

Input Ranges:

10-75 VDC

Single Output:

3.3V to 80V

Dual Output:

+3.3V/+5.0V

±12V,

±15V

Triple Output:

+3.3V/+5.0V/+12V,

+3.3V/+5.0V/+15V,

+5.0V/±12V,

+5.0V/±15V

Output Power:

30, 50 W



FEATURES

General:

- Small footprint : 1.6" x 2.0"
- High output power : 50 watts
- Wide input range : 10-75Vdc
- Open frame or Encapsulated
- Integral PCB transformer
- High conversion efficiency to 88%
- Line & load regulation to ±0.1%
- Fixed operating frequency

Protection:

- Output over-voltage protection
- Output over-load protection
- Hiccup mode short circuit protection
- Over-temperature protection
- Input under-voltage lock-out

Control:

- Enable (On/Off) Control
- Remote Sense
- Output Voltage Trim

Isolation:

- Isolation Voltage > 1500V

APPLICATIONS

- Distributed Power Systems
- Workstations
- Computer Equipment
- Communications Equipment

EX series is a family of 30W & 50W DC-DC converters with high power density, high efficiency, and high reliability. These single output converters are designed for wide input range telecommunications, industrial, and instrument applications. The wide input range (2:1, 3:1) is ideal for battery or unregulated input applications.

Integral PCB transformer / inductor is used for all models in this series. This new design technique has greatly improved the magnetic coupling, reduced switching spike and provided performance consistency. It also streamlines the production process by completely eliminating the hand-wind magnetic assembly process from production lines.

EX series provides the most extensive protection to safeguard both the power converter and the load. It includes output over-voltage protection, over-current protection, hiccup mode indefinite short circuit protection, under-voltage lockout and over-temperature protection. Over-current inception point is set at about 115% of rated load. Hiccup mode cycles at 28mSec period with 3mSec on and 25mSec off. Over-temperature shutdown activated at +115°C board temperature will recover when the temperature falls below +95°C.

EX series features low output noise, very tight line and load regulation, and high efficiency. There is no external capacitor requirement for normal operation. Output trim pin is standard. Sense pins are provided on low output voltage models for line drop compensation.

TABLE OF CONTENT

Specifications	P. 2
EXS, Single Output.....	P. 4
EXD, Dual Output	P. 8
EXT, Triple Output	P. 14

1. Absolute Maximum Ratings

Stresses in excess of the absolute maximum ratings can cause performance degradation, adversely effect longterm reliability, and cause permanent damage to the device.

Parameter	Conditions / Description	Min	Max	Units
Input Voltage				
Continuous	12	-0.3	20	Vdc
	24	-0.3	36	Vdc
	48	-0.3	75	Vdc
	30	-0.3	30	Vdc
	60	-0.3	60	Vdc
Transient (100mSec.)	12	-0.3	22	Vdc
	24	-0.3	38	Vdc
	48	-0.3	78	Vdc
	30	-0.3	32	Vdc
	60	-0.3	64	Vdc
Operating Temperature	Standard temperature models, base plate temperature	-40	+105	°C
	Extended temperature models, base plate temperature	-55	+105	°C
Storage Temperature	Ambient	-55	+125	°C
Isolation Voltage	Input to Output		+2000	Vdc

2. Input Specifications

Parameter	Conditions / Description	Min	Nom	Max	Units
Input Voltage					
Voltage Range (Continuous)	12	10	12	20	Vdc
	24	18	24	36	Vdc
	48	36	48	75	Vdc
	30	10	24	30	Vdc
	60	20	48	60	Vdc
Under-Voltage Lockout (UVLO)					
Turn-On Threshold (Ramping Up)	12		9.7		Vdc
	24		17		Vdc
	48		35		Vdc
	30		9.7		Vdc
	60		17		Vdc
Turn-Off Threshold (Ramping Down)	12		9.7		Vdc
	24		16		Vdc
	48		33		Vdc
	30		9.2		Vdc
	60		16		Vdc

3. Enable (On-Off Control)

Parameter	Conditions / Description	Min	Nom	Max	Units
Enable Pin					
Open Circuit Voltage			10		Vdc
Source Current				1	mA
Positive Logic	Standard				
On-Control	Logic High or Floating	2.5		10	Vdc
Off-Control		-0.5		1.8	Vdc
Negative Logic	Not Available				

4. Output Trim

Parameter	Conditions / Description	Min	Nom	Max	Units
Negative Trim	Standard				
Trim Up	Trim Pin to (-)Vout			10	%Vdc
Trim Down	Trim Pin to (+)Vout	8			%Vdc
Positive Trim	Not Available				

*Trim pin can be left floating if not used.



5. Output Specifications

Parameter	Conditions / Description	Min	Nom	Max	Units
Voltage Accuracy	Please see table			±1.0	%
Output Current	Please see table				Adc
Output Trim				+10/-8	%Vout
Over Voltage Protection				120	%Vdc
Line Regulation				±0.1	%Vout
Load Regulation				±0.1	%Vout
Transient Response	50% ± 25% step load change		200		µSec.
Ripple & Noise	Please see table				mVp-p
Switching Frequency			300		KHz

6. Environmental and Mechanical Specifications

Parameter	Conditions / Description	Min	Nom	Max	Units
Operating Temperature	PCB Temperature				
Standard		-25		+100	°C
Extended		-55		+100	°C
Storage Temperature		-55		+125	°C
Temperature Coefficient				±0.02	%/°C
Shock	Halfsine wave, 3 axes	50			g
Sinusoidal Vibration	GR-63-CORE, Section 5.4.2	1			g
Humidity	Relative Humidity, Non-Condensing			95	%R.H.
Weight					
Open Frame			1.0(29)		Oz(g)
Encapsulated			2.0(58)		Oz(g)
MTBF (calculated)	Bellcore TR-NWT-000332 method 1 - parts count	1			MHrs

7. Isolation Specifications

Parameter	Conditions / Description	Min	Nom	Max	Units
Isolation Voltage					
Input to Output		1500			Vdc
I/O to Case		1500			Vdc
Isolation Resistance	Input to Output	10			MΩ
Isolation Capacitance	Input to Output		3		nF

8. Protections

Parameter	Conditions / Description	Min	Nom	Max	Units
Over-Load Protection					
Type	Current-Mode, Pulse by Pulse Current Limit				
Threshold	% Rated Load		120		%
Short-Circuit Protection					
Type	Hiccup Mode, Non-Latching, Auto-Recovery				
Threshold	Short-Circuit Resistance			65	mΩ
Over-Temperature Protection					
Type	Non-Latching, Auto-Recovery				
Threshold	PCB Temperature		115		°C
Hysteresis			15		°C
Over-Voltage Protection					
Type	Voltage Latch				
Set-Point				120	%Vout

INPUT			OUTPUT									Over Temp. Shutdown /Recover	EFF. (Typ.)	MODEL NO.	
Nominal (Range)	Under Voltage Lockout (typ.)		Power (Watt)	Voltage (V)			Current (A)		Ripple & Noise		OVP (max)				Short Circuit Protection
	On	Off		Set Point	Min.*	Max.*	Min.	Max.	Peak-Peak	R.M.S.					
12 (10-20)	9.7	9.5	30	3.3	3.20	3.40	0	9.0	75mV	15mV	3.9V	Hiccup Mode Indefinite	+105°C/ +95°C	85%	EX30S12033
			50	3.3	3.20	3.40	0	15.0	75mV	15mV	3.9V			85%	EX50S12033
			30	5.0	4.95	5.05	0	6.0	75mV	15mV	5.9V			86%	EX30S1205
			50	5.0	4.95	5.05	0	10.0	75mV	15mV	5.9V			86%	EX50S1205
			30	12	11.88	12.12	0.25	2.50	100mV	20mV	14.4V			86%	EX30S1212
			50	12	11.88	12.12	0.4	4.20	100mV	20mV	14.4V			86%	EX50S1212
			30	15	14.85	15.15	0.2	2.0	120mV	25mV	18V			86%	EX30S1215
			50	15	14.85	15.15	0.3	3.4	120mV	25mV	18V			86%	EX50S1215
			30	24	23.80	24.20	0.12	1.25	150mV	25mV	28V			85%	EX30S1224
			50	24	23.80	24.20	0.20	2.10	150mV	25mV	28V			85%	EX50S1224
			30	28	27.75	28.25	0.10	1.08	200mV	30mV	33V			86%	EX30S1228
			50	28	27.75	28.25	0.18	1.80	200mV	30mV	33V			86%	EX50S1228
			30	36	35.70	36.30	0.25	0.84	250mV	35mV	43V			86%	EX30S1236
			50	36	35.70	36.30	0.4	1.40	250mV	35mV	43V			86%	EX50S1236
			30	48	47.60	48.40	0.06	0.63	300mV	40mV	57V			86%	EX30S1248
			50	48	47.60	48.40	0.10	1.04	300mV	40mV	57V			86%	EX50S1248
			30	60	59.50	60.50	0.05	0.50	400mV	50mV	72V			86%	EX30S1260
			50	60	59.50	60.50	0.08	0.84	400mV	50mV	72V			86%	EX50S1260
			30	80	79.20	80.80	0.03	0.38	600mV	75mV	96V			86%	EX30S1280
			50	80	79.20	80.80	0.06	0.63	600mV	75mV	96V			86%	EX50S1280
24 (18-36)	17.8	17.0	30	3.3	3.20	3.40	0	9.0	75mV	15mV	3.9V	Hiccup Mode Indefinite	+105°C/ +95°C	85%	EX30S24033
			50	3.3	3.20	3.40	0	15.0	75mV	15mV	3.9V			85%	EX50S24033
			30	5.0	4.95	5.05	0	6.0	75mV	15mV	5.9V			86%	EX30S2405
			50	5.0	4.95	5.05	0	10.0	75mV	15mV	5.9V			86%	EX50S2405
			30	12	11.88	12.12	0.25	2.50	100mV	20mV	14.4V			86%	EX30S2412
			50	12	11.88	12.12	0.4	4.20	100mV	20mV	14.4V			86%	EX50S2412
			30	15	14.85	15.15	0.2	2.0	120mV	25mV	18V			86%	EX30S2415
			50	15	14.85	15.15	0.3	3.4	120mV	25mV	18V			86%	EX50S2415
			30	24	23.80	24.20	0.12	1.25	150mV	25mV	28V			85%	EX30S2424
			50	24	23.80	24.20	0.20	2.10	150mV	25mV	28V			85%	EX50S2424
			30	28	27.75	28.25	0.10	1.08	200mV	30mV	33V			86%	EX30S2428
			50	28	27.75	28.25	0.18	1.80	200mV	30mV	33V			86%	EX50S2428
			30	36	35.70	36.30	0.25	0.84	250mV	35mV	43V			86%	EX30S2436
			50	36	35.70	36.30	0.4	1.40	250mV	35mV	43V			86%	EX50S2436
			30	48	47.60	48.40	0.06	0.63	300mV	40mV	57V			86%	EX30S2448
			50	48	47.60	48.40	0.10	1.04	300mV	40mV	57V			86%	EX50S2448
			30	60	59.50	60.50	0.05	0.50	400mV	50mV	72V			86%	EX30S2460
			50	60	59.50	60.50	0.08	0.84	400mV	50mV	72V			86%	EX50S2460
			30	80	79.20	80.80	0.03	0.38	600mV	75mV	96V			86%	EX30S2480
			50	80	79.20	80.80	0.06	0.63	600mV	75mV	96V			86%	EX50S2480
48 (36-75)	34	33	30	3.3	3.20	3.40	0	9.0	75mV	15mV	3.9V	Hiccup Mode Indefinite	+105°C/ +95°C	85%	EX30S48033
			50	3.3	3.20	3.40	0	15.0	75mV	15mV	3.9V			85%	EX50S48033
			30	5.0	4.95	5.05	0	6.0	75mV	15mV	5.9V			86%	EX30S4805
			50	5.0	4.95	5.05	0	10.0	75mV	15mV	5.9V			86%	EX50S4805
			30	12	11.88	12.12	0.25	2.50	100mV	20mV	14.4V			86%	EX30S4812
			50	12	11.88	12.12	0.4	4.20	100mV	20mV	14.4V			86%	EX50S4812
			30	15	14.85	15.15	0.2	2.0	120mV	25mV	18V			86%	EX30S4815
			50	15	14.85	15.15	0.3	3.4	120mV	25mV	18V			86%	EX50S4815
			30	24	23.80	24.20	0.12	1.25	150mV	25mV	28V			85%	EX30S4824
			50	24	23.80	24.20	0.20	2.10	150mV	25mV	28V			85%	EX50S4824
			30	28	27.75	28.25	0.10	1.08	200mV	30mV	33V			86%	EX30S4828
			50	28	27.75	28.25	0.18	1.80	200mV	30mV	33V			86%	EX50S4828
			30	36	35.70	36.30	0.25	0.84	250mV	35mV	43V			86%	EX30S4836
			50	36	35.70	36.30	0.4	1.40	250mV	35mV	43V			86%	EX50S4836
			30	48	47.60	48.40	0.06	0.63	300mV	40mV	57V			86%	EX30S4848
			50	48	47.60	48.40	0.10	1.04	300mV	40mV	57V			86%	EX50S4848
			30	60	59.50	60.50	0.05	0.50	400mV	50mV	72V			86%	EX30S4860
			50	60	59.50	60.50	0.08	0.84	400mV	50mV	72V			86%	EX50S4860
			30	80	79.20	80.80	0.03	0.38	600mV	75mV	96V			86%	EX30S4880
			50	80	79.20	80.80	0.06	0.63	600mV	75mV	96V			86%	EX50S4880

