



Unregulated series DC/DC Converter 0.5W to 2.0W



Feature

- ⊙ Hi efficiency up to 86%
- ⊙ Package 4,7pin/SIL 8pin/DIP 8,10pin/SMD
- ⊙ Full SMD technology
- ⊙ 1000Vdc isolation up to 3000Vdc
- ⊙ -40°C ~ +80°C operating temperature
- ⊙ Plastic case (UL94V-0)

New designs
High efficiency

Specifications All specifications are typical nominal line , full load at Ta=25°C unless otherwise notes .

Input specifications

Voltage input range	see table
Input current	see table
input filter	C capacitor

Physical specifications

Case material	non-conductive black plastic (UL94V-0)	
Potting material	Epoxy (UL94V-0)	
Dimensions	see table	
Weight	Case A	1.31gm(0.045oz)
	Case B	1.99gm(0.071oz)
	Case C	1.82gm(0.064oz)
	Case M	1.37gm(0.048oz)
	Case MD	1.63gm(0.057oz)

Environment specifications

Operating temperature	-40°C to +80°C
Maximum case temperature	+100°C
Storage temperature	-40°C to 100°C
Cooling	Free air convection

Remarks

- *1 for 1% of Vin
- *2 Load at 20% ~100%
- *3 70mV or 1% of Vout whichever is greater
- *4 IR reflow temp. 260°C 10sec. maximum.

Output specifications

Voltage accuracy	+/-3.0%
Line regulation *1	+/-1.2%
Load regulation *2	+/-8.0%
Voltage balance (dual out only)	+/-3.0%
Ripple and noise (20Mhz bandwidth) *3	70mV pk-pk
Short circuit protection	non
Temperature coefficient	+/-0.02%/°C

General specifications

Efficiency	see table
I/O isolation voltage	1Kvdc ~ 3Kvdc
I/O leakage current	1mA
Switching frequency	40Khz ~ 120Khz
Humidity	95%
MTBF (MIL-HDBK-21F) at 25°C	>1.2Mhrs

Absolute maximum ratings

Input surge voltage (100ms)	
3V modes	6Vdc
5V modes	9Vdc
12/15V modes	18Vdc
24V modes	30Vdc
Soldering re-flow temperature	*4

Selection Guide 0.5Watt single output

ModelNo.	Input Voltage Range (Vdc)	Input Current		Output		Efficiency at full loa load (%)	Package styl
		No Load (mA max.)	Full Load (mA)	Voltage (Vdc)	Current (mA)		
xS-3R33R3-0.5U	3.3±10%	20	195	3.3	151	80	A,B,C,M
xS-3R3050-0.5U	3.3±10%	20	187	5.0	100	80	A,B,C,M
xS-05050-0.5U	5.0±10%	18	125	5.0	100	81	A,B,C,M
xS-05120-0.5U	5.0±10%	18	122	12.0	42	83	A,B,C,M
xS-05150-0.5U	5.0±10%	18	119	15.0	33	84	A,B,C,M
xS-12050-0.5U	12.0±10%	15	52	5.0	100	80	A,B,C,M
xS-12120-0.5U	12.0±10%	15	50.8	12.0	42	82	A,B,C,M
xS-12150-0.5U	12.0±10%	15	50.2	15.0	33	83	A,B,C,M
xS-24050-0.5U	24.0±10%	10	26	5.0	100	80	A,B,C,M
xS-24120-0.5U	24.0±10%	10	25.7	12.0	42	81	A,B,C,M
xS-24150-0.5U	24.0±10%	10	25.4	15.0	33	82	A,B,C,M

* "x" Select on inquiry form SIP(suffix A), SIP(suffix B), DIP8(suffix C) or SMD(suffix M) package size, see model code information .
 * "3R3" 3.3V .



Unregulated series DC/DC Converter 0.5W to 2.0W

Selection Guide 1.0Watt single output

Model No.	Input Voltage Range (Vdc)	Input Current		Output		Efficiency at full load (%)	Package styl
		No Load (mA max.)	Full Load (mA)	Voltage (Vdc)	Current (mA)		
xS-3R33R3-1U	3.3±10%	20	378	3.3	303	80	A,B,C,M
xS-3R3050-1U	3.3±10%	20	369	5.0	200	82	A,B,C,M
xS-05050-1U	5.0±10%	18	240	5.0	200	83	A,B,C,M
xS-05120-1U	5.0±10%	18	235	12.0	83	85	A,B,C,M
xS-05150-1U	5.0±10%	18	232	15.0	66	86	A,B,C,M
xS-12050-1U	12.0±10%	15	98	5.0	200	80	A,B,C,M
xS-12120-1U	12.0±10%	15	96.8	12.0	83	82	A,B,C,M
xS-12150-1U	12.0±10%	15	66	15.0	66	84	A,B,C,M
xS-24050-1U	24.0±10%	10	52	5.0	200	80	A,B,C,M
xS-24120-1U	24.0±10%	10	49.6	12.0	83	81	A,B,C,M
xS-24150-1U	24.0±10%	10	49	15.0	66	82	A,B,C,M

