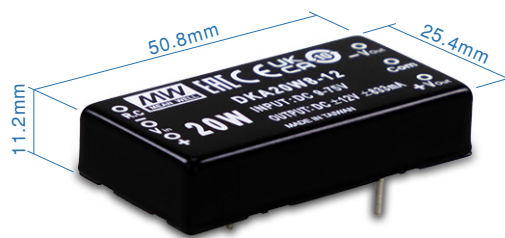
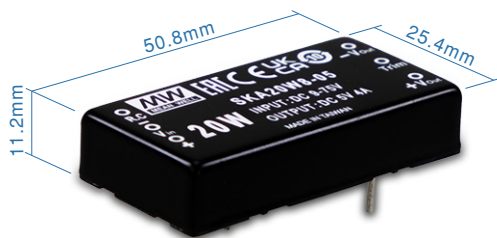




20W 2"x1" Package 8:1 Ultra-Wide Input DC-DC Regulated Converter

SKA20W8 & DKA20W8 series



■ Features

- DIP 2"x1" package with industry standard pinout
- 8:1(9~75Vdc) ultra-wide input range
- Operating temperature range -40 ~ +90°C
- No minimum load required
- Comply to BS EN/EN55032 radiated Class A without additional components
- High efficiency up to 89%
- Protections: Short circuit (Continuous) / Overload / Over voltage / UVLO
- 3KVdc I/O isolation
- Remote ON/OFF control
- 3 years warranty

■ Applications

- Telecom/datacom system
- Wireless network
- Industrial control facility
- Instrument
- Analyzer
- Detector
- Data switch

■ GTIN CODE

MW Search: <https://www.meanwell.com/serviceGTIN.aspx>

■ Description

SKA20W8 and DKA20W8 series are 20W isolated and regulated module type DC-DC converter with DIP 2"x1" package. It features international standard pins, a high efficiency up to 89%, wide working temperature range -40~+90°C, 3KVdc I/P-O/P isolation voltage, compliance to BS EN/EN55032 radiated Class A without additional components, continuous-mode short circuit, overload, over voltage, input under voltage protection etc. The models account for 9~75Vdc 8:1 ultra-wide input range, and various output voltage, 3.3V/5V/12V/15V/24V for single output and $\pm 12V/\pm 15V$ for dual outputs, which are suitable for all kinds of systems, Such as industrial control, telecommunication field, distributed power architecture, and so on.

■ Model Encoding

S KA 20 W8 -12

Output voltage (3.3/5/12/15/24Vdc, $\pm 12/\pm 15Vdc$)

8:1(9~75Vdc) Wide input voltage

Rated wattage

Series name { S:Single output
D: Dual output



20W 2"x1" Package 8:1 Ultra-Wide Input DC-DC Regulated Converter

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MODEL SELECTION TABLE							
ORDER NO.	INPUT			OUTPUT		EFFICIENCY (TYP.)	CAPACITOR LOAD (MAX.)
	INPUT VOLTAGE (RANGE)	INPUT CURRENT		OUTPUT VOLTAGE	OUTPUT CURRENT		
		NO LOAD	FULL LOAD				
SKA20W8-03	Nominal 12V, 24V,36V,48V,72V (9 ~ 75V)	10mA	809mA	3.3V	0~5000mA	85%	1000μF
SKA20W8-05		10mA	958mA	5V	0~4000mA	88%	1000μF
SKA20W8-12		10mA	947mA	12V	0~1670mA	88%	220μF
SKA20W8-15		10mA	947mA	15V	0~1333mA	89%	220μF
SKA20W8-24		10mA	947mA	24V	0~833mA	89%	100μF
DKA20W8-12		20mA	947mA	±12V	±0~833mA	88%	*100μF
DKA20W8-15		20mA	947mA	±15V	±0~666mA	88%	*100μF

* For each output

SPECIFICATION

INPUT

VOLTAGE RANGE	9~75Vdc
SURGE VOLTAGE (100ms max.)	100Vdc
FILTER	Pi network
PROTECTION	Fuse recommended 6A Slow-Blow

