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ELECTRONICS

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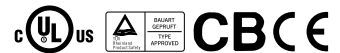
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Jameco Part Number 212303



### ■ 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
- UL 508(industrial control equipment)approved
- LED indicator for power on
- 100% full load burn-in test
- Fix switching frequency at 100KHz
- 3 years warranty

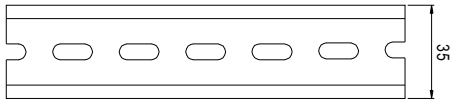
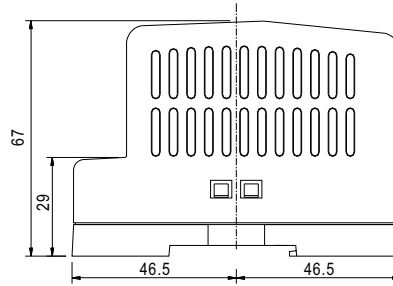


### SPECIFICATION

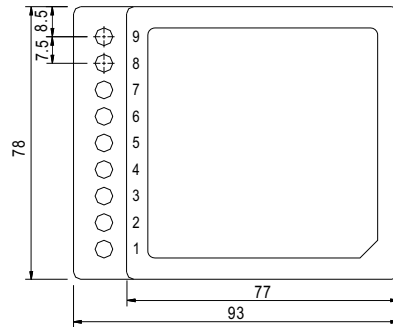
MODEL	DR-4505	DR-4512	DR-4515	DR-4524	
OUTPUT	DC VOLTAGE	5V	12V	15V	24V
	RATED CURRENT	5A	3.5A	2.8A	2A
	CURRENT RANGE	0 ~ 5A	0 ~3. 5A	0 ~ 2.8A	0 ~ 2A
	RATED POWER	25W	42W	42W	48W
	RIPPLE & NOISE (max.) Note.2	100mVp-p	200mVp-p	240mVp-p	480mVp-p
	VOLTAGE ADJ. RANGE	4.75 ~ 5.5V	10.8 ~ 13.2V	13.5 ~ 16.5V	21.6 ~ 26.4V
	VOLTAGE TOLERANCE Note.3	±2.0%	±1.0%	±1.0%	±1.0%
	LINE REGULATION	±1.0%	±1.0%	±1.0%	±1.0%
	LOAD REGULATION	±1.0%	±1.0%	±1.0%	±1.0%
	SETUP, RISE TIME	800ms, 60ms/230VAC at full load			
HOLD UP TIME (Typ.)	100ms/230VAC at full load				
INPUT	VOLTAGE RANGE	85 ~ 264VAC	120 ~ 370VDC		
	FREQUENCY RANGE	47 ~ 63Hz			
	EFFICIENCY (Typ.)	72%	77%	77%	80%
	AC CURRENT (Typ.)	1.5A/115VAC	0.75A/230VAC		
	INRUSH CURRENT (Typ.)	COLD START 28A/115VAC	56A/230VAC		
LEAKAGE CURRENT	<1mA/ 240VAC				
PROTECTION	OVERLOAD	105 ~ 150% rated output power Protection type : Constant current limiting, recovers automatically after fault condition is removed			
	OVER VOLTAGE	5.75 ~ 6.75V	13.8 ~ 16.2V	17.25 ~ 20.25V	27.6 ~ 32.4V
	OVER TEMPERATURE	Tj 135°C typically (U1) detect on heat sink of power transistor Protection type : Shut off o/p voltage, clamping by zener diode Protection type : Shut down o/p voltage, re-power on to recover			
ENVIRONMENT	WORKING TEMP.	-10 ~ +50°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, period for 60min. each along X, Y, Z axes; Mounting: Compliance to IEC60068-2-6			
SAFETY & EMC (Note 4)	SAFETY STANDARDS	UL508, 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	364.6K hrs min. MIL-HDBK-217F (25°C)			
	DIMENSION	93*78*67mm (L*W*H)			
	PACKING	0.31Kg; 48pcs/16.1Kg/1.3CUFT			
NOTE	<ol style="list-style-type: none"> <li>1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.</li> <li>2. Ripple &amp; noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf &amp; 47uf parallel capacitor.</li> <li>3. Tolerance : includes set up tolerance, line regulation and load regulation.</li> <li>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.</li> </ol>				

