



DH30W10 SERIES 30 WATT 10:1 INPUT ISOLATED DC-DC CONVERTER

Features

- Efficiency Up to 89%
- Regulated Outputs
- Fully Protected (OCP/OVP/UVLO)
- 4000Vac I/O Isolation
- Operating Temperature -40 to +80°C
- UL 1741, CSA-C22.2 No.107.1, EN62109-1 Approval
- Shock & Vibration MIL-STD-810F Compliant
- 5000m Operating Altitude
- Input Reverse Polarity Protection



MODEL NUMBER	INPUT VOLTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT		INPUT CURRENT		% EFF. (1)	CAPACITOR LOAD MAX.
			MIN.	MAX.	NO LOAD	FULL LOAD		
DH30W10-800S12	150-1500 VDC	12 VDC	0 mA	2.50 A	0.5 mA	43.1 mA	87	2500uF
DH30W10-800S15	150-1500 VDC	15 VDC	0 mA	2.00 A	0.5 mA	42.6 mA	88	2000uF
DH30W10-800S24	150-1500 VDC	24 VDC	0 mA	1.25 A	0.5 mA	42.1 mA	89	1250uF
DH30W10-800S48	150-1500 VDC	48 VDC	0 mA	0.625 A	0.5 mA	42.1 mA	89	625uF

NOTE:

1. Nominal Input Voltage 800 V_{dc}.
2. Measured at Nominal Input Voltage.

PART NUMBER

Series	Nominal Input Voltage	Number of Outputs	Nominal Output Voltage	Installation Type
DH30W10-	II	O	XX	-Y
DH30W10	800 : 800 VDC	S : Single	12 : 12VDC 15 : 15VDC 24 : 24VDC 48 : 48VDC	P : PCB Mount

Part Number Example:

DH30W10-800S12P: 30W, 10:1 150-1500Vdc Input, Single 12Vdc Output, PCB Mounting



DH30W10 Series

TECHNICAL SPECIFICATIONS

(All specifications are typical at nominal input, full load at 25°C unless otherwise noted.)

ABSOLUTE MAXIMUM RATINGS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Input Voltage	Continuous	All	-1500	800	1500	V _{dc}
Operating Temperature	With de-rating, above 50°C	All	-40		80	°C
Storage Temperature		All	-40		85	°C

INPUT CHARACTERISTICS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units	
Operating Input Voltage		All	150	800	1500	V _{dc}	
Input Under Voltage Lockout							
Turn-On Voltage Threshold	Full load	All	122	133	144	V _{dc}	
Turn-Off Voltage Threshold	Full load	All	107	120	132	V _{dc}	
Lockout Hysteresis Voltage	Full load	All		10		V _{dc}	
Maximum Input Current	V _{in} =150V, Full load	All		0.26		A	
No-Load Input Current	V _{in} =800V, I _o =0A	See Model Number Table					mA
Input Filter	Capacitive	All					
Inrush Current	V _{in} =800V _{dc} , Cold Start at 25°C	All		90	150	A	

OUTPUT CHARACTERISTICS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Voltage Set Point Accuracy	V _{in} =800V, Full load, T _c =25°C	All	-2.0		+2.0	%
Output Voltage Regulation						
Load Regulation	Full load to no load	All			±1.0	%
Line Regulation	V _{in} =High line to low line, full load	All			±1.0	%
Temperature Coefficient	T _c =-40°C to 80°C	All			±0.15	%/°C
Output Voltage Ripple and Noise (5Hz to 20MHz bandwidth)						
Peak-to-Peak	Full load, 10uF aluminum capacitor and 0.1uF ceramic capacitor	12V _o			120	mV
		15V _o			150	
		24V _o			150	
		48V _o			240	
Output Current Range	V _{in} = 150 to 1500V	See Model Number Table				A
Over Current Protection	Hiccup mode. Auto recovery	All	110		300	%
Short Circuit Protection		All	Continuous, Auto Recovery			
External Load Capacitance	Full load (Constant resistive load)	See Model Number Table				uF
Over Voltage Protection	IC component to clamp (auto recovery)	12V _o			16	V _{dc}
		15V _o			19	
		24V _o			30	
		48V _o			59	

EFFICIENCY

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
100% Load	V _{in} =800V, Full load	See Model Number Table				%

