



FEATURES

- Full Load Efficiency up to 92.5% @220VAC
- Metal Case Box Type Package
- Package Dimension:
110.8x50.8x13.7mm (4.33"x2.00"x0.54")
- Operating Baseplate Temperature Range - 40°C to +100°C
- Input Brown-Out, Output OCP, OTP, OVP, SHORT protection
- 3000VAC Isolation
- ROHS Compliant
- CE Mark
- EMC compatible: CISPR11 ClassB (with EMC Board)
- ISO 9001, ISO 14001 certified manufacturing facility
- UL/cUL 60950-1 (US & Canada)

The PACSR12042, a wide input voltage range of 85~265VAC, and single isolated output converter, is the latest product offering from a world leader in power systems technology and manufacturing — Delta Electronics, Inc. Such module type ACDC converter can provide 500W, 12V regulated DC output voltage with full load efficiency up to 92.5% @220VAC; The PACSR12042 offers Brown-out, output OCP, OTP, OVP and Short protections, and allows a wide operating baseplate temperature range of -40°C to +100°C. With creative design technology and optimization of component placement, this converter possesses outstanding electrical and thermal performance, as well as high reliability under extremely harsh operating conditions.

INPUT CHARACTERISTICS

Item	Condition	Min.	Typ.	Max.	Unit
Rated input voltage range		100	110/220	240	VAC
Max input voltage range		85		265	VAC
Input voltage frequency range		45	50/60	65	Hz
Maximum Input Current	Vin=85VAC, 100% Load			7.3	A
Open load loss			12		W
Input PF value	Vin=110VAC, 100% Load	0.95			

OUTPUT CHARACTERISTICS

Item	Conditions	Min.	Typ.	Max.	Unit
Output voltage setpoint	Vin=220VAC, Io=0-42A	12.1	12.3	12.5	Vdc
Output current range		0		42	A
Output OCP point		44	49	54	A
Turn-on rise time			15		mS
Start up time	Vin=110/220VAC		1500		mS
Hold up time	Vin=110/220VAC, Io= 100% Load		20		mS
Output OVP point		13.5	14	14.5	V
Output trim range	Trim up			13.2	V
Output Current Transient	Positive voltage step, 75% to 25% load dynamic, 0.1A/us slew rate		300	600	mV
	Negative voltage step, 25% to 75% load dynamic, 0.1A/us slew rate		300	600	mV
Output Voltage Ripple and Noise	Vin=110/220Vac, Io=42, peak to peak, 20MHz bandwidth		100	300	mV
	RMS		50	100	mV
Output overshoot				3	%
Efficiency @ 60% Load	Vin=110VAC		90		%
Efficiency @ 60% Load	Vin=220VAC		91		%
Efficiency @ 100% Load	Vin=110VAC		91		%
Efficiency @ 100% Load	Vin=220VAC		92.5		%

GENERAL CHARACTERISTICS

Item	Conditions	Min.	Typ.	Max.	Unit
I/O Isolation Voltage	Input to output		3000		VAC
	Input to case		1500		VAC
	Output to case		500		VAC
I/O Isolation Resistance	500Vdc	10			MΩ
MTBF	Ta=25°C, 100%load		1		Mhours
Weight			240		g

ENVIRONMENTAL SPECIFICATIONS

Parameter	Conditions	Min.	Max.	Unit
Storage Temperature Range		-55	+125	°C
Operating Temperature Range	Plate Temperature	-40	+100	°C

