

DESCRIPTION

The series of DC-DC switching power supplies in a package of 25.4x25.4x10 mm are capable of delivering 10 watts. They are designed for industry control application, tele-communication, energy battery power application, regulated and low ripple noise is required.

FEATURES

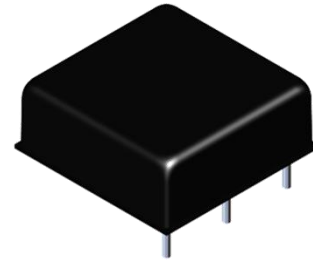
- 4:1 Wide input range voltage
- 1x1" package; metal case
- Efficiency up to 88.5%
- -40°C to +105°C operating temperature
- EMI class A without external circuit
- No minimum load requirement
- Ultra low standby power

WATTAGE

Wattage: 10W

DIMENSION

Dimension: 25.4 (L) x 25.4(W) x 10.0(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	Input current @ no load	Efficiency ⁽¹⁾ (typ.)	Capacitive load ⁽²⁾ (max.)
D10-DA4-AP	9-36 VDC Nom. 24 VDC	5 VDC	2000mA	7mA	87%	2500uF
D10-DA4-AH		12 VDC	833mA		87.5%	430uF
D10-DA4-AG		15 VDC	667mA		88%	350uF
D10-DA4-AA		24 VDC	417mA		88%	125uF
D10-2DA4-AH		±12 VDC	±417mA		87.5%	±250uF
D10-2DA4-AG		±15 VDC	±333mA		87.5%	±180uF
D10-DA4-FP	18-75 VDC Nom. 48 VDC	5 VDC	2000mA	5mA	87%	2500uF
D10-DA4-FH		12 VDC	833mA		87.5%	430uF
D10-DA4-FG		15 VDC	667mA		88%	350uF
D10-DA4-FA		24 VDC	417mA		88.5%	125uF
D10-2DA4-FH		±12 VDC	±417mA		87.5%	±250uF
D10-2DA4-FG		±15 VDC	±333mA		87.5%	±180uF

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. Special input and output voltage combinations available by request, please check with our sales.

SPECIFICATION

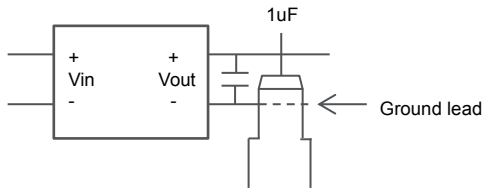
	Parameter	Conditions	Min.	Typ.	Max.	Unit
Input	Input filter					
	Voltage range			Pi type 4 : 1		
	Start-up time	Nom. Vin and constant resistive load		20	25	ms
	Under voltage lockout	24V 48V		7.5 16		VDC VDC
	Input surge voltage (100ms max.)	24V 48V			50 100	VDC VDC
	Remote ON/OFF	DC-DC ON DC-DC OFF			Open or 3.5~15VDC Short or 0~1.2VDC	
		Input current (remote off mode)			2	
Output	Voltage accuracy				±1	%
	Line voltage regulation (LL-HL at Full load)	Single			±0.2	%
		Dual			±0.5	%
	Load voltage regulation (10% load to 100% load)	Single			±0.5	%
		Dual			±1.0	%
	Cross regulation				±5	%
	Minimum load				0	%
Ripple & noise	24V input 48V input				60 100	mVp-p mVp-p
Operating frequency				350		KHz
Environment	Operating temperature	With de-rating	-40		105	°C
	Storage temperature		-55		125	°C
	Max. case temperature				110	°C
	MTBF (MIL-HDBK-217F)	25°C	700			
Vibration				MIL-STD-202G		
Function	Short Circuit Protection			Continuous, automatic recovery		
	Isolation test voltage	1 minute, input to output	1600			VDC
	Isolation capacitance			1200		pF
	Isolation resistance		1000			MΩ

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
	Over load protection	24V input		170		%
		48V input		190		%
Physical	Safety		EN 62368-1			
	Remote on/off input current	Remote off	2mA			
	Dimension		25.4x25.4x10.0 mm			
	Weight		17			g
EMC	Cooling method		Free air convection			
	Case material		Nickel plated metal with FR-4 base			
	Potting material		Silicone			
	EMI	EN55032	Class A/B			
EMC	ESD	EN61000-4-2, Contact±6kV, Air±8kV	Criteria A			
	Radiated immunity ⁽¹⁾	EN61000-4-3	Criteria A			
	Fast transient ⁽¹⁾	EN61000-4-4, ±2kV	Criteria A			
	Surge ⁽¹⁾	EN61000-4-5, ±2kV	Criteria A			
	Conducted immunity ⁽¹⁾	EN61000-4-6	Criteria A			
	Magnetic field immunity	EN61000-4-8	Criteria A			

