

WK19200N12T-11M

High Voltage DC-DC Converter

FEATURES:

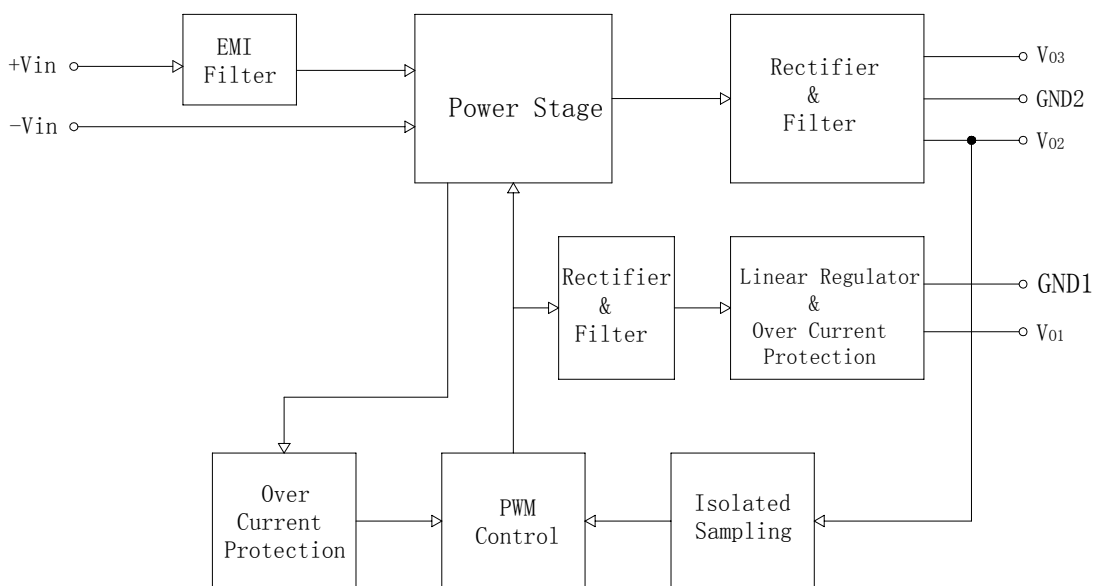
- High Reliability & Small-size
- Triple Outputs
- Low Output Ripple
- Input to Output Isolated
- Output Over Current & Short Circuit Protection
- Metal-Sealed
- Suitable for PCB Mount



DESCRIPTION:

WK19200N12T-11M high voltage DC-DC converter is a kind of small package, high reliability power supply module. The output voltages are separately $-200V_{DC}$ and $\pm 12V_{DC}$, and the output power is 11W. The conductive interference is reduced by Built-in LC filters. Internal high capacitance ceramic capacitors in the output loop can suppress the output voltage ripple effectively. The rated input voltage is $19V_{DC}$, and the input voltage range can be extended from $16.5V_{DC}$ to $22V_{DC}$. V_{o1} which outputs high voltage is isolated from V_{o2} and V_{o3} , V_{o2} and V_{o3} have the same GND.

BLOCK DIAGRAM:



ABSOLUTE MAXIMUM RATINGS:

Input Voltage:	22V _{DC}
Operating Temperature(Ambient):	-40℃~+55℃
Storage Temperature Range:	-55℃~+85℃
Lead Soldering Temperature(10s):	300℃

THE ELECTRICAL CHARACTERISTICS:

Input Characteristics							
	Min	Typ	Max	Units			
Input Voltage	16.5	19	22	V			
Efficiency (Full Load)	74	-	-	%			
Output Characteristics							
	-200V(Vo1)			±12V(Vo2 , Vo3)			Units
	Min	Typ	Max	Min	Typ	Max	
Output Current	-	-	5.0	-	-	400.0	mA
Output Voltage Accuracy ¹⁾	-210	-200	-190	±11.88	±12.00	±12.12	V _{out}
Load Regulation	-	5	-	-	0.2	0.5	%
Line Regulation	-	5	-	-	0.2	0.5	%
Ripple Voltage V _{p-p} (20MHz) (Full Load) ²⁾	-	-	30	-	-	10	mV
Start-up Delay	-	50	-	-	5	-	ms
Isolation Characteristics							
Insulation Resistance	≥200MΩ @500VDC (Input-Output, Pins-Case)						

Note:

- 1) Only when the total output power of Vo2&Vo3 is more than 1.5W that the voltage of Vo1 should be in the range of the table.
- 2) Refer to the measurement method within the application note.

APPLICATION NOTE:

● RIPPLE VOLTAGE

The output ripple should be measured with a 500V/0.82μF ceramic capacitor across the output of Vo1 and a 25V/22μF ceramic capacitor across each output of Vo2&Vo3. Remove the ground lead and probe clip and use the probe tip and barrel ground lead as shown in Figure 1. The probe bandwidth is limited to 20MHz. The typical output ripple waveforms are shown in Figure 2,3,4.

