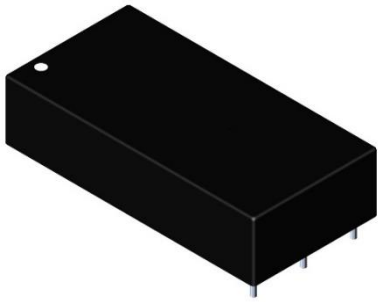
Medical DC-DC Converter
D20M-DB2 Series

DESCRIPTION

The series of DC-DC medical converter in industrial standard pin-out DIP24 package, are capable of delivering 20 watts. They are designed for medical instrumentation, industry control application.



FEATURES

- 2:1 Wide input range voltage
- 2x1" package; UL94V-0 package material
- Efficiency up to 90%
- -40°C to +85°C operating temperature
- Isolation 4200Vac, rated for 250Vac working voltage
- No minimum load requirement

WATTAGE

Wattage: 20W

DIMENSION

Dimension: 50.8(L) x 25.4(W) x 12.0(H) mm

SAFETY STANDARD APPROVAL

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

ENVIROMENTAL SPECIFICATION

Operating temperature: -40°C to +85°C

Storage temperature: -55˚C to +105˚C

SELECTION GUIDE

Part number	Input voltage	Output voltage	Output current @ full load	Input current @ no load	Efficiency (1) (typ.)	Capacitive load (2) (max.)
D20M-DB2-HP	9-18 VDC Nom.12VDC	5 VDC	4000 mA	10 mA	86%	6800μF
D20M-DB2-HH		12 VDC	1670 mA		89%	1200μF
D20M-DB2-HG		15 VDC	1333 mA		88%	800μF
D20M-DB2-HA		24 VDC	840 mA		89%	300μF
D20M-DB2-AP	18-36 VDC Nom.24VDC	5 VDC	4000 mA	7 mA	87%	6800μF
D20M-DB2-AH		12 VDC	1670 mA		89%	1200μF
D20M-DB2-AG		15 VDC	1333 mA		88%	800μF
D20M-DB2-AA		24 VDC	840 mA		90%	300μF
D20M-DB2-FP	36-75 VDC Nom.48VDC	5 VDC	4000 mA	5 mA	87%	6800μF
D20M-DB2-FH		12 VDC	1670 mA		89%	1200μF
D20M-DB2-FG		15 VDC	1333 mA		88%	800μF
D20M-DB2-FA		24 VDC	840 mA		88%	300μF

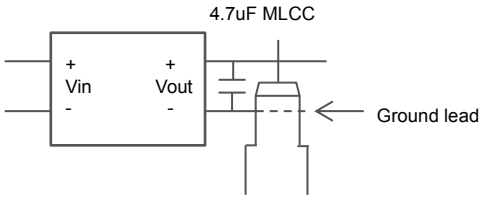
SPECIFICATION

	Parameter	Conditions	Min.	Typ.	Max.	Unit
Input	Input filter		Pi type			
	Voltage range		2 : 1			
	Start-up time	Nom. Vin and constant Resistive load			25	ms
	Under voltage lockout	12V 24V 48V		7.5 15 33		VDC VDC VDC
	Input surge voltage (100ms. Max)	12V 24V 48V		25 50 100		VDC VDC VDC
Output	Voltage accuracy				±1	%
	Line voltage regulation	LL-HL at 100% load			±0.5	%
	Load voltage regulation	0% to 100% full load			±0.5	%
	Minimum load				0	%
	Ripple & noise (20MHz) Io=Full load measured with MLCC 4.7uF	5V output 12V output			60 50	mVp-p mVp-p
	Transient recovery time	75% to 100% load			500	μs
	Operating frequency			250		KHz
Environment	Operating temperature	With de-rating	-40		85	˚C
	Storage temperature		-55		105	˚C
	Max. case temperature				105	˚C
	MTBF (MIL-HDBK-217F)	25˚C	1016			KHrs
Function	Short Circuit Protection		Continuous, automatic recovery			
	Isolation test voltage		4200			VAC rms
	Leakage current				5	μA
	Isolation capacitance	100kHz, 1V			100	pF
	Isolation resistance		10			GΩ

