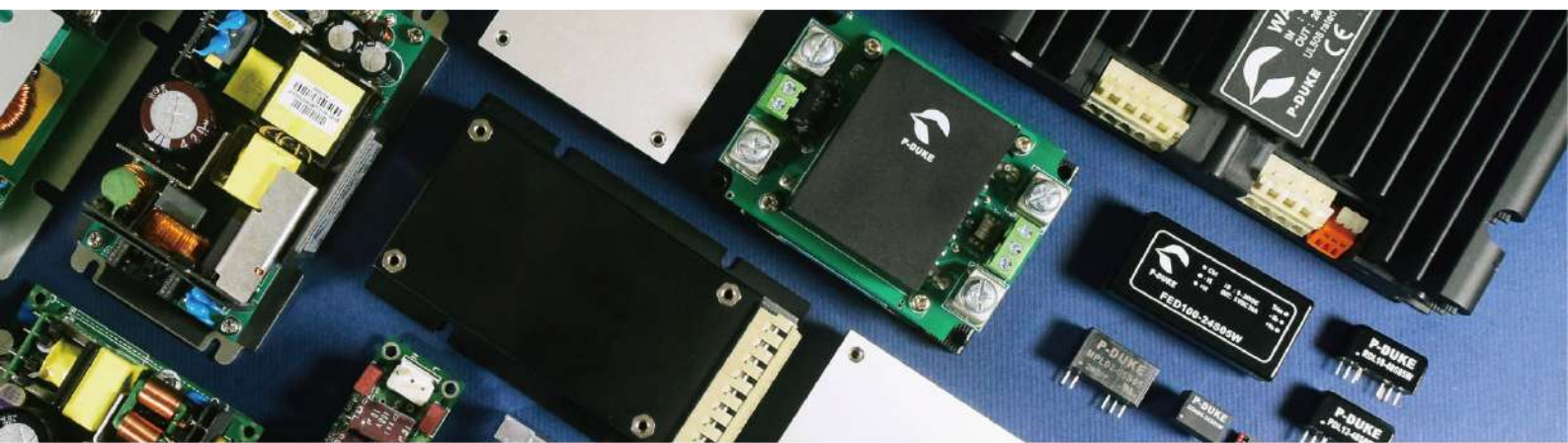




DC/DC Converters
AC/DC Power Supplies
Product Portfolio

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COMPANY PROFILE

INNOVATIVE POWER FOR YOUR VISIONS

P-DUKE is a Taiwan based company founded in 1992, that is fully committed to research & development and the production of high-performance power conversion products. P-DUKE offers a broad range of DC/DC converters, AC/DC power supplies as well as custom power conversion solutions.

With the main focus on both railway and medical markets, where the highest product quality and compliance to all relative application standards is required, P-DUKE's main business is in Europe, America and Asia Pacific.

Accumulating over 30 years experience in the power conversion field has allowed P-DUKE to become the leading manufacturer in the low-power conversion market.

The company has a strong technical team that provides prompt and professional support in power relevant system design issues which are, for example, choosing optimal power solutions or suggestions for EMI circuits, etc.



Diverse Applications In The High-Tech Industry

Unlocking Potential Across Every Application Field

We are committed to delivering reliable, high-performance power converters with exceptional power density and advanced thermal management solutions, leveraging our extensive expertise in the industry.

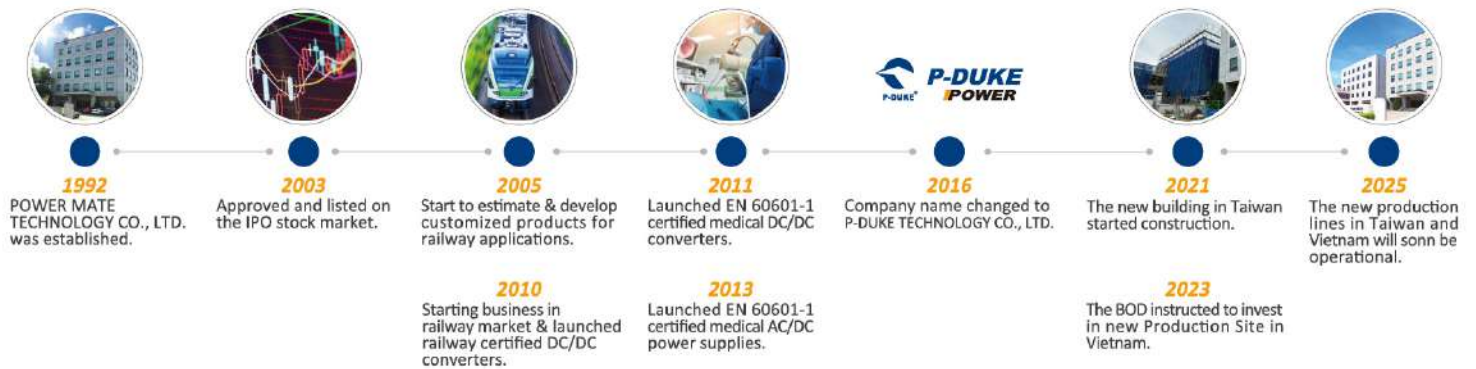
By collaborating closely with our customers, we develop tailored designs to meet unique specifications while adhering to global safety and EMI/EMC standards. Our focus on innovation, precision, and long-term partnerships drives us to consistently exceed expectations, providing solutions that ensure optimal performance and reliability for diverse applications.



Certifications



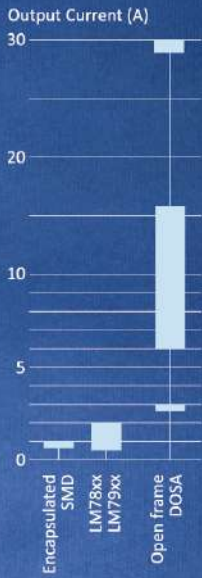
MILESTONE



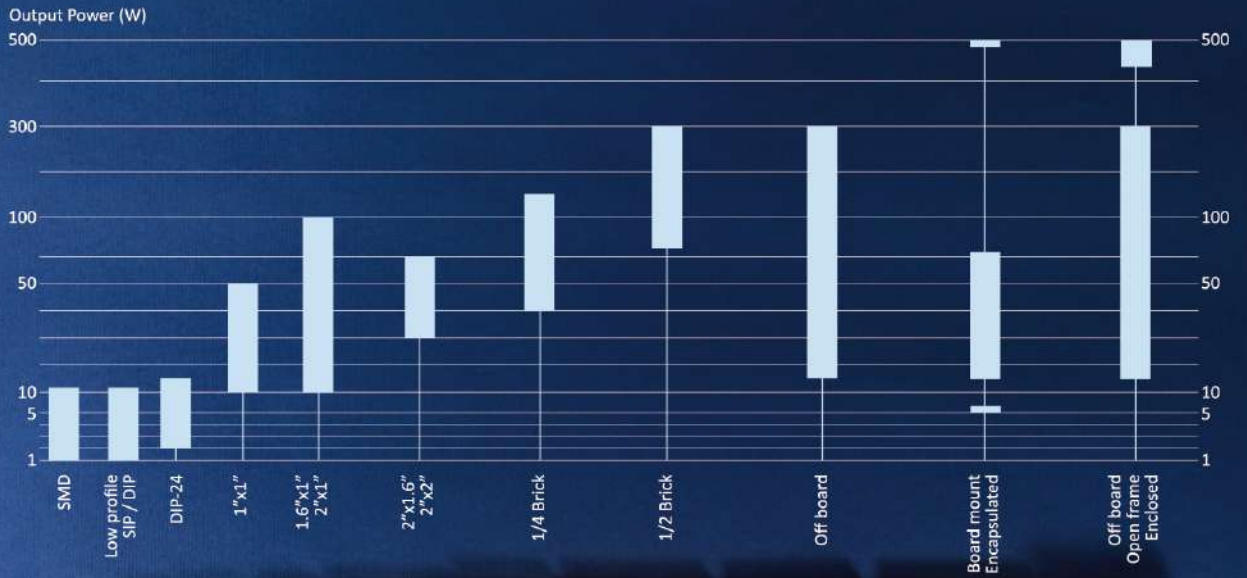
P-DUKE has been respecting and emphasizing the importance of Intellectual Property Rights. We have obtained multinational patents so far. To all the advanced companies in this industry, do not violate our Intellectual Property. Once any enterprises or individuals are found guilty of the infringement of intellectual property rights may be subject to investigate. P-DUKE has the right to protect our customers and be responsible for shareholders' equity. P-DUKE's patents include the following: US 7,894,214 B1, US8,817,495 B2, Nr. 20 2010 006 407.4, ZL 2011 2 C088132.5 ...