* Combined Line & Load (Low Line to High Line, Min. Load to Full Load)



INPUT			OUTPUT									Over Temp. Shutdown /Recover	EFF. (Typ.)	MODEL NO.	
Nominal (Range)	Under Voltage Lockout (typ.)		Power (W) Max/Peak	Voltage (V)			Current (A)		Ripple & Noise		OVP (max)				Short Circuit Protection
	On	Off		Set Point	Min.*	Max.*	Min.	Max/Peak	Peak-Peak	R.M.S.					
30 (10-30)	9.7	9.5	30/30	3.3	3.20	3.40	0	9.0/9.0	75mV	15mV	3.9V	Hiccup Mode Indefinite	+105°C/ +95°C	85%	EX30S30033
			40/50	3.3	3.20	3.40	0	12.0/15.0	75mV	15mV	3.9V			85%	EX50S30033
			30/30	5.0	4.95	5.05	0	6.0/6.0	75mV	15mV	5.9V			86%	EX30S3005
			40/50	5.0	4.95	5.05	0	8.0/10.0	75mV	15mV	5.9V			86%	EX50S3005
			30/30	12	11.88	12.12	0.25	2.5/2.5	100mV	20mV	14.4V			86%	EX30S3012
			40/50	12	11.88	12.12	0.4	3.4/4.20	100mV	20mV	14.4V			86%	EX50S3012
			30/30	15	14.85	15.15	0.2	2.0/2.0	120mV	25mV	18V			86%	EX30S3015
			40/50	15	14.85	15.15	0.3	2.7/3.4	120mV	25mV	18V			86%	EX50S3015
			30/30	24	23.80	24.20	0.12	1.25/1.25	150mV	25mV	28V			85%	EX30S3024
			40/50	24	23.80	24.20	0.20	1.7/2.10	150mV	25mV	28V			85%	EX50S3024
			30/30	28	27.75	28.25	0.10	1.08/1.08	200mV	30mV	33V			86%	EX30S3028
			40/50	28	27.75	28.25	0.18	1.4/1.80	200mV	30mV	33V			86%	EX50S3028
			30/30	36	35.70	36.30	0.25	0.84/0.84	250mV	35mV	43V			86%	EX30S3036
			40/50	36	35.70	36.30	0.4	1.10/1.40	250mV	35mV	43V			86%	EX50S3036
			30/30	48	47.60	48.40	0.06	0.63/0.63	300mV	40mV	57V			86%	EX30S3048
			40/50	48	47.60	48.40	0.10	0.84/1.04	300mV	40mV	57V			86%	EX50S3048
			30/30	60	59.50	60.50	0.05	0.50/0.50	400mV	50mV	72V			86%	EX30S3060
			40/50	60	59.50	60.50	0.08	0.67/0.84	400mV	50mV	72V			86%	EX50S3060
			30/30	80	79.20	80.80	0.03	0.38/0.38	600mV	75mV	96V			86%	EX30S3080
			40/50	80	79.20	80.80	0.06	0.50/0.63	600mV	75mV	96V			86%	EX50S3080
60 (20-60)	17.8	17.0	30/30	3.3	3.20	3.40	0	9.0/9.0	75mV	15mV	3.9V	Hiccup Mode Indefinite	+105°C/ +95°C	85%	EX30S60033
			40/50	3.3	3.20	3.40	0	12.0/15.0	75mV	15mV	3.9V			85%	EX50S60033
			30/30	5.0	4.95	5.05	0	6.0/6.0	75mV	15mV	5.9V			86%	EX30S6005
			40/50	5.0	4.95	5.05	0	8.0/10.0	75mV	15mV	5.9V			86%	EX50S6005
			30/30	12	11.88	12.12	0.25	2.5/2.5	100mV	20mV	14.4V			86%	EX30S6012
			40/50	12	11.88	12.12	0.4	3.4/4.20	100mV	20mV	14.4V			86%	EX50S6012
			30/30	15	14.85	15.15	0.2	2.0/2.0	120mV	25mV	18V			86%	EX30S6015
			40/50	15	14.85	15.15	0.3	2.7/3.4	120mV	25mV	18V			86%	EX50S6015
			30/30	24	23.80	24.20	0.12	1.25/1.25	150mV	25mV	28V			85%	EX30S6024
			40/50	24	23.80	24.20	0.20	1.7/2.10	150mV	25mV	28V			85%	EX50S6024
			30/30	28	27.75	28.25	0.10	1.08/1.08	200mV	30mV	33V			86%	EX30S6028
			40/50	28	27.75	28.25	0.18	1.4/1.80	200mV	30mV	33V			86%	EX50S6028
			30/30	36	35.70	36.30	0.25	0.84/0.84	250mV	35mV	43V			86%	EX30S6036
			40/50	36	35.70	36.30	0.4	1.10/1.40	250mV	35mV	43V			86%	EX50S6036
			30/30	48	47.60	48.40	0.06	0.63/0.63	300mV	40mV	57V			86%	EX30S6048
			40/50	48	47.60	48.40	0.10	0.84/1.04	300mV	40mV	57V			86%	EX50S6048
			30/30	60	59.50	60.50	0.05	0.50/0.50	400mV	50mV	72V			86%	EX30S6060
			40/50	60	59.50	60.50	0.08	0.67/0.84	400mV	50mV	72V			86%	EX50S6060
			30/30	80	79.20	80.80	0.03	0.38/0.38	600mV	75mV	96V			86%	EX30S6080
			40/50	80	79.20	80.80	0.06	0.50/0.63	600mV	75mV	96V			86%	EX50S6080

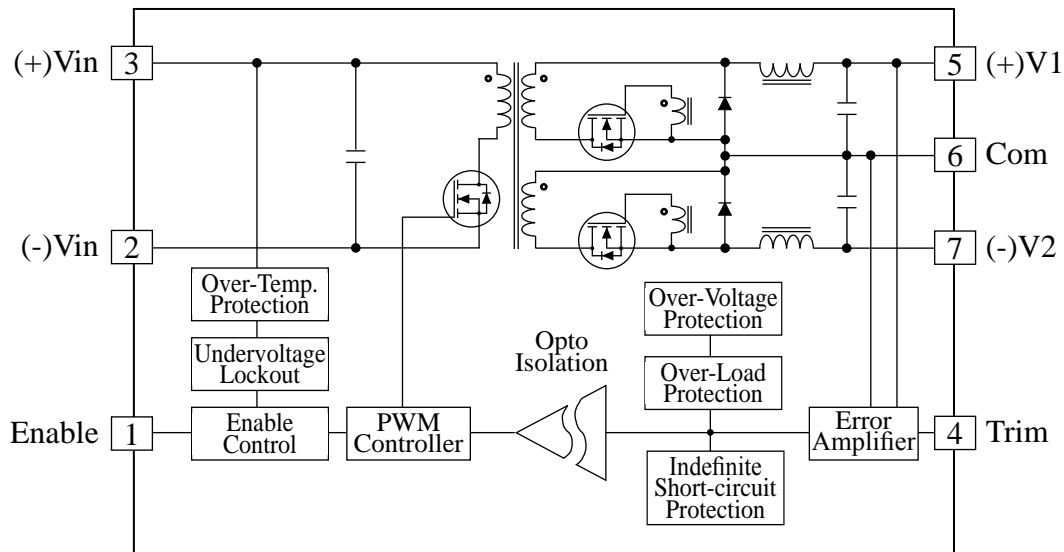
Product Numbering System & Selection Guide

EX	25	S	24	012	C
Series No.	Output Power	No Output	Input Voltage	Output Voltage	Options
EX	30 : 30W 50 : 50W	S : Single	12 : 10-20V 24 : 18-36V 48 : 36-75V 30 : 10-30V 60 : 20-60V	033 : 3.3V 05 : 5.0V 12 : 12V 15 : 15V 24 : 24V 28 : 28V 36 : 36V 48 : 48V 60 : 60V 80 : 80V	C : Extended Temperature MC : Metal Case



Note:

