EC5DAW SERIES
10 WATT 4:1 INPUT
ISOLATED DC-DC CONVERTER

Features

- Efficiency Up to 89%
- Fixed Switching Frequency
- Regulated Outputs
- Negative Remote On/Off
- 3000Vdc I/O Isolation
- Continuous Short Circuit Protection
- Safety Meets IEC/EN/UL 62368-1
- Shock & Vibration MIL-STD-810F Compliant

MODEL NUMBER	INPUT VOLTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT		INPUT CURRENT		% EFF.		CAPACITOR LOAD MAX.
			MIN.	MAX.	NO LOAD	FULL LOAD	(2)	(1)	
EC5DAW-24S33N	9-36 VDC	3.3 VDC	0 mA	2000 mA	6 mA	342 mA	80	80.5	2000uF
EC5DAW-24S05N	9-36 VDC	5 VDC	0 mA	2000 mA	6 mA	496 mA	83	84	2000uF
EC5DAW-24S12N	9-36 VDC	12 VDC	0 mA	833 mA	6 mA	471 mA	88.5	88.5	833uF
EC5DAW-24S15N	9-36 VDC	15 VDC	0 mA	666 mA	6 mA	468 mA	88	89	666uF
EC5DAW-24D12N	9-36 VDC	±12 VDC	0 mA	±417 mA	7 mA	471 mA	87.5	88.5	417uF
EC5DAW-24D15N	9-36 VDC	±15 VDC	0 mA	±333 mA	7 mA	473 mA	87	88	333uF
EC5DAW-48S33N	18-74 VDC	3.3 VDC	0 mA	2000 mA	6 mA	173 mA	79	79.5	2000uF
EC5DAW-48S05N	18-74 VDC	5 VDC	0 mA	2000 mA	6 mA	248 mA	83	84	2000uF
EC5DAW-48S12N	18-74 VDC	12 VDC	0 mA	833 mA	6 mA	238 mA	87.5	87.5	833uF
EC5DAW-48S15N	18-74 VDC	15 VDC	0 mA	666 mA	6 mA	237 mA	88	88	666uF
EC5DAW-48D12N	18-74 VDC	±12 VDC	0 mA	±417 mA	6 mA	240 mA	87	87	417uF
EC5DAW-48D15N	18-74 VDC	±15 VDC	0 mA	±333 mA	6 mA	238 mA	86.5	87.5	333uF

NOTE:

1. Nominal Input Voltage 24 or 48VDC
2. Measured at 12VDC for 24Vin, 24VDC for 48Vin
3. For 3.3Vo and 5Vo has Derating by Input is Required

PART NUMBER

Series	Nominal Input Voltage	Number of Outputs	Nominal Output Voltage	Remote On/Off Logic
EC5DAW	II	O	XX	
EC5DAW	24：24 VDC 48：48 VDC	S：Single	33：3.3VDC 05：5.0VDC 12：12VDC 15：15VDC	N：Negative
		D：Dual	12：±12 VDC 15：±15 VDC	

Part Number Example:

EC5DAW-24S12N: 10W, 4:1 9-36Vdc Input, Single 12Vdc Output, Negative Logic

TECHNICAL SPECIFICATIONS

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

ABSOLUTE MAXIMUM RATINGS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Input Voltage	Continuous	24Vin 48Vin	-0.3 -0.3		36 74	V_{dc}
Input Surge Voltage	100ms max.	24Vin 48Vin			50 100	V_{dc}
Operating Ambient Temperature	With de-rating, above 61℃	Vo=3.3V Vo=5V	-40		85	℃
	With de-rating, above 65℃	Vo=12V Vo=15V Vo=±12V Vo=±15V				
Operating Case Temperature	At the center part of case plate	All	-40		105	℃
Storage Temperature		All	-55		125	℃

INPUT CHARACTERISTICS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Operating Input Voltage		24Vin 48Vin	9 18	24 48	36 74	V_{dc}
Input Under Voltage Lockout						
Turn-On Voltage Threshold	100% Load	24Vin 48Vin	8 16.5	8.5 17	8.8 17.5	V_{dc}
Turn-Off Voltage Threshold	100% Load	24Vin 48Vin	7 15	7.6 15.8	8.3 16.5	V_{dc}
Lockout Hysteresis Voltage	100% Load	24Vin 48Vin		0.5 1		V_{dc}
Maximum Input Current	V_{in}=9V, Full load V_{in}=18V, Full load	24Vin 48Vin		1.4 0.7		A
No-Load Input Current	V_{in}=24, 48V, I_o=0A	See Model Number Table				mA
Input Filter	Pi Type	All				
Inrush Current (I^2t)	As per ETS300 132-2.	All			0.1	A^2s
Input Reflected Ripple Current	Vin=Nominal, L=1uH, load=full load	All		30		mA