INDUSTRIAL CERTIFICATED

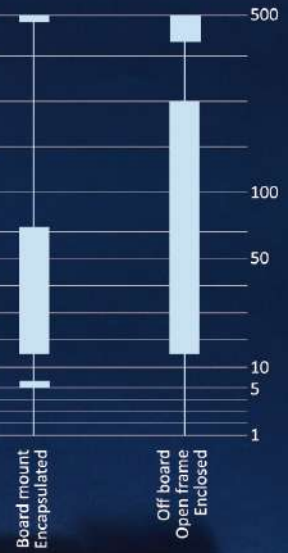
Non-isolated DC/DC Converters



Isolated DC/DC Converters



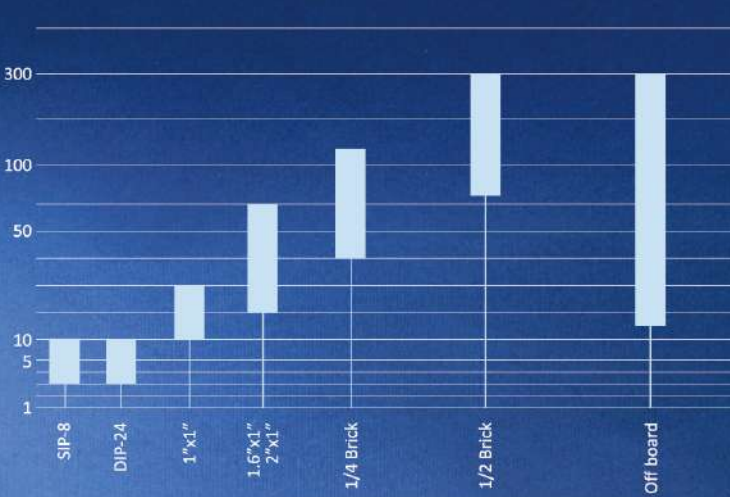
AC/DC Power Supplies



RAILWAY CERTIFICATED

DC/DC Converters

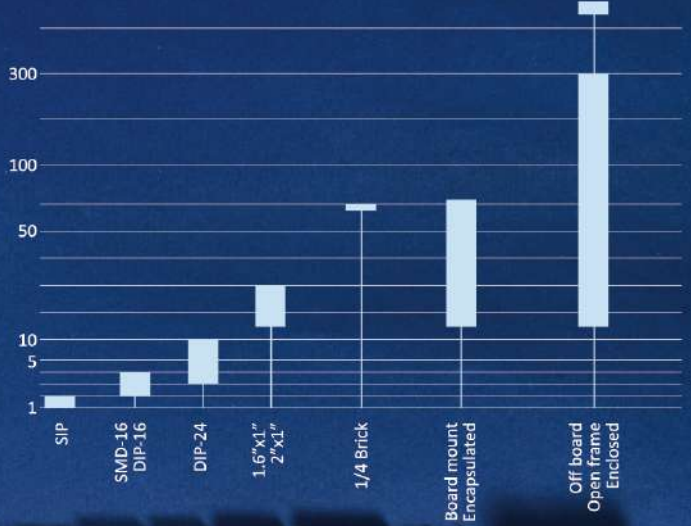
Output Power (W)



MEDICAL CERTIFICATED

DC/DC Converters & AC/DC Power Supplies

Output Power (W)

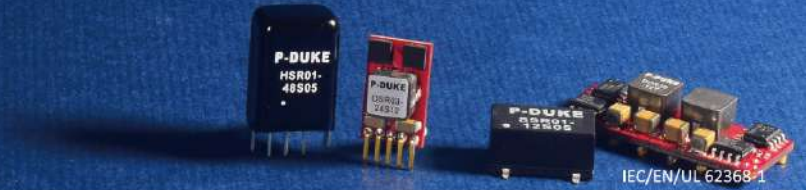


AC/DC POWER SUPPLIES



Series	Open Frame Enclosed Encapsulated Thru-hole	EMI CE RE	Output Power (W) Con. Peak		Input Voltage (VAC)	Single Output Dual Output Triple Output	Output Voltage (VDC)																Eff. (%)	OVC III	Isolation Voltage	Dimensions (Inch)		
							2.5	3.3	5	7.5	9	12	15	18	24	28	36	48	53	54	L	W				H		
PSC06		B B	6		85—530	S			5			12	15		24						75		4300 VAC	2.07	1.08	0.91		
TSC15		B B	15		85—264	S		3.3	5	7.5	9	12	15	18	24	28	36	48	53		89		3000 VAC	2.82	1.14	0.82		
TSD30		B B	30	40		S		3.3	5	7.5	9	12	15	18	24	28	36	48	53		91.5			3.95	1.50	1.00		
TSD40		B B	40			S			5	7.5	9	12	15	18	24	28	36	48	53		93			4.30	2.20	1.20		
TSD65		B B	65			S			5	7.5	9	12	15	18	24	28	36	48	53		93.5			4.30	2.20	1.20		
TAC15		B B	15			S		3.3	5	7.5	9	12	15	18	24	28	36	48	53		89			2.61	1.00	0.62		
TAD30		B B	30	40		S		3.3	5	7.5	9	12	15	18	24	28	36	48	53		91.5			3.34	1.36	0.77		
TAD40-Single		B B	40			S			5	7.5	9	12	15	18	24	28	36	48	53		93			3.00	2.00	0.94		
TAD65-Single		B B	65	90		S			5	7.5	9	12	15	18	24	28	36	48	53		93.5			3.00	2.00	0.94		
TAD40-Multi		B B	40			D T	2.5	3.3	5	7.5	9	12	15	18	24	28					90			3.50	2.00	0.98		
TAD65-Multi		B B	65			D T	2.5	3.3	5	7.5	9	12	15	18	24	28					90.5			3.50	2.00	0.98		
TAD50		B B	50	70		S			5	7.5	9	12	15	18	24		36	48	53		92.5			3.00	1.50	1.18		
TAD100		B A	100			S						12	15		24	28	36	48		92			3.00	2.00	1.16			
TAD125		B A	125	150		S						12	15	18	24	28	36	48		92			3.00	2.00	1.16			
TAD150		B B	150	200		S						12	15	18	24	28	36	48		54	94			3.00	2.00	1.24		
TAF150		B A	150			S						12	15		24	28	36	48		92			4.00	2.00	1.16			
TAD180		B A	180	220		S						12	15	18	24	28	36	48	53		94			3.00	2.00	1.24		
TAH240		B B	240	300	85—305	S						12	15		24	28	36	48		54	91			5.00	3.00	1.32		
TAF300		B A	300	360	85—264	S						12	15	18	24	28	36	48	53		93			4.00	2.09	1.26		
TAH450		B A	450			S						12	15		24	28	36	48	53		94			5.00	3.00	1.58		
TBF500			500			S						12	15		24	28		48		54	93			4.60	2.40	0.50		
XTBF500		B A	500			S						12	15		24	28		48		54	93			7.20	4.30	1.65		

