



Volts & Amps Modules

ACTIVE COMPONENTS | PASSIVE COMPONENTS | CONNECTORS

MEDICAL



Electrical Safety For Medical Devices!

Power Supplies Medical

FOOTPRINT	HEIGHT	CLASS I/II	BF/NC	POWER	MOOP/MOPP	OPERATING TEMP.	OPTIONS (REMOTE CONTROL/SENSE/Aux Voltages 5/12VDC)	OPTIONAL HOUSING
2x3"	0.75"/1"/1.4"	• / •	• / •	40-120	• / •	-40(20)° to 70(85)°C	N	Y
2x4"		• / •	• / •	40-225	• / •		Y	Y
3x5"		• / •	• / •	200-550	• / •		N	Y

Class I/II refers to protection class I/II i.e. Protective Earth; NC...Non-patient contact; BF...body floating; MOOP...Means of Operator Protection; MOPP...Means of Patient Protection

Creepage & Clearance Distances

	INSULATION CATEGORY			WORK VOLTAGE	TEST VOLTAGE	CREEPAGE DISTANCE	AIR CLEARANCE
4th EDITION	Pri to Sec	Two MOPP	Double	150-250Vrms	4000Vac	8mm	5mm
	Pri to PE	One MOPP	Basic	150-250Vrms	1500Vac	4mm	2.5mm
	Pri to Pri	One MOPP	Basic	150-250Vrms	N/A	3mm	1.6mm
	Sec to PE	One MOPP	Basic	< 60Vdc	TBD	2.2mm	1.2mm
	Pri to Sec	Two MOOP	Double	150-250Vrms	3000Vac	5mm	4mm
	Pri to PE	One MOOP	Basic	150-250Vrms	1500Vac	2.5mm	2mm
	Pri to Pri	One MOOP	Basic	150-250Vrms	N/A	3mm	1.6mm
	Sec to PE	One MOOP	Basic	< 60Vdc	No test	1.3mm	1mm

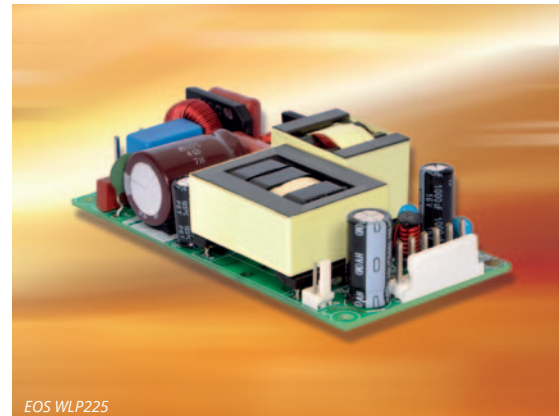


COSEL PLA SERIES

Leakage Currents in µA

	LEAKAGE CURRENT	TYPE B		TYPE BF		TYPE CF		
		NC	SFC	NC	SFC	NC	SFC	
4th EDITION	Earth Leakage Current	5000/500	10000	5000/500	10000	5000/500	10000	
	Touch Current	100	500	100	500	100	500	
	Patient Leakage Current (N/A to power supply)	DC	10	50	10	50	10	50
		AC	100	500	100	500	10	50

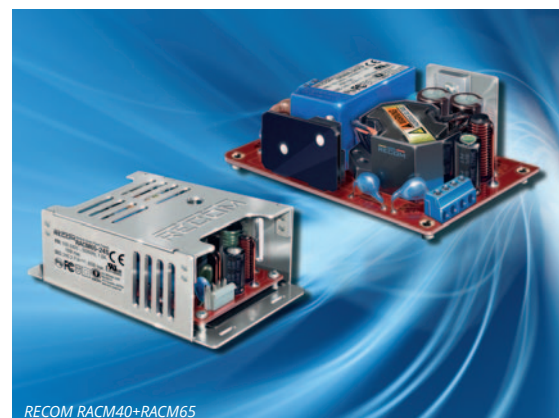
NC...normal condition, SFC...single failure condition