OUTPUT

VOLTAGE ACCURACY	±2%
RATED POWER	20W
RIPPLE & NOISE	Note.2 150mVp-p
LINE REGULATION	Note.3 ±0.5%
LOAD REGULATION	Note.4 ±1% for 3.3Vdc output, ±0.5% for other output
CROSS REGULATION	±5% @ 25% ~ 100% load only dual output
SWITCHING FREQUENCY (Typ.)	200KHz (PWM)

PROTECTION

SHORT CIRCUIT	Protection type : Continuous, automatic recovery
OVERLOAD	110 ~ 230% Protection type : Recovers automatically after fault condition is removed
OVER VOLTAGE	Clamp by TVS diodes
UNDER VOLTAGE LOCKOUT (Typ.)	Start-up voltage: 8.8Vdc Shutdown voltage: 7.5Vdc

FUNCTION

REMOTE CONTROL (By request)	Power ON: R.C. ~ -Vin >2.5~30Vdc or open circuit ; Power OFF: R.C. ~ -Vin <1Vdc or short
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ENVIRONMENT

COOLING	Free-air convection
WORKING TEMP.	-40 ~ +90°C (Refer to "Derating Curve")
CASE TEMPERATURE	+110°C max.
WORKING HUMIDITY	5% ~ 95% RH non-condensing
STORAGE TEMP., HUMIDITY	-55 ~ +125°C, 10 ~ 95% RH non-condensing
TEMP. COEFFICIENT	±0.03% / °C (0 ~ 80°C)
SOLDERING TEMPERATURE	1.5mm from case of 3 ~ 5 sec./265°C max.
VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, period for 60min. each along X, Y, Z axes

SAFETY & EMC (Note.5)

SAFETY STANDARDS	EAC TP TC 020/2011 approved
WITHSTAND VOLTAGE	I/P-O/P:3KVdc
ISOLATION RESISTANCE	I/P-O/P:1000M Ohms / 500Vdc / 25°C / 70% RH
ISOLATION CAPACITANCE (Typ.)	1000pF

EMC EMISSION	Parameter	Standard	Test Level / Note
	Conducted	BS EN/EN55032(CISPR32)	N/A
	Radiated	BS EN/EN55032(CISPR32)	Class A without additional components Class B with additional components
EMC IMMUNITY	Parameter	Standard	Test Level / Note
	ESD	BS EN/EN61000-4-2	Level 3, ±8KV air, Level 2, ±4KV contact
	Radiated Susceptibility	BS EN/EN61000-4-3	Level 2, 3V/m
	EFT/Bursts	BS EN/EN61000-4-4	Level 1, 0.5KV
	Surge	BS EN/EN61000-4-5	Level 2, Line-Line ±0.5KV
	Conducted	BS EN/EN61000-4-6	Level 2, 3V(e.m.f.)
	Magnetic Field	BS EN/EN61000-4-8	Level 1, 1A/m

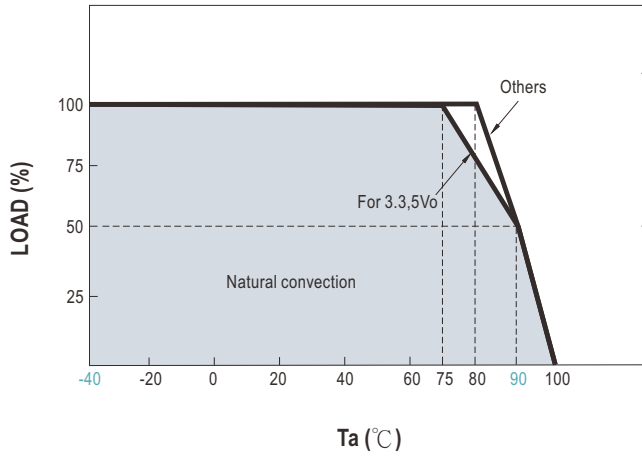
OTHERS

MTBF	>600Khrs MIL-HDBK-217F(25°C)
DIMENSION (L*W*H)	50.8*25.4*11.2mm (2*1*0.44 inch)
CASE MATERIAL	Six-side shielded case
PACKING	31g ; 10pcs/per tube, 400pcs/40 tube/per carton

