

Automate Industrial Security Network Telecom

Features

- DIP 2"x1" package with industry standard pinout
- 8:1(9~75Vdc) ultra-wide input range
- Operating temperature range -40 ~ +90℃
- 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℃ , 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 ±12V/±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

SKA 20 W8 – 12

- 12 → Output voltage (3.3/5/12/15/24Vdc，±12/±15Vdc)
- W8 → 8:1(9~75Vdc) Wide input voltage
- 20 → Rated wattage
- SKA → Series name { S:Single output / D:Dual output

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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

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SPECIFICATION

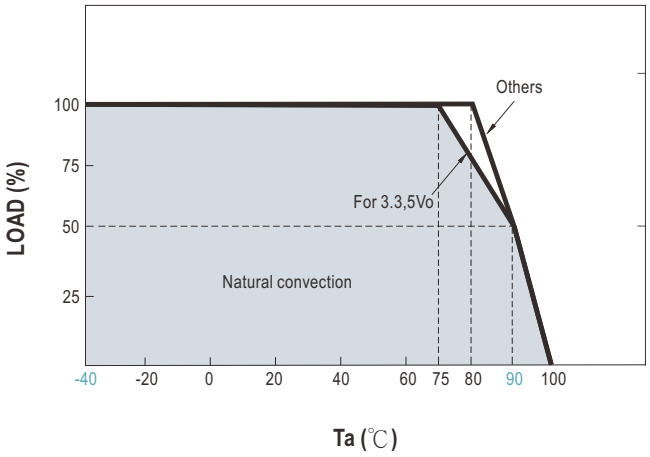
INPUT			
VOLTAGE RANGE	9~75Vdc		
SURGE VOLTAGE (100ms max.)	100Vdc		
FILTER	Pi network		
PROTECTION	Fuse recommended 6A Slow-Blow		
OUTPUT			
VOLTAGE ACCURACY	±2%		
RATED POWER	20W		
RIPPLE & NOISE Note.2	150mVp-p		
LINE REGULATION Note.3	±0.5%		
LOAD REGULATION Note.4	±1% for 3.3Vdc output, ±0.5% for 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		
ENVIRONMENT			
COOLING	Free-air convection		
WORKING TEMP.	-40 ~ +90℃ (Refer to "Derating Curve")		
CASE TEMPERATURE	+110℃ max.		
WORKING HUMIDITY	5% ~ 95% RH non-condensing		
STORAGE TEMP., HUMIDITY	-55 ~ +125℃, 10 ~ 95% RH non-condensing		
TEMP. COEFFICIENT	±0.03% / ℃ (0 ~ 80℃)		
SOLDERING TEMPERATURE	1.5mm from case of 3 ~ 5 sec./265℃ 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℃/ 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℃)		
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℃ 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

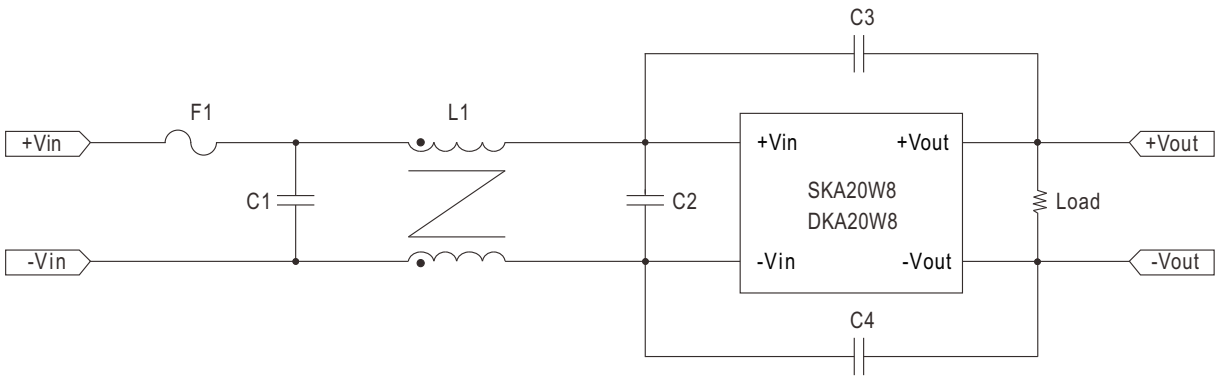
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■ Derating Curve



■ 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

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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:

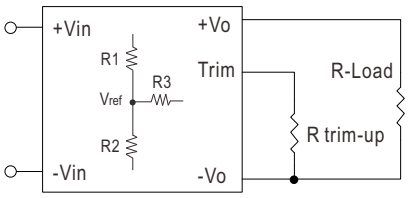


Figure 1. Trim-up Voltage Setup

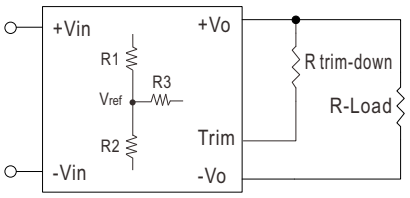


Figure 2. Trim-down Voltage Setup

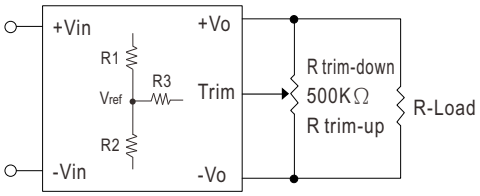


Figure 3. Trim-Connections

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 $R_{trim-up}$ defined as:

$$A = \left(\frac{Vref}{Vo' - Vref}\right) \times R1$$

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

Where

$R_{trim-up}$ 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 V_{ref} 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, $R_{trim-up}$ is calculated as follows:

