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 90%
- Protections: Short circuit (Continuous) / Overload / Over voltage / UVLO
- 3KVdc I/O isolation
- Remote ON/OFF control
- Triming 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

SKM50W8 series is a 50W 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℃ , 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 for single output, which are suitable for all kinds of systems, such as industrial control, telecommunication field, distributed power architecture, and so on.

Model Encoding

SKM 50W8 – 12

- 12 — Output voltage (3.3/5/12/15Vdc)
- 8 — 8:1(9~75Vdc) Wide input voltage
- 50 — Rated wattage
- SKM — Series name

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				
SKM50W8-03	Nominal 12V, 24V,36V,48V,72V (9 ~ 75V)	10mA	1562mA	3.3V	0~10A	88%	680μF
SKM50W8-05		10mA	2367mA	5V	0~10A	88%	680μF
SKM50W8-12		10mA	2315mA	12V	0~4.17A	90%	330μF
SKM50W8-15		10mA	2315mA	15V	0~3.33A	90%	220μF

* For each output

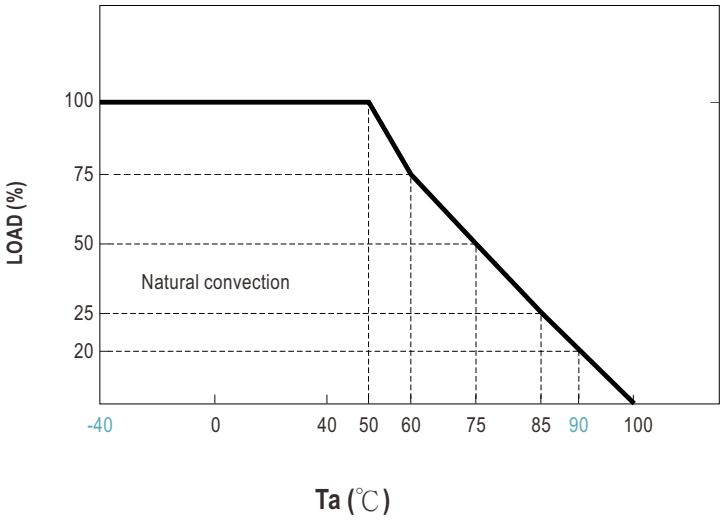
SPECIFICATION

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	33W for 3.3Vdc output, 50W for other output		
RIPPLE & NOISE Note.2	150mVp-p		
LINE REGULATION Note.3	±0.5%		
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 ~ 180%		
	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℃ (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 ~ 30℃)		
SOLDERING TEMPERATURE	1.5mm from case of 3 ~ 5sec./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:100M 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 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	>300Khrs MIL-HDBK-217F(25℃)		
DIMENSION (L*W*H)	**50.8*25.4*13.7mm (2*1*0.54 inch)**		
CASE MATERIAL	Six-side shielded case		
PACKING	43g ; 10pcs/per tube, 320pcs/32 tube/per carton		