OUTPUT CHARACTERISTICS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Voltage Set Point Accuracy	V_{in}=24, 48V, Full load, T_c=25℃	All	-1.0		+1.0	%
Output Voltage Balance	V_{in}=24, 48V, Full load, T_c=25℃	Dual	-1.0		+1.0	%
Output Voltage Regulation						
Load Regulation	Full load to no load	All			±1.0	%
Line Regulation	V_{in}=High line to low line, full load	Single Dual			±0.2 ±0.5	%
Temperature Coefficient	T_c=-40℃ to 85℃	All			±0.02	%/℃
Output Voltage Ripple and Noise (5Hz to 20MHz Bandwidth)						
Peak-to-Peak	Full load, 1uF ceramic capacitors	3.3Vo 5Vo 12Vo 15Vo			100 100 120 150	mV
Output Current Range	V_{in}= 9 to 36V, 18 to 74V	See Model Number Table				A

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Over Current Protection	Hiccup mode. Auto recovery	All		170		%
Short Circuit Protection		All		Continuous, Auto Recovery.		
External Load Capacitance	Full load (resistive)	See Model Number Table				uF

EFFICIENCY

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
100% Load	V_{in}=12V, 24V V_{in}=24V, 48V	24Vin 48Vin		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% Vout nominal)	All			±5	%
Recovery Time		All			250	us
Turn-On Delay and Rise Time	Full load (Constant resistive load)					
Turn-On Delay Time, From On/Off Control	$V_{on/off}$ to 10%V_{o_set}, Remote On	All		15		ms
Turn-On Delay Time, From Input	V_{in_min} to 10%V_{o_set}, Power Up	All		15		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			3000 2000	V_{dc} V_{ac}
Isolation Resistance	Input to output	All	1000			MΩ
Isolation Capacitance	Input to output	All		50		pF

FEATURE CHARACTERISTICS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Switching Frequency	Pulse wide modulation (PWM), Fixed	All		530		KHz
On/Off Control, Negative Remote On/Off logic, Refer to –Vin Pin						
Logic High (Module Off)	$V_{on/off}$ at $I_{on/off}$	All	2		4	mA
Logic Low (Module On)	Pin open=On, high impedance	All				
Off Converter Input Current	Shutdown input idle current	All			2.5	mA

GENERAL SPECIFICATIONS

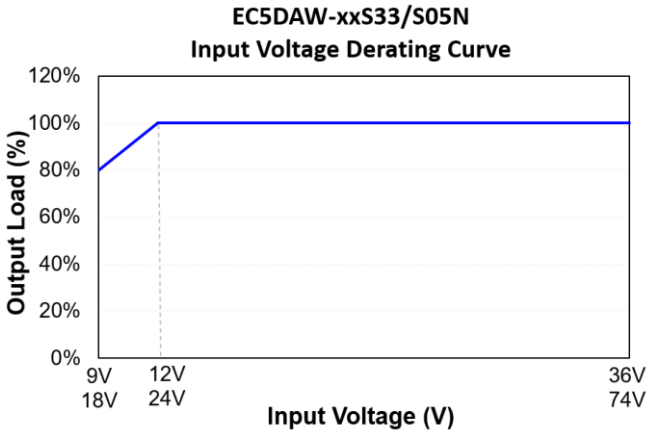
PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
MTBF	I_o=100% of I_{o_max}; MIL-HDBK - 217F_Notice 1, GB, 25℃	24S33 24S05 24S12 24S15 24D12 24D15 48S33 48S05 48S12 48S15 48D12 48D15		2042 1941 1881 1964 1722 1876 2040 1945 1903 1968 1742 1889		K hours
Weight		All		6.6		grams
Case Material	Plastic, DAP, UL 94V-0					
Base plate Material	Non-Conductive Base					