NOTE

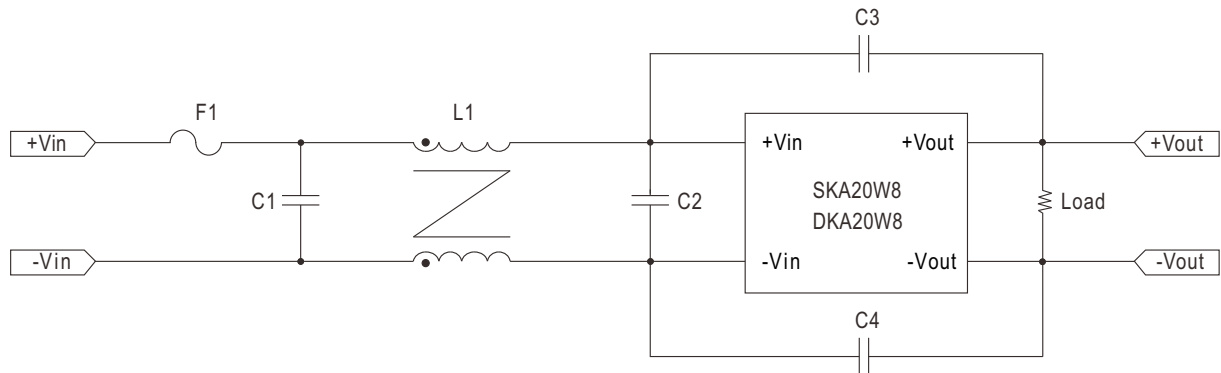
- 1.All parameters are specified at normal input (24Vdc), rated load, 25°C 70% RH ambient.
 - 2.Ripple & noise are measured at 20MHz by using a 12" twisted pair terminated with a 0.1μf & 47μf capacitor.
 - 3.Line regulation is measured from low line to high line at rated load.
 - 4.Load regulation is measured from 0% to 100% rated load.
 - 5.The final equipment must be re-confirm that it still meet EMC directives. For guidance on how to perform these EMC tests, please refer to "EMI testing of component power supplies."(as available on <http://www.meanwell.com>)
- ※ Product Liability Disclaimer : For detailed information, please refer to <https://www.meanwell.com/serviceDisclaimer.aspx>

Derating Curve



EMC Suggestion Circuit

※ Required external componets to meet BS EN/EN55032 radiated Class B emission as below:



Model No.	BS EN/EN55032 radiated Class B					
	F1	C1	C2	C3	C4	L1
SKA20W8 DKA20W8	Suggest 6A Slow-Blow Type	47μF/100V	2.2μF/100V	1000pF/5KV	1000pF/5KV	325μH Common Choke

External Output Trimming

In order to trim the voltage up or down one needs to connect the trim resistor either between the trim pin and -Vo for trim-up and between trim pin and +Vo for trim-down. This is shown in Figures 1 and 2:

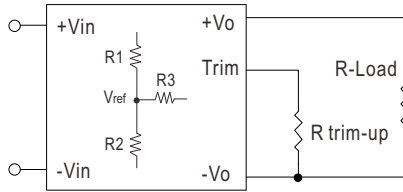


Figure 1. Trim-up Voltage Setup

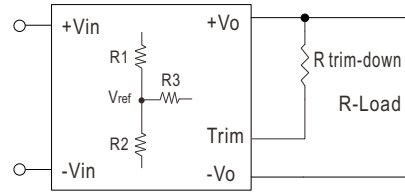


Figure 2. Trim-down Voltage Setup

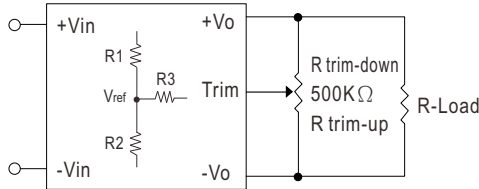


Figure 3. Trim-Connections

Table 1 – Trim up and Trim down Resistor Values

Model Number	Output Voltage(V)	R1 (KΩ)	R2 (KΩ)	R3 (KΩ)	Vref
SKA20W8-03	3.3	2.43	1.47	7.5	1.24
SKA20W8-05	5	1	1	3.6	2.5
SKA20W8-12	12	3.83	1	7.5	2.5
SKA20W8-15	15	7.5	1.5	11	2.5
SKA20W8-24	24	8.66	1	8.2	2.5