NON-ISOLATED DC/DC CONVERTERS



Series	Open Frame Encapsulated SMD Thru-hole	Output Current (A)	Output Voltage (VDC)	Negative Vout Available	Output Voltage (VDC)														Eff. (%)	Isolation Voltage	Dimensions (Inch)				
					1.2	1.5	1.8	2.5	3	3.3	5	5.2	6	6.5	8	9	12	15			24	L	W	H	
HSRP6		0.6	9—72							3.3	5			6.5		9	12	15	24	94	None	0.47	0.34	0.53	
HSR01		1	9—72							3.3	5			6.5		9	12	15	24	93		0.48	0.34	0.69	
ASR01		1	-7 — -32								-5	-5.2	-6			-8	-9	-12	-15	96		0.46	0.30	0.65	
ESR01		1	4.7—36							3.3	5			6.5		9	12	15		96		0.46	0.32	0.41	
NSR01		1	4.6—36		1.2	1.5	1.8	2.5	3	3.3	5			6.5		9	12	15		95.5		0.46	0.30	0.40	
PSR1.0		1	4.6—36		1.2	1.5	1.8	2.5		3.3	5			6.5		9	12	15		96		0.46	0.30	0.40	
LSR01		1	3.0—36		1.2	1.5	1.8	2.5		3.3	5			6.5		9	12	15		96		0.60	0.37	0.30	
SSR01		1	3.0—36					2.5		3.3	5					9	12	15		95.5		0.60	0.37	0.30	
PSR02		2	3.0—36		1.2	1.5	1.8	2.5		3.3	5			6.5		9	12	15		96		0.55	0.30	0.40	
OSR03		3	2.5—30								0.59 — 15 VDC											95	0.37	0.24	0.61
DOS/H06		6	2.4—5.5								0.75 — 5.0 VDC											94	0.80	0.45	0.25
DOS/H10		10	8.3—14								0.75 — 5.0 VDC											95	1.30	0.53	0.30
DOS/H16		16									0.75 — 5.0 VDC										95	1.30	0.53	0.30	
DOS/H30		30	4.5—14								0.8 — 5.5 VDC										93	1.30	0.53	0.37	

: Negative Output Voltage

ISOLATED DC/DC CONVERTERS

SMALL & LOW PROFILE



Footprint	Series	Output Power (W)	Input			Input Voltage (VDC)	Single Output Dual Output Triple Output	Output Voltage (VDC)																Eff. (%)	Isolation Voltage	Dimensions (Inch)		
			8/12:1 4:1 2:1					3.3	5	5.1	9	12	15	24	48	53	±5	±12	±15	±24	L	W	H					
SIP-4	EUR01	1				3.3, 5, 12, 15, 24	S	3.3 5			9 12 15 24											81	3000 VDC 1600 VDC	0.45	0.24	0.39		
SIP-7	DU1P0	1				5, 12, 15, 24	S D	5			12 15						±5 ±12 ±15					82	3000 VDC 1000 VDC	0.77	0.24	0.40		
SMD-7 SIP-5	UDS01 UDH01	1				4.5—13.2 9—18 18—36 36—75	S D	3.3 5			9 12 15 24						±5 ±12 ±15					83	1600 VDC	0.47	0.44	0.31		
	UDS02 UDH02	2		S D	3.3 5				9 12 15 24					±5 ±12 ±15					84									
	UDS03 UDH03	3		S D	3.3 5				9 12 15 24					±5 ±12 ±15					84									
SMD-8 DIP-8	SDS01 SDH01	1				4.5—9 9—18 18—36 36—75	S D	3.3 5			9 12 15 24						±5 ±12 ±15					83	3000 VDC 1600 VDC	0.52	0.36	0.40		
	SDS02 SDH02	2		S D	3.3 5				9 12 15 24					±5 ±12 ±15					86									
	SDS05 SDH05	5		S D	3.3 5			9 12 15 24					±5 ±12 ±15					86										
	SDS01W SDH01W	1		S D	3.3 5			9 12 15 24					±5 ±12 ±15					81										
	SDS02W SDH02W	2		S D	3.3 5			9 12 15 24					±5 ±12 ±15					84										
	SDS03W SDH03W	3		S D	3.3 5			9 12 15 24					±5 ±12 ±15					84										
	SDS05W SDH05W	5		S D	3.3 5			9 12 15 24					±5 ±12 ±15					84										

ISOLATED DC/DC CONVERTERS
SMALL & LOW PROFILE



IEC/EN/UL 62368-1

Footprint	Series	Output Power (W)	Input 8/12:1 4:1 2:1	Input Voltage (VDC)	Single Output Dual Output Triple Output	Output Voltage (VDC)												Eff. (%)	Isolation Voltage	Dimensions (Inch)		
						3.3	5	5.1	9	12	15	24	48	53	±5	±12	±15	±24		L	W	H
SMD-14 DIP-14	PDS02 PDH02	2		4.5—9 9—18	S D	3.3	5		9	12	15				±5	±12	±15	84	3000 VDC 1600 VDC	0.74	0.50	0.34
	PDS03 PDH03	3		18—36 36—75	S D	3.3	5		9	12	15				±5	±12	±15	83				
	PDS02W PDH02W	2		4.5—18 9—36	S D	3.3	5		9	12	15				±5	±12	±15	82				
	PDS03W PDH03W	3		18—75	S D	3.3	5		9	12	15				±5	±12	±15	83				

ISOLATED DC/DC CONVERTERS

SIP-8



IEC/EN/UL 62368-1 · EN 50155 · EN 45545-2

Footprint	Series	Output Power (W)	Input 8/12:1 4:1 2:1	Input Voltage (VDC)	Single Output Dual Output Triple Output	Output Voltage (VDC)																Eff. (%)	Isolation Voltage	Dimensions (Inch)		
						3.3	5	5.1	9	12	15	24	48	53	±5	±12	±15	±24	L	W	H					
SIP-8	EDL02	2		4.5—13.2 9—18 18—36 36—75	S D	3.3	5		9	12	15	24			±5	±12	±15		86	1600 VDC	0.86	0.36	0.44			
	EDL03	3			S D	3.3	5		9	12	15	24			±5	±12	±15		86							
	EDL02W	2		4.5—18 9—36 18—75	S D	3.3	5		9	12	15	24			±5	±12	±15		82							
	EDL03W	3		18—75	S D	3.3	5		9	12	15	24			±5	±12	±15		83							
	LDL03	3		4.5—13.2 9—18 18—36 36—75	S D	3.3	5		9	12	15	24			±5	±12	±15		85	1600 VDC						
	PDL02	2		4.5—9 9—18 18—36 36—75	S D	3.3	5		9	12	15				±5	±12	±15		84	3000 VDC 1600 VDC						
	PDL03	3			S D	3.3	5		9	12	15				±5	±12	±15		85							
	PDL06	6			S D	3.3	5		9	12	15	24			±5	±12	±15		86							
	PDL09	9		9—18 18—36 36—75	S D	3.3	5		9	12	15	24			±5	±12	±15		90	1600 VDC						
	PDL03W	3		4.5—18 9—36 18—75	S D	3.3	5		9	12	15				±5	±12	±15		82	3000 VDC 1600 VDC						
	PDL06W	6		9—36 18—75	S D	3.3	5		9	12	15	24			±5	±12	±15		88							
	PDL09W	9			S D	3.3	5		9	12	15	24			±5	±12	±15		89	1600 VDC						
	PDL12W	12		4.5—18 9—36 18—75	S D	3.3	5	5.1	9	12	15	24			±5	±12	±15		90	1600 VDC	0.87	0.38	0.47			
RDL03W	3		9—36 18—75 43—160	S D	3.3	5		9	12	15	24			±5	±12	±15		83	3000 VDC	0.86	0.38	0.44				
RDL06W	6			S D	3.3	5		9	12	15	24			±5	±12	±15		88								
RDL10W	10			S D	3.3	5			12	15	24			±5	±12	±15		89		0.87	0.38	0.47				

