

# DRA05 SERIES



AC - DC DIN RAIL MOUNTABLE  
5W CLASS 2 POWER SUPPLY  
INDUSTRIAL CONTROL EQUIPMENT

## FEATURES

- UL / cUL / TUV / CE
- UNIVERSAL INPUT 90~265VAC
- HIGH EFFICIENCY UP TO 72%
- SHORT CIRCUIT PROTECTION
- INTERNAL INPUT FILTER
- 2 YEARS WARRANTY

## MODEL LIST

MODEL NO.	INPUT VOLTAGE	OUTPUT WATTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	EFF. (min.)	EFF. (typ.)
<b>Single Output Models</b>						
DRA05-05	90~265 VAC	5 WATTS	+ 5 VDC	1000 mA	67%	69%
DRA05-12	90~265 VAC	5 WATTS	+ 12 VDC	420 mA	70%	72%
DRA05-15	90~265 VAC	5 WATTS	+ 15 VDC	340 mA	70%	72%
DRA05-24	90~265 VAC	5 WATTS	+ 24 VDC	210 mA	70%	72%

## SPECIFICATION

All Specifications Typical At Nominal Line, Full Load, 25°C Unless Otherwise Noticed

GENERAL						
Characteristics	Conditions		min.	typ.	max.	unit
Switching frequency	Vi nom, Io nom		100			KHz
Isolation voltage	Input / Output		3,000			VAC
Isolation resistance	Input / Output, @ 500VDC		100			MΩ
Ambient temperature	Operating at Vi nom, Io 70% ... 100%		-10		+ 50	°C
Case temperature	Operating at Vi nom, Io nom				+ 85	
Derating	Vi nom, Io nom + 51 to + 71°C				2	% / °C
Storage temperature	Non operational		-25		+ 85	°C
M.T.B.F.	According to MIL-HDBK-217F, GF40			235,000		Hrs
Relative humidity	Vi nom, Io nom		20		95	% RH
Dimension	L90 x W22.5 x D115					mm
Cooling	Free air convection					
Case material	Plastic					
INPUT SPECIFICATIONS						
Characteristics	Conditions		min.	typ.	max.	unit
Rated input voltage	Io nom		100		240	VAC
Input voltage range	Ta min ... Ta max, Io nom	AC in	90		265	VAC
		DC in	120		370	VDC
Line frequency	Vi nom, Io nom		47		63	Hz
Inrush current	Io nom	Vi : 115VAC			10	A
		Vi : 230VAC			18	A

## SPECIFICATION

All Specifications Typical At Nominal Line, Full Load, 25°C Unless Otherwise Noticed

### OUTPUT SPECIFICATIONS

Characteristics	Conditions	min.	typ.	max.	unit
Output voltage accuracy	$V_i$ nom, lo min ...lo nom			$\pm 1$	%
Minimum load	$V_i$ nom	0			%
Line regulation	lo nom, $V_i$ min ... $V_i$ max			$\pm 1$	%
Load regulation	$V_i$ nom, lo min ...lo nom			$\pm 2$	%
Transient recovery time	50% load, step changed		300		$\mu$ S
Temperature coefficient	$V_i$ nom, lo min			$\pm 0.02$	% / °C
Ripple & noise	$V_i$ nom, lo nom, BW = 20MHz			50	mV
Hold up time	lo nom	$V_i = 115VAC$	30		ms
		$V_i = 230VAC$	130		ms
Voltage trim range	$V_i$ nom, lo nom	5V ...15V models	- 10	+ 15	%
		24V model	- 10	+ 20	%
DC ON indicator threshold at start up	$V_i$ nom, lo nom	5V model	4.5		VDC
		12V model	10.8		VDC
		15V model	13.5		VDC
		24V model	21.6		VDC
DC LOW indicator threshold after start up	$V_i$ nom, lo nom	5V model	3.75	4.5	VDC
		12V model	9	10.8	VDC
		15V model	11.25	13.5	VDC
		24V model	18	21.6	VDC
Efficiency	$V_i$ nom, lo nom, $P_o / P_i$	Up to 72%, See model list			