ELECTRICAL CURVES

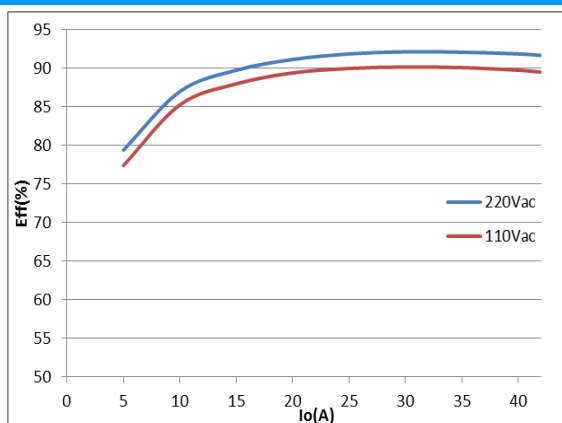


Figure 1: Efficiency vs. Output current
@ Vin=110,220VAC

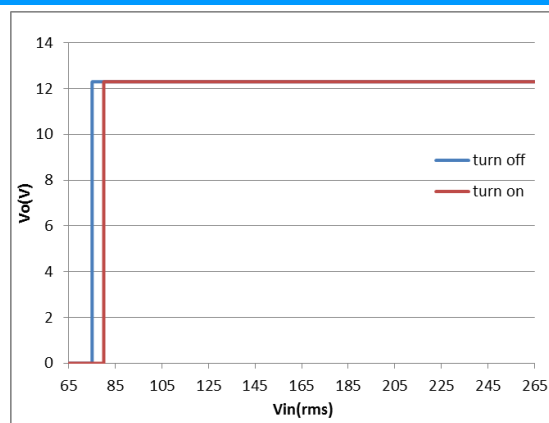


Figure 2: Vout vs. Vin @ Full load

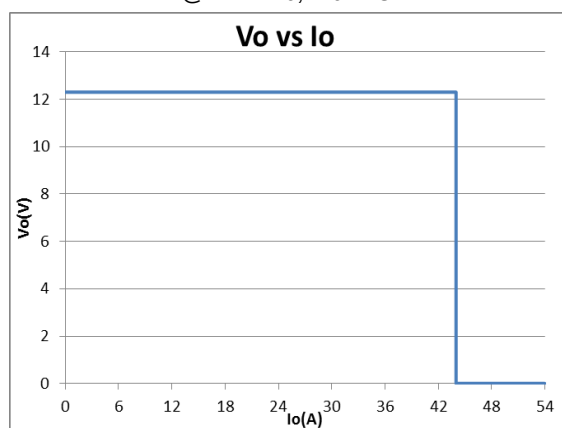


Figure 3: Output voltage vs. Output current
@ Vin=110/220Vac

ELECTRICAL CURVES (continuous)

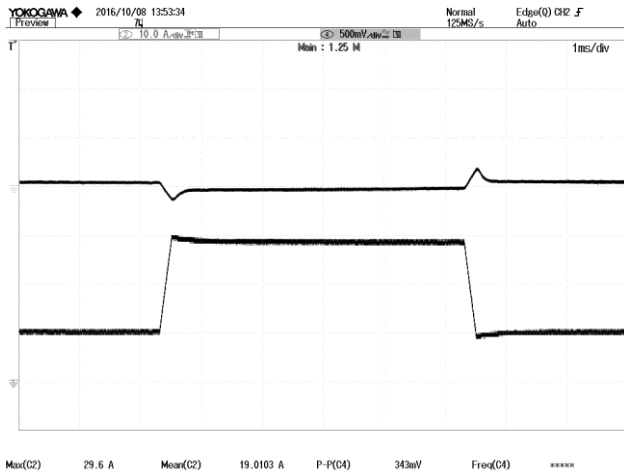


Figure 4: Dynamic response to load step 25%~75% with 0.1A/uS slew rate at 110/220Vac
TOP: Vout, 500mV/div, BOTTOM: Iout, 10A/div, 1ms/div