$V_{o,nom}$ = 12V

V_o' = 13.2V

R1 = 3.83 KΩ

R2 = 1 KΩ

R3 = 7.5 KΩ

Vref = 2.5V

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

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

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

$$= 0.933K\Omega$$

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

$$A = \left(\frac{V_o' - Vref}{Vref}\right) \times R2$$

$$R_{trim-down} = \left(\frac{A \times R1}{R1 - A}\right) - R3$$

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

R1 = 3.83 KΩ

R2 = 1 KΩ

R3 = 7.5 KΩ

Vref = 2.5V

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

$$R_{trim-down} = \left(\frac{3.32 \times 3.83}{3.83 - 3.32}\right) - 7.5$$

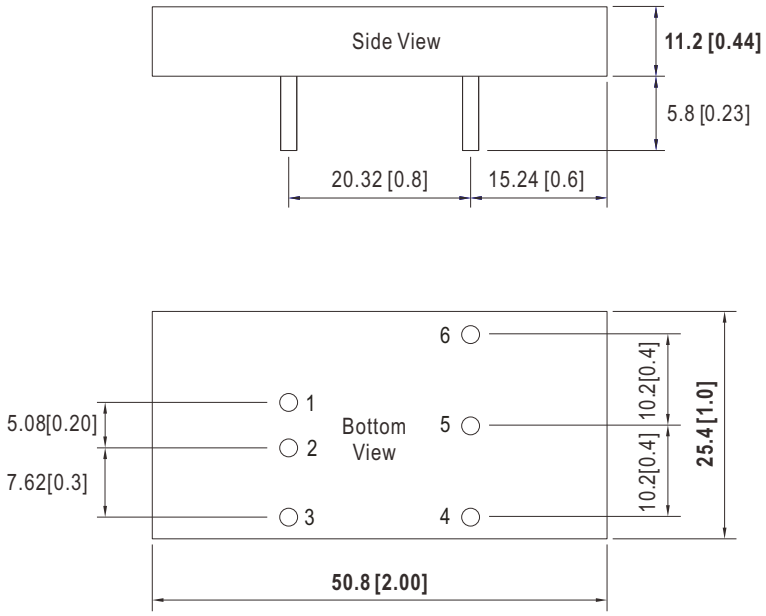
$$= \left(\frac{12.715}{0.15}\right) - 7.5$$

$$= 17.431K\Omega$$

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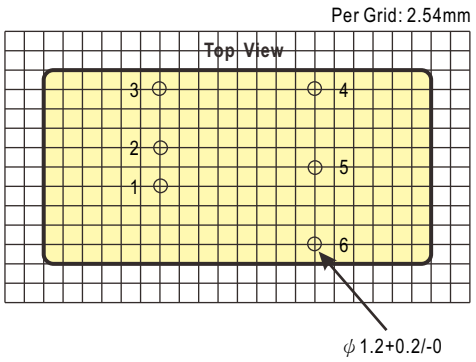
■ Mechanical Specification

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



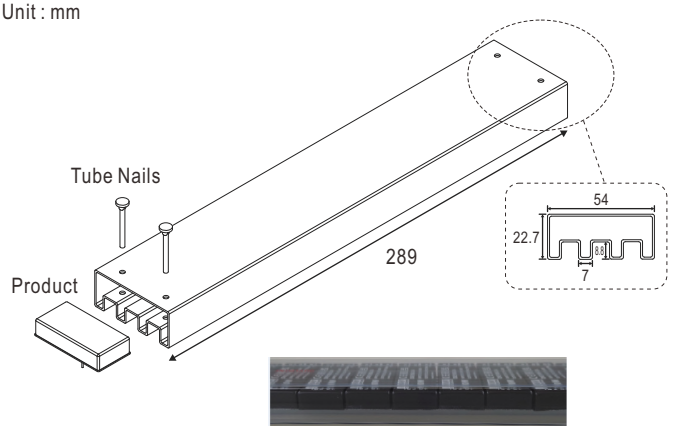
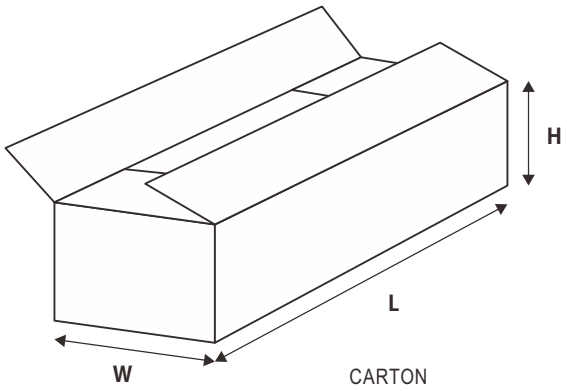
■ Pin Assignment

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



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■ 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

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