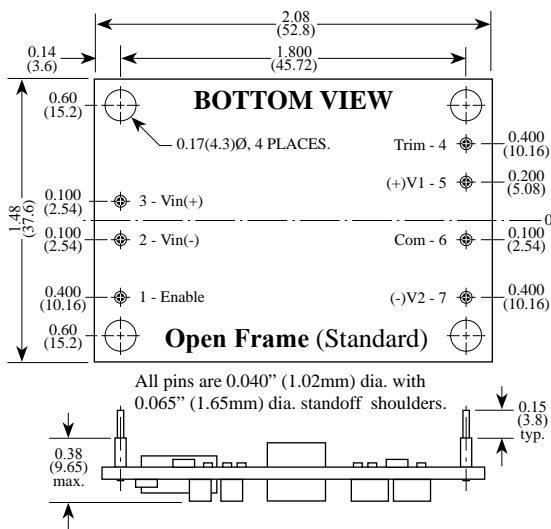
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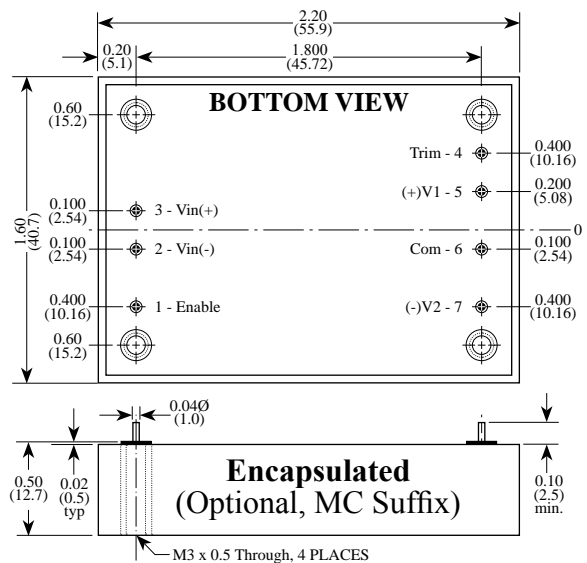
Product Numbering System & Selection Guide

EX	50	D	24	10	C
Series No.	Output Power	No Output	Input Voltage	Output Voltage	Options
EH	30 : 30W 50 : 50W	D : Dual	12 : 10-20V 24 : 18-36V 48 : 36-75V 30 : 10-30V 60 : 20-60V	10 : ±10V 12 : ±12V 15 : ±15V	C : Extended Temperature MC : Metal Case

Open Frame (Standard)



Encapsulated (Optional, MC suffix)

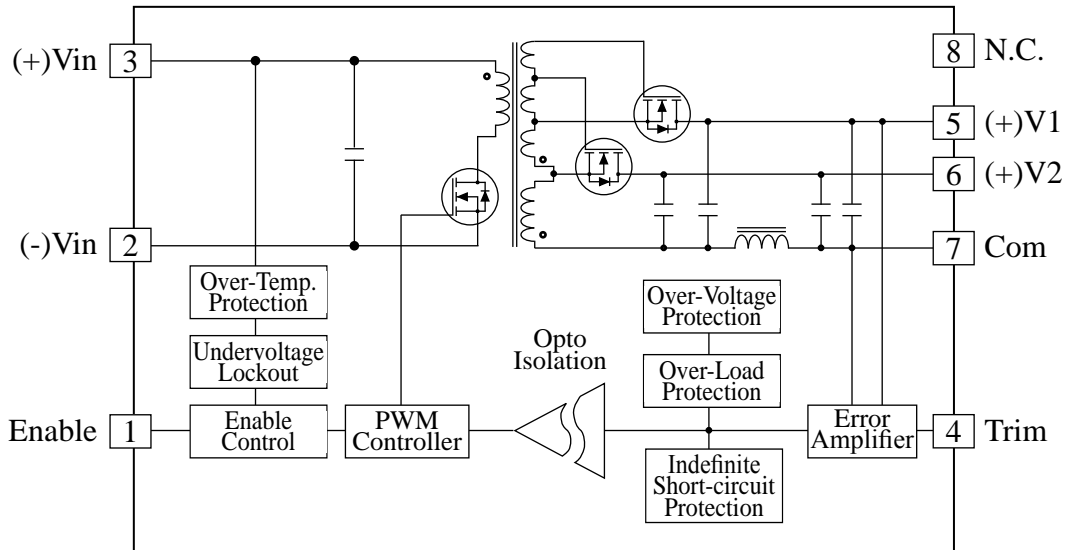




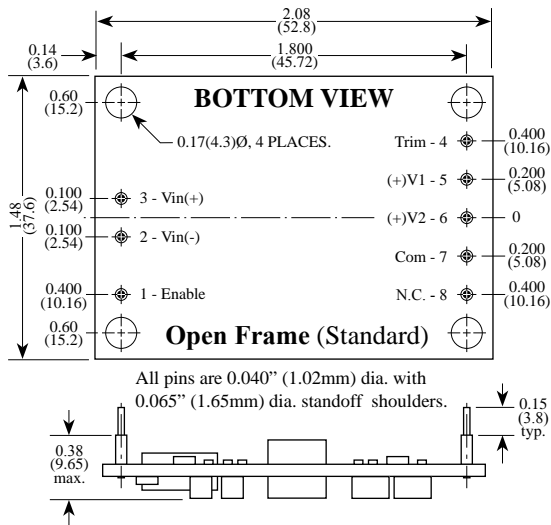
INPUT			OUTPUT										Over Temp. Shutdown /Recover	EFF. (typ.)	MODEL NO.		
Nominal (Range)	Under Voltage Lockout (typ.)		Power (Watt)	Voltage				Current (A)			Ripple & Noise					Short Circuit Protection	
	On	Off		#	Set Point	Min.*	Max.*	#	Min.	Max.	Peak-Peak	R.M.S.					
12 (10-20)	9.7	9.5	30W	±10V	+V1	+10.00	+9.90	+10.10	+11	+0.15	+1.5	100mV	15mV	Hiccup Mode Indefinite	+105°C/ +95°C	88%	EX30D1210
					-V2	-10.00	-9.60	-10.40	-12	-0.15	-1.5	100mV	15mV				
			50W	±10V	+V1	+10.00	+9.90	+10.10	+11	+0.25	+2.5	100mV	15mV			88%	EX50D1210
					-V2	-10.00	-9.60	-10.40	-12	-0.25	-2.5	100mV	15mV				
			30W	±12V	+V1	+12.00	+11.88	+12.12	+11	+0.1	+1.2	100mV	20mV			88%	EX30D1212
					-V2	-12.00	-11.50	-12.50	-12	-0.1	-1.2	100mV	20mV				
			50W	±12V	+V1	+12.00	+11.88	+12.12	+11	+0.2	+2.1	100mV	20mV			88%	EX50D1212
					-V2	-12.00	-11.50	-12.50	-12	-0.2	-2.1	100mV	20mV				
			30W	±15V	+V1	+15.00	+14.85	+15.15	+11	+0.1	+1.0	120mV	25mV			88%	EX30D1215
					-V2	-15.00	-14.40	-15.60	-12	-0.1	-1.0	120mV	25mV				
50W	±15V	+V1	+15.00	+14.85	+15.15	+11	+0.2	+1.7	120mV	25mV	88%	EX50D1215					
		-V2	-15.00	-14.40	-15.60	-12	-0.2	-1.7	120mV	25mV							
24 (18-36)	17	16	30W	±10V	+V1	+10.00	+9.90	+10.10	+11	+0.15	+1.5	100mV	15mV	Hiccup Mode Indefinite	+105°C/ +95°C	86%	EX30D2410
					-V2	-10.00	-9.60	-10.40	-12	-0.15	-1.5	100mV	15mV				
			50W	±10V	+V1	+10.00	+9.90	+10.10	+11	+0.25	+2.5	100mV	15mV			86%	EX50D2410
					-V2	-10.00	-9.60	-10.40	-12	-0.25	-2.5	100mV	15mV				
			30W	±12V	+V1	+12.00	+11.88	+12.12	+11	+0.1	+1.2	100mV	20mV			86%	EX30D2412
					-V2	-12.00	-11.50	-12.50	-12	-0.1	-1.2	100mV	20mV				
			50W	±12V	+V1	+12.00	+11.88	+12.12	+11	+0.2	+2.1	100mV	20mV			86%	EX50D2412
					-V2	-12.00	-11.50	-12.50	-12	-0.2	-2.1	100mV	20mV				
			30W	±15V	+V1	+15.00	+14.85	+15.15	+11	+0.1	+1.0	120mV	25mV			86%	EX30D2415
					-V2	-15.00	-14.40	-15.60	-12	-0.1	-1.0	120mV	25mV				
50W	±15V	+V1	+15.00	+14.85	+15.15	+11	+0.2	+1.7	120mV	25mV	86%	EX50D2415					
		-V2	-15.00	-14.40	-15.60	-12	-0.2	-1.7	120mV	25mV							
48 (36-75)	35	34	30W	±10V	+V1	+10.00	+9.90	+10.10	+11	+0.15	+1.5	100mV	15mV	Hiccup Mode Indefinite	+105°C/ +95°C	86%	EX30D4810
					-V2	-10.00	-9.60	-10.40	-12	-0.15	-1.5	100mV	15mV				
			50W	±10V	+V1	+10.00	+9.90	+10.10	+11	+0.25	+2.5	100mV	15mV			86%	EX50D4810
					-V2	-10.00	-9.60	-10.40	-12	-0.25	-2.5	100mV	15mV				
			30W	±12V	+V1	+12.00	+11.88	+12.12	+11	+0.1	+1.2	100mV	20mV			86%	EX30D4812
					-V2	-12.00	-11.50	-12.50	-12	-0.1	-1.2	100mV	20mV				
			50W	±12V	+V1	+12.00	+11.88	+12.12	+11	+0.2	+2.1	100mV	20mV			86%	EX50D4812
					-V2	-12.00	-11.50	-12.50	-12	-0.2	-2.1	100mV	20mV				
			30W	±15V	+V1	+15.00	+14.85	+15.15	+11	+0.1	+1.0	120mV	25mV			86%	EX30D4815
					-V2	-15.00	-14.40	-15.60	-12	-0.1	-1.0	120mV	25mV				
50W	±15V	+V1	+15.00	+14.85	+15.15	+11	+0.2	+1.7	120mV	25mV	86%	EX50D4815					
		-V2	-15.00	-14.40	-15.60	-12	-0.2	-1.7	120mV	25mV							
30 (10-30)	9.7	9.5	30W	±10V	+V1	+10.00	+9.90	+10.10	+11	+0.15	+1.5	100mV	15mV	Hiccup Mode Indefinite	+105°C/ +95°C	88%	EX30D3010
					-V2	-10.00	-9.60	-10.40	-12	-0.15	-1.5	100mV	15mV				
			50W	±10V	+V1	+10.00	+9.90	+10.10	+11	+0.25	+2.5	100mV	15mV			88%	EX50D3010
					-V2	-10.00	-9.60	-10.40	-12	-0.25	-2.5	100mV	15mV				
			30W	±12V	+V1	+12.00	+11.88	+12.12	+11	+0.1	+1.2	100mV	20mV			88%	EX30D3012
					-V2	-12.00	-11.50	-12.50	-12	-0.1	-1.2	100mV	20mV				
			50W	±12V	+V1	+12.00	+11.88	+12.12	+11	+0.2	+2.1	100mV	20mV			88%	EX50D3012
					-V2	-12.00	-11.50	-12.50	-12	-0.2	-2.1	100mV	20mV				
			30W	±15V	+V1	+15.00	+14.85	+15.15	+11	+0.1	+1.0	120mV	25mV			88%	EX30D3015
					-V2	-15.00	-14.40	-15.60	-12	-0.1	-1.0	120mV	25mV				
50W	±15V	+V1	+15.00	+14.85	+15.15	+11	+0.2	+1.7	120mV	25mV	88%	EX50D3015					
		-V2	-15.00	-14.40	-15.60	-12	-0.2	-1.7	120mV	25mV							
60 (20-60)	17	16	30W	±10V	+V1	+10.00	+9.90	+10.10	+11	+0.15	+1.5	100mV	15mV	Hiccup Mode Indefinite	+105°C/ +95°C	86%	EX30D6010
					-V2	-10.00	-9.60	-10.40	-12	-0.15	-1.5	100mV	15mV				
			50W	±10V	+V1	+10.00	+9.90	+10.10	+11	+0.25	+2.5	100mV	15mV			86%	EX50D6010
					-V2	-10.00	-9.60	-10.40	-12	-0.25	-2.5	100mV	15mV				
			30W	±12V	+V1	+12.00	+11.88	+12.12	+11	+0.1	+1.2	100mV	20mV			86%	EX30D6012
					-V2	-12.00	-11.50	-12.50	-12	-0.1	-1.2	100mV	20mV				
			50W	±12V	+V1	+12.00	+11.88	+12.12	+11	+0.2	+2.1	100mV	20mV			86%	EX50D6012
					-V2	-12.00	-11.50	-12.50	-12	-0.2	-2.1	100mV	20mV				
			30W	±15V	+V1	+15.00	+14.85	+15.15	+11	+0.1	+1.0	120mV	25mV			86%	EX30D6015
					-V2	-15.00	-14.40	-15.60	-12	-0.1	-1.0	120mV	25mV				
50W	±15V	+V1	+15.00	+14.85	+15.15	+11	+0.2	+1.7	120mV	25mV	86%	EX50D6015					
		-V2	-15.00	-14.40	-15.60	-12	-0.2	-1.7	120mV	25mV							

