



6DAM1W4_6 series

6W - Single/Dual Output DC-DC Converter - Wide Input - Isolated

DC-DC Converter

6 Watt

- ⊕ Wide input voltage (4:1)
- ⊕ DIP24 package
- ⊕ Up to 85% efficiency
- ⊕ 8mm transformer creepage distance (clearance is 5mm)
- ⊕ Operating temperature: -40°C to +85°C
- ⊕ Reinforced isolation (5.2kVAC/6kVDC)
- ⊕ High isolation (2MOPP)
- ⊕ Input under-voltage, output short-circuit, over-current and over-voltage protection

Introducing our new high-performance 6DAM1W4_6 power series, designed to meet the demands of modern applications with precision and reliability. With a wide input voltage range (4:1) and compact DIP24 package, this module offers exceptional versatility and seamless integration. Operating at up to 85% efficiency, it ensures optimal energy utilization while maintaining superior performance. Safety and reliability are at the core of this design. Featuring reinforced isolation (5.2kVAC/6kVDC) and compliance with 2MOPP standards, it delivers unmatched protection. The 8mm transformer creepage distance and 5mm clearance further enhance insulation integrity, meeting the most stringent industry requirements. Engineered to perform in extreme environments, it operates effortlessly in temperatures ranging from -40°C to +85°C. Robust protection mechanisms, including input under-voltage, output short-circuit, over-current, and over-voltage protection, ensure dependable operation under all conditions.



Common specifications	
Short Circuit protection	Input voltage range, continuous
Over-voltage protection	Input voltage range, 110 (min.) 160 (max.) %Vo
Over-current protection	Input voltage range, 110 (Min.) 140 (typ.) 210 (max.) %Io
Leakage current	240VAC/60Hz, 4 (typ.) uA
Reinforced isolation	Transformer creepage, 8mm (typ.) Transformer clearance, 5mm (typ.) PCB creepage & clearance, 8mm (typ.) Optocoupler creepage, 8mm (typ.)
Switching frequency	330 kHz
Operating temperature	-40°C ~+85°C (with derating)
Storage temperature	-55°C ~+125°C
Pin soldering resistance temperature	+300°C (soldering spot is 1.5mm away from case for 10 seconds)
Humidity	95 %RH (non condensing)
Cooling	Free air convection
Safety standard	EN60601-1: 2006 + A1:2013
Application part	CF type
Isolation protection grade	240VAC/60Hz, 2xMOPP
Case material	DAP
Weight	12.8 g
Dimensions	31.8 x 20.3 x 10.2 mm

Input specifications					
Item	Test condition	Min	Typ	Max	Units
Voltage Types	Others input			4:1	
Filter	Pi filter				
Surge voltage	24VDC (1 sec. max.)			50	V
	48VDC (1 sec. max.)			80	
Start-up voltage	24VDC			9	V
	48VDC			18	
Input under-voltage protection	24VDC		7		V
	48VDC		15		

Output specifications						
Item	Test condition	Min	Typ	Max	Units	
Voltage tolerance			±1	±3	%	
Temperature coefficient	Full load			±0.03	% / °C	
Line regulation				±0.5	%	
Load regulation	Single (Full load to 10% Load)			±0.8	%	
Load regulation	Dual (Full load to 10% Load)			±1.0	%	
Ripple & noise	BW = DC to 20MHz			100	mVp-p	
Transient response setting time	50% load step change		350		us	

Isolation specifications					
Item	Test condition	Min	Typ	Max	Units
Isolation voltage	Input to output (60sec/0.5mA)	6000			VDC
	Input to output (60sec/0.5mA)	5200			VAC
	Input to output (1sec/0.5mA)	10000			VDC
Isolation resistance	500VDC	10000			MΩ
Isolation capacitance	Input-output capacitance at 100kHz/0.1V		20		pF