ISOLATED DC/DC CONVERTERS

DIP-24



IEC/EN/UL 62368-1 . EN 50155 . EN 45545-2

Footprint	Series	Output Power (W)	Input 8/12:1 4:1 2:1	Input Voltage (VDC)	Single Output Dual Output Triple Output	Output Voltage (VDC)														Eff. (%)	Isolation Voltage	Dimensions (Inch)		
						2.5	3.3	5	5.1	9	12	15	24	±5	±12	±15	±24	L	W			H		
DIP-24 SMD-24	FKC03	3		9—18 18—36 36—75	S D												82	1600 VDC	1.25	0.80	0.40			
	FKC05	5			S D										84									
	FKC08	8			S D											88								
	FKC12	12			S D												88							
	FKC05W	5		S D												84								
	FKC08W	8		S D												88								
	FKC12W	12		S D												88								
DIP-24	LKC05W	5		S D													89	3000 VAC						
	FKC15	15		S D												91								
	FKC15W	15		S D												90								
	RHK03W	3		S D													85							
	RHK06W	6		S D													86.5							
	RHK10W	10		S D													88							

ISOLATED DC/DC CONVERTERS

1"x1"



IEC/EN/UL 62368-1 EN 50155 EN 45545-2

Footprint	Series	Output Power (W)	Input 8/12:1 4:1 2:1	Input Voltage (VDC)	Single Output Dual Output Triple Output	Output Voltage (VDC)																Eff. (%)	Isolation Voltage	Dimensions (Inch)		
																								L	W	H
						2.5	3.3	5	5.1	9	12	15	24	54	±5	±12	±15	±24								
1"x1"	LCD10	10		9—18 18—36 36—75	S D	3.3 5	12 15 24	±5 ±12 ±15	91	1600 VDC	1.00	1.00	0.39													
	LCD15	15			S D	3.3 5	12 15 24	±5 ±12 ±15 ±24	91																	
	RCD15	15			S D	3.3 5	12 15 24	±5 ±12 ±15 ±24	91																	
	LCD20	20			S D	3.3 5	12 15 24	±12 ±15 ±24	92																	
	LCD30	30			S D	3.3 5	12 15 24	±12 ±15 ±24	93																	
	LCD10W	10		9—36 18—75	S D	3.3 5	12 15 24	±5 ±12 ±15	91	1600 VDC																
	LCD15W	15			S D	3.3 5	12 15 24	±5 ±12 ±15 ±24	91																	
	LCD20W	20			S D	3.3 5	12 15 24	±12 ±15 ±24	91																	
	LCD30W	30			S D	3.3 5	12 15 24	±12 ±15 ±24	92																	
	LCD50W	50			S D	5	12 15 24	±12 ±15 ±24	93																	
	RCD10W	10		9—36 18—75 36—160	S D	3.3 5	12 15 24	±5 ±12 ±15 ±24	90	3000 VDC	1.00	1.00	0.45													
	RCD15W	15			S D	3.3 5	12 15 24	±5 ±12 ±15 ±24	91																	
	RCD20W	20			S D	3.3 5 5.1	12 15 24	±12 ±15 ±24	91																	
	RCD30W	30			S D	3.3 5 5.1	12 15 24 54	±12 ±15 ±24	92																	
	RCD10U	10			9—75 14—160	S D	3.3 5 5.1	12 15 24	±5 ±12 ±15					89	3000 VDC											
	RCD20U	20		S D		5 5.1	12 15 24	±12 ±15	88																	
	LED15	15		18—36 36—75	S		12 15		88	2250 VDC	1.10	0.94	0.33													
	LED15W	15		9—36 18—75	S	3.3 5	12 15		87																	

ISOLATED DC/DC CONVERTERS

1.6"x1" & 2"x1"



IEC/EN/UL 62368-1 . EN 50155 . EN 45545-2

Footprint	Series	Output Power (W)	Input 8/12:1 4:1 2:1	Input Voltage (VDC)	Single Output Dual Output Triple Output	Output Voltage (VDC)																Eff. (%)	Isolation Voltage	Dimensions (Inch)		
						1.5	1.8	2.5	3.3	5	5.1	12	15	24	28	48	53	54	±5	±12	±15	±24		L	W	H
1.6"x1"	RHM20W	20		36—160	S D					5	5.1	12	15	24					±5	±12	±15	90.5	3000 VAC	1.60	1.00	0.40
2"x1"	FDC10	10		9—18	S D				3.3	5		12	15						±5	±12	±15	87	1600 VDC	2.00	1.00	0.40
	FEC15	15		18—36	S D				3.3	5		12	15						±5	±12	±15	88				
	FED20	20		36—75	S D	1.5	1.8	2.5	3.3	5		12	15						±12	±15		89				
	FED30	30			S D	1.5		2.5	3.3	5	5.1	12	15						±5	±12	±15	91				
	EED40	40			S D				3.3	5		12	15	24					±12	±15	±24	93				
	FED60	60			S D				3.3	5		12	15	24					±12	±15	±24	92				
	FDC10W	10		9—36	S D				3.3	5		12	15						±5	±12	±15	84				
	FEC15W	15		18—75	S D				3.3	5	5.1	12	15						±5	±12	±15	88				
	FED20W	20			S D				3.3	5		12	15						±5	±12	±15	89				
	FED30W	30			S D	1.5		2.5	3.3	5	5.1	12	15						±5	±12	±15	91				
	FED30TW	30			T				3.3	5									±12	±15		88				
	EED40W	40			S D				3.3	5		12	15	24		48	53		±12	±15	±24	93				
	FED60W	60			S D				3.3	5		12	15	24					±12	±15	±24	92				
	FED100W	100			S					5		12	15	24	28	48		54				94	2250 VDC	2.00	1.00	0.42
	RED20W*	20		9—36	S D				3.3	5		12	15						±12	±15		89	2250 VDC	2.00	1.00	0.40
	RED40W	40		18—75	S D				3.3	5		12	15	24		48	53		±12	±15	±24	93	3000 VDC			
	RED60W	60		43—160*	S D				3.3	5	5.1	12	15	24		48	53		±12	±15	±24	94				
	RHD40W	40		36—160	S D					5	5.1	12	15	24					±12	±15		90	3000 VAC			
	RED40U	40		9—75	S D					5	5.1	12	15	24					±12	±15		90	3000 VDC			
				14—160																						

ISOLATED DC/DC CONVERTERS

2"x1.6" & 2"x2"



IEC/EN/UL 62368-1

Footprint	Series	Output Power (W)	Input			Input Voltage (VDC)	Single Output Dual Output Triple Output	Output Voltage (VDC)																Eff. (%)	Isolation Voltage	Dimensions (Inch)		
			8/12:1	4:1	2:1			1.5	1.8	2.5	3.3	5	5.1	12	15	24	28	48	53	54	±5	±12	±15	±24		L	W	H
2"x1.6"	FEC30	30				9—18 18—36 36—75	S D	1.5	1.8	2.5	3.3	5		12	15							±12	±15	90	1600 VDC	2.00	1.60	0.40
	FEC30W	30				10—40 18—75	S D	1.5	1.8	2.5	3.3	5		12	15							±12	±15	88				
2"x2"	FEC40	40				9—18 18—36 36—75	S D T	1.5	1.8	2.5	3.3	5		12	15							±12	±15	90	1600 VDC	2.00	2.00	0.40
	FEC40W	40				9—36 18—75	S D				3.3	5		12	15							±12	±15	89				
	FEC60	60				18—36 36—75	S				3.3	5		12	15									91				

