

D7L - 15W Series

15W 2:1 Regulated Single & Dual output

Features

- Wide 2:1 Input Range
- Full SMD Technology
- 1500 VDC Isolation
- Continuous Short Circuit Protection
- Efficiency up to 87%
- -40 ~ 85°C Operating Temperature

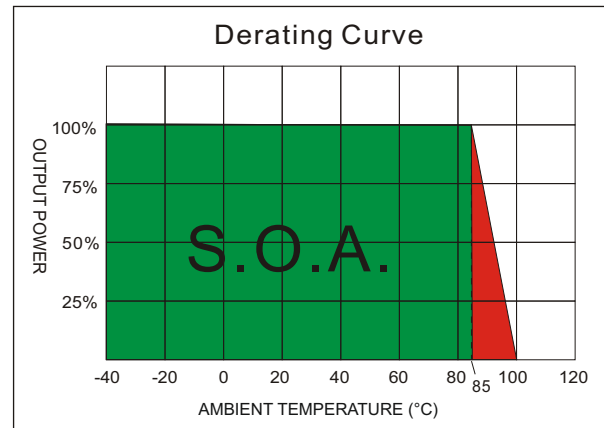
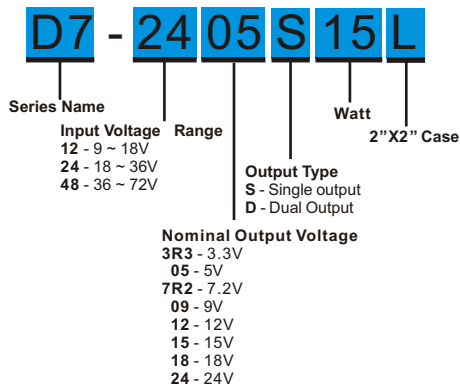


The D7L series is a family of cost effective 15W single & dual output DC-DC converters. These converters are made with nickel-coated brass case in a 2"x2" with high performance features such as 1500 VDC input/output isolation voltage, continuous short circuit protection with automatic restart and tight line / load regulation. Devices are encapsulated by using flame retardant resin. Input voltages of 12, 24 and 48 with output voltage of 3.3, 5, 7.2, 9, 12, 15, 18, 24, ± 3.3 , ± 5 , ± 7.2 , ± 9 , ± 12 , ± 15 , ± 18 , ± 24 Vdc. High performance features include high efficiency operation up to 87% and output voltage accuracy of $\pm 1\%$ maximum.

All specifications typical at Ta=25°C, nominal input voltage and full load unless otherwise specified

OUTPUT SPECIFICATIONS		PHYSICAL SPECIFICATIONS	
Voltage accuracy	$\pm 1\%$	Case Material	Nickel-coated Brass
Line regulation	$\pm 0.5\%$	Pin Material	1.0mm Brass Solder-coated
Load regulation	Single (0% to 100% Load) $\pm 0.5\%$ Dual (10% to 100% Load) $\pm 0.5\%$	Potting Material	Epoxy (UL94V-0 rated)
Ripple & noise (20 MHz bandwidth)(1)	100mV pk-pk	Weight	60.0g
Over-current protection	140% of max. Iout	Dimensions	2.00 "x2.00 "x0.40 "
Short circuit protection	Indefinite(Automatic Recovery)	ENVIRONMENT SPECIFICATIONS	
Temperature coefficient	$\pm 0.02\%/^{\circ}\text{C}$	Operating Temperature	-40 °C~85 °C(See Derating Curve)
Capacitor load(2)	See table	Maximum Case Temperature	100 °C
INPUT SPECIFICATIONS		Storage Temperature	-40 °C~125 °C
Voltage Range	See table	Cooling	Nature Convection
Start up Time (Nominal Vin and constant resistive load)	20mS, typ.	ABSOLUTE MAXIMUM RATINGS (4)	
Max. Input Current	See table	These are stress ratings. Exposure of devices to any of these conditions may adversely affect long-term reliability.	
No-Load Input Current	See table	Input Surge Voltage (100mS)	
Input Filter	Capacitors	12 Models	25 Vdc max.
Input Reflected Ripple Current(3)	35mA pk-pk	24 Models	50 Vdc max.
		48 Models	100 Vdc max.
GENERAL SPECIFICATIONS		Soldering Temperature	260 °C
Efficiency	See table	(1.5mm from case 10 sec. max)	
I/O Isolation Voltage (3 sec)			
Input/Output	1500Vdc		
Case/Input & Output	1000Vdc		
I/O Isolation Capacitance	1000 pF typ.		
I/O Isolation Resistance	1000M Ohm		
Switching Frequency	Typical 125kHz		
Humidity	95% rel H		
Reliability Calculated MTBF(MIL-HDBK-217 F)	>1.121 Mhrs		
Safety Standard : (designed to meet)	IEC 60950-1		

