Size: 1in x 1in x 0.41in
(25.4mm x 25.4mm x 10.5mm)

FEATURES

- 4:1 Wide Input Voltage Range
- High Efficiency
- Remote ON/OFF
- Input Under Voltage Lock
- Compact 1”x1” Case
- Continuous Short Circuit Protection
- Over Load Protection
- Over Temperature Protection
- Cooling by Natural Convection
- Meets UL62368/EN62368 Safety Approval

APPLICATIONS

- Industry Control
- Telecom/Datacom
- Space Saving

DESCRIPTION

The DCCP40 series of DC/DC converters offers 40 watts of output power in a very compact 1” x 1” x 0.41” package. This series offers single and dual output models with a wide 4:1 input voltage range. Each model in the DCCP40 series has high efficiency, is cooled by natural convection, and offers continuous short circuit protection, over load protection, over temperature and over voltage trim. This series meets UL62368 and EN62368 safety approval.

MODEL SELECTION TABLE

Single Output Models

Model Number	Input Voltage Range	Output Voltage	Output Current	Ripple & Noise	No Load Input Current	Output Power	Max. Capacitive Load(1)	Efficiency
DCCP40-24S03	24VDC (9~36VDC)	3.3VDC	10000mA	75mVp-p	12mA	40W	10000µF	87%
DCCP40-24S05		5VDC	8000mA	75mVp-p	12mA		6000µF	88%
DCCP40-24S12		12VDC	3333mA	75mVp-p	12mA		3000µF	88%
DCCP40-24S15		15VDC	2667mA	75mVp-p	12mA		1000µF	88%
DCCP40-24S24		24VDC	1667mA	75mVp-p	12mA		680µF	89%
DCCP40-48S03	48VDC (18~75VDC)	3.3VDC	10000mA	75mVp-p	10mA	40W	10000µF	86%
DCCP40-48S05		5VDC	8000mA	75mVp-p	10mA		6000µF	88%
DCCP40-48S12		12VDC	3333mA	75mVp-p	10mA		3000µF	89%
DCCP40-48S15		15VDC	2667mA	75mVp-p	10mA		1000µF	88%
DCCP40-48S24		24VDC	1667mA	75mVp-p	10mA		680µF	88%

MODEL SELECTION TABLE

Dual Output Models

Model Number	Input Voltage Range	Output Voltage	Output Current	Ripple & Noise	No Load Input Current	Output Power	Max. Capacitive Load(1)	Efficiency
DCCP40-24D12	24VDC (9~36VDC)	±12VDC	1667mA	75mVp-p	12mA	40W	1500µF	88%
DCCP40-24D15		±15VDC	1333mA	75mVp-p	12mA		1000µF	88%
DCCP40-48D12	48VDC (18~75VDC)	±12VDC	1667mA	75mVp-p	10mA	40W	1500µF	88%
DCCP40-48D15		±15VDC	1333mA	75mVp-p	10mA		1000µF	88%

SPECIFICATIONS

All specifications are based on 25°C After Warm-Up Time, Nominal Input Voltage, and Full Load unless otherwise noted.
We reserve the right to change specifications based on technological advances.