ISOLATED DC/DC CONVERTERS

Quarter Brick & Half Brick



IEC/EN/UL 62368-1 · EN 50155 · EN 45545-2

Footprint	Series	Output Power (W)	Input 8/12:1 4:1 2:1	Input Voltage (VDC)	Single Output Dual Output Triple Output	Output Voltage (VDC)														Eff. (%)	Isolation Voltage	Dimensions (Inch)		
						3.3	5	5.1	12	15	24	28	30	48	53	54	±12	±15	±24			L	W	H
1/4 Brick	QAE40U	40		9–75 14–160	S		5		12	15	24	28		48	53					91	3000 VAC 2250 VDC	2.28	1.45	0.50
	QAE60U	60			S		5		12	15	24	28		48	53					91				
	QAE100U	100			S		5		12	15	24	28		48	53					90				
	QAE100	108		8.5–22 16.5–36 33–75	S	3.3	5		12	15	24		30	48						93	2250 VDC			
	QAE150	150			S	3.3	5		12	15	24		30	48						92				
	QAE100W	90		8.5–36 16.5–75 40–160	S	3.3	5		12	15	24		30	48						90	3000 VAC 2250 VDC			
	QAE150W	132			S	3.3	5		12	15	24		30	48						90				
1/2 Brick	HAE100	100		9–18 18–36 36–75	S	3.3	5		12	15	24	28		48						93	3000 VDC	2.40	2.28	0.50
	HAE150	196		8.5–22 16.5–36 33–75	S	3.3	5		12	15	24	28		48	53					93				
	HAE200	255			S	3.3	5		12	15	24	28		48	53					93				
	HAE75W	75		9–36 18–75 43–160	S	3.3	5		12	15	24	28		48						91	3000 VAC 3000 VDC			
	HAE100W	100		8.5–36 16.5–75 43–160	S	3.3	5		12	15	24	28		48						93				
	HAE150W	182			S	3.3	5		12	15	24	28		48						91				
	HAE200W	240			S	3.3	5		12	15	24	28		48						91				
	HAE300W	300		9–36 18–75 40–160	S		5		12	15	24	28		48		54				92	3000 VAC 3000 VDC			
	HAE150U	150		16–160 *12–185V transient voltage	S		5		12	15	24	28		48	53					93	3000 VAC			
	HAE200U	200			S		5		12	15	24	28		48	53					93				

ISOLATED DC/DC CONVERTERS

Chassis Mount & Din-rail



IEC/EN/UL 62368-1 · EN 50155 · EN 45545-2

Footprint	Series	Output Power (W)	Input 8/12:1 4:1 2:1	Input Voltage (VDC)	Single Output Dual Output Triple Output	Output Voltage (VDC)																Eff. (%)	Isolation Voltage	Dimensions (Inch)		
						3.3	5	5.1	12	15	24	28	30	48	53	±5	±12	±15	±24	L	W			H		
*Chassis Din-rail	UFED20	20		9.5—18 18—36 36—75	S D	3.3	5		12	15								±12	±15	88	1600 VDC	4.00	2.25	0.75		
	UFEC30	30			S D	3.3	5		12	15	24	28					±12	±15	89							
	UFEC40	40			S D T	3.3	5		12	15	24	28					±12	±15	89							
	UFEC60	60		18—36 36—75	S	3.3	5		12	15	24								89							
	UFEC15W	15		9.5—36 18—75	S D	3.3	5	5.1	12	15						±5	±12	±15	87							
	UFED20W	20			S D	3.3	5		12	15						±5	±12	±15	88							
	URED20W	20		9—36 18—75 43—160	S D	3.3	5		12	15							±12	±15	88	2250 VDC						
	UFEC30W	30		10—40 18—75	S D	3.3	5		12	15	24	28					±12	±15	87	1600 VDC						
	UFED40W	40		9.5—36 18—75 43—160	S D	3.3	5		12	15	24						±12	±15	±24	91	3000 VDC 1600 VDC					
	UFEC40W	40		9.5—36 18—75	S D	3.3	5		12	15	24	28					±12	±15	88	1600 VDC						
URCD20U	20		14—160	S D		5	5.1	12	15	24						±12	±15	86	3000 VDC	3.30	2.25	0.83				

*Chassis: Chassis mount

ISOLATED DC/DC CONVERTERS

Chassis Mount & Din-rail



IEC/EN/UL 62368-1 . EN 50155 . EN 45545-2

Footprint	Series	Output Power (W)	Input 8/12:1 4:1 2:1	Input Voltage (VDC)	Single Output Dual Output Triple Output	Output Voltage (VDC)																Eff. (%)	Isolation Voltage	Dimensions (Inch)		
																								L	W	H
						3.3	5	5.1	12	15	24	28	30	48	53	±5	±12	±15	±24							
*Chassis	HAE100-T	100		9—18 18—36 36—75	S	3.3	5		12	15	24	28		48						93	3000 VDC	3.35	2.40	1.59		
	HAE150-T	196		8.2—22 16.5—36 33—75	S	3.3	5		12	15	24	28		48	53					93						
	HAE200-T	255			S	3.3	5		12	15	24	28		48	53					93						
	HAE75W-T	75		9—36 18—75 43—160	S	3.3	5		12	15	24	28		48						91	3000 VAC 3000 VDC					
	HAE100W-T	100		8.5—36 16.5—75 43—160	S	3.3	5		12	15	24	28		48						93						
	HAE150W-T	182			S	3.3	5		12	15	24	28		48						91						
	HAE200W-T	240			S	3.3	5		12	15	24	28		48						91						
	WAF150W	150		9—36 18—75 43—160	S				12	15	24	28		48						89	3000 VDC 2250 VDC	3.86	2.56	0.67		
*Chassis Din-rail	WAF300W	300		18—75 43—160	S				12	15	24	28		48						92					3000 VAC	6.00

*Chassis: Chassis mount

POWER SOLUTIONS FOR RAILWAY APPLICATIONS

IEC/EN/UL 62368-1 . EN 50155 . EN 45545-2

Footprint	Series	Output Power (W)	Input			Input Voltage (VDC)	Single Output Dual Output	Output Voltage (VDC)																Eff. (%)	Isolation Voltage	Dimensions (Inch)		
																										L	W	H
								3.3	5	5.1	9	12	15	24	28	48	53	54	±5	±12	±15	±24						
SIP-8	 RDL03W	3				9—36 18—75 43—160	 	3.3	5		9	12	15	24				±5	±12	±15	83	3000 VDC	0.86	0.36	0.44			
	 RDL06W	6					 	3.3	5		9	12	15	24				±5	±12	±15	88							
	 RDL10W	10					 	3.3	5			12	15	24				±5	±12	±15	89	3000 VDC 2250 VDC	0.87	0.38	0.47			
DIP-24	 FKC08W	8					 	3.3	5			12	15					±5	±12	±15	88	1600 VDC	1.25	0.80	0.40			
	 RHK03W	3				36—160	 	3.3	5			12	15	24				±5	±12	±15	85	3000 VAC						
	 RHK06W	6					 	3.3	5			12	15	24				±5	±12	±15	86.5							
	 RHK10W	10					 	3.3	5	5.1		12	15	24				±5	±12	±15	88							
1"x1"	 RCD10W	10				9—36 18—75 36—160	 	3.3	5			12	15	24				±5	±12	±15	±24	90	3000 VDC	1.00	1.00	0.39		
	 RCD15W	15					 	3.3	5			12	15	24				±5	±12	±15	±24	91						
	 RCD20W	20					 	3.3	5	5.1		12	15	24					±12	±15	±24	91	3000 VDC					
	 RCD30W	30					 	3.3	5	5.1		12	15	24			54		±12	±15	±24	92	2250 VDC					
	 RCD10U	10				9—75 14—160	 	3.3	5	5.1		12	15	24				±5	±12	±15		89	3000 VDC					
	 RCD20U	20					 			5	5.1		12	15	24				±12	±15		88						
1.6"x1"	 RHM20W	20				36—160	 			5	5.1		12	15	24				±5	±12	±15	90.5	3000 VAC	1.60	1.00	0.40		
2"x1"	 RED20W	20				9—36 18—75 43—160	 		3.3	5			12	15					±12	±15		89	2250 VDC	2.00	1.00	0.40		
	 RED40W	40				9—36 18—75 36—160	 	3.3	5			12	15	24		48	53		±12	±15	±24	93	3000 VDC					
	 RED60W	60					 	3.3	5	5.1		12	15	24		48	53		±12	±15	±24	94						
	 RHD40W	40				36—160	 			5	5.1		12	15	24				±12	±15		90	3000 VAC					
	 RED40U	40				9—75 14—160	 			5	5.1		12	15	24				±12	±15		90	3000 VDC					