Case No. 918A Unit:mm

**Mechanical Specification**



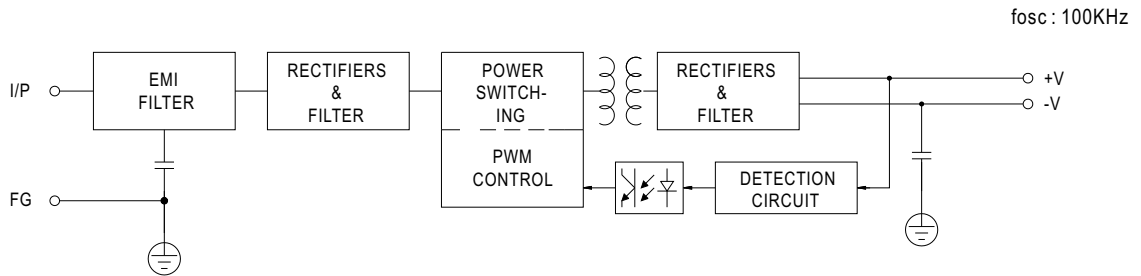
Install DIN rail TS35/7.5 or TS35/15



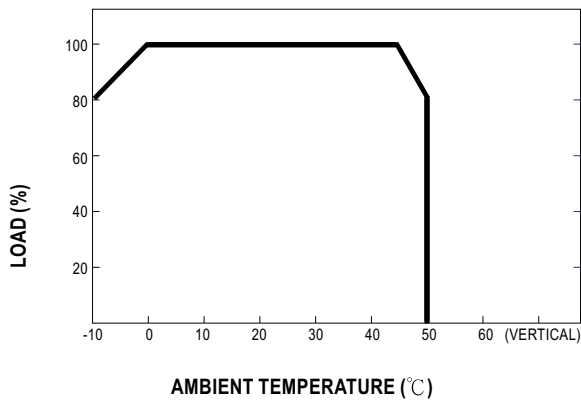
**Terminal Pin No. Assignment**

Pin No.	Assignment	Pin No.	Assignment
1	AC/L	6,7	DC OUTPUT+V
2	AC/N	8	LED
3	FG ⊕	9	+V ADJ.
4,5	DC OUTPUT -V		

