

■ Features

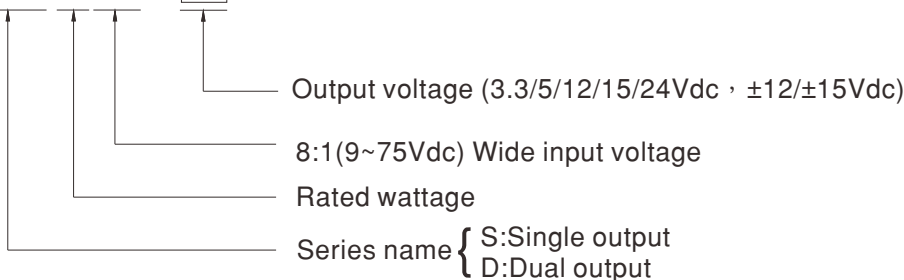
- DIP 2"x1" package with industry standard pinout
- 8:1(9~75Vdc) ultra-wide input range
- Operating temperature range -40 ~ +90°C
- No minimum load required
- Comply to BS EN/EN55032 radiated Class A without additional components
- High efficiency up to 90%
- Protections: Short circuit (Continuous) / Overload / Over voltage / UVLO
- 3KVdc I/O isolation
- Remote ON/OFF control
- Trimming output (±10%)
- 3 years warranty

■ Description

SKM30W8 and DKM30W8 series are 30W isolated and regulated module type DC-DC converter with DIP 2"x1" package. It features international standard pins, a high efficiency up to 90%, 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, remote ON/OFF and trimmable output voltage 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

S **KM** **30W8** - **12**



■ Applications

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

■ GTIN CODE

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



30W 2"x1" Package 8:1 Ultra-Wide Input DC-DC Regulated Converter

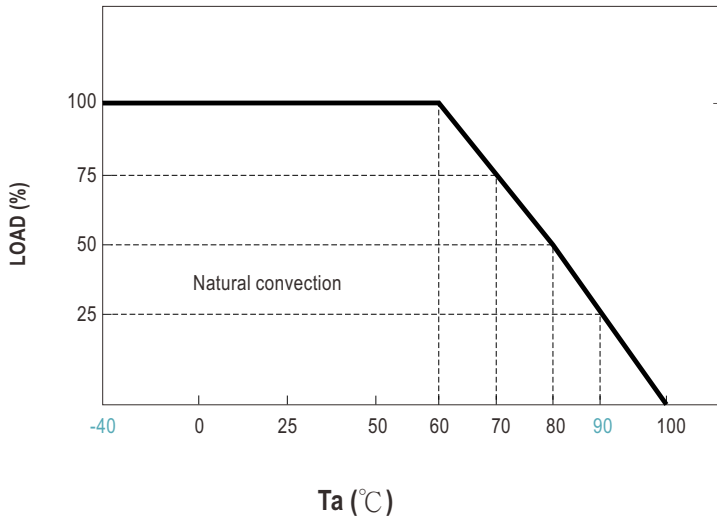
SKM30W8 & DKM30W8 series

| 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 | | | | |
| SKM30W8-03 | Nominal 12V, 24V, 36V, 48V, 72V (9 ~ 75V) | 15mA | 1119mA | 3.3V | 0~7000mA | 87% | 680μF |
| SKM30W8-05 | | 15mA | 1437mA | 5V | 0~6000mA | 87% | 680μF |
| SKM30W8-12 | | 15mA | 1420mA | 12V | 0~2500mA | 89% | 330μF |
| SKM30W8-15 | | 15mA | 1420mA | 15V | 0~2000mA | 90% | 220μF |
| SKM30W8-24 | | 15mA | 1420mA | 24V | 0~1250mA | 89% | 100μF |
| DKM30W8-12 | | 15mA | 1420mA | ±12V | ±0~1250mA | 89% | *150μF |
| DKM30W8-15 | | 15mA | 1420mA | ±15V | ±0~1000mA | 90% | *100μF |