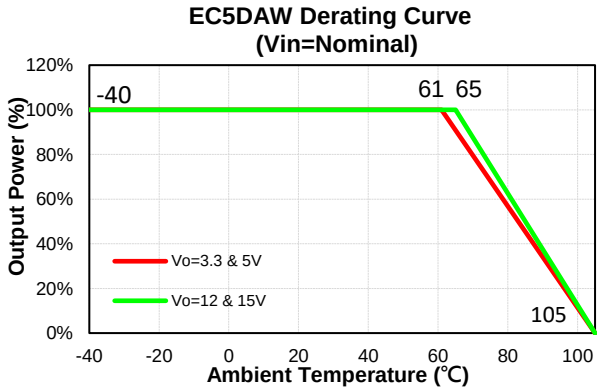
GENERAL SPECIFICATIONS

Potting Material	UL 94V-0	
Pin Material	Base: Copper with Steel Plating: Barrel Tin	
Shock/Vibration	MIL-STD-810F Compliant	
Humidity	95% RH max. Non Condensing	
Altitude	2000m Operating Altitude	
Thermal Shock	MIL-STD-810F	
EMI	Meets EN55032 (with external filter)	Class A
ESD	Meets EN61000-4-2 Level 2: Air ±8kV, Contact ±4kV	Perf. Criteria A
Radiated immunity	Meets EN61000-4-3 Level 2: 80~1000MHz, 3V/m	Perf. Criteria A
Fast Transient	Meets EN61000-4-4 Level 2: On power input port, ±0.5kV, external input TVS required	Perf. Criteria A
Surge	Meets EN61000-4-5 Level 2: Line to earth, ±1kV, Line to line , ±0.5kV, external input TVS required	Perf. Criteria A
Conducted immunity	Meets EN61000-4-6 Level 2: 0.15~80MHz, 3V	Perf. Criteria A
Application Note Link		EC5DAW Series App Notes
Packaging Information Link		Packaging Information