IEC/EN/UL 62368-1 . EN 50155 . EN 45545-2

Footprint	Series	Output Power (W)	Input 8/12:1 4:1 2:1	Input Voltage (VDC)	Single Output Dual Output	Output Voltage (VDC)																Eff. (%)	Isolation Voltage	Dimensions (Inch)		
						3.3	5	5.1	9	12	15	24	28	30	48	53	54	±12	±15	±24	L			W	H	
1/4 Brick	 QAE40U	40	  	9—75	S		5			12	15	24	28		48	53				91	3000 VAC 2250 VDC	2.28	1.45	0.50		
	 QAE60U	60	  	14—160	S		5			12	15	24	28		48	53				91						
	 QAE100U	100	  		S		5			12	15	24	28		48	53				90						
	 QAE100W	90	  	8.5—36 16.5—75 40—160	S	3.3	5			12	15	24		30	48					90						
	 QAE150W	132	  		S	3.3	5			12	15	24		30	48					90						
1/2 Brick	 HAE75W	75	  	9—36 18—75 43—160	S	3.3	5			12	15	24	28		48					91	3000 VAC 3000 VDC	2.40	2.28	0.50		
	 HAE100W	100	  	8.5—36 16.5—75 43—160	S	3.3	5			12	15	24	28		48					93						
	 HAE150W	182	  		S	3.3	5			12	15	24	28		48					91						
	 HAE200W	240	  		S	3.3	5			12	15	24	28		48					91						
	 HAE300W	300	  	9—36 18—75 40—160	S		5			12	15	24	28		48		54			93	3000 VAC 3000 VDC					
	 HAE150U	150	  	16—160	S		5			12	15	24	28		48	53				93					3000 VAC	
	 HAE200U	200	  		S		5			12	15	24	28		48	53				93						

POWER SOLUTIONS FOR RAILWAY APPLICATIONS

IEC/EN/UL 62368-1 . EN 50155 . EN 45545-2

Footprint	Series	Output Power (W)	Input 8/12:1 4:1 2:1	Input Voltage (VDC)	Single Output Dual Output	Output Voltage (VDC)																Eff. (%)	Isolation Voltage	Dimensions (Inch)		
						3.3	5	5.1	9	12	15	24	28	30	48	53	±5	±12	±15	±24	L			W	H	
*Chassis	 URED20W	20		9—36 18—75 43—160	S D	3.3	5			12	15							±12	±15		88	2250 VDC	4.00	2.25	0.75	
	 UFED40W	40		9.5—36 18—75 43—160	S D	3.3	5			12	15	24						±12	±15	±24	91	3000 VDC 1600 VDC				
	 URCD20U	20		14—160	S D		5	5.1		12	15	24						±12	±15		86	3000 VDC	3.30	2.25	0.83	
	 HAE75W-T	75		9—36 18—75 43—160	S	3.3	5			12	15	24	28		48						91	3000 VAC 3000 VDC	3.35	2.40	1.59	
	 HAE100W-T	100		8.5—36 16.5—75 43—160	S	3.3	5			12	15	24	28		48						93					
	 HAE150W-T	182			S	3.3	5			12	15	24	28		48						91					
	 HAE200W-T	240			S	3.3	5			12	15	24	28		48						91					
	 WAF150W	150		9—36 18—75 43—160	S					12	15	24	28		48						89	3000 VDC 2250 VDC	3.86	2.56	0.67	
*Chassis Din-rail	 WAF300W	300		18—75 43—160	S					12	15	24	28		48					92	3000 VAC	6.00	4.00	1.52		

*Chassis: Chassis mount

AC/DC POWER SOLUTIONS FOR MEDICAL APPLICATIONS

IEC/ EN/ ANSI/AAMI ES 60601-1 IEC/EN/UL 62368-1

Series	Open Frame Enclosed Encapsulated Thru-hole	EMI CE RE	Output Power (W)		Input Voltage (VAC)	Single Output Dual Output Triple Output	Output Voltage (VDC)															Eff. (%)	Leakage (µA)	Isolation Voltage	Dimensions (Inch)		
			Con.	Peak			2.5	3.3	5	7.5	9	12	15	18	24	28	36	48	53	54	L				W	H	
MSC15			B B	15	85—264	S	3.3	5	7.5	9	12	15	18	24	28	36	48	53	89	75	4000 VAC	2.82	1.14	0.82			
MSD30			B B	30		S	3.3	5	7.5	9	12	15	18	24	28	36	48	53	91.5	100		3.95	1.50	1.00			
MSD40			B B	40		S	5	7.5	9	12	15	18	24	28	36	48	53	93	75	4.30		2.20	1.20				
MSD65			B B	65		S	5	7.5	9	12	15	18	24	28	36	48	53	93.5	75	4.30		2.20	1.20				
MAC15			B B	15		S	3.3	5	7.5	9	12	15	18	24	28	36	48	53	89	75		2.61	1.00	0.62			
MAD30			B B	30		S	3.3	5	7.5	9	12	15	18	24	28	36	48	53	91.5	100		3.34	1.36	0.77			
MAD40-Single			B B	40		S	5	7.5	9	12	15	18	24	28	36	48	53	93	75	3.00		2.00	0.94				
MAD65-Single			B B	65		S	5	7.5	9	12	15	18	24	28	36	48	53	93.5	75	3.00		2.00	0.94				
MAD40-Multi			B B	40		D T	2.5	3.3	5	7.5	9	12	15	18	24	28			90	75		3.50	2.00	0.98			
MAD65-Multi			B B	65		D T	2.5	3.3	5	7.5	9	12	15	18	24	28			90.5	75		3.50	2.00	0.98			
MAD50			B B	50 70		S	5	7.5	9	12	15	18	24		36	48	53	92.5	100	3.00		1.50	1.08				
MAD100			B A	100		S					12	15	18	24	28	36	48	92	75	3.00		2.00	1.16				
MAD150			B B	150 200		S					12	15	18	24	28	36	48	54	94	100		3.00	2.00	1.24			
MAF150			B A	150		S					12	15	18	24	28	36	48	92	100	4.00		2.00	1.16				
MAD180			B A	180 220		S					12	15	18	24	28	36	48	53	94	100		3.00	2.00	1.24			
MAH240			B B	240 300		S					12	15		24	28	36	48	54	91	100		5.00	3.00	1.32			
MAF300			B A	300 360		S					12	15	18	24	28	36	48	53	93	100		4.00	2.09	1.26			
MAH450			B A	450		S					12	15		24	28	36	48	53	94	100		5.00	3.00	1.58			