1. The value of **Rtrim - up** defined as:

$$A = \left(\frac{V_{ref}}{V_o' - V_{ref}} \right) \times R1$$

$$R_{trim - up} = \left(\frac{A \times R2}{R2 - A} \right) - R3$$

Where

Rtrim-up is the external resistor in Kohm.

V_{o, nom} is the nominal output voltage.

V_{o'} is the desired output voltage.

R1, R2, R3 and **Vref** are internal to the unit and defined in Table 1.

For example, to trim-up the output voltage of 12V model (SKA20W8-12) by 10% to 13.2V, **Rtrim-up** is calculated as follows:

$$V_{o, nom} = 12V$$

$$V_o' = 13.2V$$

$$R1 = 3.83 K\Omega$$

$$R2 = 1 K\Omega$$

$$R3 = 7.5 K\Omega$$

$$V_{ref} = 2.5V$$

$$A = \left(\frac{2.5}{13.2 - 2.5} \right) \times 3.83 = 0.894$$

$$R_{trim - up} = \left(\frac{0.894 \times 1}{1 - 0.894} \right) - 7.5$$

$$= \left(\frac{0.894}{0.106} \right) - 7.5$$

$$= 0.933K\Omega$$

2. The value of **R_{trim-down}** defined as:

$$A = \left(\frac{V_o' - V_{ref}}{V_{ref}} \right) \times R_2$$

$$R_{trim-down} = \left(\frac{A \times R_1}{R_1 - A} \right) - R_3$$

Where

R_{trim-down} is the external resistor in Kohm.

V_{o,nom} is the nominal output voltage.

V_{o'} is the desired output voltage.

R1, R2, R3 and Vref are internal to the unit and defined in Table 1.

For example, to trim-down the output voltage of 12V model (SKA20W8-12) by 10% to 10.8V, **R_{trim-down}** is calculated as follows:

$$V_{o,nom} = 12V$$

$$V_o' = 10.8V$$

$$R_1 = 3.83 \text{ K}\Omega$$

$$R_2 = 1 \text{ K}\Omega$$

$$R_3 = 7.5 \text{ K}\Omega$$

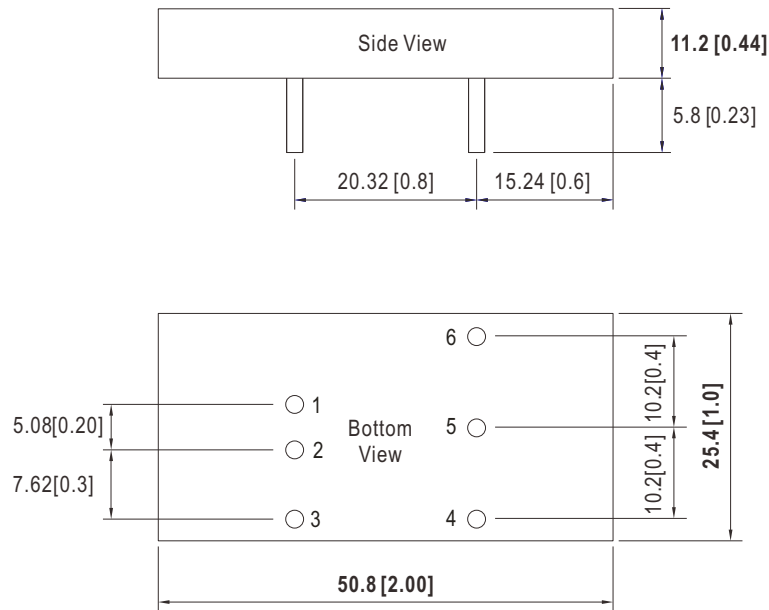
$$V_{ref} = 2.5V$$

$$A = \left(\frac{10.8 - 2.5}{2.5} \right) \times 1 = 3.32$$

$$\begin{aligned} R_{trim-down} &= \left(\frac{3.32 \times 3.83}{3.83 - 3.32} \right) - 7.5 \\ &= \left(\frac{12.715}{0.15} \right) - 7.5 \\ &= 17.431 \text{ K}\Omega \end{aligned}$$