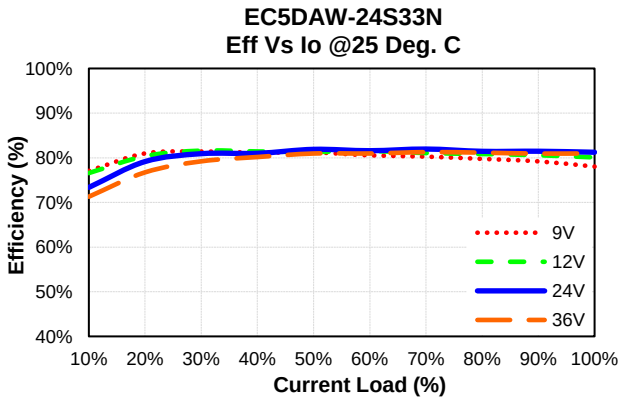
CHARACTERISTIC CURVE

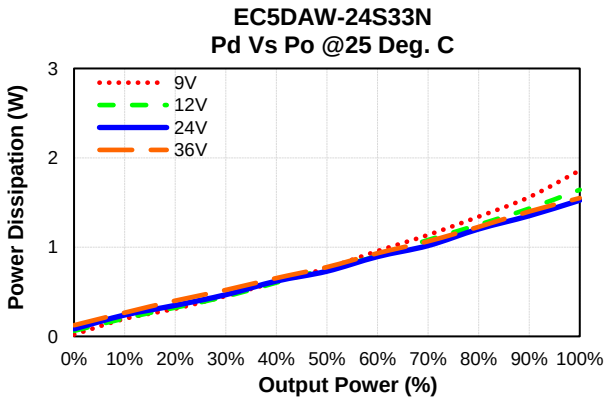
Power Derating Curve



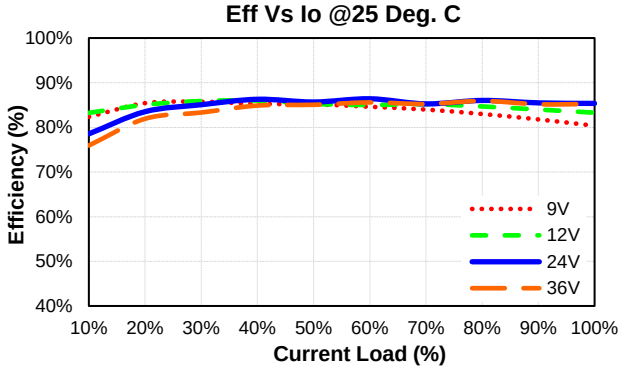


Performance Data

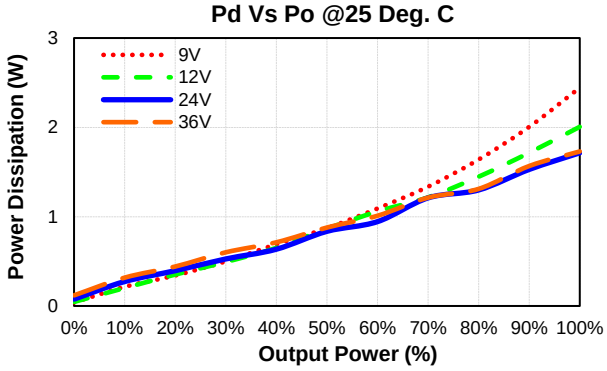




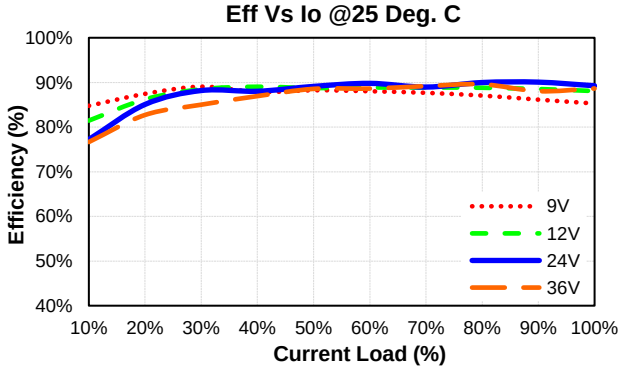
EC5DAW-24S05N
Eff Vs Io @25 Deg. C



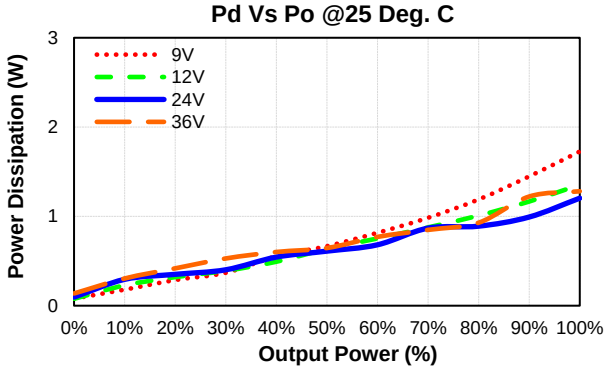
EC5DAW-24S05N
Pd Vs Po @25 Deg. C



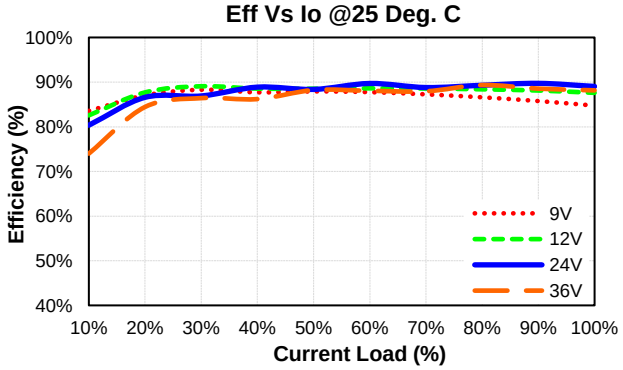
EC5DAW-24S12N
Eff Vs Io @25 Deg. C



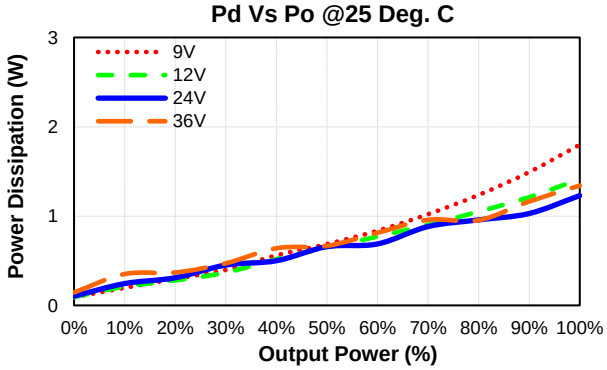
EC5DAW-24S12N
Pd Vs Po @25 Deg. C



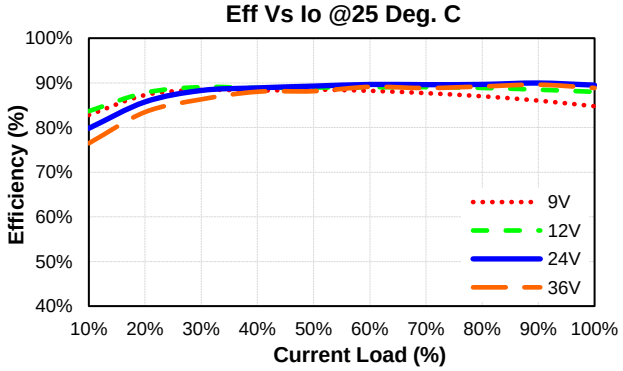
EC5DAW-24S15N
Eff Vs Io @25 Deg. C



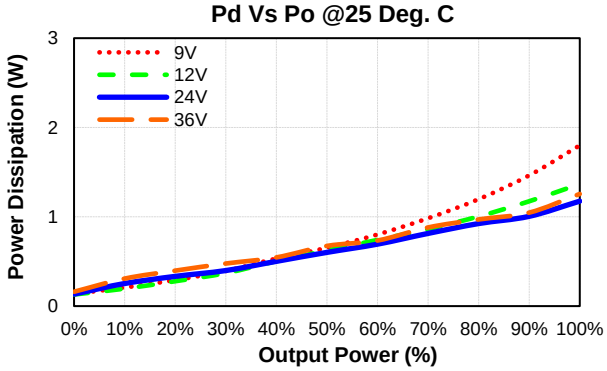