* For each output

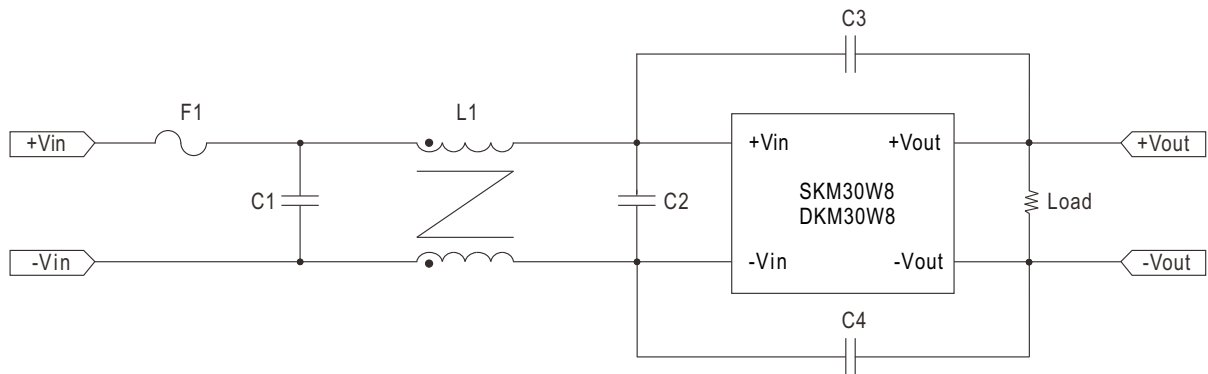
| SPECIFICATION | | | |
|--|--|---|---|
| INPUT | | | |
| VOLTAGE RANGE | 9~75Vdc | | |
| SURGE VOLTAGE (100ms max.) | 100Vdc | | |
| FILTER | Pi type | | |
| PROTECTION | Fuse recommended 8A Slow-Blow | | |
| OUTPUT | | | |
| VOLTAGE ACCURACY | ±2% max. | | |
| RATED POWER | 30W | | |
| RIPPLE & NOISE | Note.2 | 3.3 ~ 15Vo: 150mVp-p, 24Vo: 240mVp-p | |
| LINE REGULATION | Note.3 | ±0.2% | |
| LOAD REGULATION | Note.4 | ±1% for 3.3Vo model, ±0.5% for other models | |
| CROSS REGULATION | ±5% @ 25% ~ 100% load only dual output | | |
| SWITCHING FREQUENCY (Typ.) | 200KHz | | |
| EXTERNAL TRIM ADJ. RANGE (Typ.) | ±10% (Single output model only) | | |
| PROTECTION | | | |
| SHORT CIRCUIT | Continuous, automatic recovery | | |
| OVERLOAD | 110 ~ 190% | | |
| | 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 | Power ON: R.C. ~ -Vin >2.5~75Vdc or open circuit ; Power OFF: R.C. ~ -Vin <1Vdc or short | | |
| 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 ~ 60°C) | | |
| SOLDERING TEMPERATURE | 1.5mm from case of 3 ~ 5sec./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:100M 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 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, ±0.5KV Line-Line |
| | Conducted | BS EN/EN61000-4-6 | Level 2, 3V(e.m.f.) |
| | Magnetic Field Immunity | BS EN/EN61000-4-8 | Level 1, 1A/m |
| OTHERS | | | |
| MTBF | >500Khrs 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 | 33g ; 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 components to meet BS EN/EN55032 radiated Class B emission are as below:



| Model No. | BS EN/EN55032 radiated Class B | | | | | |
|--------------------|--------------------------------|-----------|------------------------|--------------------|--------------------|-----------------------|
| | F1 | C1 | C2 | C3 | C4 | L1 |
| SKM30W8 DKM30W8 | Suggest 8A Slow-Blow Type | 47μF/100V | 2.2μF/50V 1210 MLCC | 1000pF/5KV MLCC | 1000pF/5KV MLCC | 325μH Common Choke |

