

## IMX 7 Series

## 7 Watt DC-DC Converters



Wide input voltage ranges up to 150 V DC  
1 or 2 outputs up to 48 V DC  
1500...2500 V DC I/O electric strength test



- Magnetic feedback for single output models
- Short circuit protection
- Industry standard 2" x 1" case with 10.5 mm profile

### Selection chart

Output 1		Output 2		Input voltage	Type	Options <sup>1, 2</sup>
$U_o \text{ nom}$ [V DC]	$I_o \text{ nom}$ [A]	$U_o \text{ nom}$ [V DC]	$I_o \text{ nom}$ [mA]	$U_i$ [V DC]		
3.3	1.5	-	-	8.4...36	20 IMX 7-03-9	-8, M, C, L, Z
3.3	1.5	-	-	16.8...75	40 IMX 7-03-9 <sup>3</sup>	-8, M, C, L, Z
3.3	1.5	-	-	40...121	70 IMX 7-03-9	-8, M
3.3	1.5	-	-	60...150	110 IMX 7-03-9	-8, M
5.1	1.2	-	-	8.4...36	20 IMX 7-05-9	-8, M, C, L, Z
5.1	1.2	-	-	16.8...75	40 IMX 7-05-9 <sup>3</sup>	-8, M, C, L, Z
5.1	1.2	-	-	40...121	70 IMX 7-05-9	-8, M
5.1	1.2	-	-	60...150	110 IMX 7-05-9	-8, M
12	0.5	-	-	8.4...36	20 IMX 7-12-9C	-8
12	0.6	-	-	16.8...75	40 IMX 7-12-9C <sup>3</sup>	-8
15	0.4	-	-	8.4...36	20 IMX 7-15-9C	-8
15	0.48	-	-	16.8...75	40 IMX 7-15-9C <sup>3</sup>	-8
24	0.26	-	-	8.4...36	20 IMX 7-24-9C	-8
24	0.3	-	-	16.8...75	40 IMX 7-24-9C <sup>3</sup>	-8
5	0.7	5	0.7	8.4...36	20 IMX 7-05-05-9	-8, M, C, L, Z
5	0.7	5	0.7	16.8...75	40 IMX 7-05-05-9 <sup>3</sup>	-8, M, C, L, Z
5	0.7	5	0.7	40...121	70 IMX 7-05-05-9	-8, M
5	0.7	5	0.7	60...150	110 IMX 7-05-05-9	-8, M
12	0.3	12	0.3	8.4...36	20 IMX 7-12-12-9	-8, M, C, L, Z
12	0.3	12	0.3	16.8...75	40 IMX 7-12-12-9 <sup>3</sup>	-8, M, C, L, Z
12	0.3	12	0.3	40...121	70 IMX 7-12-12-9	-8, M
12	0.3	12	0.3	60...150	110 IMX 7-12-12-9	-8, M
15	0.24	15	0.24	8.4...36	20 IMX 7-15-15-9	-8, M, C, L, Z
15	0.24	15	0.24	16.8...75	40 IMX 7-15-15-9 <sup>3</sup>	-8, M, C, L, Z
15	0.24	15	0.24	40...121	70 IMX 7-15-15-9	-8, M
15	0.24	15	0.24	60...150	110 IMX 7-15-15-9	-8, M
24	0.15	24	0.15	8.4...36	20 IMX 7-24-24-9	-8, M, C, L, Z
24	0.15	24	0.15	16.8...75	40 IMX 7-24-24-9 <sup>3</sup>	-8, M, C, L, Z
24	0.15	24	0.15	40...121	70 IMX 7-24-24-9	-8, M
24	0.15	24	0.15	60...150	110 IMX 7-24-24-9	-8, M

<sup>1</sup> For minimum order quantity and lead time contact Power-One.

<sup>2</sup> Option M, C, L and Z exclude each other.