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* "3R3" 3.3V .

Selection Guide 2.0Watt single output

Model No.	Input Voltage Range (Vdc)	Input Current		Output		Efficiency at full load (%)	Package styl
		No Load (mA max.)	Full Load (mA)	Voltage (Vdc)	Current (mA)		
xS-3R33R3-2U	3.3±10%	20	625	3.3	500	80	A,B,C,M
xS-3R3050-2U	3.3±10%	20	617	5.0	500	81	A,B,C,M
xS-05050-2U	5.0±10%	18	493	5.0	400	81	A,B,C,M
xS-05120-2U	5.0±10%	18	482	12.0	166	83	A,B,C,M
xS-05150-2U	5.0±10%	18	476	15.0	133	84	A,B,C,M
xS-12050-2U	12.0±10%	15	203	5.0	400	81	A,B,C,M
xS-12120-2U	12.0±10%	15	199	12.0	166	82	A,B,C,M
xS-12150-2U	12.0±10%	15	196	15.0	133	84	A,B,C,M
xS-24050-2U	24.0±10%	10	107	5.0	400	81	A,B,C,M
xS-24120-2U	24.0±10%	10	98	12.0	166	82	A,B,C,M
xS-24150-2U	24.0±10%	10	97	15.0	133	83	A,B,C,M

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* "3R3" 3.3V .

Selection Guide 0.5Watt dual output

Model No.	Input Voltage Range (Vdc)	Input Current		Output		Efficiency at full load (%)	Package styl
		No Load (mA max.)	Full Load (mA)	Voltage (Vdc)	Current (mA)		
xD-05050-0.5U	5.0±10%	16	121	±5.0	±50	82	B,C
xD-05120-0.5U	5.0±10%	16	117	±12.0	±21	85	B,C
xD-05150-0.5U	5.0±10%	16	116	±15.0	±16	86	B,C
xD-12050-0.5U	12.0±10%	14	52	±5.0	±50	80	B,C
xD-12120-0.5U	12.0±10%	14	51	±12.0	±21	82	B,C
xD-12150-0.5U	12.0±10%	14	49.6	±15.0	±16	84	B,C
xD-24050-0.5U	24.0±10%	10	25.7	±5.0	±50	81	B,C
xD-24120-0.5U	24.0±10%	10	25.1	±12.0	±21	83	B,C
xD-24150-0.5U	24.0±10%	10	24.5	±15.0	±16	85	B,C

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Unregulated series DC/DC Converter 0.5W to 2.0W

Selection Guide 1.0Watt dual output

Model No.	Input Voltage Range (Vdc)	Input Current		Output		Efficiency at full load (%)	Package style
		No Load (mA max.)	Full Load (mA)	Voltage (Vdc)	Current (mA)		
xD-05050-1U	5.0±10%	18	238	±5.0	±100	84	B,C
xD-05120-1U	5.0±10%	18	235	±12.0	±42	85	B,C
xD-05150-1U	5.0±10%	18	233	±15.0	±33	86	B,C
xD-12050-1U	12.0±10%	15	104	±5.0	±100	80	B,C
xD-12120-1U	12.0±10%	15	101.6	±12.0	±42	82	B,C
xD-12150-1U	12.0±10%	15	99.2	±15.0	±33	84	B,C
xD-24050-1U	24.0±10%	10	51.4	±5.0	±100	81	B,C
xD-24120-1U	24.0±10%	10	50.2	±12.0	±42	83	B,C
xD-24150-1U	24.0±10%	10	49.6	±15.0	±33	84	B,C

* "x" Select on inquiry form SIP(suffix B), DIP8(suffix C) or SMD(suffix M) package size, see model code information .