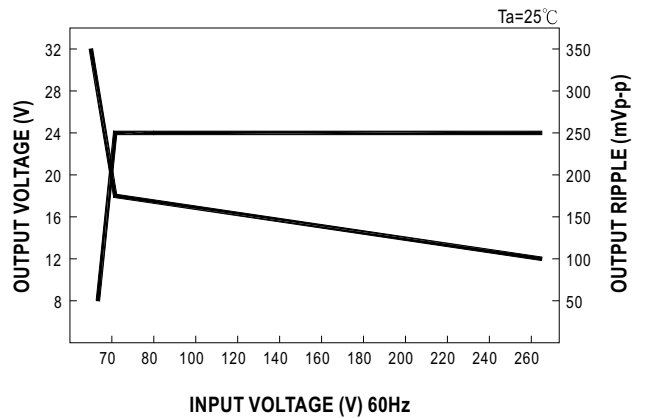
**Block Diagram**



**Derating Curve**



**Static Characteristics (24V)**



# Quality Engineering Test Report

SERIES: DR-45 45W AC-DC SINGLE OUTPUT SWITCHING POWER SUPPLY

SAMPLE: A. DR-4505 5V / 5A  
B. DR-4512 12V / 3.5A  
C. DR-4515 15V / 2.8A  
D. DR-4524 24V / 2A

NO	TEST ITEM	TEST CONDITION / SPECIFICATION	RESULT	VERDICT
1	AC INPUT VOLTAGE RANGE	I/P:TESTING SPEC:85~264VAC O/P:FULL LOAD	B : 54.8VAC~264VAC	P
2	LINE REGULATION	I/P:85~264VAC SPEC: A: $\pm 1\%$ O/P:FULL LOAD B: $\pm 1\%$ C: $\pm 1\%$ D: $\pm 1\%$	A: +0% +0% B: +0.0% +0.149% C: +0.0% +0.12% D: +0.074% +0.074%	P
3	LOAD REGULATION	I/P:230VAC SPEC: A: $\pm 1\%$ O/P:MIN. TO FULL LOAD B: $\pm 1\%$ C: $\pm 1\%$ D: $\pm 1\%$	A: -0.118% +0.237% B: +0.099% -0.0497% C: +0.12% +0.08% D: -0.388% +0.024%	P
4	OUTPUT VOLTAGE TOLERANCE	I/P:85~264VAC SPEC: A: $\pm 2\%$ O/P:MIN TO FULL LOAD B: $\pm 1\%$ C: $\pm 1\%$ D: $\pm 1\%$	A: +0.118% +0.49% B: -0.0497% +0.0497% C: +0.0% -0.2% D: +0.05% +1.03%	P
5	RIPPLE&NOISE	I/P:230VAC SPEC: A: 100mV O/P:FULL LOAD B: 200mV C: 240mV D: 480mV	A:15mV B:15mV C:27mV D:24mV	P
6	AC INPUT CURRENT	I/P:230VAC SPEC: 0.75A O/P:FULL LOAD	B :0.507A	P
7	MAX. INRUSH CURREN	I/P:230VAC SPEC: 60A O/P: FULL LOAD	B:: 36.062A	P
8	O/P VOLTAGE ADJ.RANGE	I/P:230VAC SPEC: A: -5%~+10% O/P:MIN. LOAD B: $\pm 10\%$ C: $\pm 10\%$ D: $\pm 10\%$	A:4.49V~6.3V B:10.256V~13.939V C:12.26V~17.28V D:20.3V~28.4V	P
9	SET UP TIME	I/P:230VAC SPEC:800mS O/P:FULL LOAD	B: 139.68mS	P
10	HOLD UP TIME	I/P:230VAC SPEC:50mS O/P:FULL LOAD	B: 98.839mS	P
11	EFFICIENCY	I/P:230VAC SPEC: A:72% O/P:FULL LOAD B:77% C:77% D:80%	A:73.7% B:78.355% C:77.8% D:81%	P
12	OVER LOAD PROTECTION	I/P:230VAC SPEC: 105%~150% O/P:TESTING	A:117% B:116.4% C:122% D:120%	P
13	GROUND LEAKAGE CURRENT	I/P:240VAC SPEC: L-FG--<1mA N-FG--<1mA	B: L-FG:0.21mA N-FG:0.21mA	P
14	INSULATION RESISTANCE	SPEC: I/P-O/P: 500VDC/100M Ohms MIN. I/P-FG : 500VDC/100M Ohms MIN. O/P-FG: 500VDC/100M Ohms MIN.	B: O/P-FG >100M Ohms I/P-O/P >100M Ohms I/P-FG >100M Ohms	P
15	DIELECTRIC / WITHSTAND VOLTAGE	SPEC: I/P- O/P: 3KVAC/ 1 min. (10mA CUT-OFF) I/P - FG: 1.5KVAC/ 1 min. (10mA CUT-OFF) O/P -FG: 0.5KVAC/ 1 min. (10mA CUT-OFF)	B: I/P-O/P :3.33mA I/P-FG :2.172mA O/P-FG :3.56mA	P
16	BURN-IN TEST	I/P: 230VAC O/P: FULL LOAD TA:26.8°C BURN-IN DURATION : 2 hrs	A : NON BREAK	P