PART NUMBER STRUCTURE



MODEL SELECTION GUIDE

MODEL NUMBER	INPUT Voltage Range (Vdc)	INPUT Current		OUTPUT Voltage (Vdc)	OUTPUT Current		EFFICIENCY @FL(%)	Capacitor Load(uF)
		No-Load (mA)	Full Load (mA)		Min. load (mA)	Full load (mA)		
D7-123R3S15L	9-18	30	1031	3.3	0	3000	80	3300
D7-1205S15L	9-18	30	1524	5	0	3000	82	3300
D7-127R2S15L	9-18	30	1506	7.2	0	2083	83	2200
D7-1209S15L	9-18	30	1470	9	0	1666	85	1000
D7-1212S15L	9-18	30	1470	12	0	1250	85	1000
D7-1215S15L	9-18	30	1470	15	0	1000	85	680
D7-1218S15L	9-18	30	1470	18	0	833	85	470
D7-1224S15L	9-18	30	1453	24	0	625	86	470
D7-123R3D15L	9-18	30	1031	±3.3	±0	±1500	80	±1000
D7-1205D15L	9-18	30	1524	±5	±0	±1500	82	±1000
D7-127R2D15L	9-18	30	1506	±7.2	±0	±1041	83	±680
D7-1209D15L	9-18	30	1488	±9	±0	±833	84	±470
D7-1212D15L	9-18	30	1488	±12	±0	±625	84	±470
D7-1215D15L	9-18	30	1488	±15	±0	±500	84	±330
D7-1218D15L	9-18	30	1470	±18	±0	±416	85	±220
D7-1224D15L	9-18	30	1470	±24	±0	±312	85	±220
D7-243R3S15L	18-36	25	515	3.3	0	3000	80	3300
D7-2405S15L	18-36	25	744	5	0	3000	84	3300
D7-247R2S15L	18-36	25	744	7.2	0	2083	84	2200
D7-2409S15L	18-36	25	735	9	0	1666	85	1000
D7-2412S15L	18-36	25	735	12	0	1250	85	1000
D7-2415S15L	18-36	25	726	15	0	1000	86	680
D7-2418S15L	18-36	25	726	18	0	833	86	470
D7-2424S15L	18-36	25	726	24	0	625	86	470
D7-243R3D15L	18-36	25	515	±3.3	±0	±1500	80	±1000
D7-2405D15L	18-36	25	753	±5	±0	±1500	83	±1000
D7-247R2D15L	18-36	25	744	±7.2	±0	±1041	84	±680
D7-2409D15L	18-36	25	735	±9	±0	±833	85	±470
D7-2412D15L	18-36	25	726	±12	±0	±625	86	±470
D7-2415D15L	18-36	25	726	±15	±0	±500	86	±330
D7-2418D15L	18-36	25	726	±18	±0	±416	86	±220
D7-2424D15L	18-36	25	718	±24	±0	±312	87	±220