* Combined Line & Load Regulation (Low Line to High Line & Min. Load to Full Load)

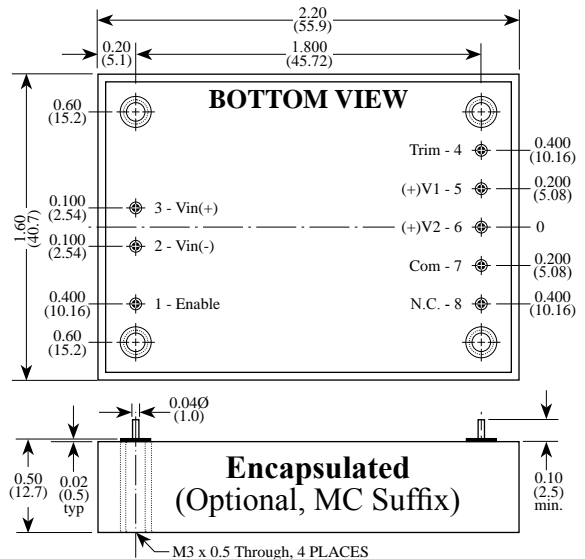
BLOCK DIAGRAM



Open Frame (Standard)



Encapsulated (Optional, MC suffix)





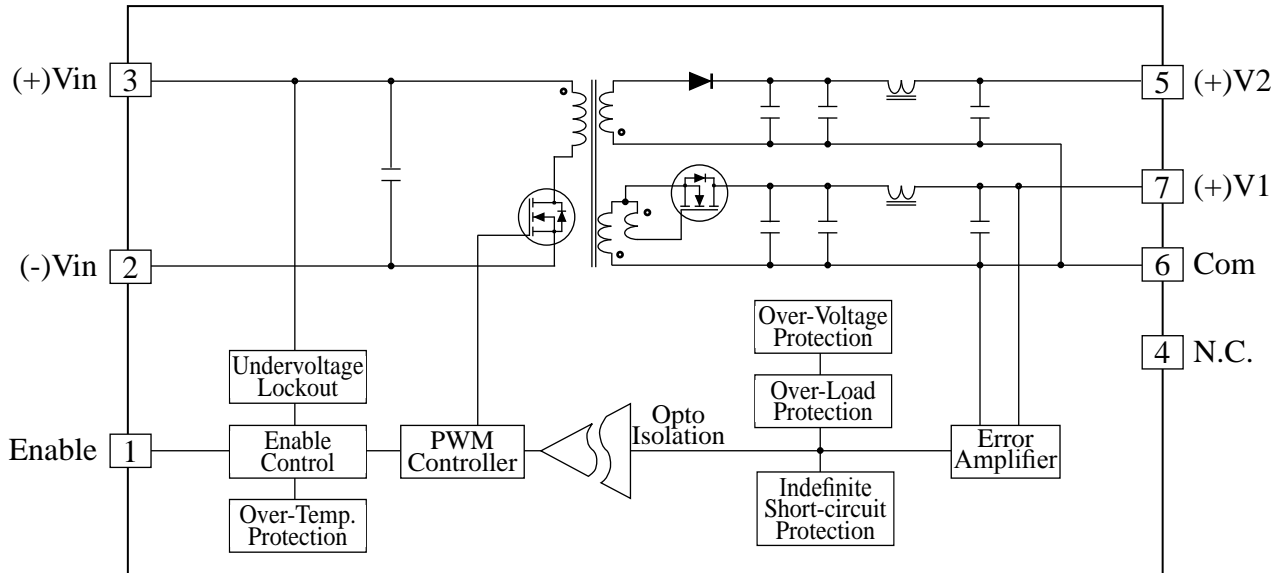
INPUT			OUTPUT										Over Temp. Shutdown /Recover	EFF. (typ.)	MODEL NO.				
Nominal (Range)	Under Voltage Lockout (typ.)		Power (Max/Peak)	Voltage			Current (A)			Ripple & Noise		Short Circuit Protection							
	On	Off		#	Set Point	Min.*	Max.*	#	Min.	Max/Peak	Peak					R.M.S.			
12 (10-20)	9.7	9.5	30W/30W	+5.0V	+V1	+5.00	+4.90	+5.10	+I1	+0.2	+4.0/+4.0	75mV	15mV	Hiccup Mode Indefinite	+105°C/ +95°C	88%	EX30D1205+033		
				+3.3V	+V2	+3.30	+3.20	+3.40	+I2	+0.2	+4.0/+4.0	75mV	15mV			88%	EX50D1205+033		
			50W/50W	+5.0V	+V1	+5.00	+4.90	+5.10	+I1	+0.4	+8.0/+8.0	75mV	15mV			88%	EX30D2405+033		
				+3.3V	+V2	+3.30	+3.20	+3.40	+I2	+0.4	+8.0/+8.0	75mV	15mV			88%	EX50D2405+033		
24 (18-36)	17	16	30W/30W	+5.0V	+V1	+5.00	+4.90	+5.10	+I1	+0.2	+4.0/+4.0	75mV	15mV			Hiccup Mode Indefinite	+105°C/ +95°C	88%	EX30D2405+033
				+3.3V	+V2	+3.30	+3.20	+3.40	+I2	+0.2	+4.0/+4.0	75mV	15mV					88%	EX50D2405+033
			50W/50W	+5.0V	+V1	+5.00	+4.90	+5.10	+I1	+0.4	+8.0/+8.0	75mV	15mV					88%	EX30D4805+033
				+3.3V	+V2	+3.30	+3.20	+3.40	+I2	+0.4	+8.0/+8.0	75mV	15mV					88%	EX50D4805+033
48 (36-75)	35	34	30W/30W	+5.0V	+V1	+5.00	+4.90	+5.10	+I1	+0.2	+4.0/+4.0	75mV	15mV	Hiccup Mode Indefinite	+105°C/ +95°C			88%	EX30D4805+033
				+3.3V	+V2	+3.30	+3.20	+3.40	+I2	+0.2	+4.0/+4.0	75mV	15mV					88%	EX50D4805+033
			50W/50W	+5.0V	+V1	+5.00	+4.90	+5.10	+I1	+0.4	+8.0/+8.0	75mV	15mV					88%	EX30D3005+033
				+3.3V	+V2	+3.30	+3.20	+3.40	+I2	+0.4	+8.0/+8.0	75mV	15mV					88%	EX50D3005+033
30 (10-30)	17	16	30W/30W	+5.0V	+V1	+5.00	+4.90	+5.10	+I1	+0.4	+6.0/+8.0	75mV	15mV			Hiccup Mode Indefinite	+105°C/ +95°C	88%	EX30D6005+033
				+3.3V	+V2	+3.30	+3.20	+3.40	+I2	+0.2	+4.0/+4.0	75mV	15mV					88%	EX50D6005+033
			40W/50W	+5.0V	+V1	+5.00	+4.90	+5.10	+I1	+0.4	+6.0/+8.0	75mV	15mV					88%	EX30D3005+033
				+3.3V	+V2	+3.30	+3.20	+3.40	+I2	+0.4	+6.0/+8.0	75mV	15mV					88%	EX50D3005+033
60 (20-60)	17	16	30W/30W	+5.0V	+V1	+5.00	+4.90	+5.10	+I1	+0.2	+4.0/+4.0	75mV	15mV	Hiccup Mode Indefinite	+105°C/ +95°C			88%	EX30D6005+033
				+3.3V	+V2	+3.30	+3.20	+3.40	+I2	+0.2	+4.0/+4.0	75mV	15mV					88%	EX50D6005+033
			40W/50W	+5.0V	+V1	+5.00	+4.90	+5.10	+I1	+0.4	+6.0/+8.0	75mV	15mV					88%	EX30D6005+033
				+3.3V	+V2	+3.30	+3.20	+3.40	+I2	+0.4	+6.0/+8.0	75mV	15mV					88%	EX50D6005+033

* Combined Line & Load Regulation (Low Line to High Line & Min. Load to Full Load)

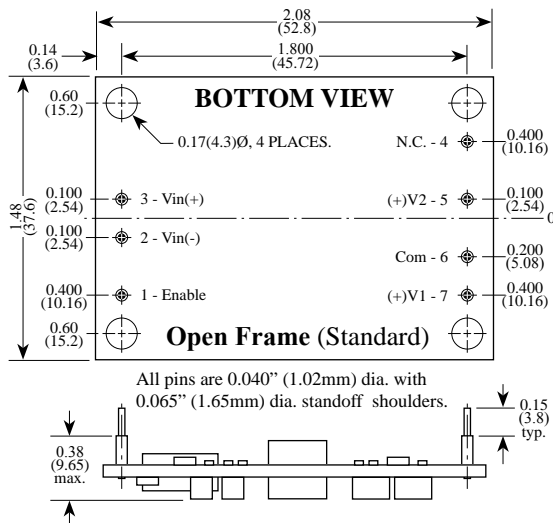
Product Numbering System & Selection Guide

