D7L - 20W Series

20W 2:1 Regulated Single & Dual output

Features

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

The D7L series is a family of cost effective 20W single & dual output DC-DC converters. These converters are made with nickle-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 ±1% maximum.

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

OUTPUT SPECIFICATIONS		
Voltage accuracy		±1%
Line regulation		±0.5%
Load regulation	Single (0% to 100% Load)	±0.5%
	Dual (10% to 100% Load)	±0.5%
Ripple & noise (20 MHz bandwidth)(1)		100mV pk-pk
Over-current protection		140% of max. Iout
Short circuit protection		Indefinite(Automatic Recovery)
Temperature coefficient		±0.02%/°C
Capacitor load(2)		See table

INPUT SPECIFICATIONS	
Voltage Range	See table
Start up Time (Nominal Vin and constant resistive load)	20mS, typ.
Max. Input Current	See table
No-Load Input Current	See table
Input Filter	Capacitors
Input Reflected Ripple Current(3)	35mA pk-pk

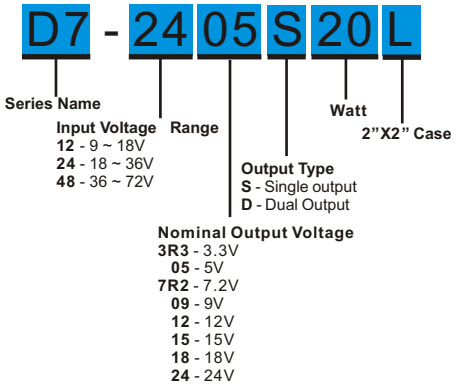
GENERAL SPECIFICATIONS	
Efficiency	See table
I/O Isolation V oltage (3 sec)	
Input/Output	1500Vdc
Case/Input & Output	1000Vdc
I/O Isolation Capacitance	1000 pF typ.
I/O Isolation Resistance	1000M Ohm
Switching Frequency	Typical 125kHz
Humidity	95% rel H
Reliability Calculated MTBF(MIL-HDBK-217 F)	>1.121 Mhrs
Safety Standard : (designed to meet)	IEC 60950-1

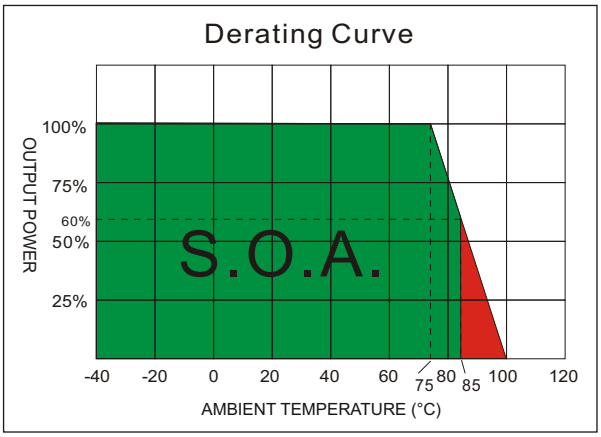
PHYSICAL SPECIFICATIONS	
Case Material	Nickel-coated Brass
Pin Material	1.0mm Brass Solder-coated
Potting Material	Epoxy (UL94V-0rated)
Weight	60.0g
Dimensions	2.00 "x2.00 "x0.40 "

ENVIRONMENT SPECIFICATIONS	
Operating Temperature	-40°C~85°C(See Derating Curve)
Temperature	-40°C~75°C(For 100% load)
Maximum Case Temperature	100°C
Storage Temperature	-40°C~125°C
Cooling	Nature Convection

ABSOLUTE MAXIMUM RATINGS (4)	
These are stress ratings. Exposure of devices to any of these conditions may adversely affect long-term reliability.	
Input Surge V oltage (100mS)	
12 Models	25 Vdc max.
24 Models	50 Vdc max.
48 Models	100 Vdc max.
Soldering Temperature (1.5mm from case 10 sec.max.)	260°C