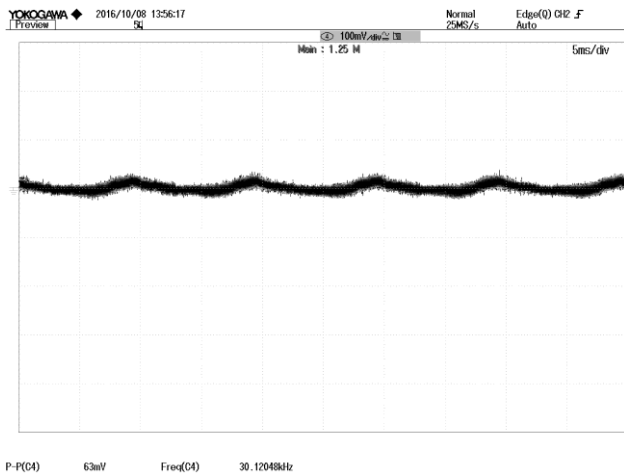


Figure 6: Output ripple & noise at 110/220Vac, 42A Iout
CH3: Vout, 100mV/div, 5ms/div

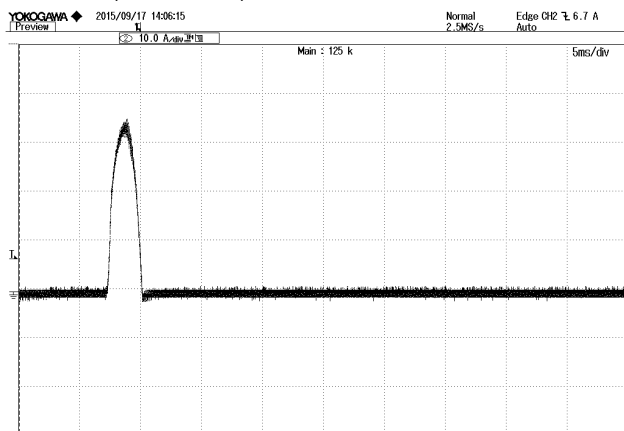


Figure 8: Inrush current @ Vin=220Vac
CH2: Iin, 10A/div, 5ms/div;

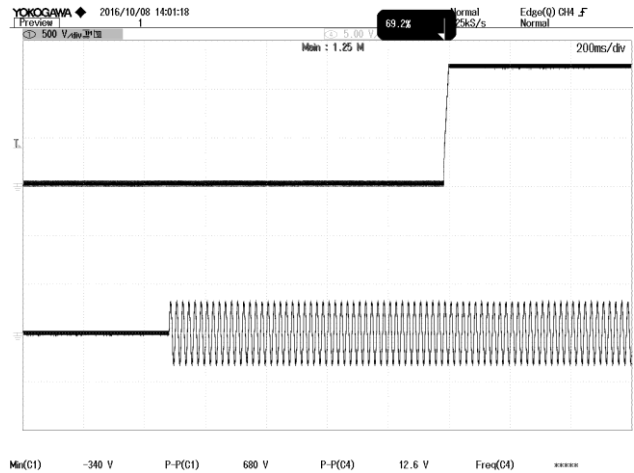


Figure 5: Vout start up with Enable on at 220Vac, 42A Iout,
TOP: Vout, 5V/div, 200ms/div
BOTTOM: Vin, 500V/div, 200ms/div

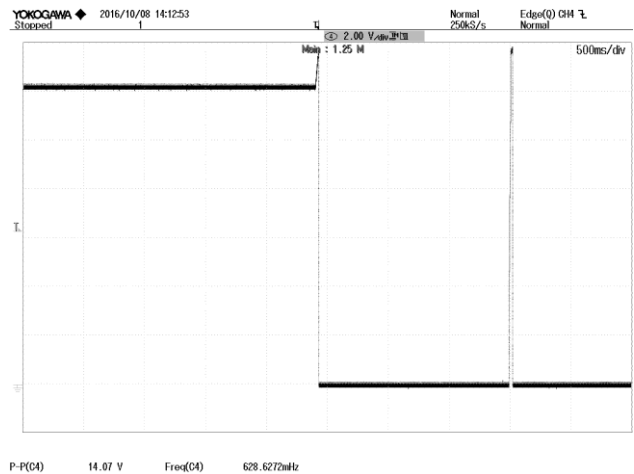


Figure 7: Output over voltage protection at 110/220Vac, 42A Iout
CH3: Vout, 2V/div, 500ms/div