DC/DC POWER SOLUTIONS FOR MEDICAL APPLICATIONS

IEC/ EN/ ANSI/AAMI ES 60601-1 IEC/EN/UL 62368-1

Footprint	Series	Output Power (W)	Input 4:1 2:1	Input Voltage (VDC)	Single Output Dual Output	Output Voltage (VDC)										Eff. (%)	Leakage Current (μA)	Clearance Creepage (mm)	Isolation Voltage	Dimensions (Inch)		
						3.3	5	5.1	9	12	15	24	±5	±12	±15					L	W	H
SIP-9	MPU01	1		4.5–5.5 9.6–14.4 12–18 19.2–28.8	S D	3.3	5			12	15		±5	±12	±15	85	2	8	2MOPP 5000 VAC	0.77	0.39	0.49
	MPU02	2		4.5–7 9.6–14.4 12–18 19.2–28.8	S D	3.3	5			12	15		±5	±12	±15	84						
SIP-8	MPL02	2		4.5–13.2 9–18 18–36	S D	3.3	5			12	15		±5	±12	±15	85	2	8	2MOPP 5000 VAC	0.86	0.39	0.49
SMD-16 DIP-16	MPS02 MPH02	2		4.5–12 9–18 18–36 36–75	S D	3.3	5		9	12	15	24		±12	±15	82	2	8	2MOPP 5000 VAC	0.95	0.57	0.40
	MPS04 MPH04	3.5			S D		5		9	12	15	24		±12	±15	83						
DIP-24	MPP03	3		4.5–9 9–18 18–36 36–75	S D	3.3	5			12	15	24	±5	±12	±15	87	2	8	2MOPP 5000 VAC	1.25	0.80	0.40
	MPP06	6			S D	3.3	5			12	15	24	±5	±12	±15	89						
	MPK06	6			S D		5			12	15		±5	±12	±15	87						
	MPP10	10			S D	3.3	5			12	15	24	±5	±12	±15	89						
	MPP03W	3			S D	3.3	5			12	15	24	±5	±12	±15	87						
	MPP06W	6		9–36 18–75	S D	3.3	5			12	15	24	±5	±12	±15	89						
	MPP10W	10			S D	3.3	5			12	15	24	±5	±12	±15	89						

DC/DC POWER SOLUTIONS FOR MEDICAL APPLICATIONS

IEC/ EN/ ANSI/AAMI ES 60601-1 IEC/EN/UL 62368-1

Footprint	Series	Output Power (W)	Input 4:1 2:1	Input Voltage (VDC)	Single Output Dual Output	Output Voltage (VDC)										Eff. (%)	Leakage Current (μA)	Clearance Creepage (mm)	Isolation Voltage	Dimensions (Inch)		
						3.3	5	5.1	9	12	15	24	±5	±12	±15					L	W	H
1.6"x1"	MPM15	15		9—18 18—36	S D	5				12	15	24	±5	±12	±15	90	2	8	2MOPP 5000 VAC	1.60	1.00	0.40
	MPM20	20		36—75	S D	5				12	15	24	±5	±12	±15	90						
	MPM15W	15		9—36 18—75	S D	5				12	15	24	±5	±12	±15	89.5						
	MPM20W	20			S D	5				12	15	24	±5	±12	±15	89.5						
2"x1"	MPD30	30		9—18 18—36 36—75	S D	5				12	15	24	±5	±12	±15	90.5	2	8	2MOPP 5000 VAC	2.00	1.00	0.40
	MPD30W	30		9—36 18—75	S D	5				12	15	24	±5	±12	±15	90.5						
1/4 Brick	MPQ60W	60		9—36 18—75	S D	5	5.1			12	15	24		±12	±15	92.5	4.5	8	2MOPP 5000 VAC	2.28	1.45	0.50

DC/DC FRONT-END FILTERS



RIA12 . MIL-STD 1275E . MIL-STD 461G

Footprint	Series	Surge Protection	EMI Filter	Output Power (W)	Vnom (VDC)	Input Voltage (VDC)	Max. Transient Voltage	Clamp Voltage (VDC)	Standard	Dimensions (Inch)		
										L	W	H
DIP-24	SSM-110P50-001	■	■	20	110	43—160	385 V / 20 ms	168	RIA 12 NF F 01-510 Surge Susceptibility	1.25	0.80	0.40
1.6"x1"	SSM-110004-001	■	■	150	110	43—160				1.60	1.00	0.40
1.6"x1"	SSM-110008-001	■	■	300	110	43—160				1.60	1.00	0.40
1.6"x1"	MCF-028005-001	■	■	45	28	9—36	100 V / 50 ms	40	MIL-STD 1275E MIL-STD 704F RTCA DO-160G Cat. A/Z MIL-STD 461G	1.60	1.00	0.40
2"x1"	MCF-028008-001	■	■	75						2.00	1.00	0.40
1/4 Brick	MCF-028010-001	■	■	150						2.28	1.45	0.50
	MCF-028015-001	■	■	250						2.28	1.45	0.50

Understanding DC/DC & AC/DC datasheets

Voltage accuracy

P-Duke uses high precision references to keep the output voltage tolerance very low. Values are specified at a certain operating point and shown in the datasheet.

Line regulation

Input voltage changes may have some influence on the output voltage and the max and min values for deviations are shown in the datasheet.

Load regulation

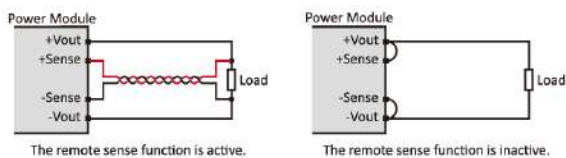
Mainly due to internal resistance in the converter the output voltage can vary slightly depending on the load current. Values for different load conditions are shown in the datasheet.

Voltage adjustability

Many converters offer the option to trim the output voltage up and down and maximum range is specified in the datasheet.

Remote sense

To compensate voltage drops on longer load lines some converters offer the option to connect remote sense wires. When using remote sensing, the maximum voltage drop compensation plus the output trim must be within the maximum voltage adjustability range. If no remote sense lines are used, the sense pins must be connected directly to the Vout pins.



Ripple and noise

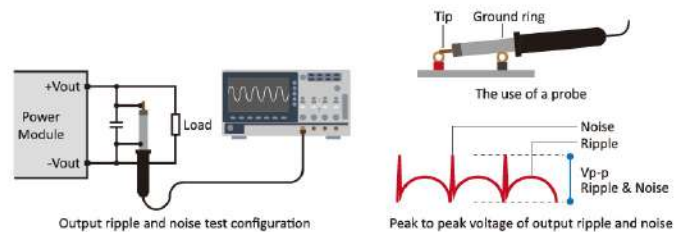
Output ripple and noise is a combination of input frequency, converter switching frequency and fast switching operations within the power train.

Measurement has to be made at the output of a converter by using following test setup. Oscilloscope with 20MHz Bandwidth should be used.

Probe should contact the pins directly, long ground wires can induce high noise levels. A recommended 0.1 μ F X7R MLCC output capacitor helps reducing the output noise.

Further details can be found in the individual datasheets of the products.

Warning: The external output capacitor should never exceed the specified max. capacitive load.

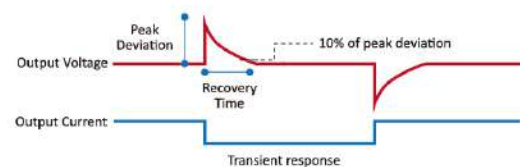


Temperature coefficient

Any electronic voltage reference used for the output voltage regulation of a converter has a temperature coefficient. P-Duke uses high precision references to keep this temperature coefficient at a minimum.