<sup>3</sup> Operation at lower input voltage possible:  $P_o$  approx. 80% of  $P_{o \text{ nom}}$  at  $U_{i \text{ min}} = 14.4 \text{ V}$

**Input**

Input voltage range	20 IMX 7	8.4...36 V DC
	40 IMX 7	16.8...75 V DC
	70 IMX 7	40...121 V DC
	110 IMX 7	60...150 V DC

**Output**

Output voltage setting accuracy	$U_{i\text{ nom}}, 50\% I_{o\text{ nom}}, \text{single output models}$	$\pm 0.5\% U_{o\text{ nom}}$
	$U_{i\text{ nom}}, 50\% I_{o\text{ nom}}, \text{double outp., main/aux. outp.}$	$\pm 1\% / \pm 1.2\% U_{o\text{ nom}}$
Minimum load	recommended for double output models	$10\% I_{o\text{ nom}}$
Line/load regulation	$U_{i\text{ min}}...U_{i\text{ max}}, 50\% I_{o\text{ nom}}, \text{single output models}$	$\pm 1\% U_{o\text{ nom}}$
Line regulation	$U_{i\text{ nom}}, 50\% I_{o\text{ nom}}, \text{double output models}$	$\pm 1\% U_{o\text{ nom}}$
Load regulation	$U_{i\text{ nom}}, 10...100\% I_{o\text{ nom}}, \text{double outp. models, main outp.}$	$\pm 3\% U_{o\text{ nom}}$
	tracking output	$\pm 3\% U_{o\text{ nom}}$
Output voltage switching noise	$U_{i\text{ nom}}, 0...100\% I_{o\text{ nom}}, \text{peak-peak, total}$	max. $1.5\% U_{o\text{ nom}}$
Efficiency	$U_{i\text{ nom}}, I_{o\text{ nom}}$	up to 84%

**Control and protection**

Input protection	suppressor diode	
Overload protection	$U_{i\text{ min}}...U_{i\text{ max}}, \text{fully protected, hiccup mode}$	
No-load protection		
Remote shut down	TTL-compatible inhibit input	disabled with $\geq 2.4\text{ V}$
Trim input for $U_o$		

**Safety and EMC**

Electric strength test voltage	I/O (20/40/70/110 IMX7)	1500/1500/2000/2500 V DC
Electromagnetic interference	with external filter	class B

**Environmental**

Operating ambient temperature	$U_{i\text{ nom}}, I_{o\text{ nom}}$	$-25...71^\circ\text{C}$
Storage temperature	non operational	$-40...100^\circ\text{C}$
Relative humidity	non condensing	93%
MTBF	$G_B 40^\circ\text{C}, \text{MIL-HDBK-217F, N2}$	1'650'000 h

**Options**

Extended temperature range	$-40...85^\circ\text{C}, \text{ambient, operating}$	-8
SMD version	with pins	M
SMD version	with adapter PCB	L
Open frame without case		Z
C-pinout		C

**Accessories**

DIN and chassis mounting bracket	
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## 7 Watt DC-DC Converters

Tolerances  $\pm 0.3$  mm (0.012") unless otherwise indicated.



Figure 1 is a mechanical drawing of the test board, showing top and side views with dimensions in millimeters (mm) and inches (in).

**Top View Dimensions:**

- Overall width: 50.8 (2")
- Overall height: 25.4 (1")
- Distance from left edge to first hole: 3.4 (0.13")
- Distance between holes: 3.81 (0.15")
- Distance from right edge to last hole: 3.81 (0.15")
- Distance from bottom edge to first hole: 10 (0.39")
- Distance between holes: 5 x 3.81 (0.15")
- Distance from top edge to first hole: 14 (0.55")
- Distance between holes: 20.3 (0.8")
- Distance from bottom edge to last hole: 10 (0.39")
- Distance between holes: 3.81 (0.15")
- Distance from right edge to last hole: 3.81 (0.15")
- Overall width including mounting holes: 45.7 (1.8")
- Overall height including mounting holes: 25.4 (1")
- Measuring point of case temperature  $T_c$  is indicated.

