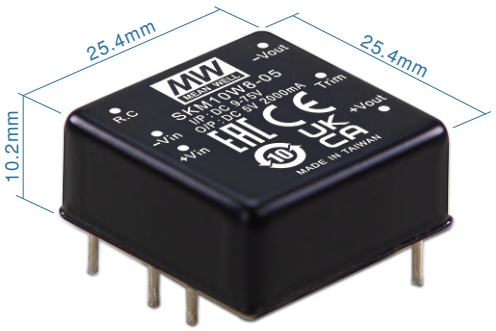
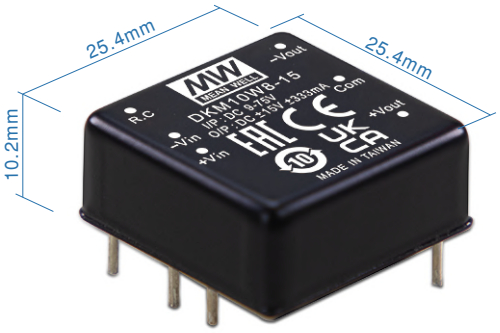
SKM10W8 & DKM10W8 series





Automate Industrial Security Network Telecom

Features

- DIP 1"x1" package with industry standard pinout
- 8:1(9~75Vdc) ultra-wide input range
- Operating temperature range -40 ~ +90℃
- No minimum load required
- High efficiency up to 85%
- Protections: Short circuit (Continuous) / Overload / Over voltage / UVLO
- 3KVdc I/O isolation
- Remote ON/OFF control
- Trimming output (±10%)
- 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

SKM10W8 and DKM10W8 series are 10W isolated and regulated module type DC-DC converter with DIP 1"x1" package. It features international standard pins, a high efficiency up to 90%, wide working temperature range -40~+90℃ , 3KVdc I/P-O/P isolation voltage, Continuous-mode short circuit, overload, over voltage, input under voltage protection, etc. The models account for 8:1(9~75Vdc) ultra-wide input range, and various output voltage, 3.3V/5V/12V/15V for single output and ±5V/±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 10W8 – 05

- 05 — Output voltage (3.3/5/12/15Vdc，±5/±12/±15Vdc)
- 10W8 — 8:1(9~75Vdc) Wide input voltage
- 10 — Rated wattage
- S KM — Series name { S:Single output / D:Dual output

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				
SKM10W8-03	Nominal 12V, 24V,36V,48V,72V (9 ~ 75V)	10mA	213mA	3.3V	0~2500mA	80%	2500μF
SKM10W8-05		10mA	248mA	5V	0~2000mA	84%	2000μF
SKM10W8-12		10mA	242mA	12V	0~833mA	85%	833μF
SKM10W8-15		10mA	241mA	15V	0~666mA	84%	666μF
DKM10W8-05		10mA	251mA	±12V	±0~1000mA	84%	*1000μF
DKM10W8-12		10mA	244mA	±12V	±0~417mA	85%	*417μF
DKM10W8-15		10mA	245mA	±15V	±0~330mA	85%	*330μF