DYNAMIC CHARACTERISTICS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Output Voltage Current Transient						
Error Band	75% to 100% of I _{o,max} . step load change d _i /d _t =0.1A/us (within 1% V _{out} nominal)	All			±5	%
Recovery Time		All			250	us



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PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Turn-On Delay and Rise Time	Full load (Constant resistive load)					
Turn-On Delay Time, From Input	$V_{in_min.}$ to 10% V_{o_set} , Power up	All		270		ms
Output Voltage Rise Time	10% V_{o_set} to 90% V_{o_set}	All		8		ms

ISOLATION CHARACTERISTICS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Isolation Voltage (100% factory Hi-Pot tested @2sec.)	1 Minute; input to output	All			4000 5656	V_{ac} V_{dc}
Isolation Resistance	Input to output	All	100			M Ω
Isolation Capacitance	Input to output	All		1100		pF

FEATURE CHARACTERISTICS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Switching Frequency	Pulse width modulation (PWM) ($V_{in} = 150V_{dc} - 1500V_{dc}$, Full load)	All	25		75.6	KHz

GENERAL SPECIFICATIONS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
MTBF	$I_o = 100\%$ of $I_{o_max.}$; MIL-HDBK - 217F_Notice 1, GB, 25°C	All	300			K hours
Weight		All		240		grams
Case Material	Plastic, PBT, UL 94V-0					
Base Plate Material	Non-Conductive Base					
Potting Material	UL 94V-0					
Pin Material	Base: Copper Plating: Nickel with Matte Tin					
Shock/Vibration	MIL-STD-810F					
Humidity	95% RH max. Non Condensing					
Altitude	5000m Operating altitude, 12000m Transport altitude					
Thermal Shock	MIL-STD-810F					

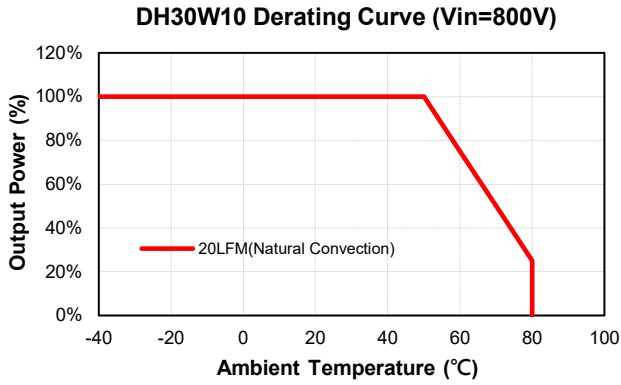
EMC SPECIFICATIONS (External components required, please refer to application note.)

EMI	Meets EN 55032 Compliant (with external filter)				Class A	
ESD	EN61000-4-2	Level 3: Air $\pm 8kV$, Contact $\pm 4kV$			Perf. Criteria A	
Radiated Immunity	EN61000-4-3	Level 3: 80~1000MHz, 20V/m			Perf. Criteria A	
Fast Transient	EN61000-4-4	Level 2: On power input port, $\pm 0.5kV$, external input capacitor required			Perf. Criteria A	
Surge	EN61000-4-5	Level 4: Line to line, $\pm 2kV$ (with external components)			Perf. Criteria A	
Conducted Immunity	EN61000-4-6	Level 3: 0.15~80MHz, 10V			Perf. Criteria A	
Power Frequency Magnetic Field Immunity	EN61000-4-8	50/60Hz, 3A/m (r.m.s.)			Perf. Criteria A	
Application Note Link					DH30W10 Series App Notes	
Packaging Information Link					Packaging Information	