SIMPLIFIED APPLICATION CIRCUIT

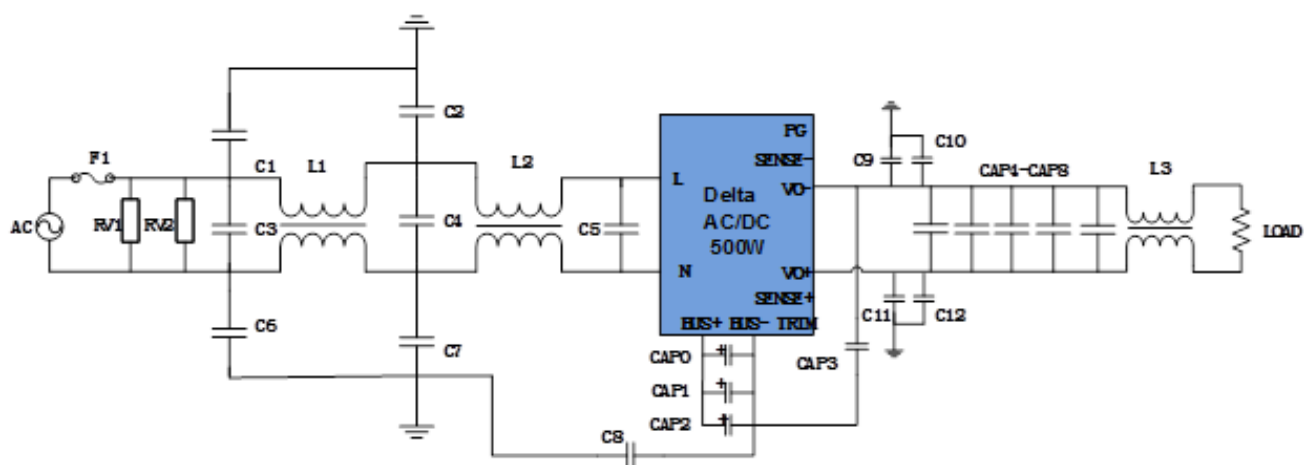


Figure 9: Application connection

TYPICAL value ADVISED

No	Location	item	value	Part No
1	Cap0	bus cap	220uF/450V	450V CXW 220uF M DFR 18*50/ RUBYCON
2	Cap1	bus cap	220uF/450V	450V CXW 220uF M DFR 18*50/ RUBYCON
3	Cap2	bus cap	220uF/450V	450V CXW 220uF M DFR 18*50/ RUBYCON
4	Cap3	Cap for pri-sec	2200pF/250Vac Y1/X1	DE1E3KX222MNHAN99F/MURATA
5	Cap4	Output cap	820uF/16V	PSG16VB820MH16 /NCC
6	Cap5	Output cap	820uF/16V	PSG16VB820MH16 /NCC
7	Cap6	Output cap	820uF/16V	PSG16VB820MH16 /NCC
8	Cap7	Output cap	820uF/16V	PSG16VB820MH16 /NCC
9	Cap8	Output cap	820uF/16V	PSG16VB820MH16 /NCC
10	F1	Input Fuse	10A/250Vac	0216010.MRET5P/LITTLE FUSE
11	RV1	Input VDR	300VAC	TVR14471K0OOTB9Y/THINKING
12	RV2	Input VDR	300VAC	TVR14471K0OOTB9Y/THINKING
13	C1	Input Y-cap	100pF/250Vac Y2/X1	CS70-B2GA101KYVS/TKD
14	C2	Input Y-cap	4700pF/250Vac Y2/X1	CS12-F2GA472MYVS/TKD
15	C3	Input X-cap	1uF /305VAC X2	MKP-105K0305AB115S-P/HUA JUNG
16	C4	Input X-cap	0.47uF /275VAC X2	R46KI347045P2M/KEMET
17	C5	Input X-cap	0.47uF /275VAC X2	R46KI347045P2M/KEMET
18	C6	Input Y-cap	100pF/250Vac Y2/X1	CS70-B2GA101KYVS/TKD
19	C7	Input Y-cap	4700pF/250Vac Y2/X1	CS12-F2GA472MYVS/TKD
20	C8	Cap for pri-PE	1500pF/250Vac Y1/X1	DE1E3KX152MTMBL04
21	C9	output Y-cap	4700pF/250Vac Y2/X1	CS12-F2GA472MYVS/TKD
22	C10	output Y-cap	4700pF/250Vac Y2/X1	CS12-F2GA472MYVS/TKD
23	C11	output Y-cap	4700pF/250Vac Y2/X1	CS12-F2GA472MYVS/TKD
24	C12	output Y-cap	4700pF/250Vac Y2/X1	CS12-F2GA472MYVS/TKD
25	L1	Input common chock	7mH MN_ZN	HFH-DCS16007/DELTA
26	L2	Input common chock	7mH MN_ZN	HFH-DCS16007/DELTA
27	L3	output common chock	4.2uH	LFV-NB10435