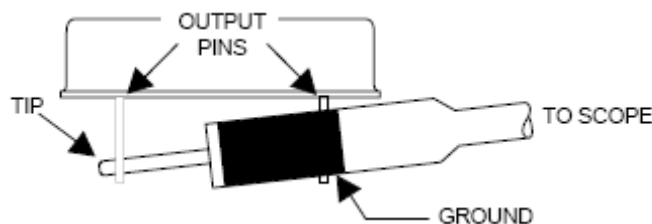


Figure 1 RECOMMENDED MEASUREMENT METHOD

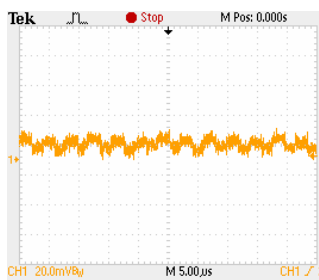


Figure 2 Typical Ripple Voltage of Vo1 20mV/div

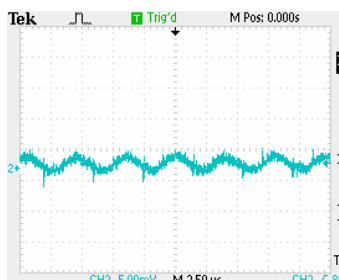


Figure 3 Typical Ripple Voltage of Vo2 5mV/div

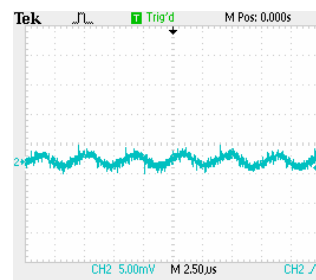


Figure 4 Typical Ripple Voltage of Vo3 5mV/div

Vo1 Output Voltage

The converter is not designed to use Vo1 only. It's recommended that Vo2&Vo3 be loaded in application. The output voltage of Vo1 will be lower than rated voltage if Vo2&Vo3 were not loaded. Make sure that the total output power of VO1&Vo2 is more than 1.5W to hold the output voltage of Vo1 within the rated range.

Over Current & Short Circuit Protection

WK19200N12T-11M high voltage DC-DC converter has the function of Over Current & Short Circuit Protection. When the converter is under that condition, it will be automatically be in the Current Protection mode. When the condition is removed, the converter will be automatically restored. Long time over current or short circuit operation is not recommended.

Environmental Screening:

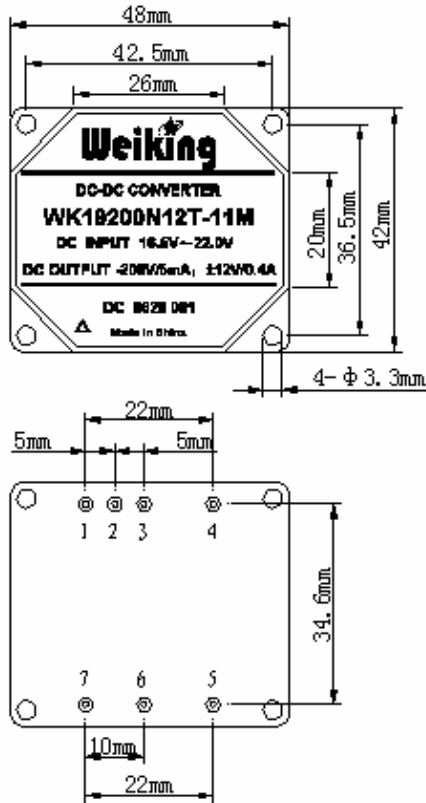
Num	TEST ITEMS	METHODS	REQUEST	CONDITIONS
1	High-Temp	MIL-STD-810	100%	+55℃
2	Low-Temp	MIL-STD-810	100%	-40℃
3	Temp-Cycle	MIL-STD-810	100%	-55℃~+70℃ 3 Cycle
4	Stabilization Bake	MIL-STD-810	100%	+85℃ 48h
5	Burn-in	----	100%	+55℃(Full Load) 96h

Environmental Qualification:

Num	TEST ITEMS	METHODS	CONDITIONS
1	Resist Over- Load	----	The Axes:100g, 8ms; The Radial:30g, 11ms
2	Scan Shock	MIL-STD-810	For detailed information, refer to factory's test report.

MECHANICAL SPECIFICATIONS:

DIMENSIONS:

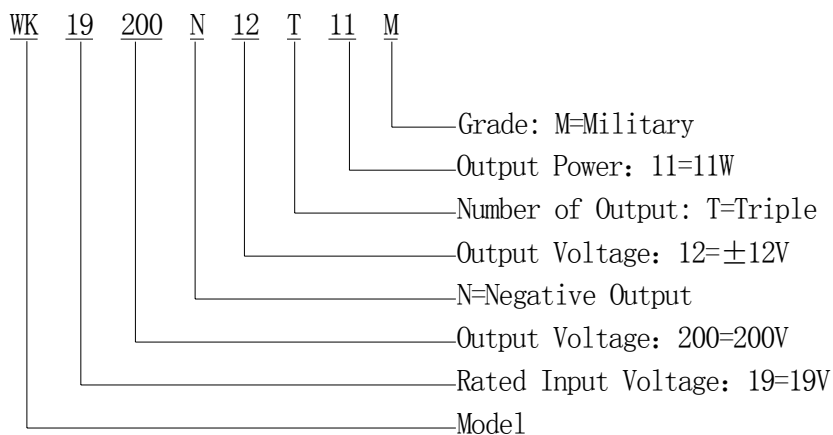


PIN NAME		PIN
-12V OUTPUT	$V_{O3}(-12V)$	1
$\pm 12V$ GND	GND2	2
+12V OUTPUT	$V_{O2}(+12V)$	3
POSITIVE INPUT	$+V_{in}$	4
NEGATIVE INPUT	$-V_{in}$	5
-200V GND	GND1	6
-200V OUTPUT	$V_{O1}(-200V)$	7

Notes:

1. Connect pins correctly in operation. Δ indicates pin1.
2. Secure the power module to the board with fasteners at the flanges before weld the pins to the board.
3. Mount the bottom of power module to the heat sink tightly. If necessary, thermal washers and shockproof gaskets could be employed.

ORDERING INFORMATION:



MARK SPECIFICATION:

Serials Number: 1001001, which indicates this product has been manufactured in the 1th week of 2010, and the sequence number is 001.