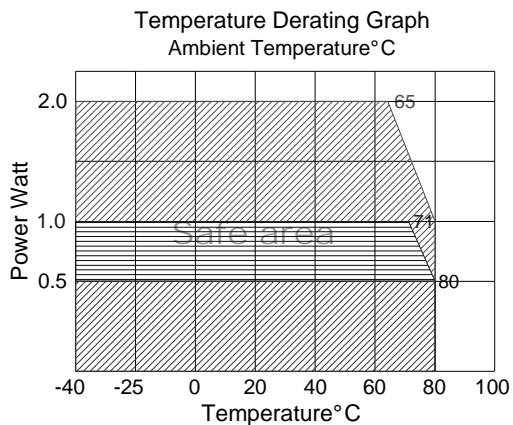
Selection Guide 2.0Watt dual output

Model No.	Input Voltage Range (Vdc)	Input Current		Output		Efficiency at full load (%)	Package style
		No Load (mA max.)	Full Load (mA)	Voltage (Vdc)	Current (mA)		
xD-05050-2U	5.0±10%	18	476	±5.0	±200	84	B,C
xD-05120-2U	5.0±10%	18	470.5	±12.0	±84	85	B,C
xD-05150-2U	5.0±10%	18	465	±15.0	±65	86	B,C
xD-12050-2U	12.0±10%	15	200.8	±5.0	±200	83	B,C
xD-12120-2U	12.0±10%	15	196	±12.0	±84	85	B,C
xD-12150-2U	12.0±10%	15	194	±15.0	±65	86	B,C
xD-24050-2U	24.0±10%	10	101.6	±5.0	±200	82	B,C
xD-24120-2U	24.0±10%	10	99.2	±12.0	±84	84	B,C
xD-24150-2U	24.0±10%	10	98	±15.0	±65	85	B,C

* "x" Select on inquiry form SIP(suffix B), DIP8(suffix C) or SMD(suffix M) package size, see model code information .

Dimensions And Pinout (Unit : mm[inch]±/0.15mm)

Model number selection guide



A S-05 05 0-1.2 U

A : case style
S : single out D : dual out
05 : input voltage
05 : output voltage
0 : revision code
1.2 : power rate
U : unregulate R : regulate

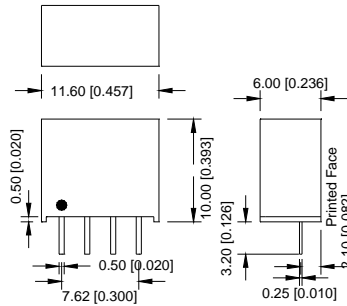


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Dimensions And Pinout (Unit : mm[inch] +/-0.15mm)



Case A

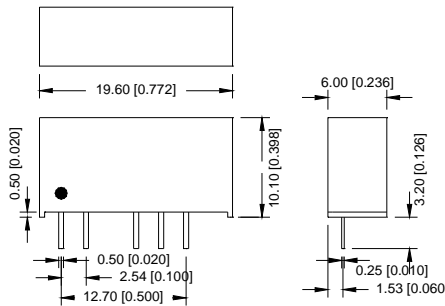


Pin connection

Pin#	Function
1	-Vinput
2	+Vinput
3	-Voutput
4	+Voutput



Case B

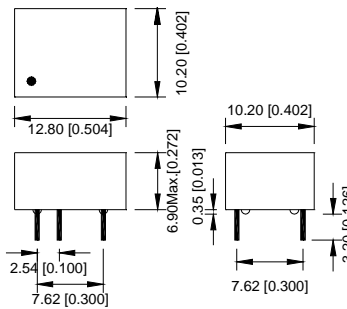


Pin connection

Pin#	Single	Dual
1	-Vinput	-Vinput
2	+Vinput	+Vinput
4	-Voutput	-Voutput
5	omitted	com.
6	+Voutput	+Voutput



Case C

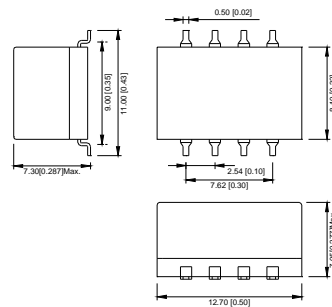


Pin connection

Pin#	Single	Dual
1	-Vinput	-Vinput
4	+Vinput	+Vinput
5	-Voutput	-Voutput
7	+Voutput	com.
8	omitted	+Voutput



Case M



Pin connection

Pin#	Function
1	-Vinput
2	+Vinput
4	-Voutput
5	+Voutput

other pins no connector