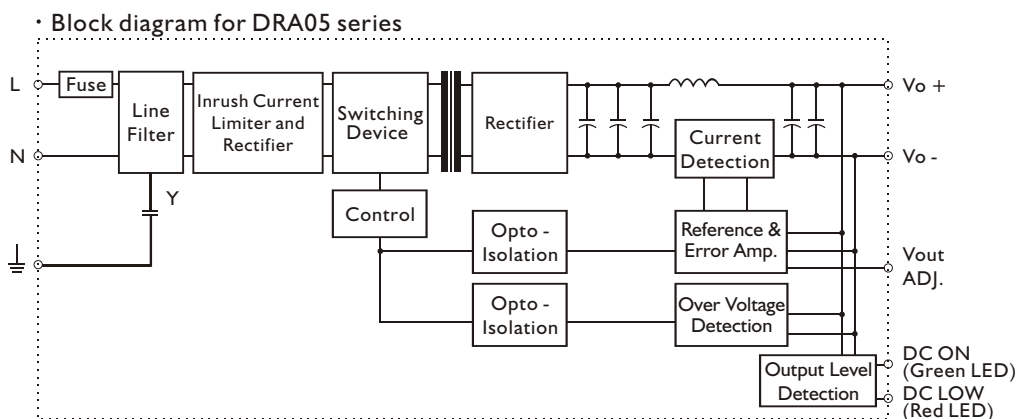
### CONTROL AND PROTECTION

Characteristics	Conditions	min.	typ.	max.	unit
Input fuse		T2A / 250VAC internal			
Rated over load protection	$V_i$ nom	110		135	%
Over voltage protection	$V_i$ nom, lo nom	125		145	%
Output short circuit	$V_i$ nom, lo nom	Hiccup mode			

### APPROVALS AND STANDARDS

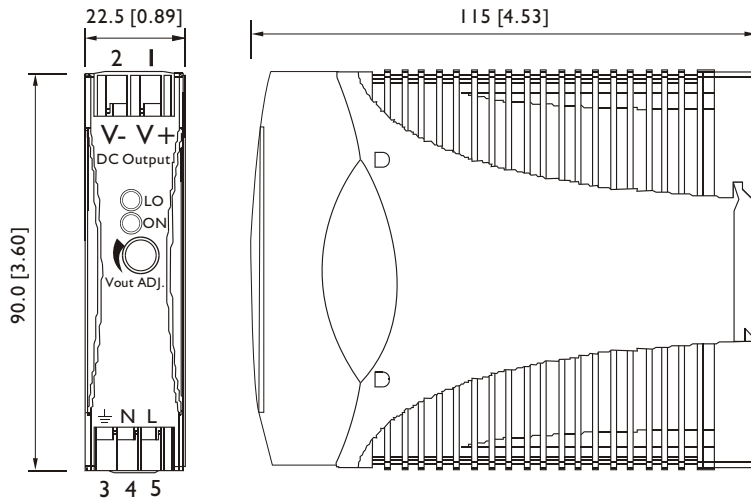
UL / cUL	UL508 / UL1310 Listed, Class 2 Power Supply
TUV	EN60950
CE	EN50081-1 / EN55022 for EMI EN50082-1 / EN55024 for EMS
FCC	Class B

### CIRCUIT SCHEMATIC



## MECHANISM & PIN CONFIGURATION

mm [inch]



### CONSTRUCTION

Easy snap-on mounting onto the DIN-Rail (TS35/7.5 or TS35/15), unit sits safely and firmly on the rail; no tools required even to remove

### INSTALLATION

Ventilation / Cooling  
 Normal convection  
 All sides 25mm free space  
 For cooling recommended  
 Connector size range  
 Solid: 0.2-2.0mm<sup>2</sup> (AWG24-14)  
 (use copper conductors only)

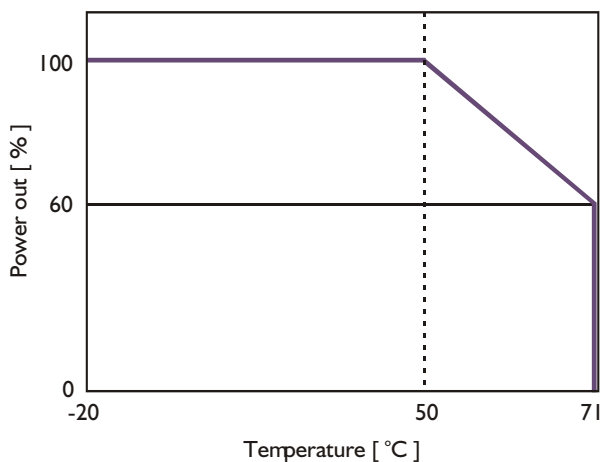
## PHYSICAL CHARACTERISTICS

CASE SIZE	90 x 22.5 x 115 mm 3.6 x 0.89 x 4.53 inches
CASE MATERIAL	Plastic
WEIGHT	115 g

## PIN ASSIGNMENT

PIN NO.	Designation	Description
1	V +	Positive output terminal
2	V -	Negative output terminal
3	⊥	Ground this terminal to minimize high-frequency emissions
4	N	Input terminals (neutral conductor, no polarity at DC input)
5	L	Input terminals (phase conductor, no polarity at DC input)
	ON	Operation indicator LED
	LO	DC LOW indicator LED
	Vout ADJ.	Trimmer-potentiometer for Vout adjustment