EC5DAW-24S15N
Pd Vs Po @25 Deg. C



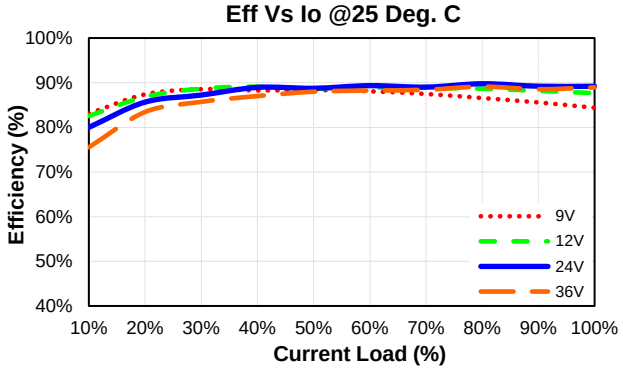
EC5DAW-24D12N
Eff Vs Io @25 Deg. C



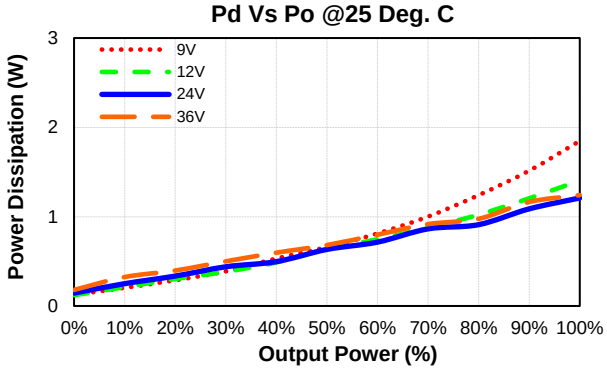
EC5DAW-24D12N
Pd Vs Po @25 Deg. C



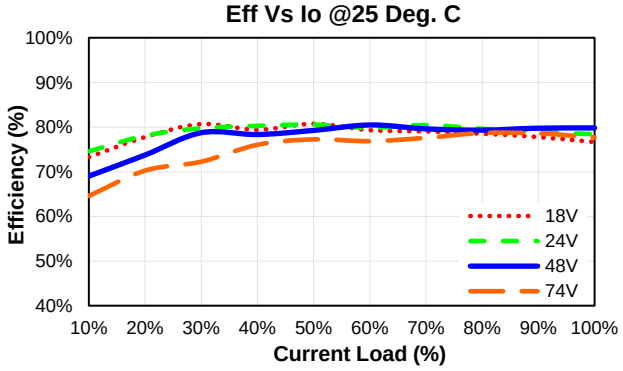
EC5DAW-24D15N
Eff Vs Io @25 Deg. C



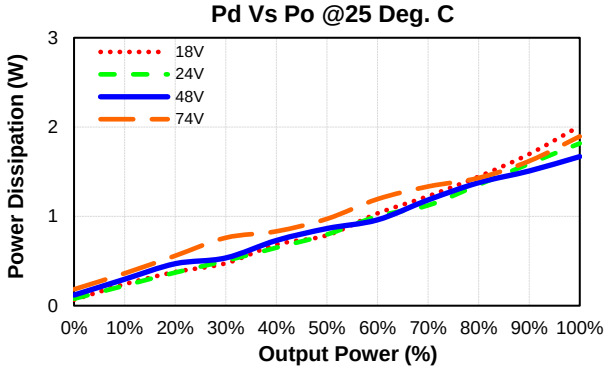
EC5DAW-24D15N
Pd Vs Po @25 Deg. C



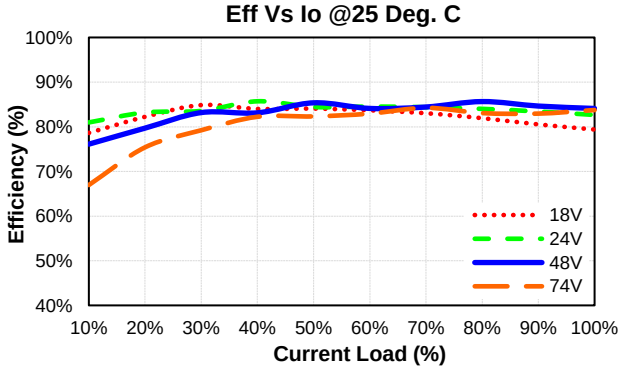
EC5DAW-48S33N
Eff Vs Io @25 Deg. C



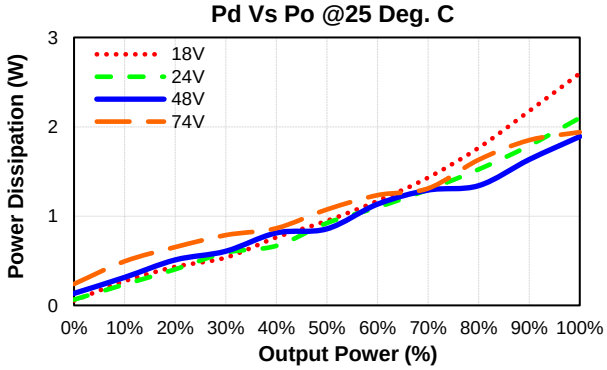
EC5DAW-48S33N
Pd Vs Po @25 Deg. C



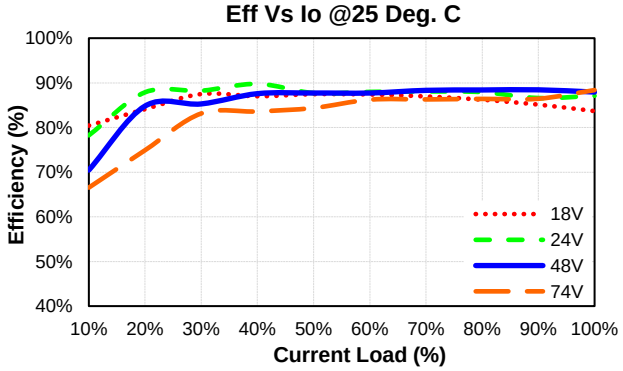
EC5DAW-48S05N
Eff Vs Io @25 Deg. C



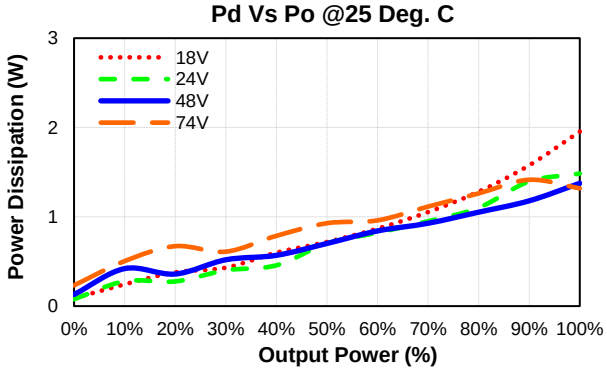
EC5DAW-48S05N
Pd Vs Po @25 Deg. C