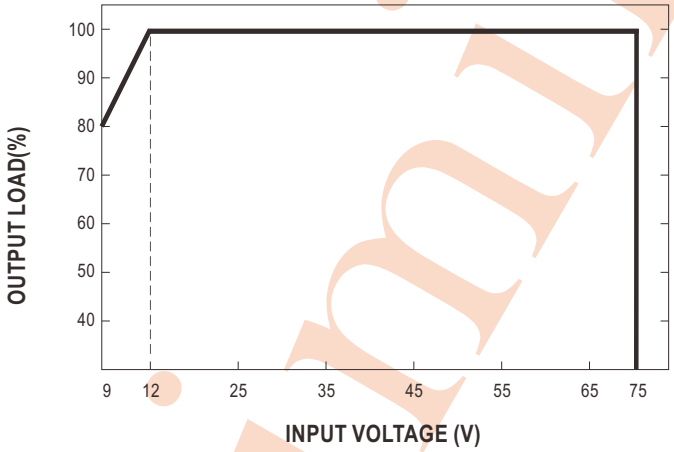
NOTE

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

■ Derating Curve

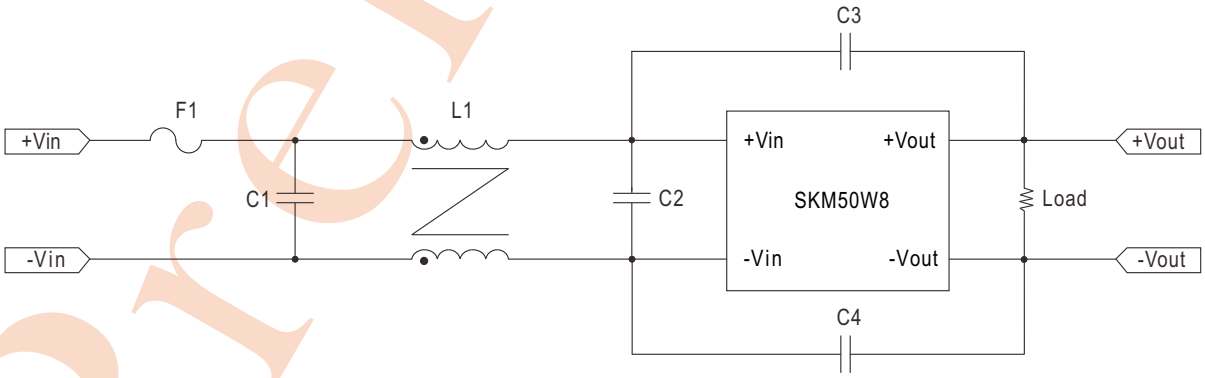


■ Input Voltage VS Derating Curve



■ EMC Suggestion Circuit

※ Required external componets 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
SKM50W8	Suggest 8A Slow-Blow Type	47μF/100V	2.2μF/50V MLCC	1000PF/5KV	1000PF/5KV	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:

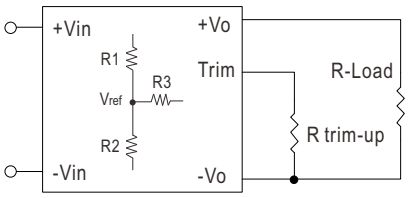


Figure 1. Trim-up Voltage Setup

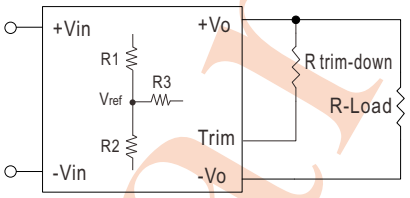


Figure 2. Trim-down Voltage Setup

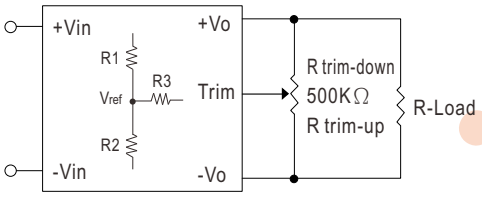


Figure 3. Trim-Connections

Table 1 – Trim up and Trim down Resistor Values

Model Number	R1 (KΩ)	R2 (KΩ)	R3 (KΩ)	Vref
SKM50W8-03	2.43	1.47	7.5	1.25
SKM50W8-05	1	1	3.9	2.5
SKM50W8-12	3.83	1	7.5	2.5
SKM50W8-15	7.5	1.5	11	2.5

1. The value of **$R_{trim-up}$** defined as:

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

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

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 (SKM50W8-12) 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

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

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

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

$$= 0.933K\Omega$$

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 (SKM50W8-12) 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