D7L - 15W 2:1 Regulated Single & Dual output

MODEL NUMBER	INPUT Voltage Range (Vdc)	INPUT Current		OUTPUT Voltage (Vdc)	OUTPUT Current		EFFICIENCY @FL(%)	Capacitor Load(uF)
		No-Load (mA)	Full Load (mA)		Min. load (mA)	Full load (mA)		
D7-483R3S15L	36-72	20	257	3.3	0	3000	80	3300
D7-4805S15L	36-72	20	372	5	0	3000	84	3300
D7-487R2S15L	36-72	20	372	7.2	0	2083	84	2200
D7-4809S15L	36-72	20	367	9	0	1666	85	1000
D7-4812S15L	36-72	20	363	12	0	1250	86	1000
D7-4815S15L	36-72	20	359	15	0	1000	87	680
D7-4818S15L	36-72	20	359	18	0	833	87	470
D7-4824S15L	36-72	20	359	24	0	625	87	470
D7-483R3D15L	36-72	20	257	±3.3	±0	±1500	80	±1000
D7-4805D15L	36-72	20	372	±5	±0	±1500	84	±1000
D7-487R2D15L	36-72	20	372	±7.2	±0	±1041	84	±680
D7-4809D15L	36-72	20	367	±9	±0	±833	85	±470
D7-4812D15L	36-72	20	363	±12	±0	±625	86	±470
D7-4815D15L	36-72	20	359	±15	±0	±500	87	±330
D7-4818D15L	36-72	20	359	±18	±0	±416	87	±220
D7-4824D15L	36-72	20	359	±24	±0	±312	87	±220

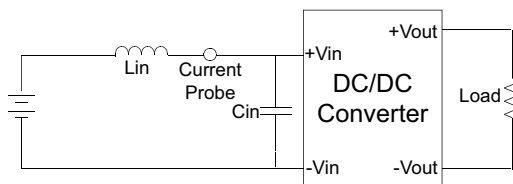
NOTE

1. Ripple/Noise measured with 20MHz bandwidth and 1.0uF ceramic capacitor.
2. Tested by minimal Vin and constant resistive load.
3. Measured Input reflected ripple current with a simulated source inductance of 12uH.
4. Exceeding the absolute ratings of the unit could cause damage. It is not allowed for continuous operating.
5. Operation under no-load conditions will not damage these devices, however they may not meet all listed specifications.

TEST CONFIGURATIONS

Input Reflected Ripple Current Test Step

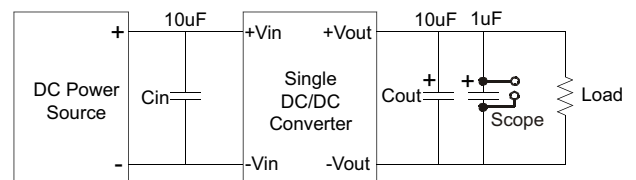
Input reflected ripple current is measured through a source inductor L_{in} (12uH) and a source capacitor C_{in} (47uF, ESR<1.0Ω at 100KHz) at nominal input and full load.



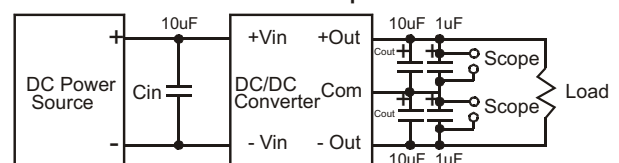
Output Ripple & Noise Measurement Test

To reduce ripple and noise, it is recommended to use a 1uF ceramic disk capacitor and a 10uF electrolytic capacitor to at the output.