PART NUMBER STRUCTURE





MODEL SELECTION GUIDE

MODEL NUMBER	INPUT Voltage Range (Vdc)	INPUT Current No-Load (mA)	INPUT Current Full Load (mA)	OUTPUT Voltage (Vdc)	OUTPUT Current Min. load (mA)	OUTPUT Current Full load (mA)	EFFICIENCY @FL(%)	Capacitor Load(uF)
D7-123R3S20L	9-18	20	1375	3.3	0	4000	80	3300
D7-1205S20L	9-18	20	2008	5	0	4000	83	3300
D7-127R2S20L	9-18	20	1984	7.2	0	2777	84	2200
D7-1209S20L	9-18	20	1984	9	0	2222	84	1000
D7-1212S20L	9-18	30	1960	12	0	1666	85	1000
D7-1215S20L	9-18	30	1937	15	0	1333	86	680
D7-1218S20L	9-18	30	1937	18	0	1111	86	470
D7-1224S20L	9-18	30	1915	24	0	833	87	470
D7-123R3D20L	9-18	20	1375	±3.3	±0	±2000	80	±1000
D7-1205D20L	9-18	20	2032	±5	±0	±2000	82	±1000
D7-127R2D20L	9-18	25	2008	±7.2	±0	±1388	83	±680
D7-1209D20L	9-18	25	1984	±9	±0	±1111	84	±470
D7-1212D20L	9-18	30	1984	±12	±0	±833	84	±330
D7-1215D20L	9-18	30	1960	±15	±0	±666	85	±330
D7-1218D20L	9-18	35	1960	±18	±0	±555	85	±330
D7-1224D20L	9-18	35	1960	±24	±0	±416	85	±330
D7-243R3S20L	18-36	25	687	3.3	0	4000	80	3300
D7-2405S20L	18-36	25	992	5	0	4000	84	3300
D7-247R2S20L	18-36	25	992	7.2	0	2777	84	2200
D7-2409S20L	18-36	25	968	9	0	2222	86	1000
D7-2412S20L	18-36	25	957	12	0	1666	87	1000
D7-2415S20L	18-36	25	957	15	0	1333	87	680
D7-2418S20L	18-36	25	957	18	0	1111	87	470
D7-2424S20L	18-36	25	957	24	0	833	87	470
D7-243R3D20L	18-36	25	687	±3.3	±0	±2000	80	±1000
D7-2405D20L	18-36	25	992	±5	±0	±2000	84	±1000
D7-247R2D20L	18-36	25	992	±7.2	±0	±1388	84	±680
D7-2409D20L	18-36	25	957	±9	±0	±1111	87	±470
D7-2412D20L	18-36	25	957	±12	±0	±833	87	±330
D7-2415D20L	18-36	25	957	±15	±0	±666	87	±330
D7-2418D20L	18-36	25	957	±18	±0	±555	87	±330
D7-2424D20L	18-36	30	957	±24	±0	±416	87	±330

The models listed above is just for standard type. If you need the special specification product, please contact our service member by telephone presented in shortform cover or e-mail to :info@zimtec-electronics.

MODEL NUMBER	INPUT Voltage Range (Vdc)	INPUT Current No-Load (mA)	INPUT Current Full Load (mA)	OUTPUT Voltage (Vdc)	OUTPUT Current Min. load (mA)	OUTPUT Current Full load (mA)	EFFICIENCY @FL(%)	Capacitor Load(uF)
D7-483R3S20L	36-72	20	343	3.3	0	4000	80	3300
D7-4805S20L	36-72	20	502	5	0	4000	83	3300
D7-487R2S20L	36-72	20	490	7.2	0	2777	85	2200
D7-4809S20L	36-72	20	478	9	0	2222	87	1000
D7-4812S20L	36-72	20	478	12	0	1666	87	1000
D7-4815S20L	36-72	20	478	15	0	1333	87	680
D7-4818S20L	36-72	20	478	18	0	1111	87	470
D7-4824S20L	36-72	25	478	24	0	833	87	470
D7-483R3D20L	36-72	20	343	±3.3	±0	±2000	80	±1000
D7-4805D20L	36-72	20	496	±5	±0	±2000	84	±1000
D7-487R2D20L	36-72	20	490	±7.2	±0	±1388	85	±680
D7-4809D20L	36-72	20	478	±9	±0	±1111	87	±470
D7-4812D20L	36-72	20	478	±12	±0	±833	87	±330
D7-4815D20L	36-72	20	478	±15	±0	±666	87	±330
D7-4818D20L	36-72	20	478	±18	±0	±555	87	±330
D7-4824D20L	36-72	20	478	±24	±0	±416	87	±330

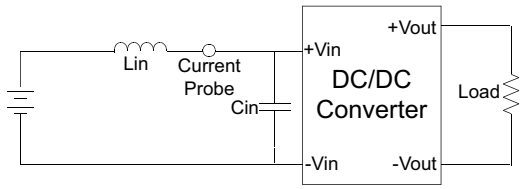
NOTE

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

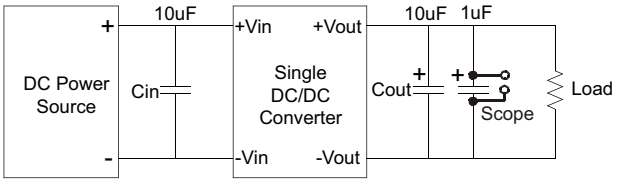
Input reflected ripple current is measured through a source inductor Lin(12uH) and a source capacitor Cin(47uF, ESR<1.0Ω at 100KHz) at nominal input and full load.