THERMAL CONSIDERATION

Thermal management is an important part of the system design. To ensure proper, reliable operation, sufficient cooling of the power module is needed over the entire temperature range of the module. Conduction cooling is usually the dominant mode of heat transfer.

Thermal Testing Setup

The following figure shows the testing setup in which the power module is mounted on an Al plate and was cooled by cooling liquid.

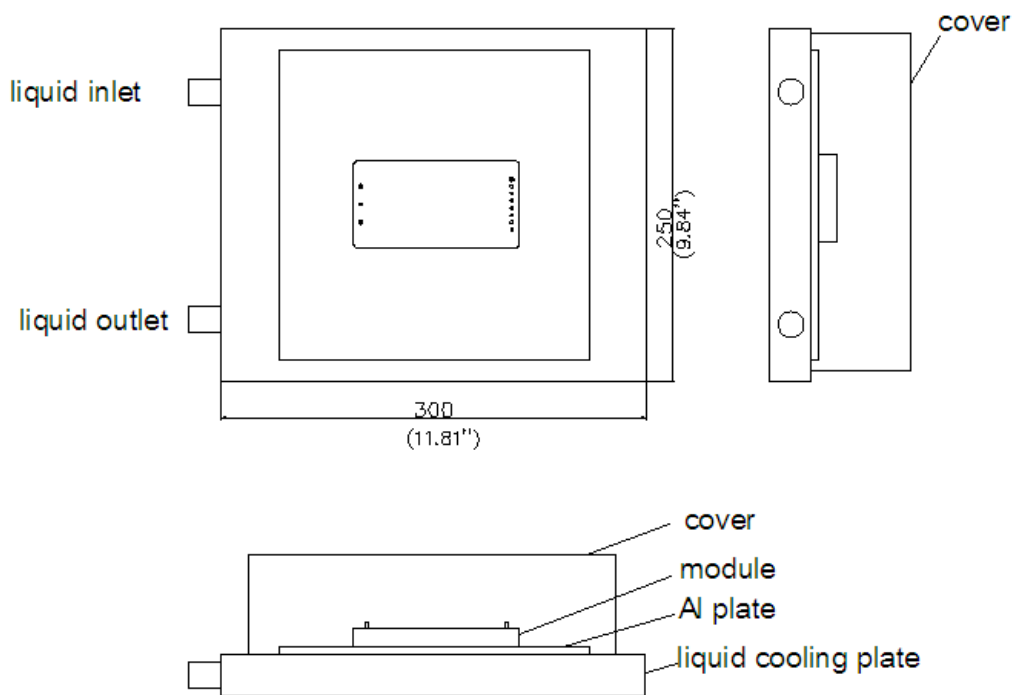


Figure 10: Thermal test setup

THERMAL DERATING CURVE

The following figure shows the location to monitor the temperature of the module's baseplate. The baseplate temperature in thermal curve is a reference for customer to make thermal evaluation and make sure the module is operated under allowable temperature. (Thermal curves shown in Figure 12 are based on different input voltage).