SPECIFICATION	TEST CONDITIONS		Min	Typ	Max	Unit
INPUT SPECIFICATIONS						
Input Voltage Range	24V Nominal Input		9	24	36	VDC
	48V Nominal Input		18	48	75	
Start-Up Voltage	0%-100% Load	24V Nominal Input		9		VDC
		48V Nominal Input		18		
Input Surge Voltage (1s)	24V Nominal Input				50	VDC
	48V Nominal Input				100	
Under Voltage Lockout	0% to 100% Load	24V Nominal Input		7.5		VDC
		48V Nominal Input		16		
Input Filter				Pi Type		
OUTPUT SPECIFICATIONS						
Output Voltage				See Table		
Voltage Accuracy	100% load at nominal vin			±1		%
Line Regulation	LL to HL at 100% Load	Single Output		±0.2		%
		Dual Output		±0.5		
Load Regulation	LL to HL at 100% Load	Single Output		±0.5		%
		Dual Output		±1.0		
Voltage Adjustability	0%~100% Load at Vin Range, Pout ≤ max rated power			±10		%
Output Power				40		W
Output Current	@Full Load			See Table		
Minimum Load			0			%
Maximum Capacitive Load				See Table		
Ripple & Noise	20MHz				75	mVp-p
Transient Response Recovery Time	25% Load Step Change (75%-100% Load)			300		µs
Start-Up Time	100% Load at Nominal Vin	3.3V Output		50		mS
		5V/12V/15V/24V Output		30		
Operating Frequency	3.3V Output			300		KHz
	Others			400		
Temperature Coefficient					0.05	%/°C
REMOTE ON/OFF CONTROL						
DC-DC ON				Open or 3V < Vr < 12V		
DC-DC OFF				Short or 0 < Vr < 1.2VDC		
PROTECTION						
Short Circuit Protection				Continuous, Automatic Recovery		
Over Load Protection				160		%
Over Voltage Protection	Zener Diode Clamp	DCCP40-24S03	3.7		5.3	VDC
		DCCP40-24S05	5.6		8.0	
		DCCP40-24S12	13.4		19.2	
		DCCP40-24S15	16.8		24.0	
		DCCP40-24S24	26.8		38.4	
		DCCP40-24D12	±13.4		±19.2	
		DCCP40-24D15	±16.8		±24.0	
		DCCP40-48S03	3.7		5.3	
		DCCP40-48S05	5.6		8.0	
		DCCP40-48S12	13.4		19.2	
		DCCP40-48S15	16.8		24.0	
		DCCP40-48S24	26.8		38.4	
		DCCP40-48D12	±13.4		±19.2	
		DCCP40-48D15	±16.8		±24.0	
Over Temperature Protection				115		°C
ENVIRONMENTAL SPECIFICATIONS						
Operating Temperature	With Derating		-40		105	°C
Storage Temperature			-55		125	°C
Max. Case Temperature				110		°C
Relative Humidity			5		95	%RH
Altitude				3000		m
Vibration				MIL-STD-202G		
MTBF	25°C, 100% Load at Nom. Vin		560			KHours

SPECIFICATIONS

All specifications are based on 25°C After Warm-Up Time, Nominal Input Voltage, and Full Load unless otherwise noted.
We reserve the right to change specifications based on technological advances.

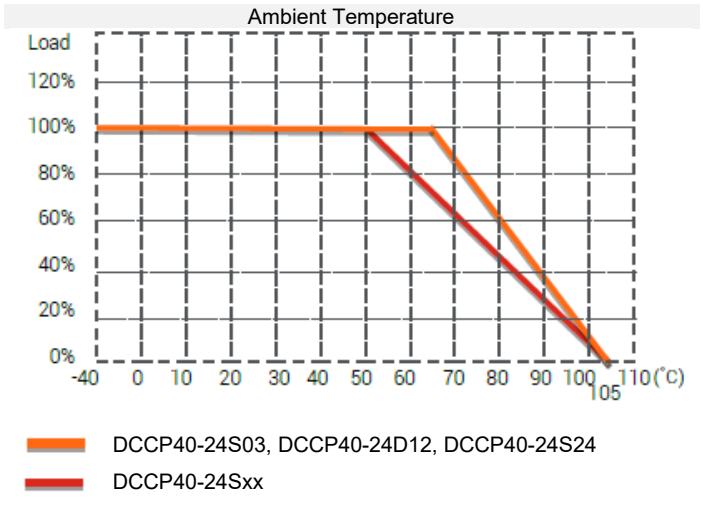
SPECIFICATION	TEST CONDITIONS		Min	Typ	Max	Unit
GENERAL SPECIFICATIONS						
Efficiency	Tested at nominal input, Max. Full Load @25°C			See Table		
Isolation Voltage	1 min., Input to Output, DC Isolation Cut-Off Current: 1mA		2			KVDC
	AC Isolation Cut-Off Current: 2mA		1			KVAC
	1 min., Input (Output) to Case, DC Isolation Cut-Off Current: 1mA		1			KVDC
	AC Isolation Cut-Off Current: 2mA		0.5			KVAC
Isolation Resistance			1000			MΩ
Isolation Capacitance					2200	pF
PHYSICAL SPECIFICATIONS						
Weight				0.74oz (21g)		
Dimensions (L x W x H)				1in x 1in x 0.41in (25.4mm x 25.4mm x 10.5mm)		
Case Material				Metal		
Potting Material				Silicone		
Cooling Method				Natural Convection		
SAFETY CHARACTERISTICS						
Safety Approvals						UL62368[3]/EN62368
EMI[4]		EN55032				Class A/B
ESD	EN61000-4-2	Air±8KV				Criteria A
		Contact±6KV				
Radiated Immunity	EN61000-4-3	10 V/m				Criteria A
Fast Transient[4]	EN61000-4-4	±2KV				Criteria A
Surge[4]	EN61000-4-5	±2KV				Criteria A
Conducted Immunity	EN61000-4-6	10 V r.m.s				Criteria A
Magnetic Field Immunity	EN61000-4-8	10A/m				Criteria A

