

IMX4 SERIES

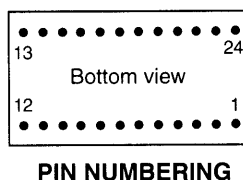
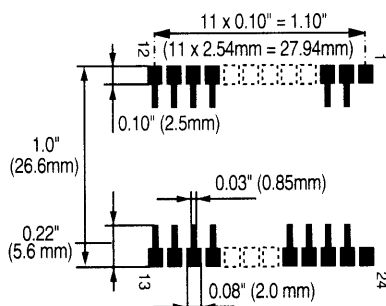
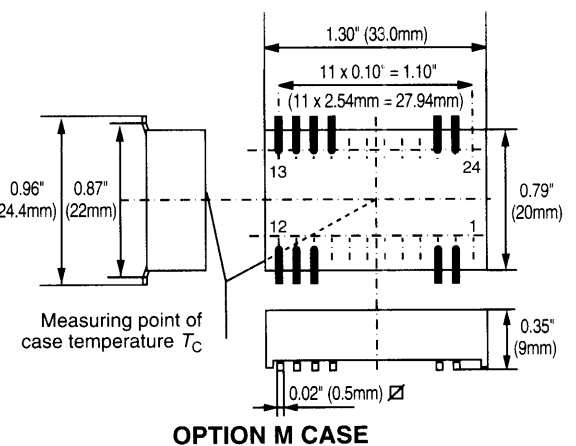
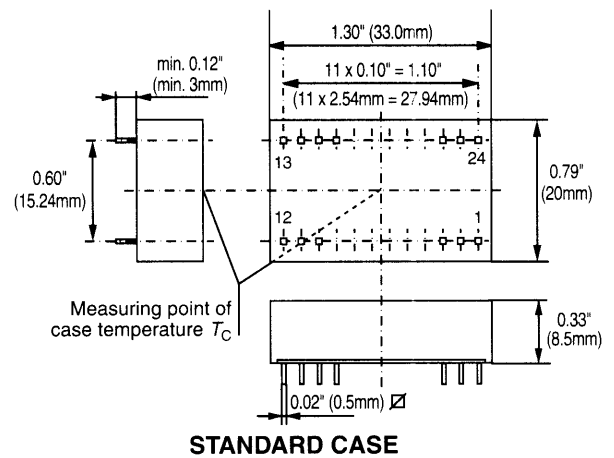
DESCRIPTION

The IMX4 Series of DC/DC converters powers mobile, industrial, and telecom/datacom subsystems. Featuring short-circuit protection, input to output isolation, high efficiency, and good dynamic response, the IMX4 Series also meets requirements of EN61000-4-2, -3, -4, -5, and -6. The IMX4 provides solutions for applications requiring high reliability and high performance. All models meet safety requirements for UL 1950, CSA 22.2 and EN60950.

FEATURES

- I/O Electric Strength Test up to 2000 VDC
- Input Voltage Range up to 4:1
- Efficiencies up to 82%
- Short-Circuit Protected
- Ambient Temperature Operation: -40° to 85°C
- Single and Dual Outputs
- Industry Standard Case Size with Optional Surface Mounting

