3)Output Short Ta:25°C	(1) 680 V (2) 648 V (3) 504 V	P
2	Diode Peak Voltage	Q101 Rated STP75NF75 80A/75V	I/P:High-Line +3V = 267 V O/P: (1)Full Load Turn on (2) Full Load (3)Output Short Ta:25°C	(1) 56 V (2) 56 V (3) 45 V	P
3	Clamp Diode Peak Voltage	D2 Rated 1N4007GP:1A/1KV	I/P:High-Line +3V = 267 V O/P: (1)Full Load (2) Dynamic Load 90%Duty/1KHz Ta:25°C	(1) 472 V (2) 472 V	P
4	Input Capacitor Voltage	C5 Rated 220u/400V 105°C	I/P:High-Line +3V = 267 V O/P: (1)Full Load Turn on /Off (2) Min load Turn on /Off (3)Full Load /Min load Change Ta:25°C	(1) 366 V (2) 370 V (3) 370 V	P
5	Control IC Voltage Test	U1 Rated TEA1552 : 20V	I/P:High-Line +3V = 267 V O/P: (1)Full Load Turn on /Off (2) Min load Turn on /Off (3)Full Load /Min load Change Ta:25°C	(1) 18.18 V (2) 17.68 V (30) 18.18 V	P

DATE	SAMPLE	TEST RESULT	TESTER	APPROVAL
20075/9	RD SAMPLE	PASS	VINCENT TSENG	MAX LIN
2007/6/21	PRODUCT SAMPLE W0705E66	PASS	VINCENT TSENG	MAX LIN
2007/9/27	PRODUCT SAMPLE W0709A02	PASS	VINCENT TSENG	MAX LIN
2007/12/12	PRODUCT SAMPLE W0711D02	PASS	SANFORD SU	VINCENT TSENG

2003/12/12 A50-F023