EX	50	D	24	05	+	033	C
Series No.	Output Power	No Output	Input Voltage	+V1		+V2	Option
EX	30 : 30W 50 : 50W	D : Dual	12 : 10-20V 24 : 18-36V 48 : 36-75V 30 : 10-30V 60 : 20-60V	05 : +5.0V		033 : +3.3V	C : Extended Temperature MC : Metal Case

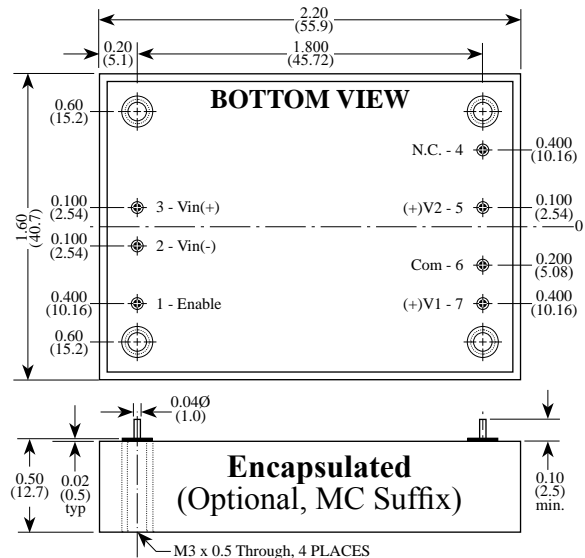
BLOCK DIAGRAM (+5V, ±15V)



Open Frame (Standard)



Encapsulated (Optional, MC suffix)



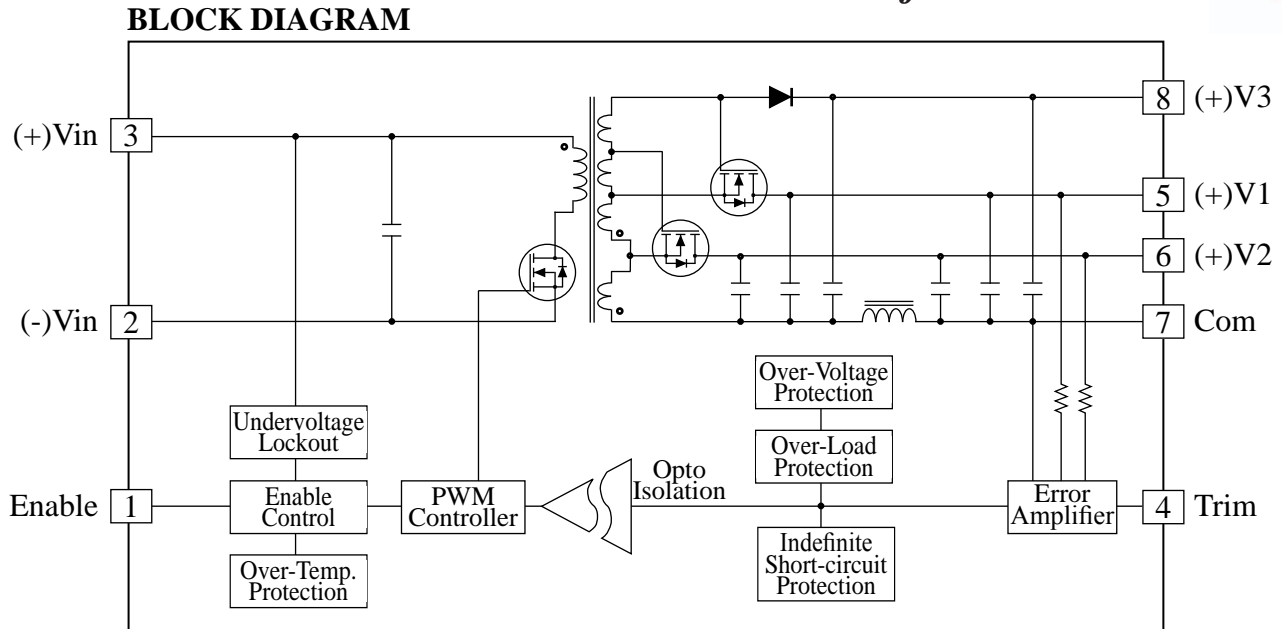


INPUT			OUTPUT											Over Temp. Shutdown /Recover	EFF. (typ.)	MODEL NO.	
Nominal (Range)	Under Voltage Lockout (typ.)		Power (Max/Peak)	Voltage					Current (A)			Ripple & Noise					Short Circuit Protection
	On	Off		#	Set Point	Min.*	Max.*	#	Min.	Max.	Peak	R.M.S.					
12 (10-20)	9.7	9.5	30W/30W	+5V	+V1	+5.00	+4.90	+5.10	+11	+0.4	+4.0	75mV	15mV	Hiccup Mode Indefinite	+105°C/ +95°C	88%	EX30D1205+12
				+12V	+V2	+12.0	+11.0	+13.0	+12	+0.1	+1.0	120mV	25mV			88%	EX50D1205+12
			50W/50W	+5V	+V1	+5.00	+4.90	+5.10	+11	+0.6	+6.0	75mV	15mV			88%	EX30D1205+15
				+12V	+V2	+12.0	+11.0	+13.0	+12	+0.2	+2.0	120mV	25mV			88%	EX50D1205+15
24 (18-36)	17	16	30W/30W	+5V	+V1	+5.00	+4.90	+5.10	+11	+0.4	+4.0	75mV	15mV			88%	EX30D2405+12
				+12V	+V2	+12.0	+11.0	+13.0	+12	+0.1	+1.0	120mV	25mV			88%	EX50D2405+12
			50W/50W	+5V	+V1	+5.00	+4.90	+5.10	+11	+0.6	+6.0	75mV	15mV			88%	EX30D2405+15
				+12V	+V2	+12.0	+11.0	+13.0	+12	+0.2	+2.0	120mV	25mV			88%	EX50D2405+15
48 (36-75)	35	34	30W/30W	+5V	+V1	+5.00	+4.90	+5.10	+11	+0.4	+4.0	75mV	15mV			88%	EX30D4805+12
				+12V	+V2	+12.0	+11.0	+13.0	+12	+0.1	+1.0	120mV	25mV			88%	EX50D4805+12
			50W/50W	+5V	+V1	+5.00	+4.90	+5.10	+11	+0.6	+6.0	75mV	15mV			88%	EX30D4805+15
				+12V	+V2	+12.0	+11.0	+13.0	+12	+0.2	+2.0	120mV	25mV			88%	EX50D4805+15
30 (10-30)	9.7	9.5	30W/30W	+5V	+V1	+5.00	+4.90	+5.10	+11	+0.4	+4.0	75mV	15mV	88%	EX30D3005+12		
				+12V	+V2	+12.0	+11.0	+13.0	+12	+0.1	+1.0	120mV	25mV	88%	EX50D3005+12		
			40W/50W	+5V	+V1	+5.00	+4.90	+5.10	+11	+0.6	+6.0	75mV	15mV	88%	EX30D3005+15		
				+12V	+V2	+12.0	+11.0	+13.0	+12	+0.2	+2.0	120mV	25mV	88%	EX50D3005+15		
60 (20-60)	17	16	30W/30W	+5V	+V1	+5.00	+4.90	+5.10	+11	+0.4	+4.0	75mV	15mV	88%	EX30D6005+12		
				+12V	+V2	+12.0	+11.0	+13.0	+12	+0.1	+1.0	120mV	25mV	88%	EX50D6005+12		
			40W/50W	+5V	+V1	+5.00	+4.90	+5.10	+11	+0.6	+6.0	75mV	15mV	88%	EX30D6005+15		
				+12V	+V2	+12.0	+11.0	+13.0	+12	+0.2	+2.0	120mV	25mV	88%	EX50D6005+15		

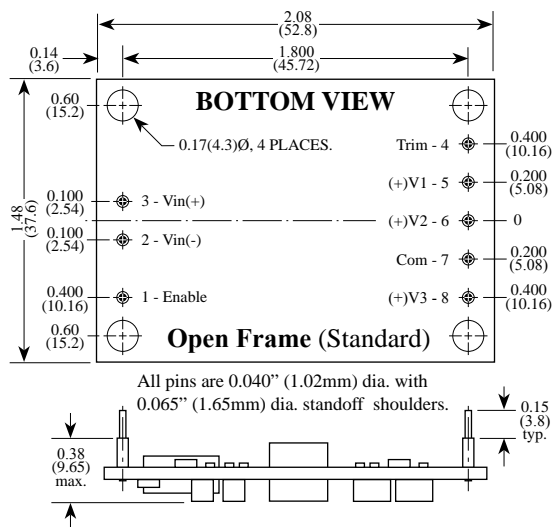
* Combined Line & Load Regulation (Low Line to High Line & Min. Load to Full Load)

Product Numbering System & Selection Guide

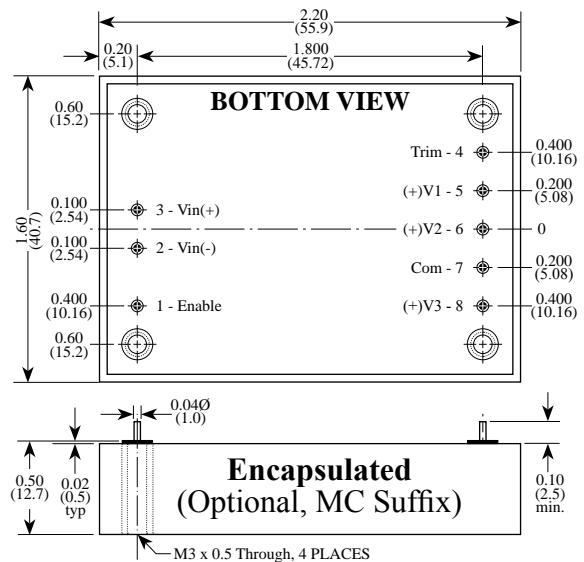
EX	50	D	24	05	+	033	C
Series No.	Output Power	No Output	Input Voltage	+V1		+V2	Option
EX	30 : 30W 50 : 50W	D : Dual	12 : 10-20V 24 : 18-36V 48 : 36-75V 30 : 10-30V 60 : 20-60V	05 : +5.0V		12 : +12V 15 : +15V	C : Extended Temperature MC : Metal Case



Open Frame (Standard)



Encapsulated (Optional, MC suffix)