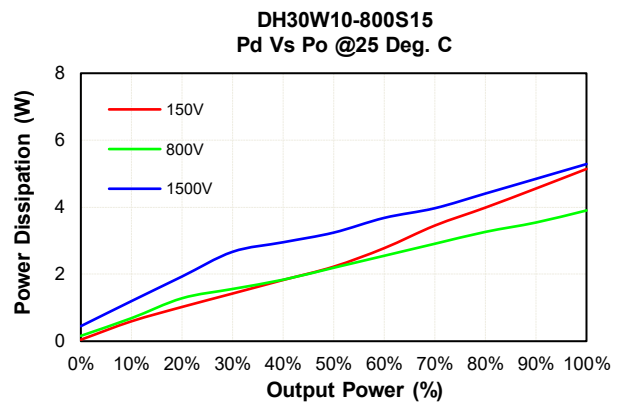
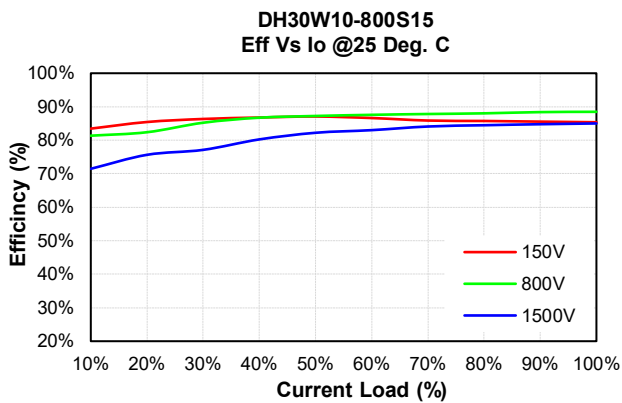
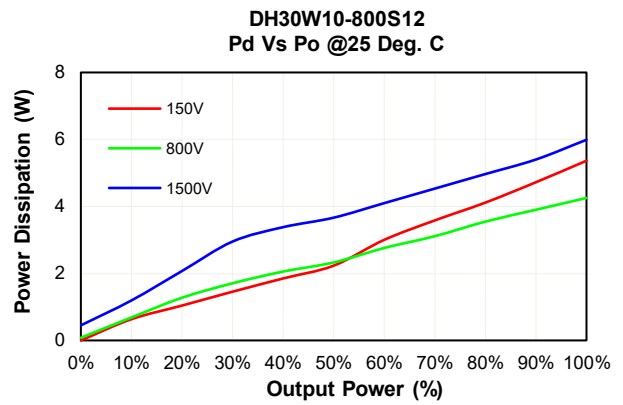
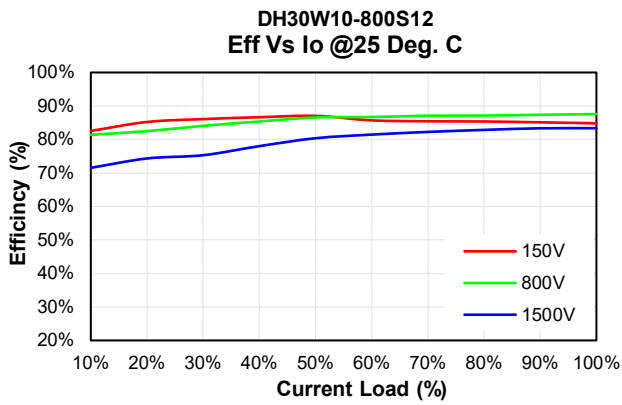