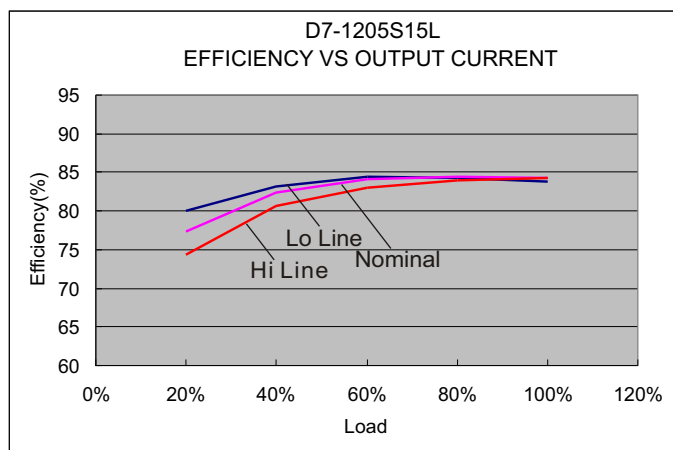
Single Output



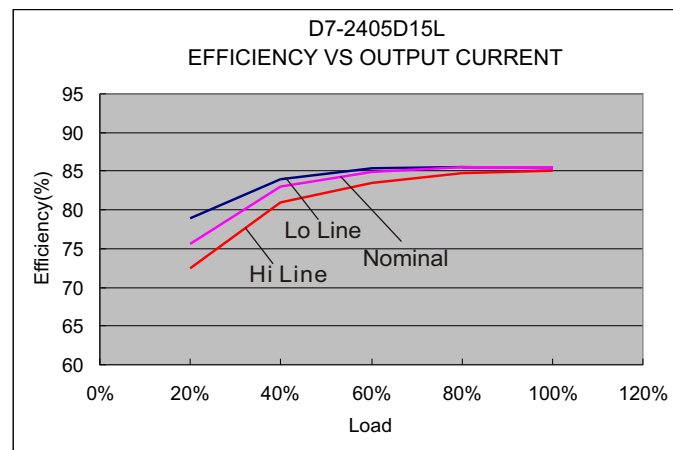
Dual Output



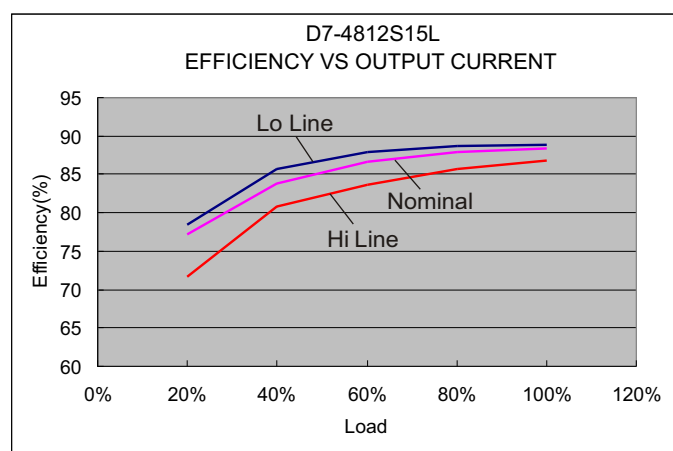
ELECTRICAL CHARACTERISTIC CURVES



12 Models

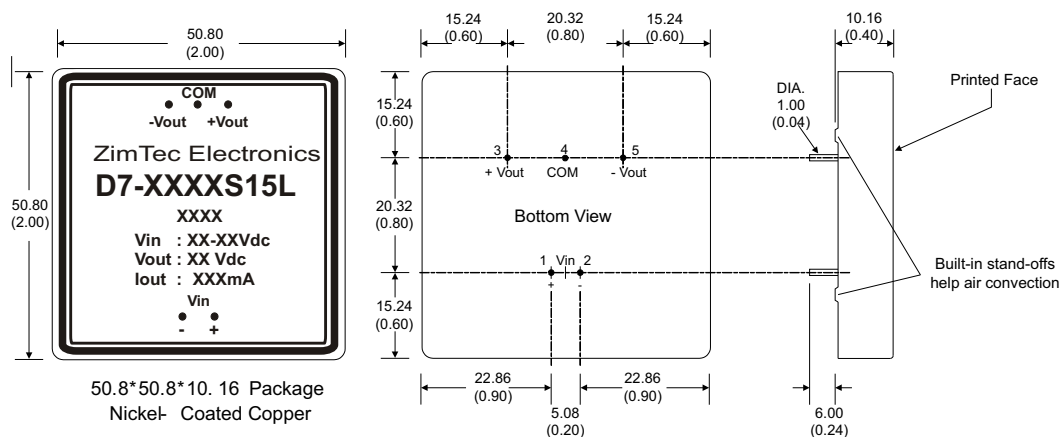


24 Models



48 Models

MECHANICAL SPECIFICATIONS



PIN CONNECTIONS		
PIN NUMBER	SINGLE	DUAL
1	+V Input	+V Input
2	-V Input	-V Input
3	+V Output	+V Output
4	N.P.	Common
5	-V Output	-V Output

All dimensions are typical in millimeters (inches).

1. Pin diameter: 1.0 ± 0.05 (0.04 ± 0.002)
2. Pin pitch and length tolerance: ± 0.35 (± 0.014)
3. Case Tolerance: ± 0.5 (± 0.02)