INPUT				OUTPUT										Short Circuit Protection	EFF. (typ.)	MODEL NO.
Nominal (Range)	Under Voltage Lockout (typ.)		Max. Output Power	Voltage (V)				Current (A)			Ripple & Noise					
	On	Off		#	Set Point	Min.*	Max.*	#	Min.	Max.	Peak-Peak	R.M.S.				
12 (10 - 20)	9.7	9.5	30W	+5.0V	+V1	+5.00	+4.90	+5.10	+11	+0.20	+4.0	75mV	15mV	Hiccup Mode Indefinite	80%	EX30T120503-09
				+3.3V	+V2	+3.30	+3.20	+3.40	+12	+0.15	+3.0	75mV	15mV			
				+9.0V	+V3	+9.0	+8.8	+9.4	+13	+0.10	+1.0	100mV	25mV			
				+5.0V	+V1	+5.00	+4.90	+5.10	+11	+0.40	+8.0	75mV	15mV			
				+3.3V	+V2	+3.30	+3.20	+3.40	+12	+0.25	+5.0	75mV	15mV			
				+9.0V	+V3	+9.0	+8.8	+9.4	+13	+0.15	+1.5	100mV	25mV			
			50W	+5.0V	+V1	+5.00	+4.90	+5.10	+11	+0.20	+4.0	75mV	15mV		80%	EX50T120503-09
				+3.3V	+V2	+3.30	+3.20	+3.40	+12	+0.15	+3.0	75mV	15mV			
				+9.0V	+V3	+9.0	+8.8	+9.4	+13	+0.10	+1.0	100mV	25mV			
				+5.0V	+V1	+5.00	+4.90	+5.10	+11	+0.40	+8.0	75mV	15mV			
				+3.3V	+V2	+3.30	+3.20	+3.40	+12	+0.25	+5.0	75mV	15mV			
				+9.0V	+V3	+9.0	+8.8	+9.4	+13	+0.15	+1.5	100mV	25mV			
			30W	+5.0V	+V1	+5.00	+4.90	+5.10	+11	+0.20	+4.0	75mV	15mV		80%	EX30T120503-12
				+3.3V	+V2	+3.30	+3.20	+3.40	+12	+0.15	+3.0	75mV	15mV			
				+12V	+V3	+12.0	+12.0	+12.2	+13	+0.15	+1.5	100mV	25mV			
				+5.0V	+V1	+5.00	+4.90	+5.10	+11	+0.40	+8.0	75mV	15mV			
				+3.3V	+V2	+3.30	+3.20	+3.40	+12	+0.25	+5.0	75mV	15mV			
				+12V	+V3	+12.0	+12.0	+12.2	+13	+0.15	+1.5	100mV	25mV			
50W	+5.0V	+V1	+5.00	+4.90	+5.10	+11	+0.40	+8.0	75mV	15mV	80%	EX50T120503-12				
	+3.3V	+V2	+3.30	+3.20	+3.40	+12	+0.25	+5.0	75mV	15mV						
	+12V	+V3	+12.0	+12.0	+12.2	+13	+0.15	+1.5	100mV	25mV						
	+5.0V	+V1	+5.00	+4.90	+5.10	+11	+0.20	+4.0	75mV	15mV						
	+3.3V	+V2	+3.30	+3.20	+3.40	+12	+0.15	+3.0	75mV	15mV						
	+12V	+V3	+12.0	+12.0	+12.2	+13	+0.10	+1.0	100mV	25mV						
30W	+5.0V	+V1	+5.00	+4.90	+5.10	+11	+0.20	+4.0	75mV	15mV	80%	EX30T120503-15				
	+3.3V	+V2	+3.30	+3.20	+3.40	+12	+0.15	+3.0	75mV	15mV						
	+15V	+V3	+15.0	+15.0	+15.2	+13	+0.10	+1.0	120mV	30mV						
	+5.0V	+V1	+5.00	+4.90	+5.10	+11	+0.40	+8.0	75mV	15mV						
	+3.3V	+V2	+3.30	+3.20	+3.40	+12	+0.25	+5.0	75mV	15mV						
	+15V	+V3	+15.0	+15.0	+15.2	+13	+0.15	+1.5	120mV	30mV						
24 (18 - 36)	17	16	30W	+5.0V	+V1	+5.00	+4.90	+5.10	+11	+0.20	+4.0	75mV	15mV	Hiccup Mode Indefinite	80%	EX30T240503-09
				+3.3V	+V2	+3.30	+3.20	+3.40	+12	+0.15	+3.0	75mV	15mV			
				+9.0V	+V3	+9.0	+8.8	+9.4	+13	+0.10	+1.0	100mV	25mV			
				+5.0V	+V1	+5.00	+4.90	+5.10	+11	+0.40	+8.0	75mV	15mV			
				+3.3V	+V2	+3.30	+3.20	+3.40	+12	+0.25	+5.0	75mV	15mV			
				+9.0V	+V3	+9.0	+8.8	+9.4	+13	+0.15	+1.5	100mV	25mV			
			50W	+5.0V	+V1	+5.00	+4.90	+5.10	+11	+0.20	+4.0	75mV	15mV		80%	EX50T240503-09
				+3.3V	+V2	+3.30	+3.20	+3.40	+12	+0.15	+3.0	75mV	15mV			
				+12V	+V3	+12.0	+12.0	+12.2	+13	+0.15	+1.5	100mV	25mV			
				+5.0V	+V1	+5.00	+4.90	+5.10	+11	+0.40	+8.0	75mV	15mV			
				+3.3V	+V2	+3.30	+3.20	+3.40	+12	+0.25	+5.0	75mV	15mV			
				+12V	+V3	+12.0	+12.0	+12.2	+13	+0.10	+1.0	100mV	25mV			
			30W	+5.0V	+V1	+5.00	+4.90	+5.10	+11	+0.20	+4.0	75mV	15mV		80%	EX30T240503-12
				+3.3V	+V2	+3.30	+3.20	+3.40	+12	+0.15	+3.0	75mV	15mV			
				+12V	+V3	+12.0	+12.0	+12.2	+13	+0.10	+1.0	100mV	25mV			
				+5.0V	+V1	+5.00	+4.90	+5.10	+11	+0.40	+8.0	75mV	15mV			
				+3.3V	+V2	+3.30	+3.20	+3.40	+12	+0.15	+3.0	75mV	15mV			
				+15V	+V3	+15.0	+15.0	+15.2	+13	+0.10	+1.0	120mV	30mV			
50W	+5.0V	+V1	+5.00	+4.90	+5.10	+11	+0.40	+8.0	75mV	15mV	80%	EX50T240503-15				
	+3.3V	+V2	+3.30	+3.20	+3.40	+12	+0.25	+5.0	75mV	15mV						
	+15V	+V3	+15.0	+15.0	+15.2	+13	+0.15	+1.5	120mV	30mV						
	+5.0V	+V1	+5.00	+4.90	+5.10	+11	+0.20	+4.0	75mV	15mV						
	+3.3V	+V2	+3.30	+3.20	+3.40	+12	+0.15	+3.0	75mV	15mV						
	+15V	+V3	+15.0	+15.0	+15.2	+13	+0.15	+1.5	120mV	30mV						
48 (36 - 75)	35	34	30W	+5.0V	+V1	+5.00	+4.90	+5.10	+11	+0.20	+4.0	75mV	15mV	Hiccup Mode Indefinite	80%	EX30T480503-09
				+3.3V	+V2	+3.30	+3.20	+3.40	+12	+0.15	+3.0	75mV	15mV			
				+9.0V	+V3	+9.0	+8.8	+9.4	+13	+0.10	+1.0	100mV	25mV			
				+5.0V	+V1	+5.00	+4.90	+5.10	+11	+0.40	+8.0	75mV	15mV			
				+3.3V	+V2	+3.30	+3.20	+3.40	+12	+0.25	+5.0	75mV	15mV			
				+9.0V	+V3	+9.0	+8.8	+9.4	+13	+0.15	+1.5	100mV	25mV			
			50W	+5.0V	+V1	+5.00	+4.90	+5.10	+11	+0.20	+4.0	75mV	15mV		80%	EX50T480503-09
				+3.3V	+V2	+3.30	+3.20	+3.40	+12	+0.15	+3.0	75mV	15mV			
				+12V	+V3	+12.0	+12.0	+12.2	+13	+0.15	+1.5	100mV	25mV			
				+5.0V	+V1	+5.00	+4.90	+5.10	+11	+0.40	+8.0	75mV	15mV			
				+3.3V	+V2	+3.30	+3.20	+3.40	+12	+0.25	+5.0	75mV	15mV			
				+12V	+V3	+12.0	+12.0	+12.2	+13	+0.10	+1.0	100mV	25mV			
			30W	+5.0V	+V1	+5.00	+4.90	+5.10	+11	+0.20	+4.0	75mV	15mV		80%	EX30T480503-12
				+3.3V	+V2	+3.30	+3.20	+3.40	+12	+0.15	+3.0	75mV	15mV			
				+12V	+V3	+12.0	+12.0	+12.2	+13	+0.10	+1.0	100mV	25mV			
				+5.0V	+V1	+5.00	+4.90	+5.10	+11	+0.40	+8.0	75mV	15mV			
				+3.3V	+V2	+3.30	+3.20	+3.40	+12	+0.15	+3.0	75mV	15mV			
				+15V	+V3	+15.0	+15.0	+15.2	+13	+0.10	+1.0	120mV	30mV			
50W	+5.0V	+V1	+5.00	+4.90	+5.10	+11	+0.40	+8.0	75mV	15mV	80%	EX50T480503-15				
	+3.3V	+V2	+3.30	+3.20	+3.40	+12	+0.25	+5.0	75mV	15mV						
	+15V	+V3	+15.0	+15.0	+15.2	+13	+0.15	+1.5	120mV	30mV						
	+5.0V	+V1	+5.00	+4.90	+5.10	+11	+0.20	+4.0	75mV	15mV						
	+3.3V	+V2	+3.30	+3.20	+3.40	+12	+0.15	+3.0	75mV	15mV						
	+15V	+V3	+15.0	+15.0	+15.2	+13	+0.15	+1.5	120mV	30mV						

* Combined Line and Load Regulation.