EOS WLP225

EMC Standards acc. to IEC/EN 60601

IMMUNITY TEST	3rd EDITION CRITERIA	4th EDITION CRITERIA
ESD 61000-4-2	6kV Contact	8kV Contact
	8kV Air	15kV Air
RADIATED RF 61000-4-3	3V/m, 80-2500MHz, General Medical Equip	3V/m, 80-2500MHz, Professional Healthcare Facility
	10V/m, 80-2500MHz, Life Support Equip	10V/m, 80-2500MHz, Home Healthcare Environment
EFT 61000-4-4	2kV on AC Input, 5KHz Repetition	2kV on AC Input, 100KHz Repetition
	3x -- to Line, Neutral and Earth	3x -- to Line, Neutral and Earth
SURGE (LIGHTNING) 61000-4-5	2kV Common Mode, 1kV Differential on AC Lines (minimum 5 surges at each phase angle)	500V,1kV,2kV Common Mode, 500V,1kV Differential on AC
CONDUCTED RF 61000-4-6	3Vrms, 0.15-80MHz on AC Input	3Vrms, 0.15-80MHz on AC Input
DIPS & DROPOUTS 61000-4-11	Dip to 40% for 5 Cycles (100ms)	Dip to 0% for 1 Cycles @ 0°Phase Angle
	Dip to 70% for 25 Cycles (500ms)	Dip to 70% for 25/30 Cycles @ 0°Phase Angle
	Dropout to 5% for 10ms	Dropout to 0% for 0.5 Cycles @ 0°, 45°, 90°, 135°, 180°, 225°, 270° & 315°Phase Angles
	Interrupt >95% for 5sec	Interrupt 100% for 250/300 Cycles



RECOM RACM40+RACM65

INDUSTRIAL



COSEL GH Series



RECOM RACM40-24S OF-ST

Electrical Power for the Industry!

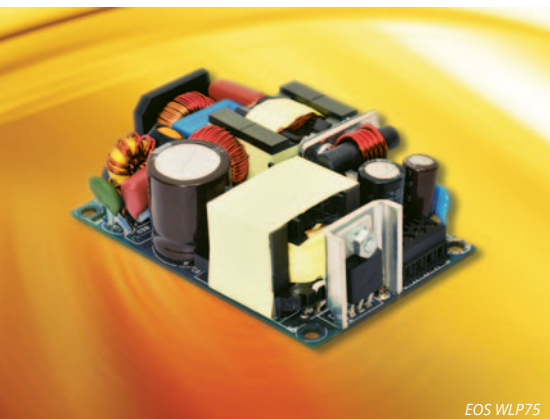
Power Supplies Industrial

FOOTPRINT	PROTECTION CLASS I/II	INPUT VOLTAGE SINGLE PHASE/ L1-L2/DELTA	ERP LEV V COMPLIANT	POWER [W]	OUTPUT VOLTAGE [V]	OPERATING TEMP.	OPTIONS (REMOTE CONTROL/ SENSE/Aux Voltages 5/12VDC)	OPTIONAL HOUSING
2x3"	• / •	• / - / -	•	40-120	12-58	-40(20) to 70(85)°C	-	•
2x4"	• / •	• / - / -	•	40-225	5-58		•	•
3x5"	• / •	• / - / -	•	200-550	5-58		•	•
DINRAILS	• / •	• / • / •	-	15-960	5-56		•	•
OTHER (OPEN FRAME CARD)	• / •	• / - / •	-	20-960 (2400)	5/12/24/48		-	N/A
ON BOARD	• / •	• / • / -	•	3-40/100-700	3.3-58	-40/100*	-	N/A

*Baseplate Temperature; Class I/II refers to protection class I/II i.e. Protective Earth; Delta refers to Three Phase Input without Neutral L1-L2 means Voltage between Phases; ErP Level V refers to European Energy Reduction Program with 300mW standby power consumption or less

Isolation Voltages

	INSULATION CATEGORY	WORK VOLTAGE
62368-1	Primary to Secondary	3000VAC, or the Equivalent DC Voltage
	Primary to Grounded Chassis	1500VAC, or the Equivalent DC Voltage
	Secondary to Ground Chassis	No Requirement Provided the Secondary Voltage is Less Than 42.4VAC or 60VDC
60601-1/60335-1	Both	
60601-1	Primary to Secondary	4000VAC, or the Equivalent DC Voltage
	Primary to Grounded Chassis	1500VAC, or the Equivalent DC Voltage
	Secondary to Ground Chassis	No Requirement Provided the Secondary Voltage is Less Than 42.4VAC or 60VDC



EOS WLP75

DC/DC LOW POWER



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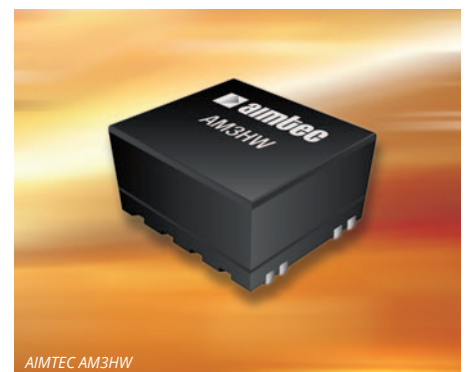
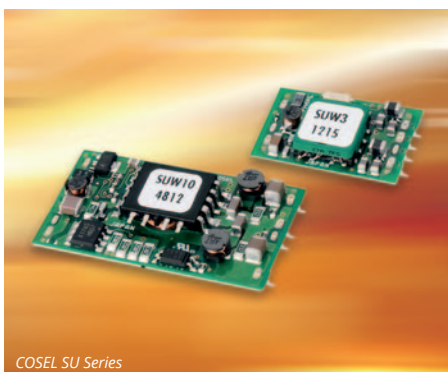
Power for Small & Medium Products