NO	TEST ITEM	TEST CONDITION / SPECIFICATION	RESULT	VERDICT																															
17	ENVIRONMENT TEST	1.LOW TEMPERATURE TEST I/P:230 VAC O/P:100% LOAD AMBIENT TEMPERATURE:-9.9°C	D : AFTER 14 hrs POWER ON OK	P																															
		2.HIGH AMBIENT TEMPERATURE FULL LOAD TEST I/P:230VAC O/P:FULL LOAD AMBIENT TEMPERATURE:50.1°C	D : AFTER 3 hrs NON BREAK																																
		3.HIGH HUMIDITY HIGH VOLTAGE ON/OFF TEST I/P:264VAC O/P:FULL LOAD AMBIENT TEMPERATURE : 25°C AMBIENT HUMIDITY : 95%	D : AFTER 18 hrs POWER ON/OFFNON BREAK																																
18	TEMPERATURE RISE TEST T rise OF PARTS	D: I/P :230VAC AFTER 2 hr BURN-IN O/P :FULL LOAD TA:26.8°C		P																															
		<table border="1"> <thead> <tr> <th>POSITION</th> <th>P/N</th> <th>TEMP</th> <th>T rise</th> </tr> </thead> <tbody> <tr> <td>BD1</td> <td>BRIDGE DIODE</td> <td>56.6°C</td> <td>29.8°C</td> </tr> <tr> <td>U1</td> <td>MAIN TRANSISTOR</td> <td>64.7°C</td> <td>37.9°C</td> </tr> <tr> <td>T1</td> <td>MAIN TRANSFORMER WIRE</td> <td>75.7°C</td> <td>48.9°C</td> </tr> <tr> <td>D20</td> <td>O/P DIODE</td> <td>78.9°C</td> <td>52.1°C</td> </tr> <tr> <td>C25</td> <td>O/P FILTER CAPACITOR</td> <td>74.8°C</td> <td>48.0°C</td> </tr> <tr> <td>C5</td> <td>I/P FILTER CAPACITOR</td> <td>54.8°C</td> <td>28.0°C</td> </tr> <tr> <td>LF1</td> <td>LINE FILTER TRANSFORMER</td> <td>61.0°C</td> <td>34.2°C</td> </tr> </tbody> </table>	POSITION		P/N	TEMP	T rise	BD1	BRIDGE DIODE	56.6°C	29.8°C	U1	MAIN TRANSISTOR	64.7°C	37.9°C	T1	MAIN TRANSFORMER WIRE	75.7°C	48.9°C	D20	O/P DIODE	78.9°C	52.1°C	C25	O/P FILTER CAPACITOR	74.8°C	48.0°C	C5	I/P FILTER CAPACITOR	54.8°C	28.0°C	LF1	LINE FILTER TRANSFORMER	61.0°C	34.2°C
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19	LIFE CYCLE	D: SUPPOSE C25 IS THE MOST CRITICAL COMPONENT I/P:230VAC O/P:FULL LOAD Ta:25°C Tc25:74.8°C Life: 32615.3 hrs I/P:230VAC O/P:FULL LOAD Ta:45°C Tc45:92.2°C Life:12279.5 hrs		P																															
20	CRITICAL COMPONENT RECORD ( FOR QC INSPECTION REFERENCE ONLY )	D: FUSE : 3AL/250V BRIDGE DIODE : D3SB60 4A/800V LINE FILTER : TF-484 TRANSFOMER : TF659 POWER SWITCHER : TOP-227 OUTPUT DIODE : BYQ-28X-200 OUTPUT CAPACITOR : 330uF/35V(v) 105°C ELNA LXJ INPUT CAPACITOR : RUBYCON 100uF/400V 105°C P.C.B : DR-45-R2 CEM-3 20 OZ SS																																	
DATE	SAMPLE	TEST RESULT	TEST	APPROVAL																															
20000704	RD SAMPLE	PASS	VINCENT	MAX.LIN																															
20000822	PRODUCT SAMPLE A007C25 DR4505 DR4512 DR4515 DR4524	PASS	VINCENT	MAX.LIN																															

20001019	PRODUCT SAMPLE A0010A12 DR4505 DR4512 DR4515 DR4524	PASS	VINCENT	MAX.LIN
20001205	PRODUCT SAMPLE A011D19 DR4524	PASS	VINCENT	MAX.LIN
20010110	PRODUCT SAMPLE A101A09 DR4505	PASS	VINCENT	MAX.LIN
20010219	PRODUCT SAMPLE A102b17 DR4512	PASS	SAM	MAX.LIN