Selection Chart							
Model	Input Range VDC		Output (VDC)	Output (mA)	Ripple and Noise (Note 1)	Efficiency (%)	Options
	Min	Max					
SINGLE OUTPUT							
5 IMX 4-03-7	4.7	16.8	3.3	800	80	78	-9, -8
5 IMX 4-05-7	4.7	16.8	5	700	80	82	-9, -8
5 IMX 4-12-7	4.7	16.8	12	340	120	82	-9, -8
5 IMX 4-15-7	4.7	16.8	15	280	150	82	-9, -8
20 IMX 4-03-7	8.4	36	3.3	900	80	79	-9, -8, M
20 IMX 4-05-7	8.4	36	5	700	80	81	-9, -8, M, K
20 IMX 4-12-7	8.4	36	12	340	120	82	-9, -8, M, K
20 IMX 4-15-7	8.4	36	15	280	150	82	-9, -8, M, K
40 IMX 4-03-7	16.8	75	3.3	900	80	80	-9, -8, M
40 IMX 4-05-7	16.8	75	5	700	80	81	-9, -8, M, K
40 IMX 4-12-7	16.8	75	12	340	120	82	-9, -8, M, K
40 IMX 4-15-7	16.8	75	15	280	150	82	-9, -8, M, K
70 IMX 4-03-7	40	121	3.3	900	80	80	-9, -8
70 IMX 4-05-7	40	121	5	700	80	81	-9, -8
70 IMX 4-12-7	40	121	12	340	120	82	-9, -8
70 IMX 4-15-7	40	121	15	280	150	82	-9, -8
DUAL OUTPUT							
20 IMX 4-0505-7	8.4	36	±5	±350	100	81	-9, -8, M, K
20 IMX 4-1212-7	8.4	36	±12	±170	140	82	-9, -8, M, K
20 IMX 4-1515-7	8.4	36	±15	±140	150	82	-8, M, K
20 IMX 4-2424-7	8.4	36	±24	±80	240	83	-8, M,
40 IMX 4-0505-7	16.8	75	±5	±350	3.5	81	-9, -8, M, K
40 IMX 4-1212-7	16.8	75	±12	±170	4.1	82	-8, M, K
40 IMX 4-1515-7	16.8	75	±15	±140	4.2	82	-8, M, K
40 IMX 4-2424-7	16.8	75	±24	±80	3.8	83	-8, M,
70 IMX 4-0505-7	40	121	±5	±350	3.5	81	-9, -8



IMX4 SERIES

INPUT SPECIFICATIONS (NOTE 1)

PARAMETER	CONDITIONS/DESCRIPTION	MIN.	NOM.	MAX.	UNITS
Input Voltage-DC	Continuous input range, 5V	4.7		16.8	VDC
	Continuous input range, 20V	8.4		36	
	Continuous input range, 40V	16.8		75	
	Continuous input range, 70V	40		121	
Input Current, No Load	5V models			100	mA
	20V models			20	
	40V models			10	
	70V models			10	
Input Overvoltage	Maximum input overvoltage	5V models		20	V
		20V models		40	
		40V models		100	
		70V models		150	
Reflected Ripple Current	5V models		60		mA _{pp}
	20V models		100		
	40V models		60		
	70V models		30		
Line Regulation	Line changes from 18-36VDC or 36-72VDC			±1	%
Operating Frequency	Switching frequency of main transformer, fixed		400		kHz
Converter Rise Time	Worst case condition at minimum Vin, maximum load (resistive and capacitive)		0.25	0.5	S
Fusing	Recommended fast blow fuse	5V models	2.0		A
		20V models	1.0		
		40V models	0.63		
		70V models	0.35		

NOTES: 1) All parameters measured at Tc=25°C, nominal input voltage and full rated load unless otherwise noted.

OUTPUT SPECIFICATIONS (NOTE 1)

PARAMETER	CONDITIONS/DESCRIPTION	MIN.	NOM.	MAX.	UNITS
Minimum loads		10			%
Ripple and Noise	Full Load, 20MHz bandwidth	Single output models		100	mV _{pp}
		Dual and multiple output models		150	
Output Power	5V models (single, dual, and multiple output)			2.5	Watts
	All other models (single, dual, and multiple output)			3.0	
Load Regulation	Changes in load starting at 10% load and changing to 100% load	3.3V and ±12V models	3.5		%
		all other models	3.0		
Dynamic Load Regulation	Maximum voltage deviation following a 100% to 50% load step, 1ms maximum	±15V, ±24V models	750		mV
		±12V models	600		
		all other models	250		
Overshoot/Undershoot	Output voltage overshoot/undershoot at turn-on			0	%
Capacitive Loading	Maximum recommended output capacitance	3.3V, 5V, ±5V models		680	µF
		12V, ±12V models		150	
		15V, ±15V models		100	
		±24V models		45	

NOTES: 1) All parameters measured at Tc=25°C, nominal input voltage and full rated load unless otherwise noted.