## DERATING



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DRA05-12A	90~265 VAC	5 WATTS	+ 12 VDC	420 mA	70%	72%
DRA05-15A	90~265 VAC	5 WATTS	+ 15 VDC	340 mA	70%	72%
DRA05-24A	90~265 VAC	5 WATTS	+ 24 VDC	210 mA	70%	72%

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GENERAL						
Characteristics	Conditions		min.	typ.	max.	unit
Switching frequency	Vi nom, Io nom		100			KHz
Isolation voltage	Input / Output		3,000			VAC
Isolation resistance	Input / Output, @ 500VDC		100			MΩ
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Derating	Vi nom, Io nom + 51 to + 71°C				2	% / °C
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### OUTPUT SPECIFICATIONS

Characteristics	Conditions	min.	typ.	max.	unit
Output voltage accuracy	$V_i$ nom, $I_o$ min ... $I_o$ nom			$\pm 1$	%
Minimum load	$V_i$ nom	0			%
Line regulation	$I_o$ nom, $V_i$ min ... $V_i$ max			$\pm 1$	%
Load regulation	$V_i$ nom, $I_o$ min ... $I_o$ nom			$\pm 2$	%
Transient recovery time	50% load, step changed		300		$\mu$ S
Temperature coefficient	$V_i$ nom, $I_o$ min			$\pm 0.02$	% / °C
Ripple & noise	$V_i$ nom, $I_o$ nom, BW = 20MHz			50	mV
Hold up time	$I_o$ nom	$V_i = 115VAC$	30		ms
		$V_i = 230VAC$	130		ms
Voltage trim range	$V_i$ nom, $I_o$ nom	5V ... 15V models	- 10	+ 15	%
		24V model	- 10	+ 20	%
DC ON indicator threshold at start up	$V_i$ nom, $I_o$ nom	5V model	4.5		VDC
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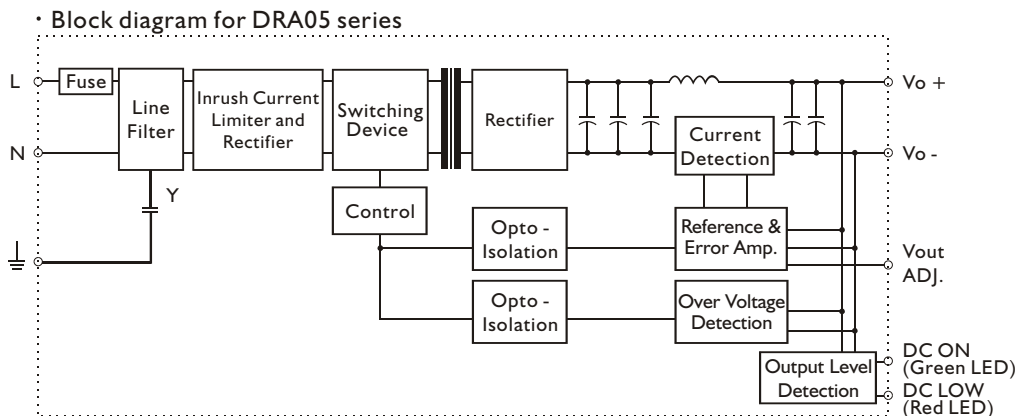
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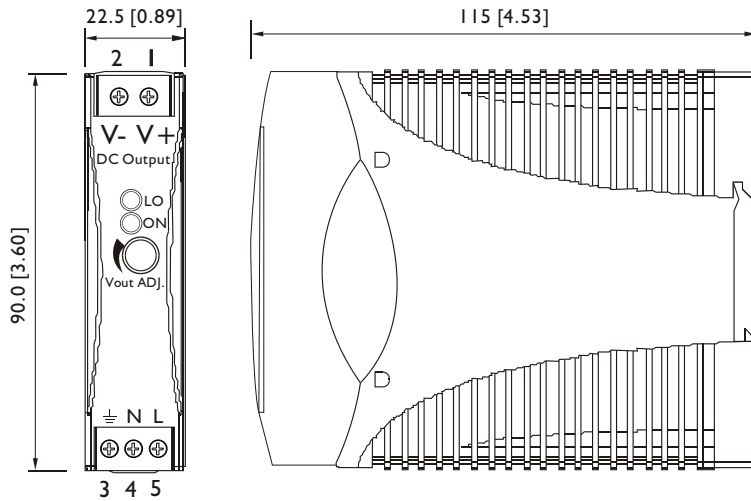
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