DC/DC Low and Medium Power

ISOLATION	POWER	R/U	INPUT	OUTPUT S/D	FOOTPRINT	ISO CLASS R/D
I	0.25-5W	• / •	5-10%	• / •	SIP4/6/7/8	Y
			2-1		DIP14/24	
			4-1		SMT	
U (POL)	<51	• / •	2-1	• / - Adjustable Output	SIP3/12/SMT	N/A
			4-1			
			8-1			
			non-std.			

R/U refers to regulated/unregulated converters (with standard load regulation envelope of 10-90% load; ±10% voltage regulation) input voltage ranges (2-1 and 4-1) refer to regulated converters starting from 4.5VDC (min) up to 78VDC (max)

ISOLATION-TERMS: Operational/Functional: Correct Operation (not necessarily against shock)
 Basic - Basic Protection against Electric Shock (1LOP): Physical Barrier or appropriate Spacing
 Supplementary - Independent Insulation additional to Basic (1LOP): Physical Barrier or appropriate Spacing
 Double - Basic & Supplementary (2 layers = 2LOP): Physical Barrier or appropriate Spacing
 Reinforced - Single layer equivalent to Double = 2LOP: Physical Barrier or appropriate Spacing



DC/DC POWER



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Get more DC/DC Power!

DC/DC Power, High

POWER	R/U	INPUT	OUTPUT S/D	FOOTPRINT	ISO CLASS R/D*
≥5-40 (60)	• / -	2-1 4-1 (9-75)	• / •	DIL24	Y
				1x1"	
				2x1,6"	
				2x1"	
<600W	• / -	2-1 4-1 (24/48)	• / •	1/32 Brick	N
				1/16 Brick	
				1/8 Brick	
				1/4 Brick	
				1/2 Brick	
				1/1 Brick	

R/U refers to regulated/unregulated converters (with standard load regulation envelope of 10-90% load $\pm 10\%$ voltage regulation)
 input voltage ranges (2-1 and 4-1) refer to regulated converters starting from 4.5VDC (min) up to 78VDC (max)
 ISO Class R/D refers to reinforced or double insulation



EXTERNAL POWER



External Power Products

	CLASS I/II			ERP V / DOE VI COMPLIANT	POWER	OUTPUT VOLTAGE	OUTPUT CONNECTOR
DESKTOP	• / •			• / •	18-60 (120)	5-58	Barell USB-A/B Custom
	IEC320 - C13/C14	IEC320 - C7/8	IEC320 - C5/C6				
WALLMOUNT	Interchangeable/Fixed			• / •	3-40	5-58	Barell USB-A/B/C Custom
	• / •						

Non - standard output connectors are available on demand at 5kpcs/á MOQ
 Qi Wireless - Charging pads are available with single and triple coil options from PHIHONG
 ErP Level V refers to European Energy Reduction Program with 300mW standby power consumption or less
 DoE Level VI refers to »Department of Energy« with no load power consumption of 100mW and adequate efficiency



PHIHONG PSAC05R-050(P)-R



PHIHONG PSM-11R



FSP, FSP 100

	PSB Adapter Power Supply Singapore		IRAM Adapter Power Supply Argentina		QAS Adapter Power Supply Australia		BSI Adapter Power Supply UK		CEBEC Adapter Power Supply Belgium		CSA Adapter Power Supply Canada
	PSE Adapter Power Supply Japan		UL/CUL Listed Adapter Power Supply USA		SEMKO Adapter Power Supply Sweden		NOM Adapter Power Supply Mexico		BIS Adapter India		CE Adapter Europe
Exx	E-Mark Vehicular Charger Europe		FCC Adapter USA		FIMKO Adapter Power Supply Finland		VDE Adapter Power Supply Germany		OVE Adapter Power Supply Austria		KTL Adapter Power Supply Korea
	UL/CUL Recognized Power Supply USA		BSMI Adapter Power Supply Taiwan		NEMKO Adapter Power Supply Norway		SEV Adapter Power Supply Switzerland		PCBC Adapter Power Supply Poland		RCM Adapter Power Supply Australia & NZ
	TUV GS Mark Adapter Germany		CCC Adapter Power Supply China		DEMKO Adapter Power Supply Denmark		NF Adapter Power Supply France		EAC Adapter Russia, Belarus Kazakhstan		
	TUV Baurart Mark Component Germany		SABS Adapter Power Supply South Africa		TUV Adapter Brazil		KEMA Adapter Power Supply Netherlands		SASO Adapter Power Supply Saudi Arabia		



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