Product Numbering System & Selection Guide

EH	40	T	24	05	03	-	12	MC
Series No.	Output Power	No Output Output	Input Voltage	+V1 Output	+V2 Output	+V3 Output	Options	
EX	30 : 30W 50 : 50W	T : Triple	12 : 10-20V 24 : 18-36V 48 : 36-75V 30 : 10-30V 60 : 20-60V	05 : 5.0V	03 : 3.3V	09 : 9.0V 12 : 12V 15 : 15V	C : Extended Temp. MC : Metal Case	



INPUT				OUTPUT										EFF. (typ.)	MODEL NO.	
Nominal (Range)	Under Voltage Lockout (typ.)		Max. Output Power	Voltage (V)				Current (A)			Ripple & Noise		Short Circuit Protection			
	On	Off		#	Set Point	Min.*	Max.*	#	Min.	Max.	Peak-Peak	R.M.S.				
30 (10 - 30)	9.7	9.5	30W	+5.0V	+V1	+5.00	+4.90	+5.10	+I1	+0.20	+4.0	75mV	15mV	Hiccup Mode Indefinite	80%	EX30T300503-09
				+3.3V	+V2	+3.30	+3.20	+3.40	+I2	+0.15	+3.0	75mV	15mV			
				+9.0V	+V3	+9.0	+8.8	+9.4	+I3	+0.10	+1.0	100mV	25mV			
			50W	+5.0V	+V1	+5.00	+4.90	+5.10	+I1	+0.40	+8.0	75mV	15mV			
				+3.3V	+V2	+3.30	+3.20	+3.40	+I2	+0.25	+5.0	75mV	15mV			
				+9.0V	+V3	+9.0	+8.8	+9.4	+I3	+0.15	+1.5	100mV	25mV			
	30W	+5.0V	+V1	+5.00	+4.90	+5.10	+I1	+0.20	+4.0	75mV	15mV					
		+3.3V	+V2	+3.30	+3.20	+3.40	+I2	+0.15	+3.0	75mV	15mV					
		+12V	+V3	+12.0	+12.0	+12.2	+I3	+0.10	+1.0	100mV	25mV					
	50W	+5.0V	+V1	+5.00	+4.90	+5.10	+I1	+0.40	+8.0	75mV	15mV					
		+3.3V	+V2	+3.30	+3.20	+3.40	+I2	+0.25	+5.0	75mV	15mV					
		+12V	+V3	+12.0	+12.0	+12.2	+I3	+0.15	+1.5	100mV	25mV					
	30W	+5.0V	+V1	+5.00	+4.90	+5.10	+I1	+0.20	+4.0	75mV	15mV					
		+3.3V	+V2	+3.30	+3.20	+3.40	+I2	+0.15	+3.0	75mV	15mV					
		+15V	+V3	+15.0	+15.0	+15.2	+I3	+0.10	+1.0	120mV	30mV					
	50W	+5.0V	+V1	+5.00	+4.90	+5.10	+I1	+0.40	+8.0	75mV	15mV					
		+3.3V	+V2	+3.30	+3.20	+3.40	+I2	+0.25	+5.0	75mV	15mV					
		+15V	+V3	+15.0	+15.0	+15.2	+I3	+0.15	+1.5	120mV	30mV					
60 (20 - 60)	17	16	30W	+5.0V	+V1	+5.00	+4.90	+5.10	+I1	+0.20	+4.0	75mV	15mV	Hiccup Mode Indefinite	80%	EX30T600503-09
				+3.3V	+V2	+3.30	+3.20	+3.40	+I2	+0.15	+3.0	75mV	15mV			
				+9.0V	+V3	+9.0	+8.8	+9.4	+I3	+0.10	+1.0	100mV	25mV			
			50W	+5.0V	+V1	+5.00	+4.90	+5.10	+I1	+0.40	+8.0	75mV	15mV			
				+3.3V	+V2	+3.30	+3.20	+3.40	+I2	+0.25	+5.0	75mV	15mV			
				+9.0V	+V3	+9.0	+8.8	+9.4	+I3	+0.15	+1.5	100mV	25mV			
	30W	+5.0V	+V1	+5.00	+4.90	+5.10	+I1	+0.20	+4.0	75mV	15mV					
		+3.3V	+V2	+3.30	+3.20	+3.40	+I2	+0.15	+3.0	75mV	15mV					
		+12V	+V3	+12.0	+12.0	+12.2	+I3	+0.10	+1.0	100mV	25mV					
	50W	+5.0V	+V1	+5.00	+4.90	+5.10	+I1	+0.40	+8.0	75mV	15mV					
		+3.3V	+V2	+3.30	+3.20	+3.40	+I2	+0.25	+5.0	75mV	15mV					
		+12V	+V3	+12.0	+12.0	+12.2	+I3	+0.15	+1.5	100mV	25mV					
	30W	+5.0V	+V1	+5.00	+4.90	+5.10	+I1	+0.20	+4.0	75mV	15mV					
		+3.3V	+V2	+3.30	+3.20	+3.40	+I2	+0.15	+3.0	75mV	15mV					
		+15V	+V3	+15.0	+15.0	+15.2	+I3	+0.10	+1.0	120mV	30mV					
	50W	+5.0V	+V1	+5.00	+4.90	+5.10	+I1	+0.40	+8.0	75mV	15mV					
		+3.3V	+V2	+3.30	+3.20	+3.40	+I2	+0.25	+5.0	75mV	15mV					
		+15V	+V3	+15.0	+15.0	+15.2	+I3	+0.15	+1.5	120mV	30mV					

* Combined Line and Load Regulation.

Continued on Next Page

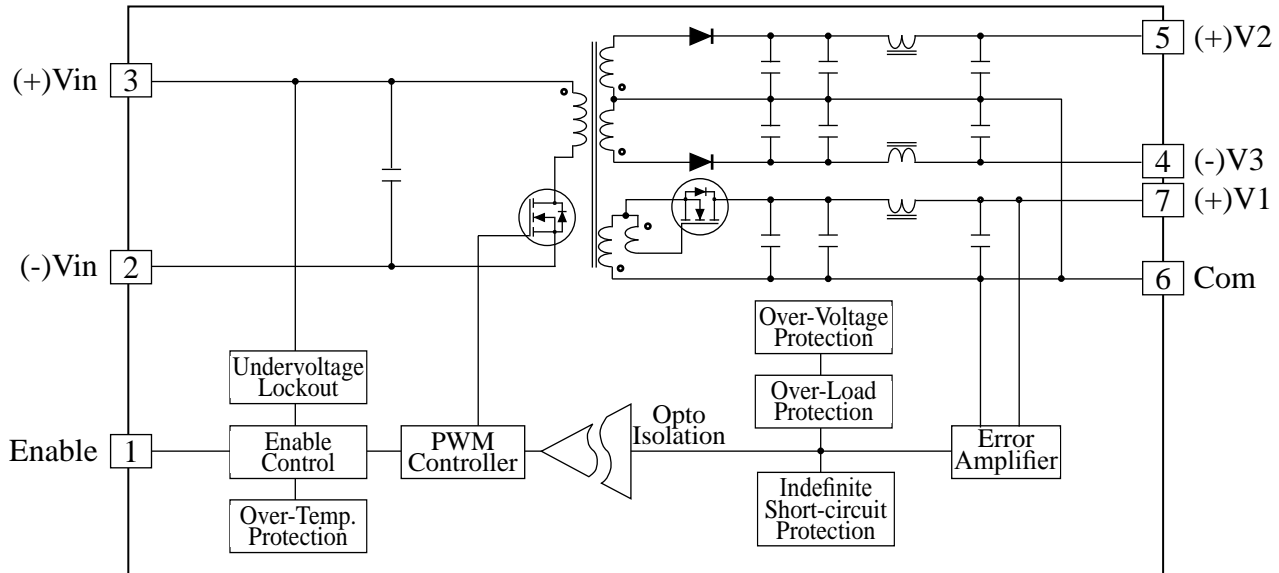
Product Numbering System & Selection Guide

EH	40	T	24	05	03	-	12	MC
Series No.	Output Power	No Output	Input Voltage	+V1 Output	+V2 Output	+V3 Output	Options	
EX	30 : 30W 50 : 50W	T : Triple	12 : 10-20V 24 : 18-36V 48 : 36-75V 30 : 10-30V 60 : 20-60V	05 : 5.0V	03 : 3.3V	09 : 9.0V 12 : 12V 15 : 15V	C : Extended Temp. MC : Metal Case	

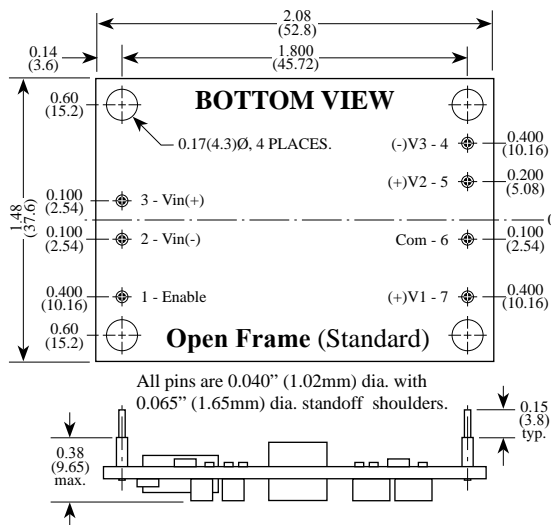


Note:

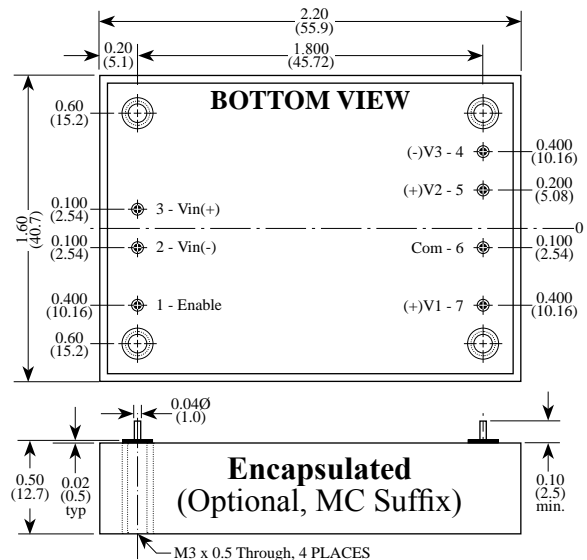
BLOCK DIAGRAM (+5V, ±15V)



Open Frame (Standard)



Encapsulated (Optional, MC suffix)



