



# 30W DC-DC Regulated Single Output Converter

# SKM30 series



### ■ Features :

- 2"x1" compact size
- 2:1 wide input range
- High efficiency up to 90%
- 1500VDC I/O isolation
- Built-in remote ON/OFF control
- Built-in trimming output
- Comply with CE / FCC without external components
- Protections: Short circuit / Overload / Input and Output Over voltage
- Cooling by free air convection
- Six-sided shield metal case
- 100% burn-in test
- Low cost / High reliability
- Approvals: FCC / EAC / CE / UKCA
- 2 years warranty

### ■ GTIN CODE

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



### SPECIFICATION

ORDER NO.	SKM30A-05	SKM30B-05	SKM30C-05	SKM30A-12	SKM30B-12	SKM30C-12	SKM30A-15	SKM30B-15	SKM30C-15		
OUTPUT	DC VOLTAGE			12V			15V				
	CURRENT RANGE			0.25 ~ 2.5A			0.2 ~ 2A				
	RATED POWER									30W	
	RIPPLE & NOISE (max.) Note.2			90mVp-p			120mVp-p				
	LINE REGULATION Note.3			±0.2%							
	LOAD REGULATION Note.4			±0.5%							
	VOLTAGE ACCURACY									±2.0%	
	SWITCHING FREQUENCY									300KHz typ.	
	EXTERNAL CAPACITANCE LOAD (max.)			1000uF			220uF			100uF	
	EXTERNAL TRIM Adj. RANGE(Typ.)			±10%			-20 ~ +10%			-20 ~ +10%	
INPUT	VOLTAGE RANGE									A: 9 ~ 18VDC B: 18 ~ 36VDC C: 36 ~ 75VDC	
	UNDER VOLTAGE SHUTDOWN									A: 8VDC B: 16VDC C: 32VDC	
	EFFICIENCY (Typ.)									88% 88.5% 88% 89.5% 89% 89% 89.5% 90% 90%	
	DC CURRENT	Full load									2840mA 1420mA 720mA 2810mA 1420mA 710mA 2800mA 1400mA 700mA
		No load									170mA 95mA 60mA 150mA 40mA 55mA 135mA 40mA 30mA
	FILTER									Pi network	
	REMOTE CONTROL									Power ON : R.C ~ -Vin > 2.5VDC or open circuit ; Power OFF : R.C ~ -Vin < 0.5VDC or short	
PROTECTION									Fuse recommended		
PROTECTION (Note. 5)	OVER CURRENT									110% ~ 180% rated output power Protection type : Hiccup mode, recovers automatically after fault condition is removed	
	SHORT CIRCUIT									All output equipped with short circuit Protection type : Hiccup mode, recovers automatically after fault condition is removed	
	OVER VOLTAGE	Input(Typ.)									A: >20 ~ 25VDC B: >40 ~ 50VDC C: >80 ~ 100VDC input voltage Protection type : Shut down o/p voltage, recovers automatically after fault condition is removed
Output(Typ.)									5Vo : 7V ~ 8.95V ; 12Vo : 15V ~ 19.2V ; 15Vo : 18V ~ 23.3V Protection type : Clamp by TVS diode		
ENVIRONMENT	WORKING TEMP.									-40 ~ +75°C (Refer to "Derating Curve")	
	WORKING HUMIDITY									20% ~ 90% RH non-condensing	
	STORAGE TEMP., HUMIDITY									-55 ~ +125°C, 10 ~ 95% RH	
	TEMP. COEFFICIENT									±0.03% / °C (0 ~ 50°C)	
	VIBRATION									10 ~ 500Hz, 2G 10min./1cycle, period for 60min. each along X, Y, Z axes	
SAFETY & EMC	SAFETY STANDARDS									EAC TP TC 020/2011 (EAC TP TC 004 for 48Vin type only) approved	
	WITHSTAND VOLTAGE									I/P-O/P:1.5KVDC	
	ISOLATION RESISTANCE									I/P-O/P: 100M Ohms / 500VDC / 25°C / 70% RH	
	EMC EMISSION									Compliance to BS EN/EN55032 Class A, FCC part 15 Class A without external components, EAC TP TC 020	
OTHERS	EMC IMMUNITY									Compliance to BS EN/EN61000-4-2,3,4,5,6,8, light industry level, criteria A, EAC TP TC 020	
	MTBF									700Khrs min. MIL-HDBK-217F(25°C)	
	DIMENSION									50.8*25.4*11.2 mm or 2**1**0.44" inch (L*W*H)	
PACKING									31.2g ; 10pcs/per tube, 400pcs/40 tube/per carton		
NOTE	1.All parameters are specified at normal input, rated load, 25°C 70% RH ambient. 2.Ripple & noise are measured at 20MHz by using a 12" twisted pair terminated with a 0.1uf & 47uf capacitor. 3.Line regulation is measured from low line to high line at rated load. 4.Load regulation is measured from 10% to 100% rated load. 5.Please prevent the converter from operating in overload or short circuit condition for more than 30 seconds. ※ Product Liability Disclaimer : For detailed information, please refer to <a href="https://www.meanwell.com/serviceDisclaimer.aspx">https://www.meanwell.com/serviceDisclaimer.aspx</a>										