	Over load protection	Hiccup mode		150		%
	Safety		Medical safety meets 2xMOPP per 3rd Edition of IEC/EN 60601-1			
Physical	Dimension		50.8x25.4x12.0 mm			
	Weight			30		g
	Cooling method		Free air convection			
	Case material		Plastic case			
EMC	EMI	EN55011	Class A			
	ESD	EN61000-4-2, Contact±8kV; Air±15kV	Criteria A			
	Radiated immunity	EN61000-4-3, 10V/m	Criteria A			
	Fast transient (1)	EN61000-4-4, ±2kV	Criteria A			
	Surge (1)	EN61000-4-5, ±1kV	Criteria A			
	Criteria immunity	EN61000-4-6, 10Vr.m.s	Criteria A			

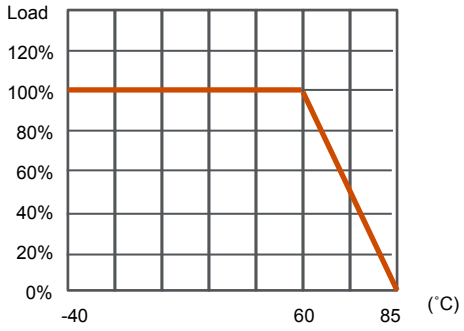
1. Test with E-CAP 220μF/100V at input terminal.
2. All specifications valid at nominal input voltage, full load and 25˚C after warm-up time unless otherwise stated.
3. The product information and specifications are subject to change without prior notice.
4. EMI application, please contact our sales.

RIPPLE & NOISE

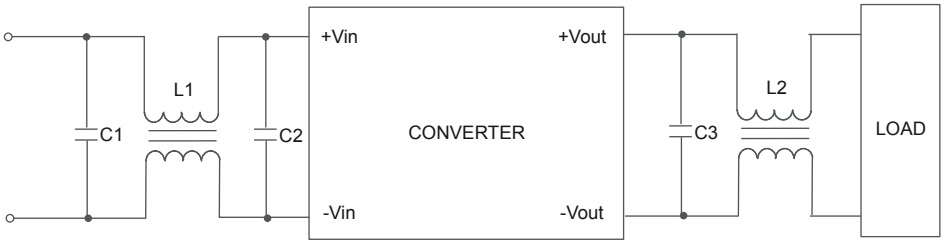


DERATING CURVE

Ambient temperature nature convection (Nominal Vin)

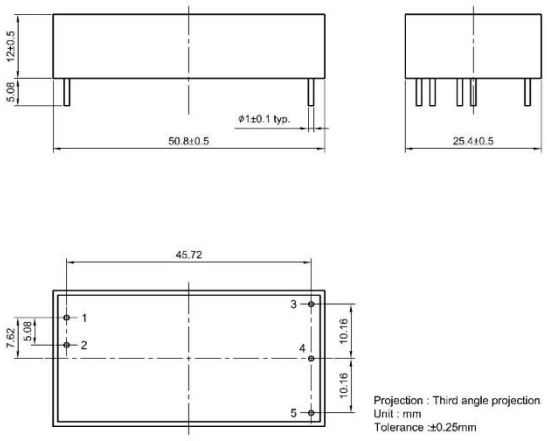


EMI FILTERING SUGGESTION



	Class B
C1	MLCC X7R 10uF
C2	MLCC X7R 10uF
C3	MLCC X7R 4.7uF
L1	Mn-Zn ui=7000 C.M. Choke (separated) 2mH
L2	Ni-Zn ui=500 C.M. Choke (parallel) 30uH

MECHANICAL SPECIFICATION



Pin	Function
1	+Vin
2	-Vin
3	+Vout
4	No Pin
5	-Vout