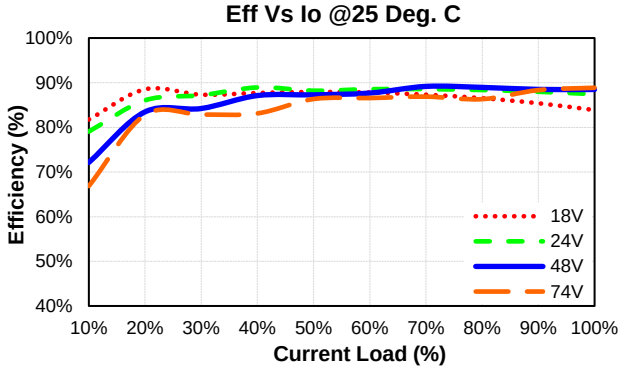
EC5DAW-48S12N
Eff Vs Io @25 Deg. C



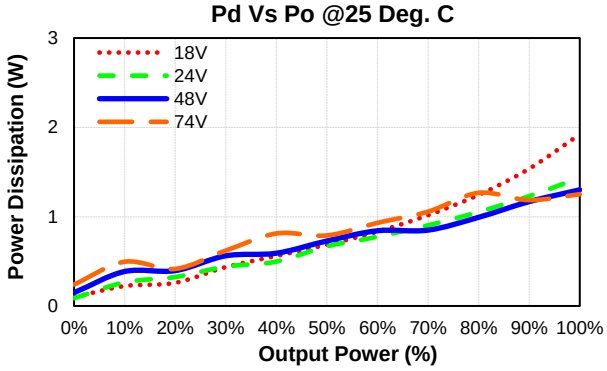
EC5DAW-48S12N
Pd Vs Po @25 Deg. C



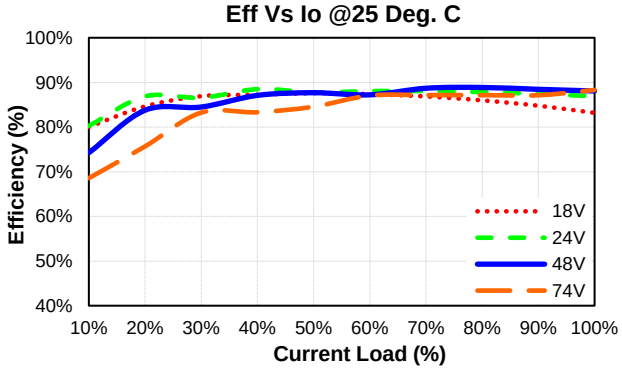
EC5DAW-48S15N
Eff Vs Io @25 Deg. C



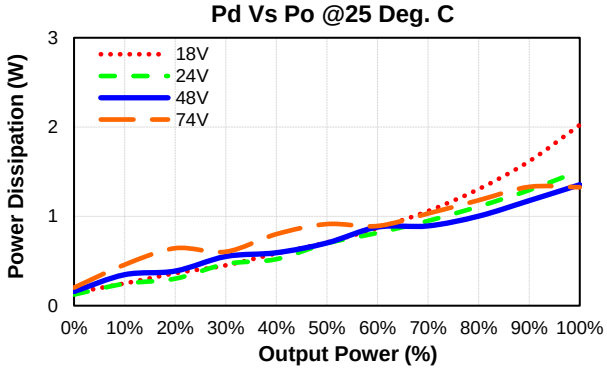
EC5DAW-48S15N
Pd Vs Po @25 Deg. C



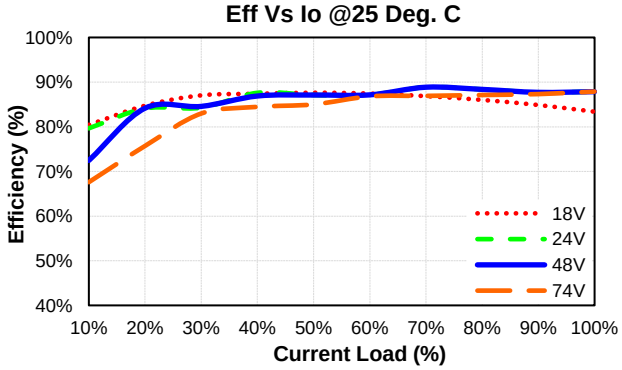
EC5DAW-48D12N
Eff Vs Io @25 Deg. C



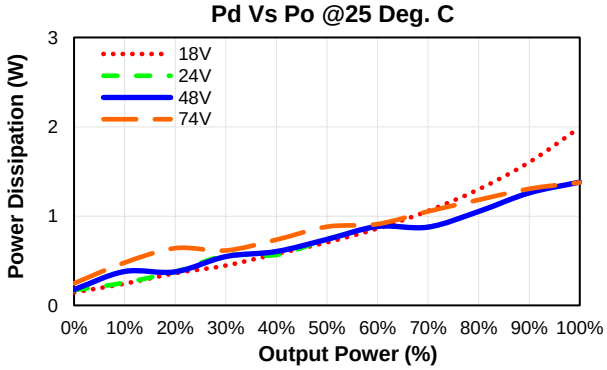
EC5DAW-48D12N
Pd Vs Po @25 Deg. C



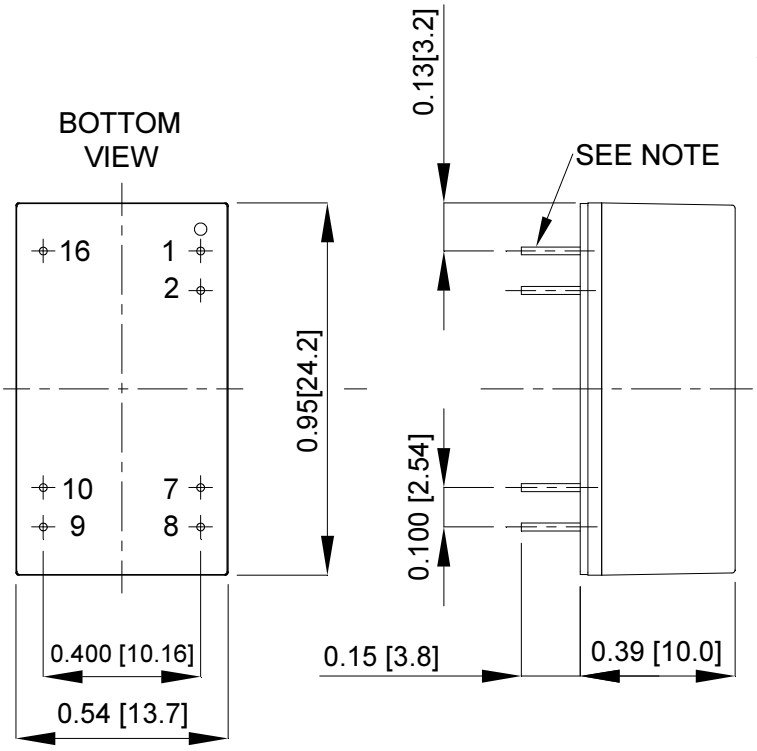
EC5DAW-48D15N
Eff Vs Io @25 Deg. C



EC5DAW-48D15N
Pd Vs Po @25 Deg. C



MECHANICAL SPECIFICATION



NOTE：Pin Size is 0.02±0.002 Inch(0.5±0.05 mm)DIA