CHARACTERISTIC CURVE

Power Derating Curve



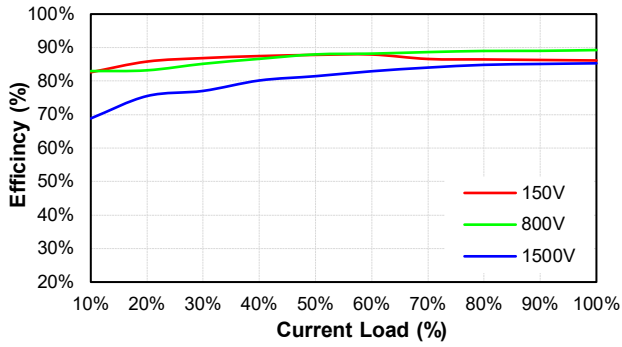
Performance Data



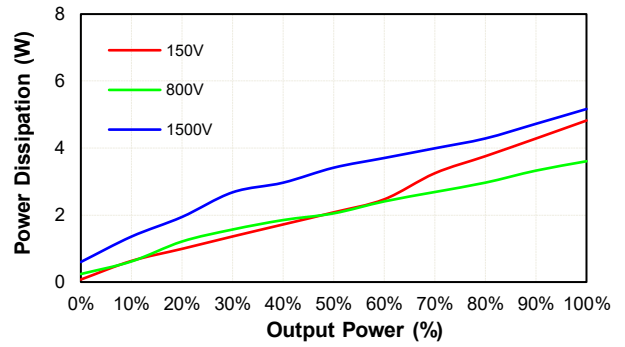


DH30W10 Series

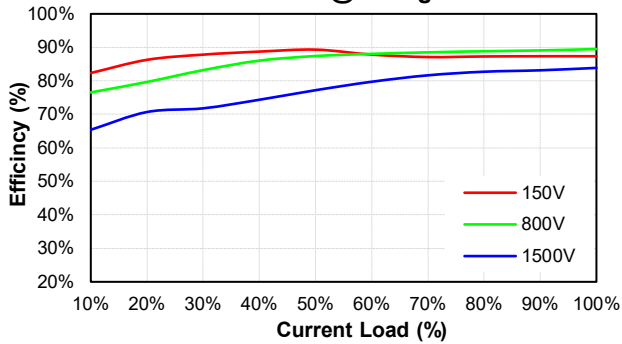
DH30W10-800S24
Eff Vs Io @25 Deg. C



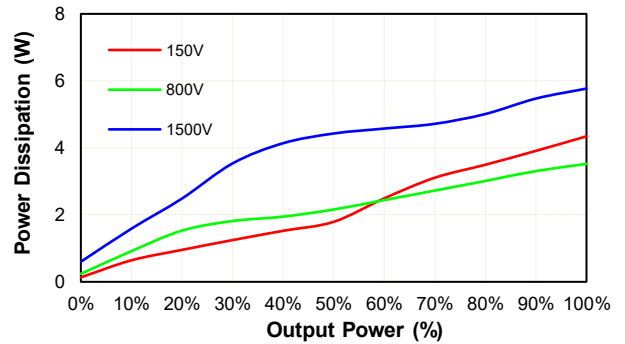
DH30W10-800S24
Pd Vs Po @25 Deg. C



DH30W10-800S48
Eff Vs Io @25 Deg. C



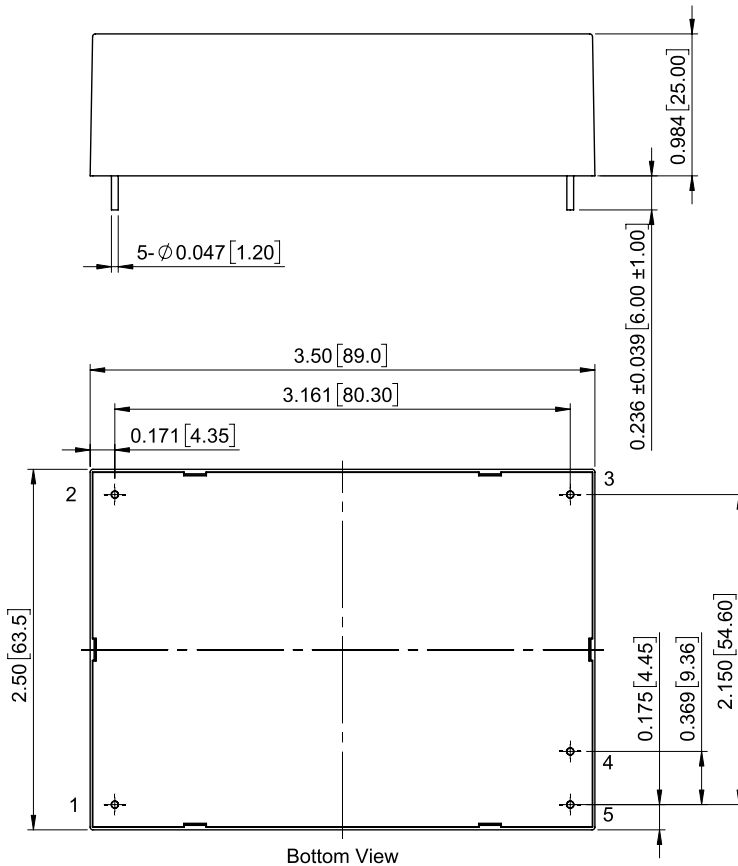
DH30W10-800S24
Pd Vs Po @25 Deg. C





DH30W10 Series

MECHANICAL SPECIFICATION



All Dimensions in Inches[mm]
 Tolerance Inches: x.xx=±0.03, x.xxx=±0.020
 Millimeters: x.x=±0.7, x.xx=±0.50

Pin Connection

Pin	Function
1	-Vin
2	+Vin
3	NC
4	-Vout
5	+Vout

Note: Pin Size is ∅0.047±0.004 Inch [∅1.20±0.1 mm]