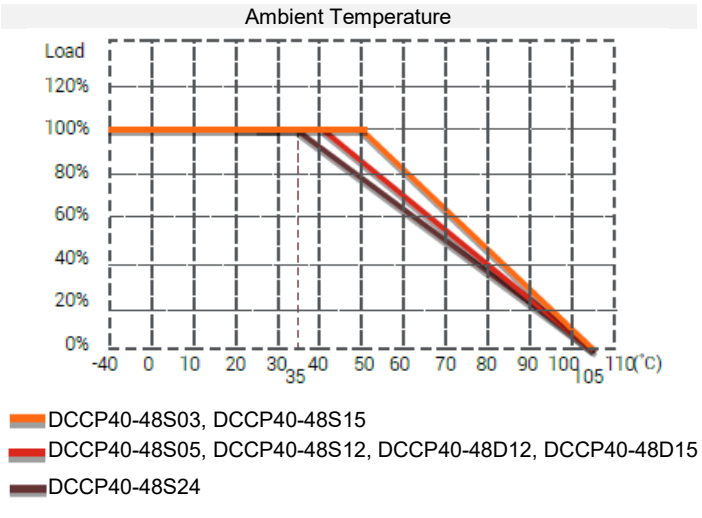
NOTES

1. Ripple & Noise: Single Output measured with 20MHz BW at nominal input voltage 0%~100% Load with 10μF/50V*2 X7R MLCC.
   Dual output measured with 20MHz BW at nominal input voltage 0%~100% Load with 10μF/50V X7R MLCC.
2. The capacitive load is tested by minimum input and constant resistive load.
3. This product is Listed to applicable standards and requirements by UL.
4. Please see suggested EMI circuit.
5. External Input Capacitor Required 680uF/100V.

**Due to advances in technology, specifications subject to change without notice.*

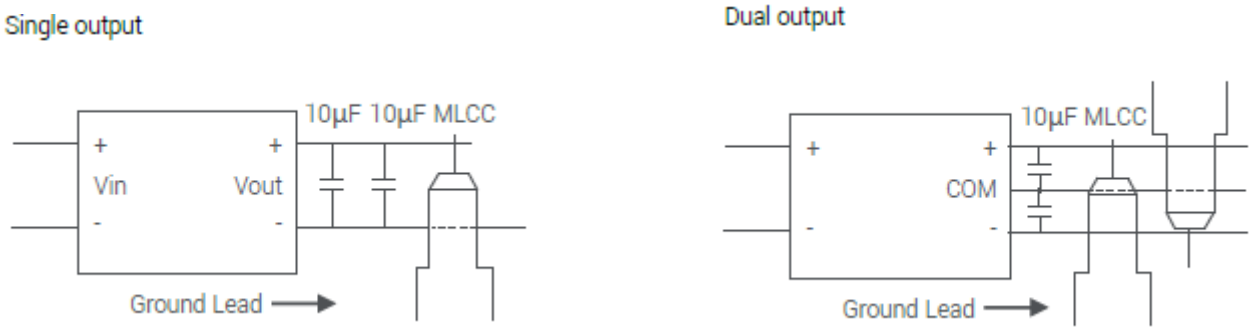
DERATING CURVES



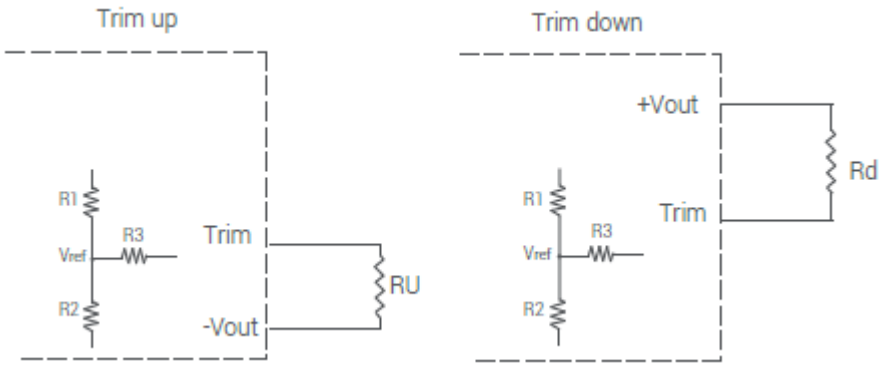


The derating curve was measured at nominal input voltage and natural convection without heatsink.