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

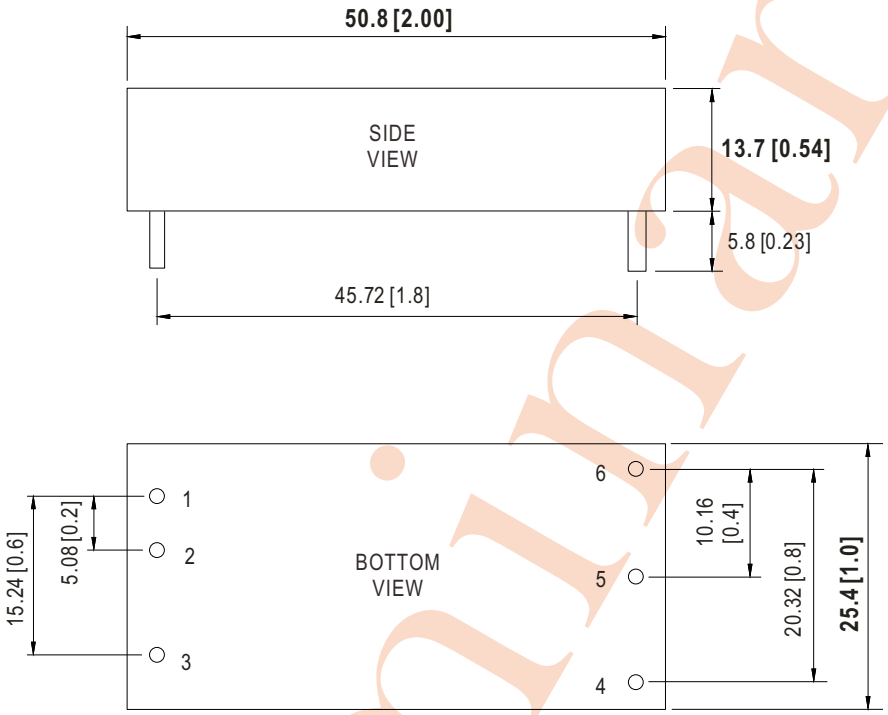
$$R_{trim-down} = \left(\frac{3.32 \times 3.83}{3.83 - 3.32}\right) - 7.5$$

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

$$= 17.431K\Omega$$

■ Mechanical Specification

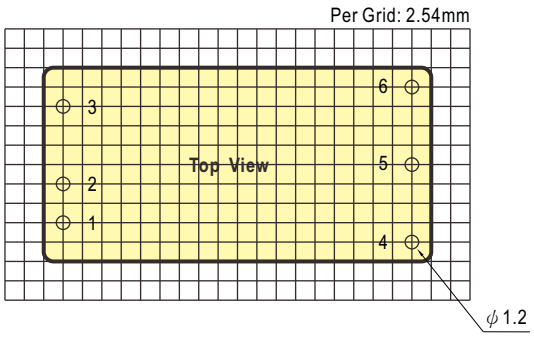
Unit:mm(inch)



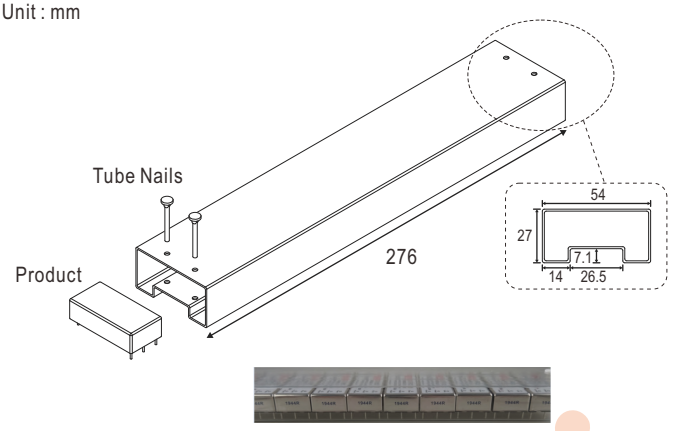
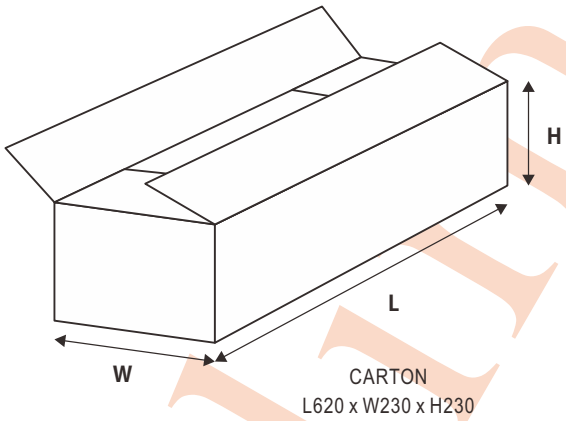
Note : Pin size tolerance ϕ 1±0.1mm

■ Pin Assignment

Pin No.	Pin-Out
1	+Vin
2	-Vin
3	R.C.
4	Trim
5	-Vout
6	+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 L620 x W230 x H230	10	518g	320	17.38Kg

■ Installation Manual

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