INTERFACE SIGNALS AND INTERNAL PROTECTION

PARAMETER	CONDITIONS/DESCRIPTION	MIN.	NOM.	MAX.	UNITS
Overcurrent Limit	Percent of output current required to activate overcurrent protection			200	%
Overvoltage Protection	Percent of output current required to activate overvoltage protection			130	%

SAFETY, REGULATORY, AND ENI SPECIFICATIONS

PARAMETER	CONDITIONS/DESCRIPTION	MIN.	NOM.	MAX.	UNITS
Agency Approvals	UL1950 CSA 22.2 NO. 234/950 EN60950 (LGA)		Approved		
Electromagnetic Interference	EN55011/CISPR 11 conducted, with external input capacitor	B			Class
	EN55022/CISPR 22 radiated	B			
ESD Susceptibility	Per EN61000-4-2, level 3	8			kV
Radiated Susceptibility	Per EN61000-4-2, level 3	10			V/M

IMX4 SERIES

EFT/Burst	Per EN61000-4-4, level 4	±4	kV
Surge	Per EN61000-4-5, level 3	1	kV
Conducted Disturbances	Per EN61000-4-6, level 3	140	dB μ V
Leakage Current	Per EN60950, 264VAC		2.0 mA

ENVIRONMENTAL SPECIFICATIONS

PARAMETER	CONDITIONS/DESCRIPTION	MIN.	NOM.	MAX.	UNITS
Dielectric Withstand Voltage	Input to output, models with 5V nominal input	1000			VDC
	Input to output, models with 20V and 40V nominal inputs	1500			
	Input to output, models with 70V nominal input	2000			
Insulation Resistance	Input to output, 500VDC	100			m Ω
Coupling Capacitance	All models with a nominal input of 20V, 40V, or 70V		1200		pF
Altitude	Operating			10k	ASL Ft.
	Non-Operating			40k	ASL Ft.
Temperature-Ambient	At 100% load	-25		71	°C
Temperature-Case	At 100% load	-25		95	°C
Temperature-Storage		-40		100	°C
Temperature-Coefficient	0°C to 70°C (after 15 minute warm-up)			±0.02	%°C
Relative Humidity	Non-Condensing	5		93	%RH
Shock				100	G
Vibration				5	GRMS
Protection Degree			IP30		
MTBF	Calculated, MIL-HDBK-217F, 40°C, ground benign		2,651,000		Hours
Unit Weight				0.4/10	oz/gm

OPTIONS

DESCRIPTION	NOTES
Extended Temperature Operation	Add '-9' suffix to part number for ambient operation from -40°C to +71°C Add '-8' suffix to part number for ambient operation from -40°C to +85°C
Alternate Pinout	Add '-K' suffix to part number. See mechanical drawings for pin locations.
SMD Pinout	Add '-M' suffix to part number. See mechanical drawings for case dimensions and pin locations.

Standard Pinpoint

Pin	Single Output	Dual Output
2	Vi-	Vi-
3	Vi-	Vi-
11	N/C	Vo-
14	Vo+	Vo+
16	Vo-	COMMON
22	Vi+	Vi+
23	Vi+	Vi+

Option -K Pinpoint

Pin	Single Output	Dual Output
1	Vi+	Vi+
10		COMMON
11		COMMON
12	Vo-	
13	Vo+	Vo-
15		Vo+
24	Vi-	Vi-

Option -M Pinpoint

Pin	Single Output	Dual Output
2	Vi-	Vi-
3	Vi-	Vi-
10		COMMON
11	Vo-	Vo-
12	Vo-	Vo-
13	Vo+	Vo-
14	Vo+	Vo+
15	Vo+	Vo+
16	Vo-	COMMON
22	Vi+	Vi+
23	Vi+	Vi+

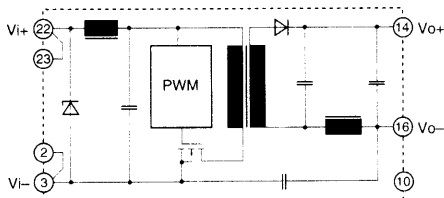


Fig. 1
Block diagram for single output types.
Standard industrial pinout.

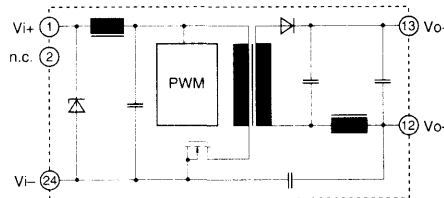


Fig. 3
Block diagram for single output types.
Standard pinout (Output K).

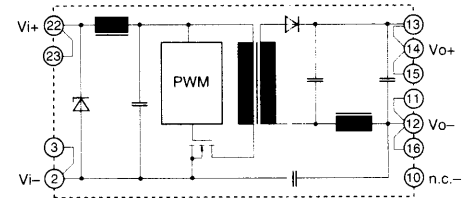


Fig. 5
Block diagram for single output types.
SMD pinout (Output M).