Note : Choose according to actual input current for F1

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:

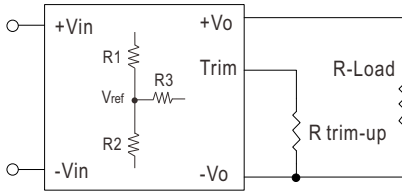


Figure 1. Trim-up Voltage Setup

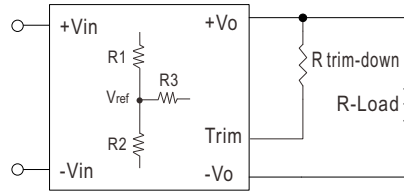


Figure 2. Trim-down Voltage Setup

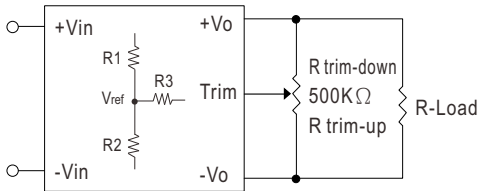


Figure 3. Trim-Connections

Table 1 – Trim up and Trim down Resistor Values

| Model Number | Output Voltage(V) | R1 (KΩ) | R2 (KΩ) | R3 (KΩ) | Vref |
|--------------|-------------------|---------|---------|---------|------|
| SKM30W8-03 | 3.3 | 2.43 | 1.47 | 7.5 | 1.24 |
| SKM30W8-05 | 5 | 1 | 1 | 3.9 | 2.5 |
| SKM30W8-12 | 12 | 3.83 | 1 | 7.5 | 2.5 |
| SKM30W8-15 | 15 | 7.5 | 1.5 | 11 | 2.5 |
| SKM30W8-24 | 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 (SKM30W8-12) by 10% to 13.2V, Rtrim-up is calculated as follows:

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

$$V_o' = 13.2V$$

$$R1 = 3.83 K\Omega$$

$$R2 = 1 K\Omega$$

$$R3 = 7.5 K\Omega$$

$$V_{ref} = 2.5V$$

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

$$\begin{aligned} R_{trim - up} &= \left(\frac{0.894 \times 1}{1 - 0.894} \right) - 7.5 \\ &= \left(\frac{0.894}{0.106} \right) - 7.5 \\ &= 0.933K\Omega \end{aligned}$$

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

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

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

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 (SKM30W8-12) by 10% to 10.8V, **R_{trim-down}** is calculated as follows:

