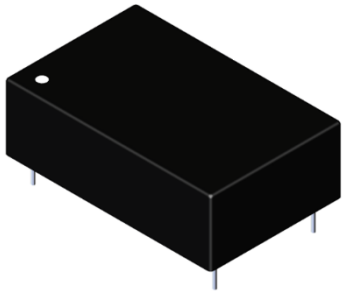
Medical DC-DC Converter
D06M-DF4 Series

DESCRIPTION

The series of DC-DC medical converter in industrial standard pin-out DIP24 package, are capable of delivering 6 watts. They are designed for high end industrial application, medical application.



FEATURES

- 4:1 Wide input range voltage
- 6W power in standard DIP 24 package
- Clearance and creepage distance @ 250Vac working voltage
- 4000Vac isolation for 2MOPP application
- Efficiency up to 88%
- Built-in EMI class A filter
- Continuous short circuit protection
- UL94V-0 package material
- Medical safety meets 2xMOPP per 3rd Edition of IEC/EN 60601-1

WATTAGE

Wattage: 6W

DIMENSION

Dimension: 31.8(L) x 20.3(W) x 10.2(H)mm

SAFETY STANDARD APPROVAL

Medical safety meets 2xMOPP per 3rd Edition of IEC/EN 60601-1

ENVIROMENTAL SPECIFICATION

Operating temperature: -40˚C to +100˚C

Storage temperature: -55˚C to +125˚C

SELECTION GUIDE

Part number	Input voltage	Output voltage	Output current @ full load	Input current @ no load	Efficiency (1) (typ.)	Capacitive load (2) (max.)
D06M-DF4-AP	9-36 Vdc Nom. 24Vdc	05Vdc	1200mA	7mA	86.5%	1500uF
D06M-DF4-AH		12Vdc	500mA	7mA	88%	260uF
D06M-DF4-AG		15Vdc	400mA	7mA	88%	210uF
D06M-DF4-AA		24Vdc	250mA	7mA	88%	75uF
D06M-DF4-FP	18-75Vdc Nom. 48Vdc	05Vdc	1200mA	7mA	86.5%	1500uF
D06M-DF4-FH		12Vdc	500mA	7mA	88%	260uF
D06M-DF4-FG		15Vdc	400mA	7mA	88%	210uF
D06M-DF4-FA		24Vdc	250mA	7mA	88%	75uF

1. The efficiency is test by nominal input and max. full load @25˚C.
2. The capacitive load is test by minimum input and constant resistive load.
3. All specifications valid at nominal input voltage, full load and 25˚C after warm-up time unless otherwise stated.

SPECIFICATION

	Parameter	Conditions	Min.	Typ.	Max.	Unit
Input	Input filter		Pi type			
	Input voltage range	24V	9		36	VDC
		48V	18		75	VDC
	Under voltage lockout	24V		7.5		VDC
		48V		16		VDC
	Start-up voltage (0% ~ 100%)	24V		9		VDC
		48V		18		VDC
	Input surge voltage (0.1s max.)	24V			50	VDC
		48V			100	VDC
	Start-up time	100% load at Nominal Vin		15	25	mS
Output	Voltage accuracy			±1		
	Line regulation	LL to HL at 100%load			±0.2	%
	Load regulation	0% to 100% load			±0.2	%
	Ripple& noise	Nominal Vin @full load			60	mVp-p
	Minimum load		0			%
	Operating frequency	Nominal Vin @full load		300		KHz
Environment	Operating temperature	With derating	-40		100	˚C
	Storage temperature		-55		125	˚C
	Max case temperature				105	˚C
	MTBF(MIL-HDBK-217F)	+25˚C	TBD			Hours
Function	Isolation voltage	60sec.	4			KVAC
	Isolation resistance		10			GΩ
	Isolation capacitance			20		pF
	Over load protection			170		%
	Short Circuit Protection		Continuous, automatic recovery			
	Safety approvals		Medical safety meets 2xMOPP per 3rd Edition of IEC/EN 60601-1			
Physical	Dimension		31.8x20.3x10.2 mm			
	Weight			14		g

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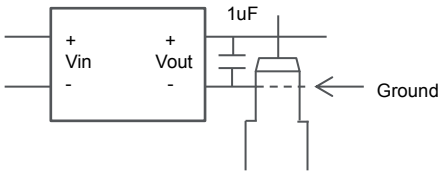
	Parameter	Conditions	Min.	Typ.	Max.	Unit
	Case material		Non-conductive black plastic (UL94V-0)			
	Base material		Non-conductive black plastic (UL94V-0)			
	Potting material		Silicone (UL94V-0)			
	Cooling method		Free air convection			
EMC	EMI	EN55011	Class A			
	ESD (1)	EN61000-4-2, Air±15kV; Contact±8kV	Perf. Criteria A			
	Radiated immunity (1)	EN61000-4-3, 10 V/m	Perf. Criteria A			
	Fast transient (1)	EN61000-4-4, ± 2kV	Perf. Criteria A			
	Surge (1)	EN61000-4-5, ± 1kV	Perf. Criteria A			
	Conducted immunity (1)	EN61000-4-6, 10 Vr.m.s	Perf. Criteria A			
	Magnetic field immunity (1)	EN61000-4-8, 10 A/m	Perf. Criteria A			

1. Test with E-CAP 220uF/100V at input terminal.
2. The EMI class A without external circuit, the class B suggestion circuit, please contact our sales.
3. The product information and specifications are subject to change without prior notice.

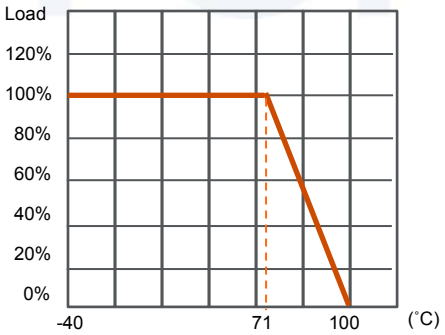
RIPPLE & NOISE



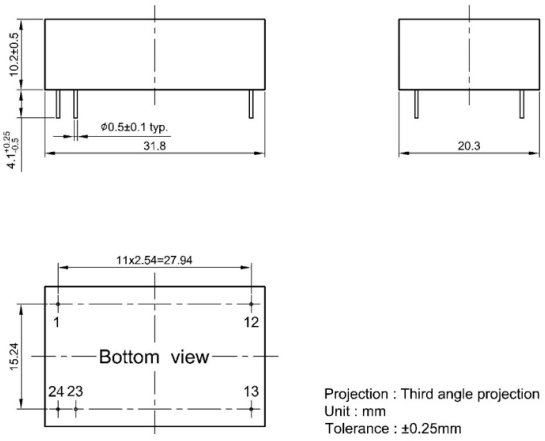
*Measured with 20MHz bandwidth and 1uF ceramic capacitor.

DERATING CURVE

Ambient temperature nature convection (Nominal Vin)



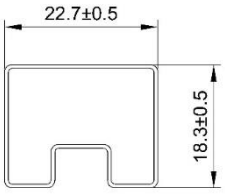
MECHANICAL SPECIFICATION



Projection : Third angle projection
Unit : mm
Tolerance : ±0.25mm

Pin	Single
1	+Vin
12	-Vout
13	+Vout
23	-Vin
24	-Vin

PACKAGE



UNIT:mm
1 Tube = 15 pcs
Length:520±2mm