



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

SPECIFICATION



ORDER NO.		SKM30A-05	SKM30B-05	SKM30C-05	SKM30A-12	SKM30B-12	SKM30C-12	SKM30A-15	SKM30B-15	SKM30C-15	
OUTPUT	DC VOLTAGE	5V			12V			15V			
	CURRENT RANGE	0.6 ~ 6A			0.25 ~ 2.5A			0.2 ~ 2A			
	RATED POWER	30W									
	RIPPLE & NOISE (max.) Note.2	90mVp-p			120mVp-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℃ (Refer to "Derating Curve")									
	WORKING HUMIDITY	20% ~ 90% RH non-condensing									
	STORAGE TEMP., HUMIDITY	-55 ~ +125℃, 10 ~ 95% RH									
	TEMP. COEFFICIENT	±0.03% / ℃ (0 ~ 50℃)									
	VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, period for 60min. each along X, Y, Z axes									
SAFETY & EMC	SAFETY STANDARDS	EAC TP TC 004 approved									
	WITHSTAND VOLTAGE	I/P-O/P: 1.5KVDC									
	ISOLATION RESISTANCE	I/P-O/P: 100M Ohms / 500VDC / 25℃ / 70% RH									
	EMC EMISSION	Compliance to BS EN/EN55032 Class A, FCC part 15 Class A without external components, EAC TP TC 020									
	EMC IMMUNITY	Compliance to BS EN/EN61000-4-2,3,4,5,6,8, light industry level, criteria A, EAC TP TC 020									
OTHERS	MTBF	700Khrs min. MIL-HDBK-217F(25℃)									
	DIMENSION	50.8*25.4*11.2 mm or 2**1**0.44" inch (L*W*H)									
	WEIGHT	31.2g									
NOTE	1.All parameters are specified at normal input, rated load, 25℃ 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 https://www.meanwell.com/serviceDisclaimer.aspx										

File Name:SKM30-SPEC 2021-06-22

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:

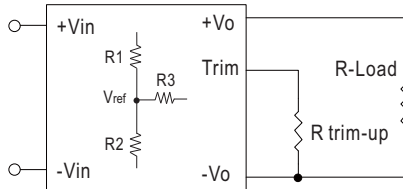


Figure 1. Trim-up Voltage Setup

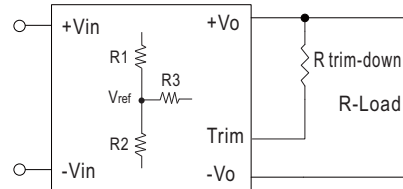


Figure 2. Trim-down Voltage Setup

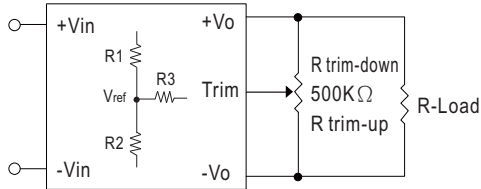


Figure 3. Trim-Connections

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

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 (SKM30A-12) by 10% to 13.2V, R_{trim-up} 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 R_{trim-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_{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 V_{ref} 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_{trim-down} is calculated as follows:

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

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

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

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

$$V_{ref} = 2.5V$$

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

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

$$= 3.32$$

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

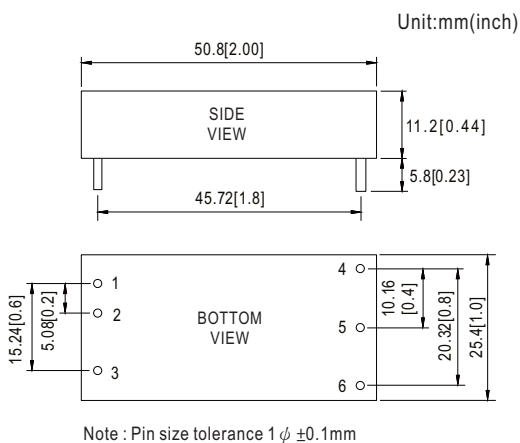
$$= [(3.32 * 3.83) / (3.83 - 3.32)] - 7.5$$

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

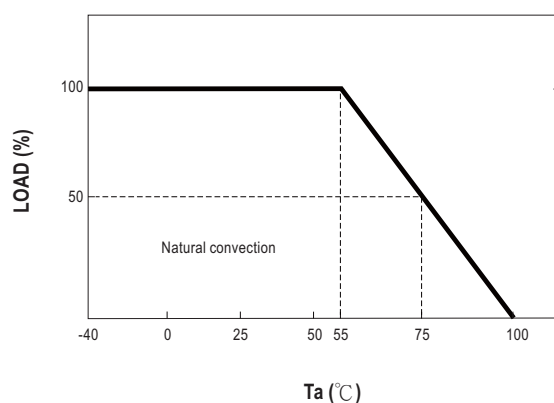
$$= 24.931 - 7.5$$

$$= 17.431 \text{ K}\Omega$$

Mechanical Specification



Derating Curve



Pin Configuration

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