

DESCRIPTION

The series of DC-DC switching power supplies in a package of 50.8x25.4x10.5 mm are capable of delivering 40 watts. They are designed for industrial control system, electric power instrumentation, telecommunications, battery management control.

FEATURES

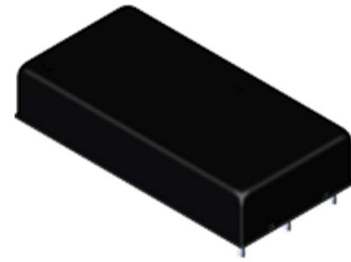
- 40 Watts output power
- -40°C to +105°C wide operating temperature with derating
- Low no-load power 10mA with remote off mode
- Continuous short circuit protection
- Wide 4:1 input voltage range
- External ON/OFF control
- UL 1950 Component recognized
- RoHS compliant

WATTAGE

Wattage: 40W

DIMENSION

Dimension: 50.8 (L) x 25.4(W) x 10.5 (H)mm



SAFETY STANDARD APPROVAL

Meet EN62368-1

ENVIRONMENTAL SPECIFICATION

Operating temperature: -40°C to +105°C

Storage temperature: -55°C to +125°C

SELECTION GUIDE

Part number	Input voltage	Output voltage	Output current @ full load	Ripple & Noise ⁽¹⁾	Efficiency ⁽²⁾ (typ.)	Capacitive load ⁽³⁾ (max.)
D40-DB4-AT	9-36 VDC Nom. 24 VDC	3.3 VDC	10000 mA	100mVp-p	88%	26600µF
D40-DB4-AP		5VDC	8000 mA	100mVp-p	90%	20000µF
D40-DB4-AH		12 VDC	3333 mA	125mVp-p	92%	3900µF
D40-DB4-AG		15 VDC	2666 mA	125mVp-p	92%	2600µF
D40-2DB4-AA		±12 VDC	±1666 mA	125mVp-p	90%	±2600µF
D40-2DB4-AH		±15 VDC	±1333 mA	125mVp-p	90%	±1600µF
D40-2DB4-AG		±24 VDC	±833 mA	200mVp-p	91%	±650µF
D40-DB4-FT	18-75 VDC Nom. 48 VDC	3.3 VDC	10000 mA	100mVp-p	88%	26600µF
D40-DB4-FP		5VDC	8000 mA	100mVp-p	90%	20000µF
D40-DB4-FH		12 VDC	3333 mA	125mVp-p	92%	3900µF
D40-DB4-FG		15 VDC	2666 mA	125mVp-p	92%	2600µF
D40-2DB4-FA		±12 VDC	±1666 mA	125mVp-p	90%	±2600µF
D40-2DB4-FH		±15 VDC	±1333 mA	125mVp-p	90%	±1600µF
D40-2DB4-FG		±24 VDC	±833 mA	200mVp-p	91%	±650µF

1. Ripple & Noise: Measured with 20MHz bandwidth and 1uF ceramic capacitor.
2. The efficiency is test by nominal input and max. full load @25°C.
3. The capacitive load is test by minimum input and constant resistive load.
4. Special input and output voltage combinations available by request, please check with our sales.

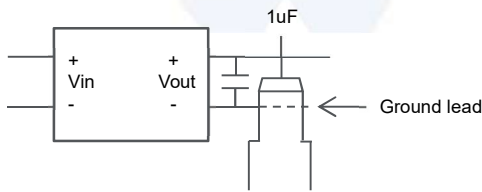
SPECIFICATION

	Parameter	Conditions	Min.	Typ.	Max.	Unit	
Input	Input filter			Pi type			
	Start-up time	At nominal Vin, full load		40		ms	
	Under voltage lockout	24V DC-DC ON		8		VDC	
	Remote ON/OFF	DC-DC ON DC-DC OFF			Open or 3V < Vr < 12V Short or 0V < Vr < 1.2V		
Output	Voltage accuracy	100% Load at Nominal Vin			+1	%	
	Voltage adjustability		-10		+10	%	
	Minimum load				0	%	
	Line voltage regulation (LL to HL at 100% load)	Single output		-0.2		+0.2	%
		Dual output		-0.5		+0.5	%
	Load voltage regulation (0% to 100% load)	Single output		-0.5		+0.5	%
		Dual output		-1		+1	%
	Cross regulation	25% to 100% load		-5		+5	%
Transient response recovery time	75%-100% load step change			500		µs	
Operating frequency	100% Load at Nominal Vin		220	250	285	KHz	
Environment	Operating temperature		-40		105	°C	
	Storage temperature		-55		125	°C	
	Max. case temperature				105	°C	
	Temperature coefficient		-0.05		+0.05	%/°C	
	Relative Humidity		5		95	%RH	
	MTBF	25°C			779	KHours	
	Vibration				MIL-STD-202G		
Function	Isolation voltage	1 minute, input to output	1.6			KVDC	
	Isolation resistance		1000			MΩ	
	Isolation capacitance			1500		pF	
	Over load protection	@Nominal Vin		150		%	
	Short Circuit Protection				Continuous, automatic recovery		
	Safety				Meet EN62368-1		
Physical	Case material			Metal case			

This content is subject to change, please refer to specification for more detail.
FSP reserve the right to change the content without prior notice.