**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:

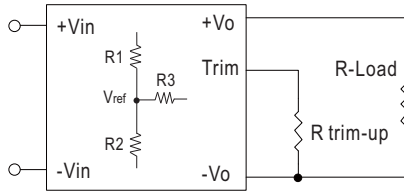


Figure 1. Trim-up Voltage Setup

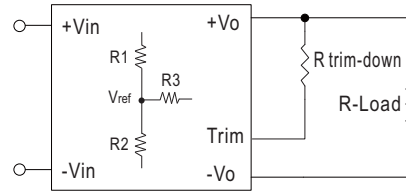


Figure 2. Trim-down Voltage Setup

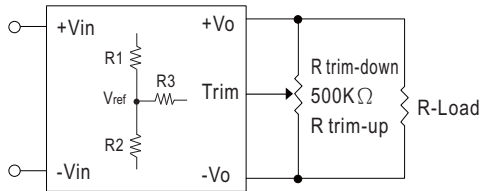


Figure 3. Trim-Connections

Table 1 – Trim up and Trim down Resistor Values

Vout	R1(KΩ)	R2(KΩ)	R3(KΩ)	Vref
3.3	1.69	1	5.6	1.25
5	1	1	4.3	2.5
12	3.83	1	7.5	2.5
15	7.5	1.5	11	2.5

1. The value of Rtrim-up defined as:

$$A = [V_{ref} / (V_o' - V_{ref})] * R1$$

$$R_{trim-up} = [(A * R2) / (R2 - A)] - R3$$

Where

Rtrim-up is the external resistor in Kohm.

V<sub>o, nom</sub> is the nominal output voltage.

V<sub>o'</sub> is the desired output voltage.

R1, R2, R3 and V<sub>ref</sub> are internal to the unit and defined in Table 1.

For example, to trim-up the output voltage of 12V model (SKM30A-12) by 10% to 13.2V, R<sub>trim-up</sub> is calculated as follows:

$$V_o' - V_{o,nom} = 13.2V - 12V = 1.2V$$

$$R1 = 3.83 K\Omega$$

$$R2 = 1 K\Omega$$

$$R3 = 7.5 K\Omega$$

$$V_{ref} = 2.5V$$

$$A = [V_{ref} / (V_o' - V_{ref})] * R1$$

$$= [2.5 / (13.2 - 2.5)] * 3.83$$

$$= 0.894$$

$$R_{trim-up} = [(A * R2) / (R2 - A)] - R3$$

$$= [(0.894 * 1) / (1 - 0.894)] - 7.5$$

$$= (0.894 / 0.106) - 7.5$$

$$= 8.433 - 7.5$$

$$= 0.933 K\Omega$$

**2. The value of Rtrim-down defined as:**

$$A = [(V_o' - V_{ref}) / V_{ref}] * R_2$$

$$R_{trim-down} = [(A * R_1) / (R_1 - A)] - R_3$$

Where

R<sub>trim-down</sub> is the external resistor in Kohm.

V<sub>o, nom</sub> is the nominal output voltage.

V<sub>o'</sub> is the desired output voltage.

R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub> and V<sub>ref</sub> are internal to the unit and defined in Table 1.

For example, to trim-down the output voltage of 12V model (SKM30A-12) by 10% to 10.8V, R<sub>trim-down</sub> is calculated as follows:

$$V_{o, nom} - V_o' = 12V - 10.8V = 1.2V$$

$$R_1 = 3.83 K\Omega$$

$$R_2 = 1 K\Omega$$

$$R_3 = 7.5 K\Omega$$

$$V_{ref} = 2.5V$$

$$A = [(V_o' - V_{ref}) / V_{ref}] * R_2$$

$$= [(10.8 - 2.5) / 2.5] * 1$$

$$= 3.32$$

$$R_{trim-down} = [(A * R_1) / (R_1 - A)] - R_3$$

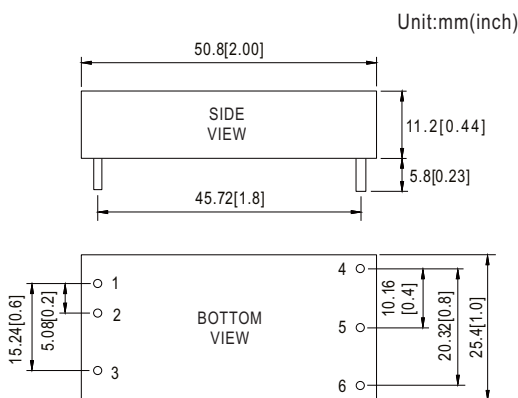
$$= [(3.32 * 3.83) / (3.83 - 3.32)] - 7.5$$

$$= (12.715 / 0.51) - 7.5$$

$$= 24.931 - 7.5$$

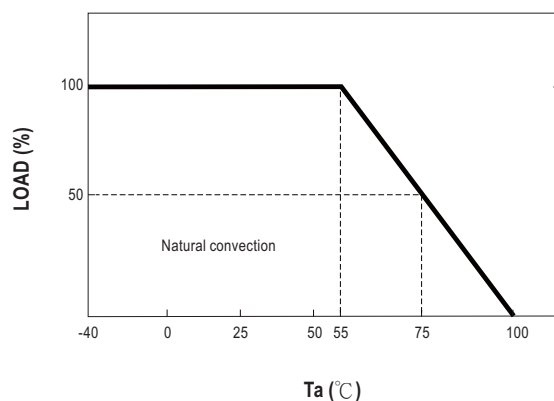
$$= 17.431 K\Omega$$

**Mechanical Specification**



Note : Pin size tolerance 1 φ ±0.1mm

**Derating Curve**



**Pin Configuration**

Pin No.	Output	Pin No.	Output
1	+Vin	4	+Vout
2	-Vin	5	-Vout
3	R.C	6	Trim

■ 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>Product</p> <p>Tube Nails</p> <p>289</p> <p>54</p> <p>22.7</p> <p>7</p> <p>Tube pattern</p> <p>CARTON L600 x W230 x H220</p>	10	400g	400	16.8Kg

■ Installation Manual

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