* For each output

SPECIFICATION

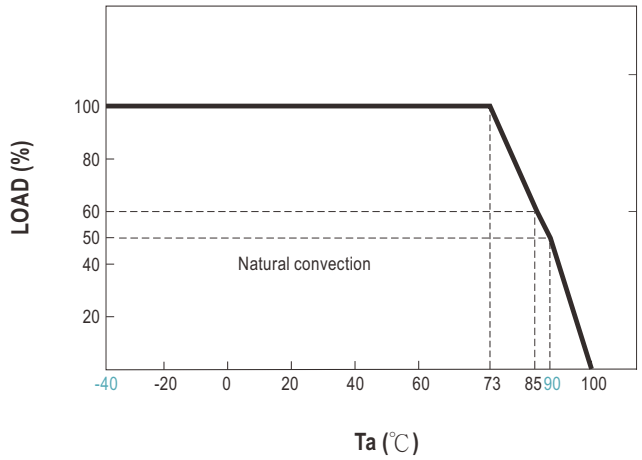
INPUT			
VOLTAGE RANGE	9~75Vdc		
SURGE VOLTAGE (100ms max.)	100Vdc		
FILTER	Pi type		
PROTECTION	Fuse recommended 3A Slow-Blow		
OUTPUT			
VOLTAGE ACCURACY	±1.5%		
RATED POWER	10W		
RIPPLE & NOISE Note.2	120mVp-p		
LINE REGULATION Note.3	±1% for 3.3Vo model, ±0.5% for other models		
LOAD REGULATION Note.4	±0.5%		
CROSS REGULATION	±5% @ 25% ~ 100% load only dual output		
SWITCHING FREQUENCY (Typ.)	440KHz		
EXTERNAL TRIM ADJ. RANGE (Typ.)	±10% (Single output model only)		
PROTECTION			
SHORT CIRCUIT	Continuous, automatic recovery		
OVERLOAD	110 ~ 200% rated output power		
	Protection type : Recovers automatically after fault condition is removed		
OVER VOLTAGE	Clamp by zener diode		
UNDER VOLTAGE LOCKOUT (Typ.)	Start-up voltage	8.5Vdc	
	Shutdown voltage	8.1Vdc	
FUNCTION			
REMOTE CONTROL	Power ON: R.C. ~ -Vin >3.5~75Vdc 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	+105℃ max.		
WORKING HUMIDITY	20% ~ 90% RH non-condensing		
STORAGE TEMP., HUMIDITY	-55 ~ +125℃, 10 ~ 95% RH non-condensing		
TEMP. COEFFICIENT	±0.03% / ℃ (0 ~ 73℃)		
SOLDERING TEMPERATURE	1.5mm from case of 3 ~ 5sec./260℃ 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	Class A with additional components
	Radiated	BS EN/EN55032	Class A 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, 0.5KV Line-Line
	Conducted	BS EN/EN61000-4-6	Level 2, 3V(e.m.f.)
OTHERS			
MTBF	>2381Khrs MIL-HDBK-217F(25℃)		
DIMENSION (L*W*H)	**25.4*25.4*10.2mm (1*1*0.4 inch)**		
CASE MATERIAL	Five-side Metal shielded case		
PACKING	18g ; 12pcs/per tube, 600pcs/50 tube/per carton		

NOTE

1.All parameters are specified at normal input (48Vdc), 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)

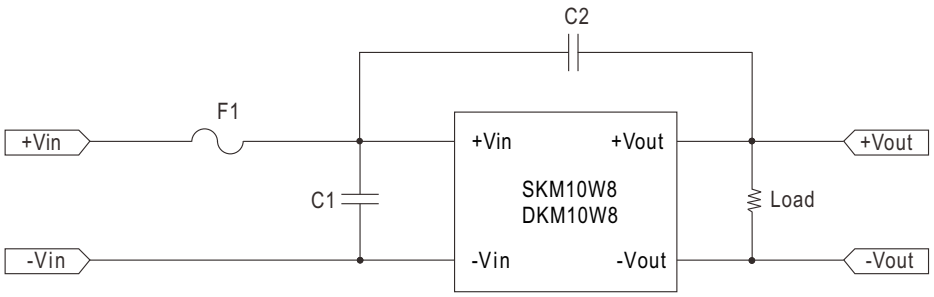
※ Product Liability Disclaimer : For detailed information, please refer to https://www.meanwell.com/serviceDisclaimer.aspx

■ Derating Curve



■ EMC Suggest Circuit

* Required external componets to meet BS EN/EN55032 conducted/radiated Class A emission as below:



Model No.	BS EN/EN55032 conducted/radiated		
	F1	C1	C2
SKM10W8 DKM10W8	Suggest 3A Slow-Blow Type	4.7μF/100V	1000pF/4KV

■ 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. The output voltage trim range is ±10%. This is shown in Figures 1 and 2:

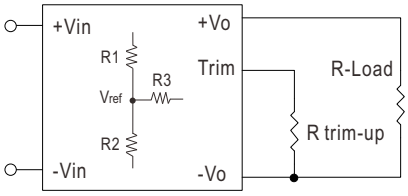


Figure 1. Trim-up Voltage Setup

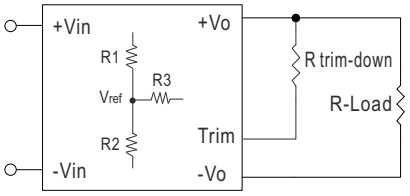


Figure 2. Trim-down Voltage Setup

1. The value of Rtrim-up defined as:

$$R_{trim-up} = \left(\frac{V_r \times R1 \times (R2 + R3)}{(V_o - V_{o,nom}) \times R2}\right) - Rt\,(K\Omega)$$

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, Rt, R2, R3 and Vr are internal to the unit and are defined in Table 1.

Table 1 – Trim up and Trim down Resistor Values

Model Number	Output Voltage(V)	R1 (KΩ)	R2 (KΩ)	R3 (KΩ)	Rt (KΩ)	Vref
SKM10W8-03	3.3	2.74	1.8	0.249	9.1	1.24
SKM10W8-05	5	2.32	2.32	0	8.2	2.5
SKM10W8-12	12	6.8	2.4	2.32	22	2.5
SKM10W8-15	15	8.06	2.4	3.9	27	2.5

For example, to trim-up the output voltage of 5.0V module (SKM10W8-05) by 10% to 5.5V, R trim-up is calculated as follows:

$V_o - V_{o,nom} = 5.5 - 5.0 = 0.5V$

R1 = 2.32 KΩ

R2 = 2.32 KΩ

R3 = 0 KΩ

Rt = 8.2 KΩ

Vr = 2.5V

$$R_{trim-up} = \left(\frac{2.5 \times 2.32 \times (2.32+0)}{0.5 \times 2.32}\right) - 8.2 = 3.4(K\Omega)$$

2. The value of Rtrim-down defined as:

$$R_{trim-down} = R1 \times \left(\frac{V_r \times R1}{(V_{o,nom} - V_o) \times R2} - 1\right) - Rt\,(K\Omega)$$

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, Rt, R2, R3 and Vr are internal to the unit and are defined in Table 1.

For example, to trim-down the output voltage of 5.0V module (SKM10W8-05) by 10% to 4.5V, R trim-down is calculated as follows:

$V_{o,nom} - V_o = 5.0 - 4.5 = 0.5V$

R1 = 2.32 KΩ

R2 = 2.32 KΩ

R3 = 0 KΩ

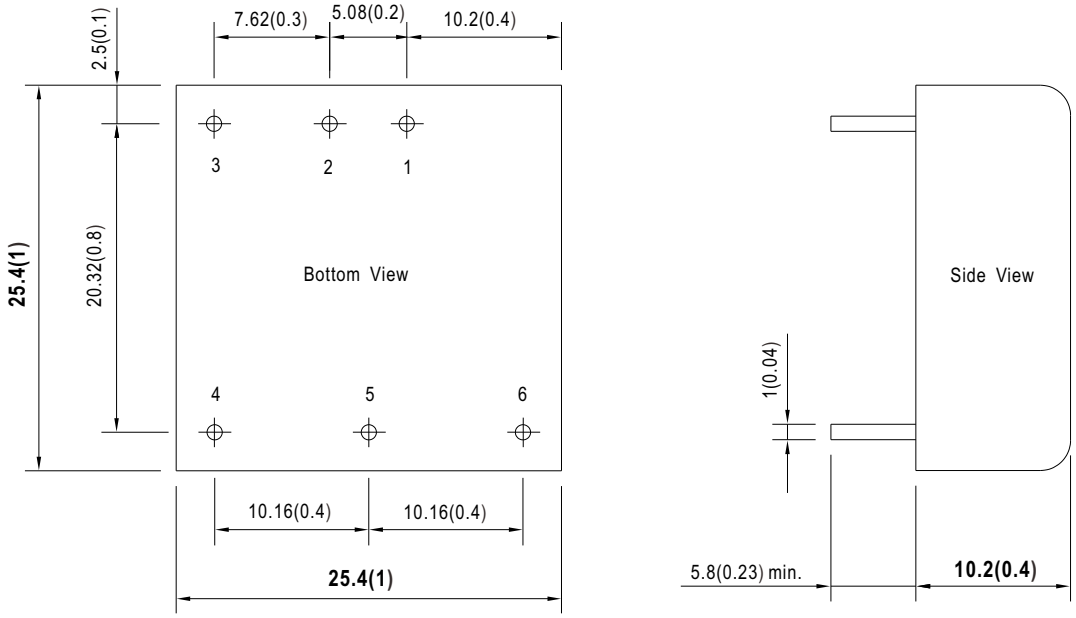
Rt = 8.2 KΩ

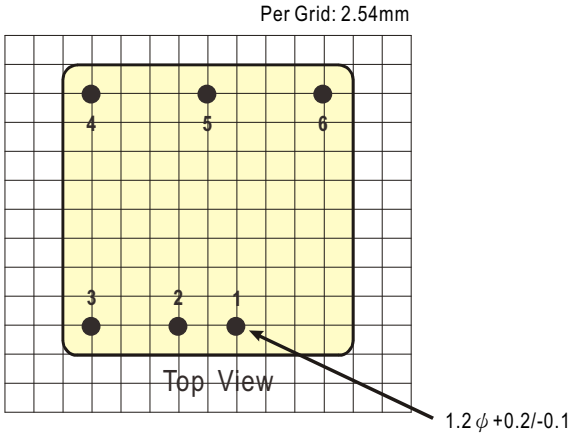
Vr = 2.5V

$$R_{trim-down} = 2.32 \times \left(\frac{2.5 \times 2.32}{0.5 \times 2.32} - 1\right) - 8.2 = 1.08\,(K\Omega)$$

■ Mechanical Specification

- All dimensions in mm(inch)
- Tolerance:x.x±1mm(x.x±0.04"), x.xx±0.25mm(x.xx±0.01")
- Pin size is 1±0.1mm (0.04"±0.004")

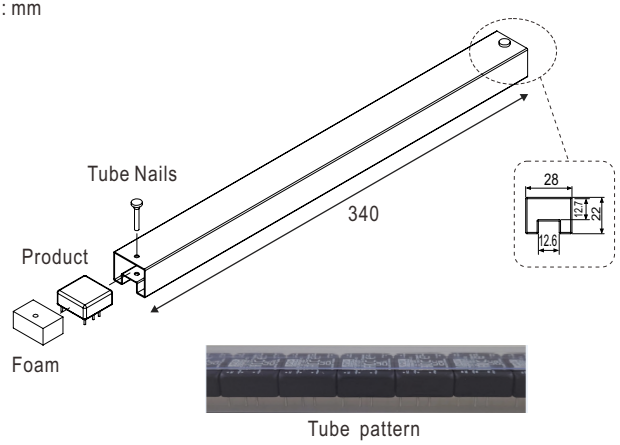
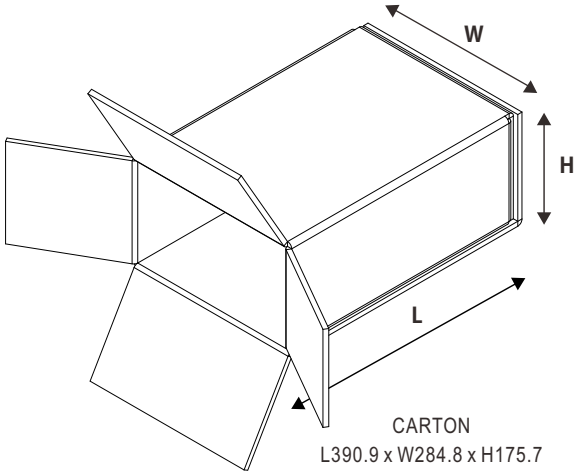




■ Pin Assignment

Pin-Out		
Pin No.	SKM10W8 (Single output)	DKM10W8 (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 L390.9 x W284.8 x H175.7	12	219g	600	12.9Kg

■ Installation Manual

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