All Dimensions in Inches(mm)
Tolerance Inches：X.XX=±0.02, X.XXX=±0.010
Millimeters：X.X=±0.5, X.XX=±0.25

PIN CONNECTION		
PIN	Single Output	Dual Output
1	-V Input	-V Input
2	Remote	Remote
7	NC	NC
8	NC	Common
9	+V Output	+V Output
10	-V Output	-V Output
16	+V Input	+V Input

* NC-NO CONNECTION WITH PIN

CINCON Electronics Co. Ltd.
Add: 14F, No. 306, Sec.4, Hsin Yi Rd., Taipei, Taiwan
Tel: 886-2-27086210
Fax: 886-2-27029852
E-mail: sales@cincon.com.tw
Web: www.cincon.com

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for Isolated DC/DC Converters - Through Hole ***category:***

Click to view products by Cincon ***manufacturer:***

Other Similar products are found below :

R-78E3.3-0.5 K7805-500R3 B0524XT-1WR3 B2424S-3WR2 F0505D-1WR2 K7805-1000R3 LZ4644IY#PBF K7812-500R3 B1205S-1W R-78E12-0.5 K7805M-1000R3 B1224XT-1WR3 H1205S-2WR2 K7812-1000R3 B1205S-2W R-78E5.0-0.5 R-78E9.0-0.5 B0503XT-2WR2 B1505S-3WR2 RSK-2405SRUW/H3 CCG3-48-12SF CCG6-12-05SF RSOK-2405SZ/H3 CQB100W14-72S15 TRI 1-2413 CCG6-24-15DF TRI 1-1211SM CCG6-24-12DF RYK-053.3S/H MGJ2D241802BSC MGJ2D122003BSC EC4BE13 PXD40-24WD15 CCG1R5-12-03SF MGJ2D242005BSC TRI 1-2412SM TRI 1-1212 EC5DAW-48S12N RP06-11005SRAW TRI 1-1213 TRI 1-1211 R2M-2412D PXD40-24WD12 CCG10-24-15DF EC5DAW-24D15N TRI 1-1212SM CCG1R5-24-05SF CCG10-48-03SF PXD60-48WD24 CQB100W14-72S15N