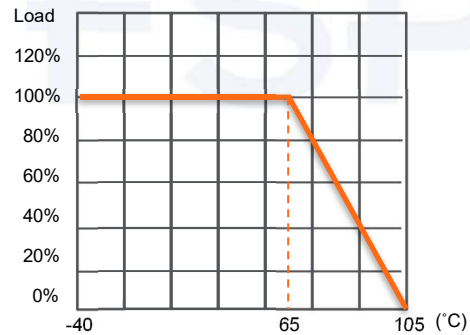
	Parameter	Conditions	Min.	Typ.	Max.	Unit
	Base material			FR4 PCB		
	Potting material			Silicone (UL94V-0)		
	Dimension	(L x W x H)		50.80x25.40x10.50 mm		
	Weight			27		g
EMC	EMI	EN55032		Class A/B		
	ESD	EN61000-4-2; Air±8kV, Contact±6kV		Criteria A		
	Radiated immunity	EN61000-4-3, 10V/m		Criteria A		
	Fast transient	EN61000-4-4, ±1kV		Criteria A		
	Surge	EN61000-4-5, ±1kV		Criteria A		
	Conducted immunity	EN61000-4-6, 10 Vr.m.s		Criteria A		
	PMF	EN61000-4-8, 50Hz 1A/m (r.m.s)		Criteria A		
	1. EMC filtering suggestion as following. Class A without external circuit. 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.					

RIPPLE & NOISE

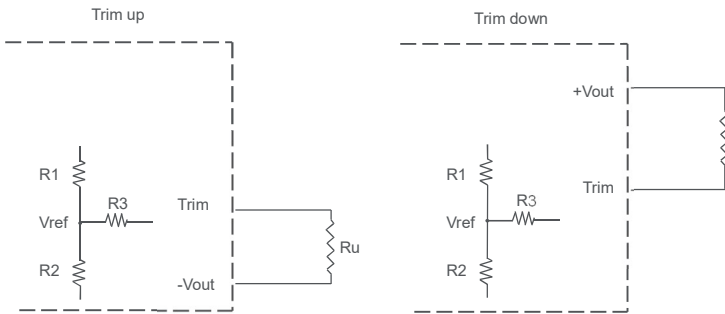


DERATING CURVE

Ambient temperature nature convection (Nominal Vin)



EXTERNAL OUTPUT VOLTAGE TRIMMING



Formula for trim resistor:

$$\text{UP: } R_u = \frac{aR_2}{R_2 - a} - R_3 \quad a = \frac{V_{ref}}{V'_u - V_{ref}} \cdot R_1$$

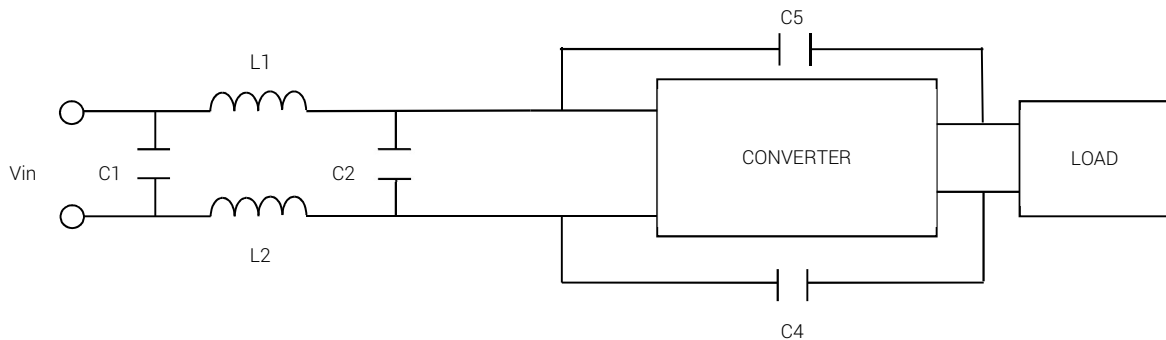
$$\text{DOWN: } R_d = \frac{bR_1}{R_1 - b} - R_3 \quad b = \frac{V'_d - V_{ref}}{V_{ref}} \cdot R_2$$

Note:

1. Ru, Rd is mean trim resistor, please check the formula.
2. a & b: user define parameter, no actual meanings
3. V'_u is mean trim up/down voltage.
4. Value for R1, R2, R3 and Vref refer to the table below.

Vout	3.3V	5V	12V	15V
R1	8.5K	15.47K	12.62K	15.1K
R2	5.1K	5.1K	3.3K	3K
R3	27K	33K	22K	22K
Vref	1.24V	1.24V	2.5V	2.5V

EMI SOLUTION

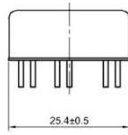
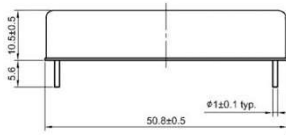


	C1	C2	C4	C5	L1	L2
24V input	10uF	10uF	2200pF	2200pF	2.2uH	2.2uH

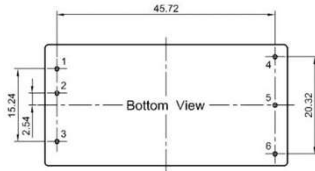
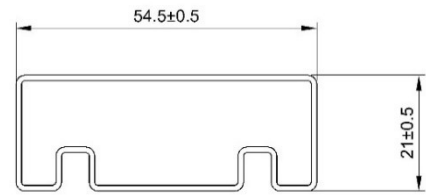
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MECHANICAL SPECIFICATION

PACKAGE



Pin	Single	Dual
1	+Vin	+Vin
2	-Vin	-Vin
3	Ctrl	Ctrl
4	+Vout	+Vout
5	-Vout	Com
6	Trim	-Vout



Projection : Third angle projection
Unit : mm
Tolerance : ±0.35mm

Unit: mm
1 tube: 18pcs
Length: 520+/- 2mm