**Side View Dimensions:**

- Thickness: 10.5 (0.41")
- Width: 0.8 (0.3")

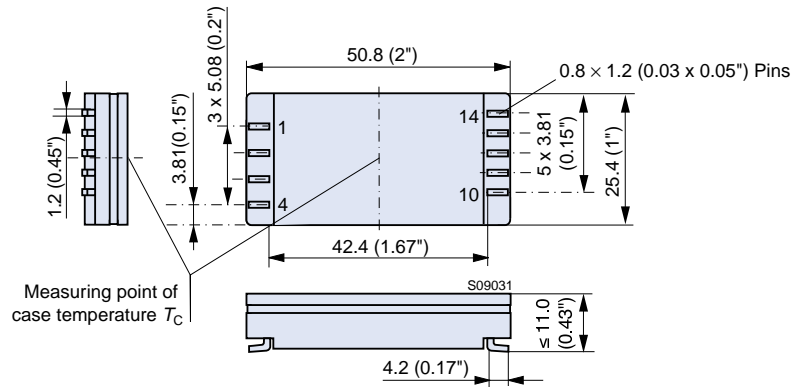
**Other Labels:**

- S09030
- 0.8 x 1.2 (0.03 x 0.05) Pins
- Ø 1.6 (0.06) PCB holes
- PT 2.2 self tapping screws

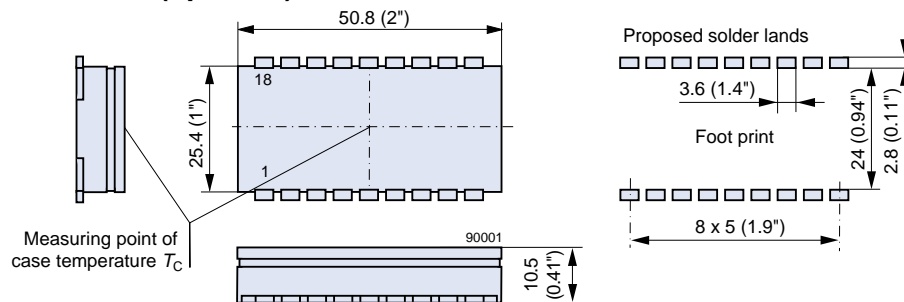
Figure 1: Mechanical drawing of the PCB. The drawing shows three views: a top view, a side view, and a front view. The top view is a rectangle with dimensions 48 (1.9") in width and 23 (0.9") in height. It features 14 pins arranged in two rows of 7. The pins are numbered 1 through 14. The top row of pins is 11.27 (0.05") from the top edge, and the bottom row is 11.27 (0.05") from the bottom edge. The pins are 3 x 5.08 (0.2") in size. The top view also shows 10 mounting holes arranged in two rows of 5. The holes are 5 x 3.81 (0.15") in size. The top view also shows 1.6 (0.06) diameter PCB holes. The side view shows the PCB thickness as 0.8 (0.3") and the mounting holes as 8.25 (0.32"). The front view shows the PCB width as 43.2 (1.7"). The drawing is labeled S90002.

Figure 1: Dimensions of the test board. The diagram shows a top view and a side view of a rectangular test board. The top view includes dimensions for overall size (50.8 x 20.3 inches), mounting hole positions (35.5 x 15.2 inches), and pin locations (1, 2, 3, 4, 5). It also shows a 0.5-inch wide section on the left and 0.9032-inch wide sections on the right. The side view shows a total thickness of 12.5 inches, with a 3.4-inch section at the bottom. A measuring point for case temperature  $T_c$  is indicated on the left side.

## IMX 7 SMD version (option M)



## IMX 7 SMD version (option L)



## Pin allocation IMX 7, option M and Z

Pin	Single output	Dual output
1	Vi+	Vi+
2	Vi-	Vi-
3	i	i
4	n.c.	R (Trim)
10	Vo-	Vo1-
11	Vo+	Vo1+
12	Vo-	Vo2-
13	R	Vo2+
14	n.c.	n.c.

## C pinout (option C)

Pin	Single output	Dual output
1	Vi+	Vi+
2	Vi-	Vi-
3	Vo+	Vo+
4	no pin	Go
5	Vo-	Vo-

## SMD version (option L)

Pin	Single output	Dual output
1	Vo	Vo1
2	Go	Go
3	n.c.	Vo2
4	n.c.	n.c.
5	n.c.	n.c.
6	n.c.	n.c.
7	n.c.	n.c.
8	n.c.	n.c.
9	n.c.	Trim
10	n.c.	n.c.
11	i	i
12	no pin	no pin
13	no pin	no pin
14	n.c.	n.c.
15	n.c.	n.c.
16	n.c.	n.c.
17	Vi-	Vi-
18	Vi+	Vi+