RIPPLE & NOISE MEASURE METHOD



TRIM APPLICATION



Formula for Trim Resistor:

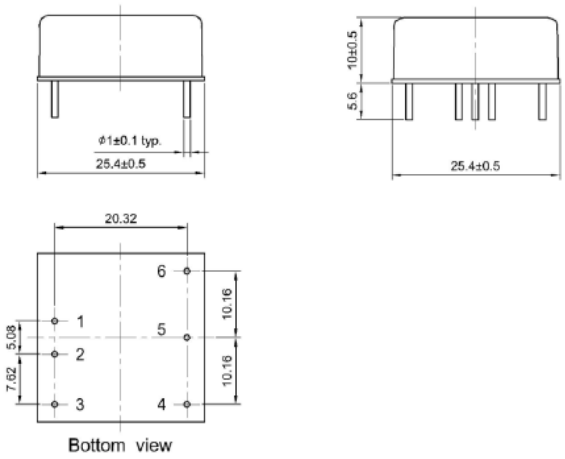
UP: $\mathrm{Ru} = \frac{aR_2}{R_2 - a} - R_3 \quad \mathrm{a} = \frac{Vref}{V_o' - Vref} \cdot R_1$

DOWN: $\mathrm{Rd} = \frac{bR_1}{R_1 - b} - R_3 \quad \mathrm{b} = \frac{V_o' - Vref}{Vref} \cdot R_2$

Note:
1. Ru, Rd is mean trim resistor, please check formula.
2. a & b: user defined parameter, no actual meaning.
3. V_o' is mean trim up/down voltage.
4. For R1, R2, R3 and Vref values: See table below.

Vout	Vref	R1	R2	R3
3.3V	1.24V	16.7KΩ	10.0KΩ	52.3KΩ
5V	1.24V	33.5KΩ	11.0KΩ	73.2KΩ
12V	2.50V	38.0KΩ	10.0KΩ	48.7KΩ
15V	2.50V	50.1KΩ	10.0KΩ	64.9KΩ
24V	2.50V	86.0KΩ	10.0KΩ	73.2KΩ

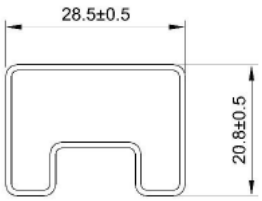
MECHANICAL DRAWINGS



PIN Assignment

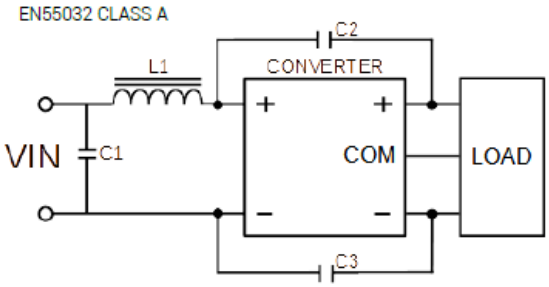
Pin	Single	Dual
1	+Vin	+Vin
2	-Vin	-Vin
3	CTRL	CTRL
4	-Vout	-Vout
5	Trim	Common
6	+Vout	+Vout

Package

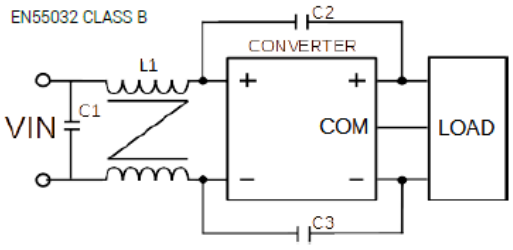


UNIT:mm
1 Tube = 8 pcs
Length:260±2mm

EMI SUGGESITON FOR CLASS A/B



Vout	C1	L1	C2	C3
DCCP40-24S03	10µF	2.2µH	NA	2200pF
DCCP40-48S03	10µF	2.2µH	2200pF	2200pF
5V	10µF	2.2µH	2200pF	2200pF
12V	10µF	2.2µH	2200pF	2200pF
15V	10µF	2.2µH	2200pF	2200pF
24V	10µF	2.2µH	2200pF	2200pF
±12V	10µF	2.2µH	NA	2200pF
±15V	10µF	2.2µH	NA	2200pF



Vout	C1	L1	C2	C3
3.3V	10µF	Common Choke K5B T20X5X10C, 10Ts 70uH	2200pF	2200pF
5V				
12V				
15V				
24V				
±12V				
±15V				

COMPANY INFORMATION

Wall Industries, Inc. has created custom and modified units for over 50 years. Our in-house research and development engineers will provide a solution that exceeds your performance requirements on-time and on budget. Our ISO9001: 2015 certification is just one example of our commitment to producing a high quality, well-documented product for our customers.

Our past projects demonstrate our commitment to you, our customer. Wall Industries, Inc. has a reputation for working closely with its customers to ensure each solution meets or exceeds form, fit and function requirements. We will continue to provide ongoing support for your project above and beyond the design and production phases. Give us a call today to discuss your future projects.

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