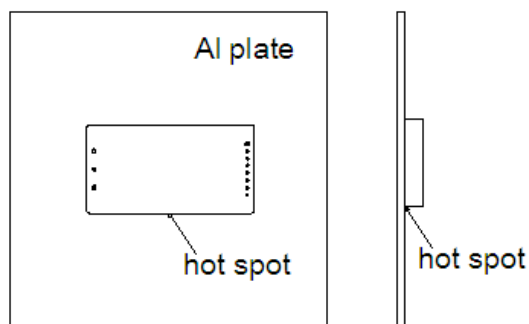


Figure 11: Baseplate's temperature measured point

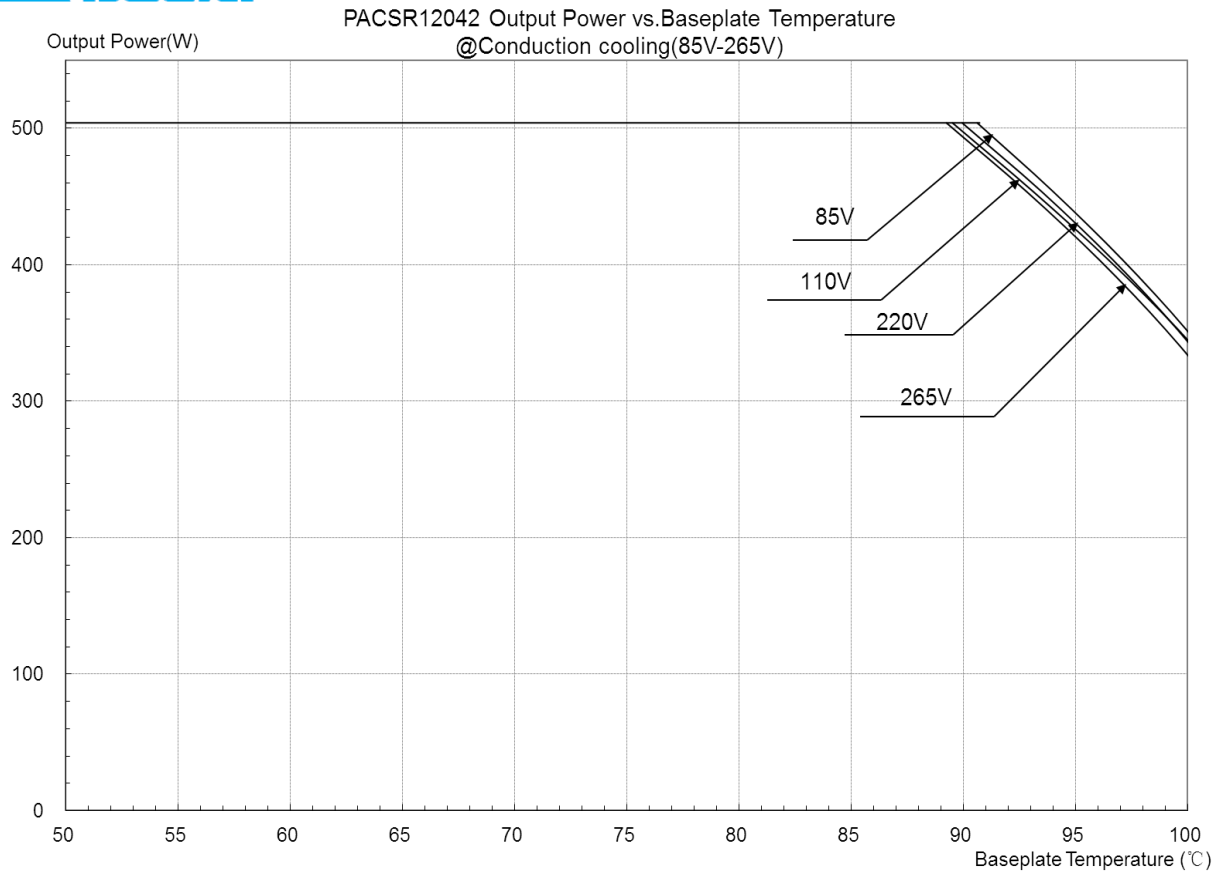
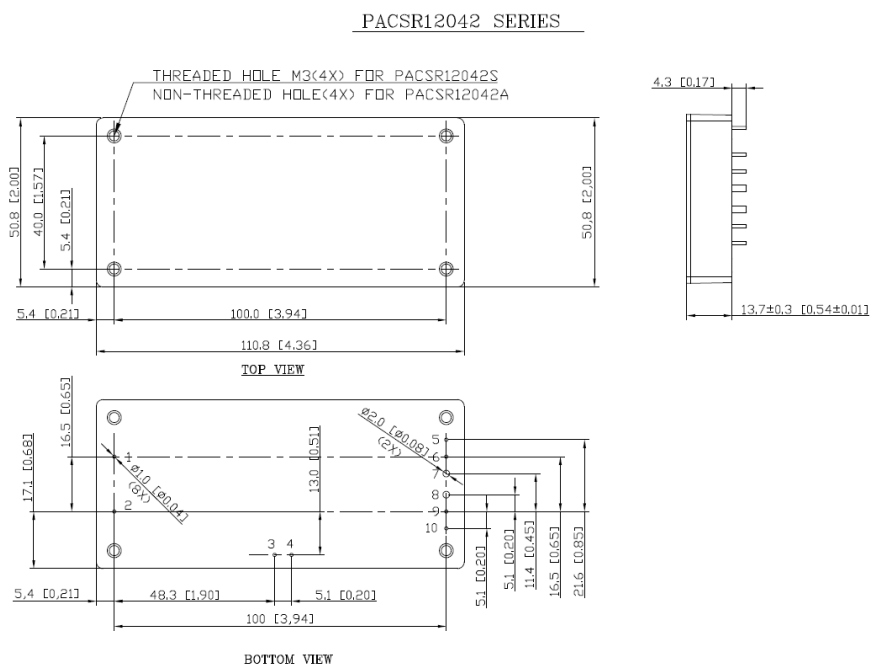