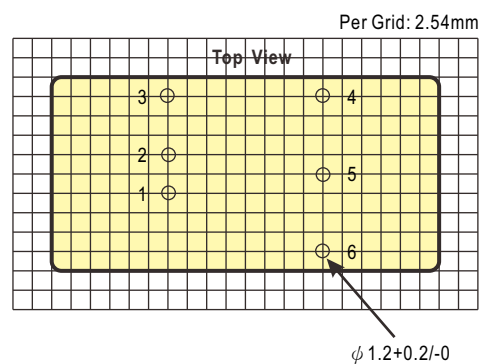
■ Mechanical Specification

- All dimensions in mm(inch)
- Tolerance: x.x, x.xx $\pm$ 0.5mm(x.xx $\pm$ 0.02")
- Pin tolerance: ϕ 1 $\pm$ 0.1mm

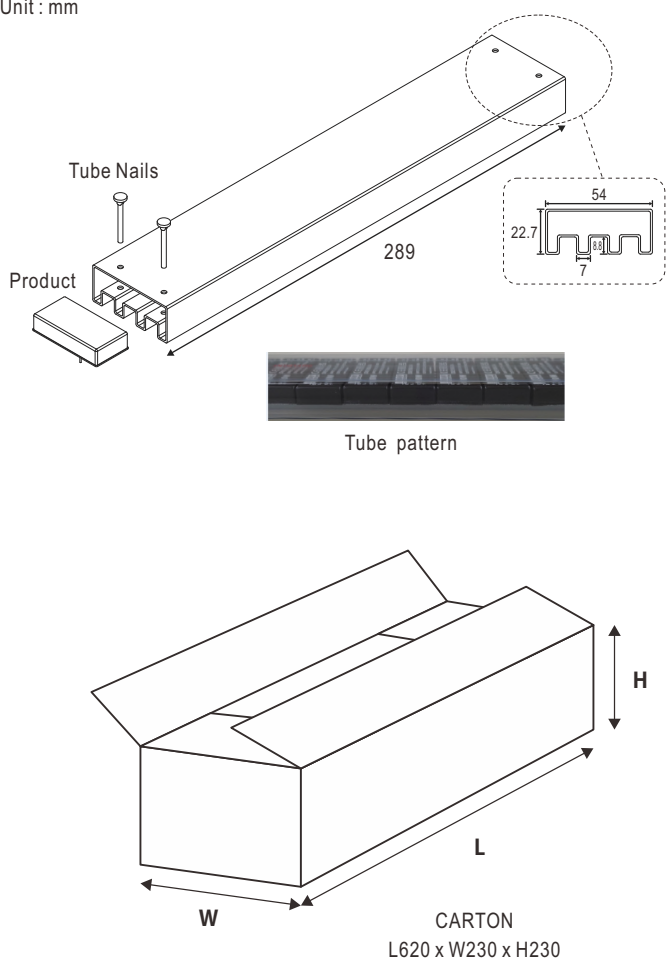


■ Pin Assignment

Pin-Out		
Pin No.	SKA20W8 (Single output)	DKA20W8 (Dual output)
1	+Vin	+Vin
2	-Vin	-Vin
3	R.C.	R.C.
4	-Vout	-Vout
5	Trim	Common
6	+Vout	+Vout



■ Packing

Standard Tube Packing	MPQ Per Tube (PCS)	One Tube G.W.	Max. Q'TY/ Carton(PCS)	One Carton G.W.
Unit : mm  Tube pattern CARTON L620 x W230 x H230	10	398g	400	16.72Kg

■ Installation Manual

Please refer to : <http://www.meanwell.com/manual.html>