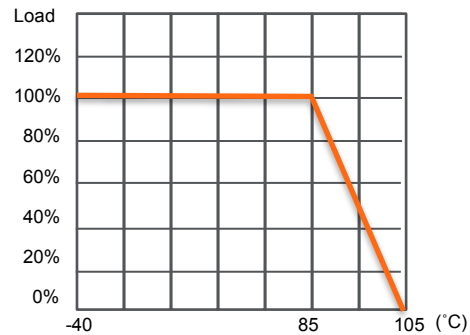
- The external circuit, please contact our sales.
- All specifications valid at nominal input voltage, full load and 25°C after warm-up time unless otherwise stated.
- The product information and specifications are subject to change without prior notice.

RIPPLE & NOISE

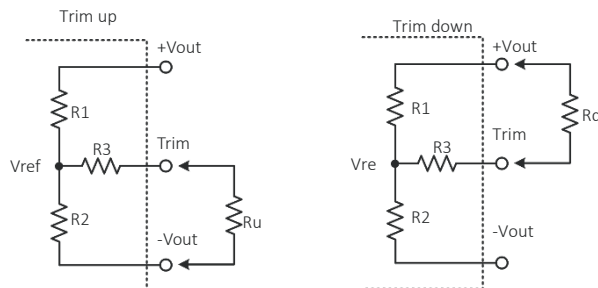


DERATING CURVE

Ambient temperature nature convection (Nominal Vin)



EXTERNAL OUTPUT VOLTAGE TRIMMING

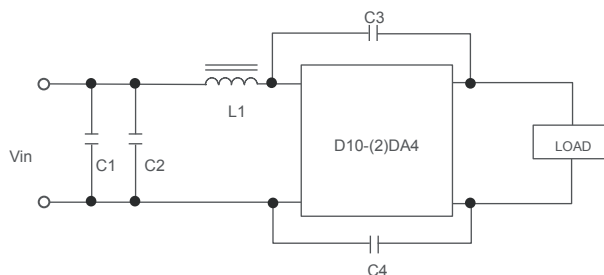


$$R_u = \frac{aR_2}{R_2 - a} - R_3 \quad a = \frac{V_{ref}}{V'_0 - V_{ref}} \cdot R_1$$

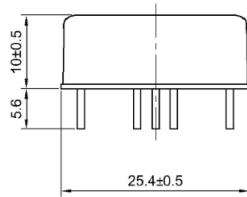
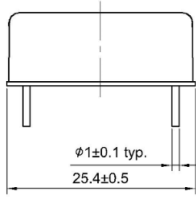
$$R_d = \frac{bR_1}{R_1 - b} - R_3 \quad b = \frac{V'_0 - V_{ref}}{V_{ref}} \cdot R_2$$

Vout	R1	R2	R3	Vref
5V	10 kΩ	10 kΩ	35.7 kΩ	2.5 V
12V	38.1 kΩ	10 kΩ	48.7 kΩ	2.5 V
15V	50.1 kΩ	10 kΩ	51 kΩ	2.5 V
24V	86.32 kΩ	10 kΩ	73.2 kΩ	2.5 V

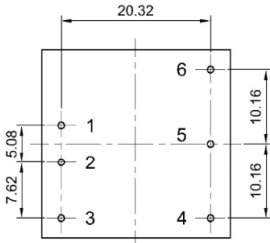
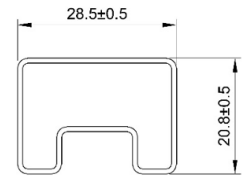
EMI FILTERING SUGGESTION



	24Vin	48Vin
C1	2.2μF	2.2μF
C2	2.2μF	2.2μF
C3	1500pF	1500pF
C4	1500pF	1500pF
L1	4.7μH	4.7μH

MECHANICAL SPECIFICATION
PACKAGE


Pin	Single	Dual
1	+Vin	+Vin
2	-Vin	-Vin
3	CTRL	CTRL
4	-Vout	-Vout
5	Trim	Common
6	+Vout	+Vout



Bottom view

Tolerance : ±0.25mm

 UNIT:mm
 1 Tube = 8 pcs
 Length:260±2mm