

QUARTER BRICK DC-DC CONVERTER Application Manual

MPDKN00_S Series

Murata Manufacturing Co., Ltd
Product Development Section
Power Supply Modules Department

⚠Note • Please read rating and ⚠CAUTION (for storage, operating, rating, soldering, mounting and handling) in this catalog to prevent smoking and/or burning, etc.
• This catalog has only typical specifications because there is no space for detailed specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

1. Features

- 1-1. These are quarter brick DC-DC Converter of industry-standard.
- 1-2. High efficiency and High power density is realized by using original synchronous rectifier circuit.
- 1-3. It corresponds to wide range temperature of operation. (-40 to +85 degreeC)
- 1-4. It corresponds to wide range input voltage. (36 to 75V)
- 1-5. Output voltage adjustment is possible by connection of external resistance.
- 1-6. Input to output isolation voltage: 1.5kV (DC) for one minute.
- 1-7. Over current protection, over voltage protection and overheating protection is built in.
- 1-8. The acquisition of UL60950 is recognized.

2. Product Line Up

2-1. 50W Series

Nominal Output Voltage (V)	Part No.
1.8	MPDKN004S
2.5	MPDKN006S
3.3	MPDKN007S
5.0	MPDKN008S

3. Ratings

- 3-1. Operating Temperature Range -40 to +85 degreeC (Please refer the temperature derating table.)
- 3-2. Operating Humidity Range 20 to 85% (No dew deposit)
- 3-3. Storage Temperature Range -45 to +90 degreeC
- 3-4. Storage Humidity Range 10 to 95% (No dew deposit)

4. Electrical Characteristics (Ta=25 degreeC, Airflow=1m/s, TRIM=Open)

Item	Symbol	Condition	Model Number	Value			Unit
				Min.	Typ.	Max	
Input Voltage	Vin		All	36	48	75	V
Output Voltage	Vout	Vin=Min to Max Iout=Min to Max	MPDKN008S	4.850	5.0	5.150	V
			MPDKN007S	3.200	3.3	3.400	
			MPDKN006S	2.425	2.5	2.575	
			MPDKN004S	1.746	1.8	1.854	
Output Voltage Adjustable Range	Vout (adj)	Vin=Min to Max Iout=Min to Max	All	-20	-	10	%
Output Voltage Remote Sense Range	Vout (sense)	Between 4-5 and 7-8 pin voltage	All	-	-	10	%
Output Current	Iout	-	MPDKN008S	0	-	10	A
			MPDKN007S	0	-	15	
			MPDKN006S	0	-	15	
			MPDKN004S	0	-	15	
Ripple Voltage	Vripl	Vin=48V Iout=Max fBW=20MHz	All	-	-	100	mV(p_p)
Efficiency	Eff.	Vin=48V Iout=Max	MPDKN008S	-	89.0	-	%
			MPDKN007S	-	88.0	-	
			MPDKN006S	-	87.0	-	
			MPDKN004S	-	85.0	-	
On/Off pin Control Voltage	Von	-	All	0	-	0.7	V
	Voff	-	All	3	-	20	V
Setting Point of Over Current Protection	OCP	Vin=48V	All	103	-	160	%
Setting Point of Over Voltage Protection	OVP	Vin=48V	All	120	-	140	%
Protection	-	-	All	If output is shorted to GND, or output voltage is over the value specified in OVP, DC-DC Converter will shut down. After reject the abnormal mode, DC-DC Converter will restart by re-inputting Vin or toggling On/Off pin. If DC-DC Converter is heated abnormally, it will shut down. After it is cooled down, DC-DC Converter will automatically restart.			
Input to Output Isolation Voltage	-	DC for one minute	All	1500	-	-	V
Safety Standards	-	-	All	UL60950 recognized.			

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