EMC specifications					
EMI	CE	CISPR32/EN55032 (EMC (CLASS B) compliance circuit)			
EMI	RE	CISPR32/EN55032 (EMC (CLASS B) compliance circuit)			
EMS	ESD	IEC/EN61000-4-2 Contact ±6kVperf. Criteria B			
EMS	EFT	IEC/EN61000-4-4 ±2kV perf. Criteria B			
EMS	Surge	IEC/EN61000-4-5 ±2kV perf. Criteria B			
EMS	CS	IEC/EN61000-4-6 3 Vr.m.s perf. Criteria A			

Example:

6DAM1W4_2405S6

6 = 6Watt; D = DIP; AM1 = Series; W4 = Wide input (4:1); 24 = 24Vin; 05 = 5Vout; S = Single Output; 6 = 6kVDC isolation

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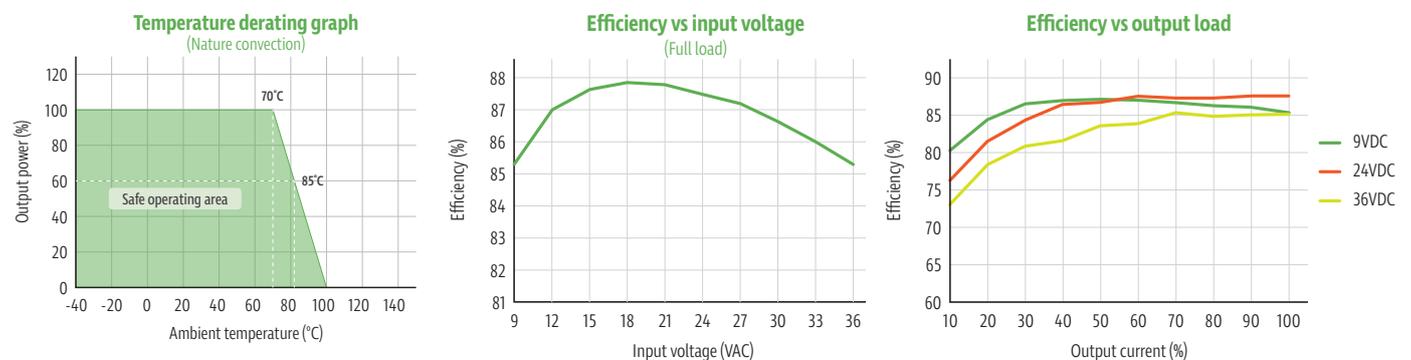
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Product Selection Guide

Approval	Part number	Input Voltage (VDC)	Output Voltage (VDC)	Output Current (mA)	Input Current (mA) No Load	Input Current (% typ.) Full Load	Efficiency (%) typ.	Capacitive Load (μF) Max.
	6DAM1W4_2403S6	9-36	3.3	1500	5	271.4	76	2700
	6DAM1W4_2405S6	9-36	5	1200	5	308.6	81	2700
	6DAM1W4_2406S6	9-36	6	1000	5	304.9	82	2200
	6DAM1W4_2409S6	9-36	9	667	5	301.4	83	1800
	6DAM1W4_2412S6	9-36	12	500	5	297.6	84	1000
	6DAM1W4_2415S6	9-36	15	400	5	294.1	85	680
	6DAM1W4_2418S6	9-36	18	333	5	293.8	85	1200
	6DAM1W4_2424S6	9-36	24	250	5	297.6	84	470
	6DAM1W4_4803S6	18-75	3.3	1500	5	132.2	78	2700
	6DAM1W4_4805S6	18-75	5	1200	5	152.4	82	2700
	6DAM1W4_4809S6	18-75	9	667	5	150.7	83	1800
	6DAM1W4_4812S6	18-75	12	500	5	148.8	84	1000
	6DAM1W4_4815S6	18-75	15	400	5	147.1	85	680
	6DAM1W4_4824S6	18-75	24	250	5	148.8	84	470