Figure 12: Thermal derating curves

MECHANICAL DRAWING

Mechanical Dimensions



Pin Connection

Pin	Function
1	ACL
2	ACN
3	BUS+
4	BUS-
5	PG
6	SENSE-
7	VOUT-
8	VOUT+
9	SENSE+
10	TRIM

All dimensions in mm (inches)
Tolerance: X.X±0.5 (X.XX±0.02)
X.XX±0.25 (X.XXX±0.010)

PHYSICAL OUTLINE

Case Size	: 110.8x50.8x13.7mm (4.33"x2.00"x0.54")
Case Material	: AL6061+Plastic case
Weight	: 240g±10g

PART NUMBERING SYSTEM

P	AC	S	R	12	042	A
Form Factor	Input Voltage	Number of Outputs	Product Series	Output Voltage	Output Current	Option Code
P - Module	AC - 85VAC~265VAC	S - Single	R - Regular	12.3V	42A	A - Through hole S - Screw hole(M3*0.5)

MODEL LIST

Input Voltage Range	Input		Output		EFF @220VAC 100% LOAD
PACSR12042A	85VAC~265VAC	7.3A	12.3V	42A	92.5%
PACSR12042S	85VAC~265VAC	7.3A	12.3V	42A	92.5%

WARRANTY

Delta offers a three (3) years limited warranty. Complete warranty information is listed on our web site or is available upon request from Delta.

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