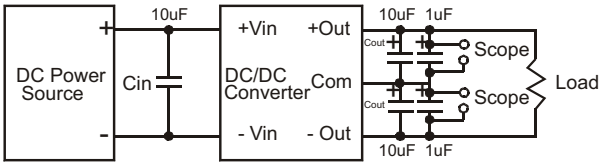
Output Ripple & Noise Measurement Test

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



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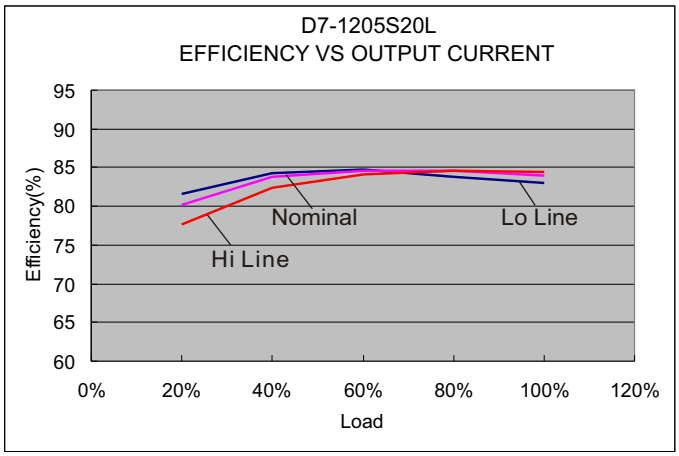
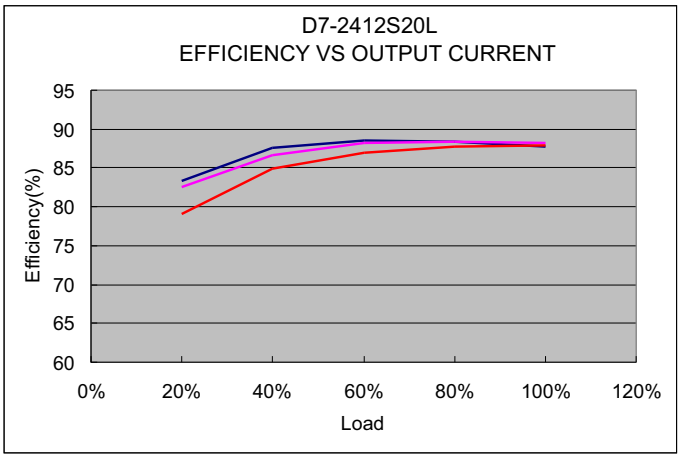
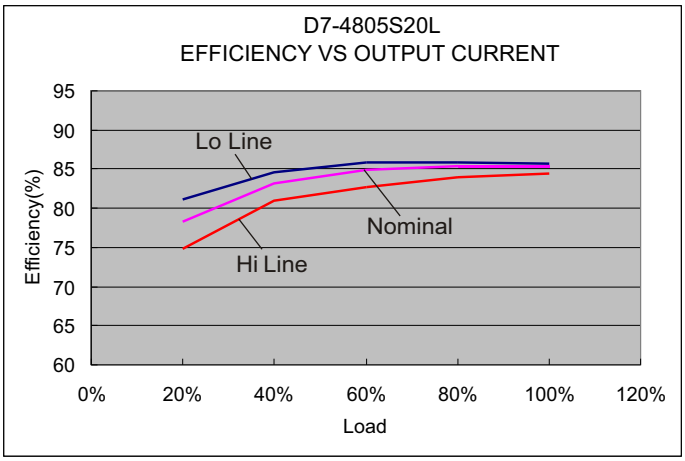
ELECTRICAL CHARACTERISTIC CURVES



12 Models

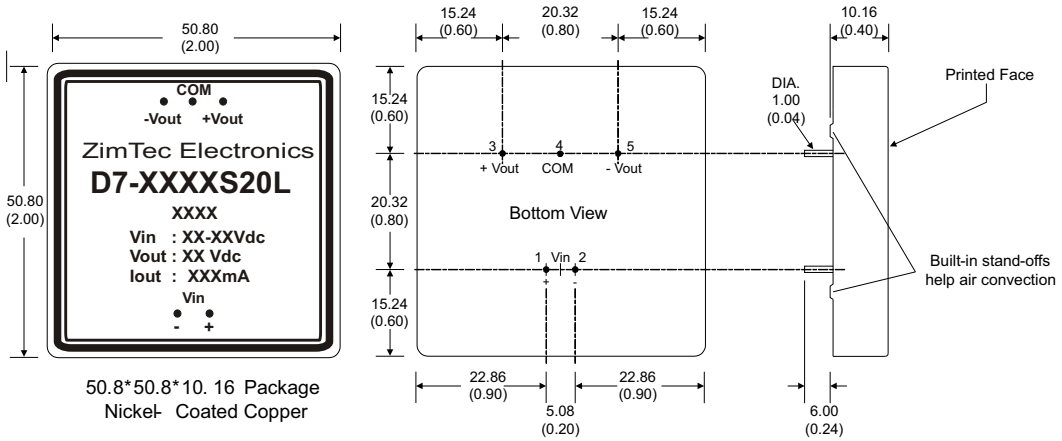


24 Models



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)

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