Approval	Part number	Input Voltage (VDC)	Output Voltage (VDC)	Output Current (mA)	Input Current (mA) No Load	Input Current (% Typ.) Full Load	Efficiency (%) Typ.	Capacitive Load (μF) Max.
	6DAM1W4_2405D6	9-36	±5	±600	5	308.6	81	±1000
	6DAM1W4_2409D6	9-36	±9	±333	5	301.4	83	±680
	6DAM1W4_2412D6	9-36	±12	±250	5	294.1	85	±470
	6DAM1W4_2415D6	9-36	±15	±200	5	294.1	85	±330
	6DAM1W4_4805D6	18-75	±5	±600	5	152.4	82	±1000
	6DAM1W4_4809D6	18-75	±9	±333	5	150.7	83	±680
	6DAM1W4_4812D6	18-75	±12	±250	5	148.8	84	±470
	6DAM1W4_4815D6	18-75	±15	±200	5	147.1	85	±330

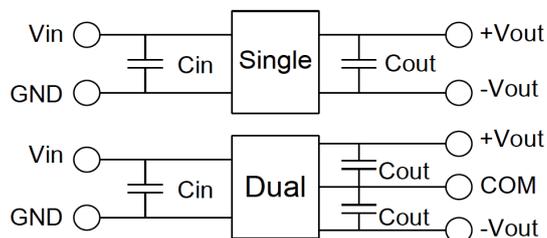
Typical characteristics



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Recommended test circuit



Vin	Cin	Single Vout	Cout	Dual Vout	Cout
24VDC	10μF/100V	3.3VDC	100μF/50V	±5VDC	±100μF/50V
48VDC	10μF/100V	5VDC	100μF/50V	±12VDC	±100μF/50V
		6VDC	100μF/50V	±15VDC	±100μF/50V
		9VDC	100μF/50V		±100μF/50V
		12VDC	100μF/50V		±100μF/50V
		15VDC	100μF/50V		±100μF/50V
		18VDC	100μF/50V		±100μF/50V
		24VDC	100μF/50V		±100μF/50V

EMC (CLASS B) compliance circuit

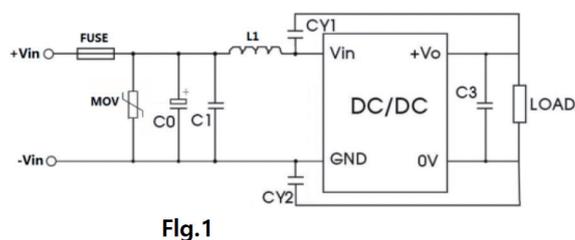
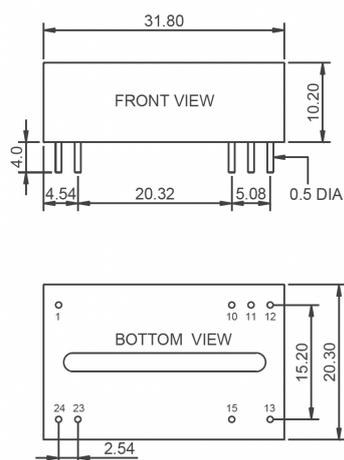


Fig.1

FUSE: Please choose according to the actual input current

Single output models parameter description:		Dual output models parameter description:		
Flg.1				
Model	Vin: 24VDC	Vin: 48VDC	Vin: 24VDC	Vin: 48VDC
MOV	S20K30	S14K60	S20K30	S14K60
C0	330μF/50V	100μF/100V	330μF/50V	330μF/100V
C1, C2	2.2μF/50V	2.2μF/100V	1μF/50V	1μF/100V
C3	Recommended test circuit			
L1	10μH			
CY1, CY2	1nF			

Mechanical dimensions - Pin out



UNIT: mm Unless otherwise specified, all tolerances are ±0.25

PIN		1	2	10	11	12	13	14	15	16	22	23	24
6DAM1W4_6	SINGLE	+Vin		NP	NP	-Vout	+Vout		NP			-Vin	-Vin
	DUAL	+Vin		COM	COM	NC	-Vout		+Vout			-Vin	-Vin