Transient response

Dynamic load steps generate deviations of the output voltage which are immediately compensated by the internal fast regulation circuit (graph below) by bringing the output voltage back to the correct value. Peak deviation and recovery time are specified in the datasheet. Larger output capacitors can help to reduce output voltage deviation, but it must never exceed the specified max. capacitive load of a converter.



Over voltage protection

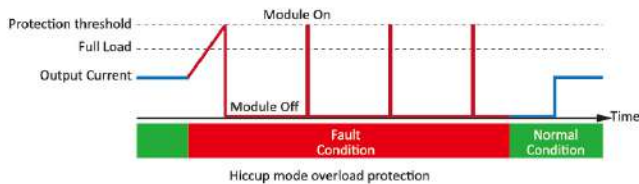
To protect the downstream electronics from higher voltages, most converters have a built-in over voltage protection. If the specified threshold is reached, the converter shuts down and goes into a latch mode.

Tripping the overvoltage protection many indicate that there are failures in a system. Before restarting a power supply, make sure that potential failures had been removed. To restart the converter, the input voltage must be disconnected and applied again.

Understanding DC/DC & AC/DC datasheets

Overload protection

Loads higher than the specified nominal load can lead to failures of a converter. Built-in overload protection circuits shut down the converter when a specified overload value is reached. P-Duke products go into a hiccup mode and the converter tries to restart cyclically. As long as the overload condition persists, the converter immediately shuts down again. Once the overload condition was removed, the converter restarts normally.



Isolation voltage

Outputs and the chassis of a power supply must be protected from hazardous input voltages. Safety standards define isolation barriers between inputs, outputs, chassis and ground which must be considered during design and tested during final test in the factory by applying high voltages (Hi-Pot test). These isolation voltage values are mentioned in the datasheets.

Please make sure that these voltages meet the safety requirements of your application.

Isolation resistance

In addition to the Hi-Pot test the isolation resistance is also tested by applying 500Vdc across the isolation barrier. It is an additional test to make sure that there is no isolation failure within a system. By measuring the current the isolation resistance can be calculated and must be below a value specified by the safety standards.

Switching frequency

When designing EMI filters or searching for interference with noise sensitive devices in a system, it helps to know the switching frequency of a converter handling high power at high frequencies.

Safety and standard approvals

Depending on the final application, power supplies and DC/DC converters must not only be compliant to safety standards but also to standards defining environmental, EMC or specific input voltage requirements. This section of the datasheets shows the approvals and P-Duke can provide the relevant documents.

MTBF

Mean time between failure is the statistically expected failure rate of a power supply expressed in hours and calculated under defined operating and environmental conditions using MIL-HDBK-217F. P-Duke products achieve highest MTBF values. Please contact P-Duke's application engineering if you need values for your specific application.

Temperature specifications

Reliability and lifetime of electronic components and systems are largely determined by their operating temperature. A rule of thumb says that reducing the operating temperature by 10°C doubles the lifetime. P-DUKE uses topologies with highest efficiency but still, every power supply generates some losses that ultimately heat up the system. Cooling and protection against overheating is therefore important to achieve highest reliability. In the datasheets you will find values for different cooling methods:

Natural convection cooling does not use fans or forced air and has the lowest cooling effect. Air flow might be difficult to control, and hot air may heat up other components in the surrounding area. It is used when fans are not permitted for reasons of noise, pollution or reliability.

Fans or forced air cooling enable more power at higher ambient temperatures as the air flow reduces the operating temperatures inside of a power supply. This temperature reduction results in higher reliability and longer lifetime numbers for a system.

Conduction cooling can be used for encapsulated modules with baseplate and for total solutions specially designed for this cooling method. Heat generated by the power supply or converter is transferred to an attached heatsink or the chassis. This makes heat management easier and enables closed and even hermetically sealed solutions.

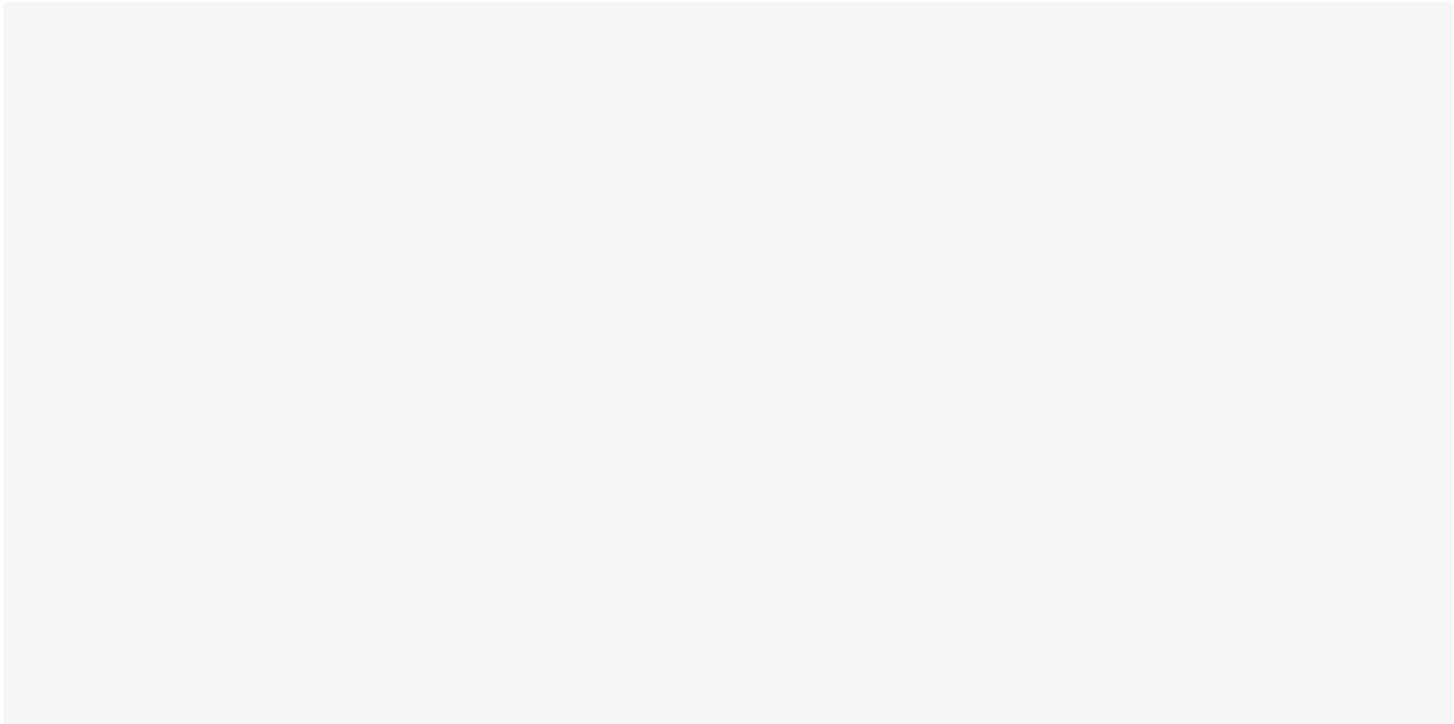
Operating case or baseplate temperature

It is very important to make sure that a module will not work above the specified maximum case or baseplate temperature. How to measure the temperature is explained in the installation guides.

Over Temperature Protection

All devices have a built-in over temperature protection circuit shutting down the converter when the temperature inside the device has reached the specified threshold. After cooling down, the unit restarts automatically.

 Memo



www.pduke.com is the only official website of P-DUKE Technology.
Please pay attention to unauthorized phishing websites and support the crackdown on counterfeit products.
If you have any questions about whether the product is sold by a legitimate licensor, please call our official at
+886-4-23590668 to inquire about the authenticity of the product or authorization.