INPUT			OUTPUT										Short Circuit Protection	EFF. (typ.)	MODEL NO.	
Nominal (Range)	Under Voltage Lockout (typ.)		Output Power (Max/Peak)	Voltage (V)			Current (A)			Ripple & Noise						
	On	Off		#	Set Point	Min.*	Max.*	#	Min.	Max.	Peak-Peak	R.M.S.				
12 (10 - 20)	9.7	9.5	30W/30W	+5.0V ±12V	+V1	+5.00	+4.90	+5.10	+I1	0	+4.0	75mV	15mV	Hiccup Mode Indefinite	80%	EX30T1205-12
					+V2	+12.0	+11.90	+12.10	+I2	0	+0.5	75mV	15mV			
					-V3	-12.0	-11.40	-12.60	+I3	0	-0.5	100mV	25mV			
			50W/50W	+5.0V ±12V	+V1	+5.00	+4.90	+5.10	+I1	0	+6.0	75mV	15mV		80%	EX50T1205-12
					+V2	+12.0	+11.90	+12.10	+I2	0	+1.0	75mV	15mV			
					-V3	-12.0	-11.40	-12.60	+I3	0	-1.0	100mV	25mV			
	30W/30W	+5.0V ±15V	+V1	+5.00	+4.90	+5.10	+I1	0	+4.0	75mV	15mV	80%	EX30T1205-15			
			+V2	+3.30	+3.20	+3.40	+I2	0	+0.5	75mV	15mV					
			-V3	+12.0	+12.0	+12.2	+I3	0	-0.5	120mV	25mV					
	50W/50W	+5.0V ±15V	+V1	+5.00	+4.90	+5.10	+I1	0	+6.0	75mV	15mV	80%	EX50T1205-15			
			+V2	+3.30	+3.20	+3.40	+I2	0	+1.0	75mV	15mV					
			-V3	+12.0	+12.0	+12.2	+I3	0	-1.0	120mV	25mV					
30W/30W	+12V ±5.0V	+V1	+5.00	+4.90	+5.10	+I1	0	+1.5	100mV	25mV	80%	EX30T1212-05				
		+V2	+3.30	+3.20	+3.40	+I2	0	+1.0	75mV	15mV						
		-V3	+15.0	+15.0	+15.2	+I3	0	+1.0	100mV	20mV						
50W/50W	+12V ±5.0V	+V1	+5.00	+4.90	+5.10	+I1	0	+3.0	100mV	25mV	80%	EX50T1212-05				
		+V2	+3.30	+3.20	+3.40	+I2	0	+2.0	75mV	15mV						
		-V3	+15.0	+15.0	+15.2	+I3	0	+2.0	100mV	20mV						
24 (18 - 36)	17	16	30W/30W	+5.0V ±12V	+V1	+5.00	+4.90	+5.10	+I1	0	+4.0	75mV	15mV	Hiccup Mode Indefinite	80%	EX30T2405-12
					+V2	+3.30	+3.20	+3.40	+I2	0	+0.5	75mV	15mV			
					+V3	+9.0	+8.8	+9.4	+I3	0	-0.5	100mV	25mV			
			50W/50W	+5.0V ±12V	+V1	+5.00	+4.90	+5.10	+I1	0	+6.0	75mV	15mV		80%	EX50T2405-12
					+V2	+3.30	+3.20	+3.40	+I2	0	+1.0	75mV	15mV			
					+V3	+9.0	+8.8	+9.4	+I3	0	-1.0	100mV	25mV			
	30W/30W	+5.0V ±15V	+V1	+5.00	+4.90	+5.10	+I1	0	+4.0	75mV	15mV	80%	EX30T2405-15			
			+V2	+3.30	+3.20	+3.40	+I2	0	+0.5	75mV	15mV					
			+V3	+12.0	+12.0	+12.2	+I3	0	-0.5	120mV	25mV					
	50W/50W	+5.0V ±15V	+V1	+5.00	+4.90	+5.10	+I1	0	+6.0	75mV	15mV	80%	EX50T2405-15			
			+V2	+3.30	+3.20	+3.40	+I2	0	+1.0	75mV	15mV					
			+V3	+12.0	+12.0	+12.2	+I3	0	-1.0	120mV	25mV					
30W/30W	+12V ±5.0V	+V1	+5.00	+4.90	+5.10	+I1	0	+1.5	100mV	25mV	80%	EX30T2412-05				
		+V2	+3.30	+3.20	+3.40	+I2	0	+1.0	75mV	15mV						
		+V3	+15.0	+15.0	+15.2	+I3	0	+1.0	100mV	20mV						
50W/50W	+12V ±5.0V	+V1	+5.00	+4.90	+5.10	+I1	0	+3.0	100mV	25mV	80%	EX50T2412-05				
		+V2	+3.30	+3.20	+3.40	+I2	0	+2.0	75mV	15mV						
		+V3	+15.0	+15.0	+15.2	+I3	0	+2.0	100mV	20mV						
48 (36 - 75)	35	34	30W/30W	+5.0V ±12V	+V1	+5.00	+4.90	+5.10	+I1	0	+4.0	75mV	15mV	Hiccup Mode Indefinite	80%	EX30T4805-12
					+V2	+3.30	+3.20	+3.40	+I2	0	+0.5	75mV	15mV			
					+V3	+9.0	+8.8	+9.4	+I3	0	-0.5	100mV	25mV			
			50W/50W	+5.0V ±12V	+V1	+5.00	+4.90	+5.10	+I1	0	+6.0	75mV	15mV		80%	EX50T4805-12
					+V2	+3.30	+3.20	+3.40	+I2	0	+1.0	75mV	15mV			
					+V3	+9.0	+8.8	+9.4	+I3	0	-1.0	100mV	25mV			
	30W/30W	+5.0V ±15V	+V1	+5.00	+4.90	+5.10	+I1	0	+4.0	75mV	15mV	80%	EX30T4805-15			
			+V2	+3.30	+3.20	+3.40	+I2	0	+0.5	75mV	15mV					
			+V3	+12.0	+12.0	+12.2	+I3	0	-0.5	120mV	25mV					
	50W/50W	+5.0V ±15V	+V1	+5.00	+4.90	+5.10	+I1	0	+6.0	75mV	15mV	80%	EX50T4805-15			
			+V2	+3.30	+3.20	+3.40	+I2	0	+1.0	75mV	15mV					
			+V3	+12.0	+12.0	+12.2	+I3	0	-1.0	120mV	25mV					
30W/30W	+12V ±5.0V	+V1	+5.00	+4.90	+5.10	+I1	0	+1.5	100mV	25mV	80%	EX30T4812-05				
		+V2	+3.30	+3.20	+3.40	+I2	0	+1.0	75mV	15mV						
		+V3	+15.0	+15.0	+15.2	+I3	0	+1.0	100mV	20mV						
50W/50W	+12V ±5.0V	+V1	+5.00	+4.90	+5.10	+I1	0	+3.0	100mV	25mV	80%	EX50T4812-05				
		+V2	+3.30	+3.20	+3.40	+I2	0	+2.0	75mV	15mV						
		+V3	+15.0	+15.0	+15.2	+I3	0	+2.0	100mV	20mV						

* Combined Line and Load Regulation.

Product Numbering System & Selection Guide

EX	50	T	24	05	-	12	C
Series No.	Output Power	No Output	Input Voltage	+V1		+V2/-V3	Option
EX	30 : 30W 50 : 50W	T : Triple	12 : 10-20V 24 : 18-36V 48 : 36-75V 30 : 10-30V 60 : 20-60V	05 : +5.0V		05 : ±5.0V 12 : ±12V 15 : ±15V	C : Extended Temperature MC : Metal Case



INPUT			OUTPUT										Short Circuit Protection	EFF. (typ.)	MODEL NO.			
Nominal (Range)	Under Voltage Lockout (typ.)		Output Power (Max/Peak)	Voltage (V)				Current (A)			Ripple & Noise							
	On	Off		#	Set Point	Min.*	Max.*	#	Min.	Max.	Peak-Peak	R.M.S.						
30 (10 - 30)	9.7	9.5	30W/30W	+5.0V ±12V	+V1	+5.00	+4.90	+5.10	+I1	0	+4.0	75mV	15mV	Hiccup Mode Indefinite	80%	EX30T3005-12		
					+V2	+12.0	+11.90	+12.10	+I2	0	+0.5	75mV	15mV					
					-V3	-12.0	-11.40	-12.60	+I3	0	-0.5	100mV	25mV					
			40W/50W	+5.0V ±12V	+V1	+5.00	+4.90	+5.10	+I1	0	+6.0	75mV	15mV				80%	EX50T3005-12
					+V2	+12.0	+11.90	+12.10	+I2	0	+1.0	75mV	15mV					
					-V3	-12.0	-11.40	-12.60	+I3	0	-1.0	100mV	25mV					
	30W/30W	+5.0V ±15V	+V1	+5.00	+4.90	+5.10	+I1	0	+4.0	75mV	15mV	80%	EX30T3005-15					
			+V2	+3.30	+3.20	+3.40	+I2	0	+0.5	75mV	15mV							
			-V3	+12.0	+12.0	+12.2	+I3	0	-0.5	120mV	25mV							
	40W/50W	+5.0V ±15V	+V1	+5.00	+4.90	+5.10	+I1	0	+6.0	75mV	15mV				80%	EX50T3005-15		
			+V2	+3.30	+3.20	+3.40	+I2	0	+1.0	75mV	15mV							
			-V3	+12.0	+12.0	+12.2	+I3	0	-1.0	120mV	25mV							
30W/30W	+12V ±5.0V	+V1	+5.00	+4.90	+5.10	+I1	0	+1.5	100mV	25mV	80%	EX30T3012-05						
			+V2	+3.30	+3.20	+3.40	+I2	0	+1.0	75mV			15mV					
			-V3	+15.0	+15.0	+15.2	+I3	0	+1.0	100mV			20mV					
		40W/50W	+12V ±5.0V	+V1	+5.00	+4.90	+5.10	+I1	0	+3.0			100mV	25mV	80%	EX50T3012-05		
				+V2	+3.30	+3.20	+3.40	+I2	0	+2.0			75mV	15mV				
				-V3	+15.0	+15.0	+15.2	+I3	0	+2.0			100mV	20mV				
60 (20 - 60)	17	16	30W/30W	+5.0V ±12V	+V1	+5.00	+4.90	+5.10	+I1	0	+4.0	75mV	15mV	80%			EX30T6005-12	
					+V2	+3.30	+3.20	+3.40	+I2	0	+0.5	75mV	15mV					
					+V3	+9.0	+8.8	+9.4	+I3	0	-0.5	100mV	25mV					
			40W/50W	+5.0V ±12V	+V1	+5.00	+4.90	+5.10	+I1	0	+6.0	75mV	15mV		80%	EX50T6005-12		
					+V2	+3.30	+3.20	+3.40	+I2	0	+1.0	75mV	15mV					
					+V3	+9.0	+8.8	+9.4	+I3	0	-1.0	100mV	25mV					
30W/30W	+5.0V ±15V	+V1	+5.00	+4.90	+5.10	+I1	0	+4.0	75mV	15mV	80%	EX30T6005-15						
		+V2	+3.30	+3.20	+3.40	+I2	0	+0.5	75mV	15mV								
		+V3	+12.0	+12.0	+12.2	+I3	0	-0.5	120mV	25mV								
40W/50W	+5.0V ±15V	+V1	+5.00	+4.90	+5.10	+I1	0	+6.0	75mV	15mV			80%	EX50T6005-15				
		+V2	+3.30	+3.20	+3.40	+I2	0	+1.0	75mV	15mV								
		+V3	+12.0	+12.0	+12.2	+I3	0	-1.0	120mV	25mV								
30W/30W	+12V ±5.0V	+V1	+5.00	+4.90	+5.10	+I1	0	+1.5	100mV	25mV	80%	EX30T6012-05						
		+V2	+3.30	+3.20	+3.40	+I2	0	+1.0	75mV	15mV								
		+V3	+15.0	+15.0	+15.2	+I3	0	+1.0	100mV	20mV								
40W/50W	+12V ±5.0V	+V1	+5.00	+4.90	+5.10	+I1	0	+3.0	100mV	25mV			80%	EX50T6012-05				
		+V2	+3.30	+3.20	+3.40	+I2	0	+2.0	75mV	15mV								
		+V3	+15.0	+15.0	+15.2	+I3	0	+2.0	100mV	20mV								

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