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

$$V_o' = 10.8V$$

$$R1 = 3.83 K\Omega$$

$$R2 = 1 K\Omega$$

$$R3 = 7.5 K\Omega$$

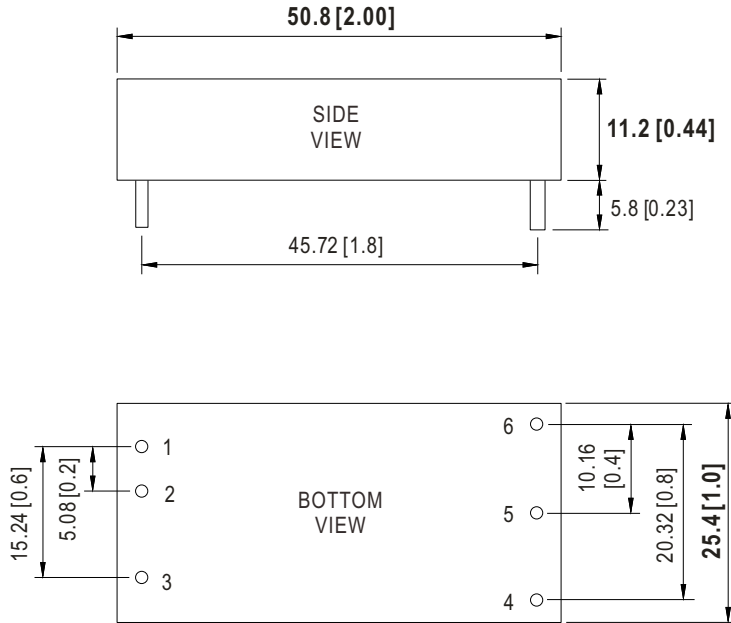
$$V_{ref} = 2.5V$$

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

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

Mechanical Specification

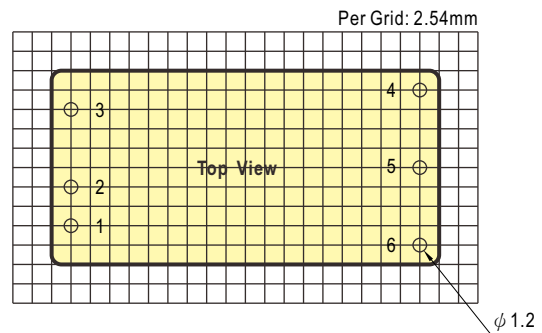
- All dimensions in mm(inch)
- Tolerance: x.x, x.xx±0.5mm(x.x, x.xx±0.02")



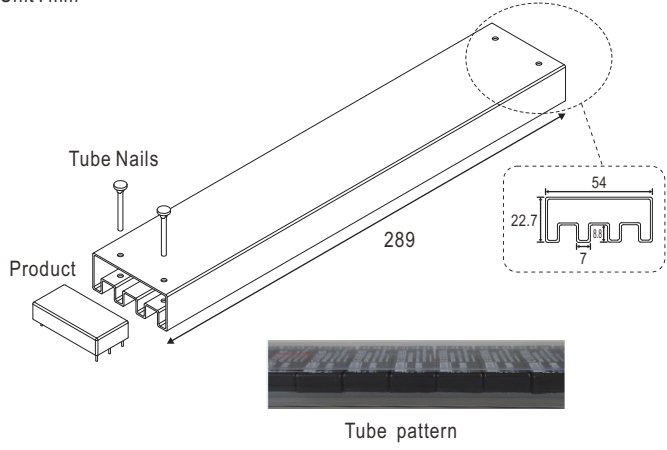
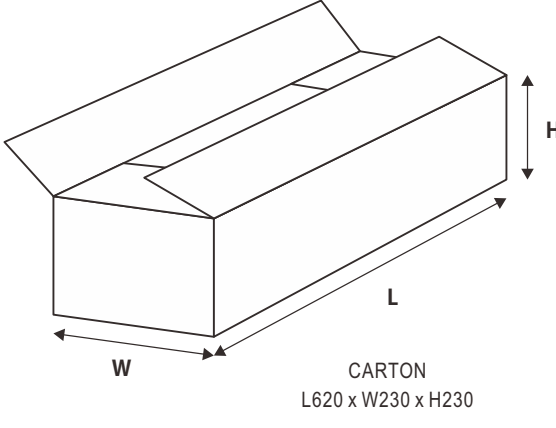
Note : Pin size tolerance $\phi 1\pm 0.1\text{mm}$

Pin Assignment

| Pin-Out | | |
|---------|----------------------------|--------------------------|
| Pin No. | SKM30W8 (Single output) | DKM30W8 (Dual output) |
| 1 | +Vin | +Vin |
| 2 | -Vin | -Vin |
| 3 | R.C. | R.C. |
| 4 | Trim | -Vout |
| 5 | -Vout | 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. |
|---|--------------------|---------------|------------------------|-----------------|
| <p>Unit : mm</p>  <p>Tube pattern</p>  <p>CARTON L620 x W230 x H230</p> | 10 | 418g | 400 | 17.52Kg |

■ Installation Manual

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

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