GAPTEC®
GREEN TECHNOLOGY

60ACMEB Series

60W - Single Output AC-DC Converter - Universal Input - Isolated & Regulated

AC-DC Converter 60 Watt

- Universal input: 90~264VAC
- Regulated output, low ripple and noise
- High efficiency up to 88%
- Plastic case, meets UL94V-0
- Short circuit protection (SCP)
- Output power protection (OPP)
- Over voltage protection (OVP)
- Meet EN60950, UL60950
- Mounting: PCB Mounting & Chassis Mounting with Screw Terminals
- Meets EN60601-1, ANSI/AAMI ES60601-1 standards (2xMOOP)
- UL 60950-1 (pending)

The 60ACMEB series is a compact size power converter offered by Gaptec. It features universal input voltage, taking both DC and AC input voltage, low power consumption, high efficiency, high reliability, safer isolation. It offers good EMC performance, meets IEC/EN61000-4, CISPR22/EN55022, UL60950 and EN60950 standards, and is widely used in medical instrumentation and critical applications in commercial and industrial electronic equipment.

c UL us (pending) CB CE

Approval	Model*	Power [W]	Output voltage [V]	Output current [mA, max]	Capacitive Load [µF, max]	Efficiency [@230VAC, %, typ]
UL/CE	60ACMEB_05S4	60	5.1	10000	10000	86
UL/CE	60ACMEB_09S4	60	9	6666	5000	87
UL/CE	60ACMEB_12S4	60	12	5000	5000	88
UL/CE	60ACMEB_15S4	60	15	4000	4000	86
UL/CE	60ACMEB_24S4	60	24	2500	2000	87

* Add suffix CM for Chassis mounting with screw terminals (f.ex. 60ACMEB_05S4CM), see different package measurements.
Add suffix DR for Din-Rail mounting (f.ex. 60ACMEB_05S4DR).

Input specifications

Input voltage range	90-264 VAC; 120-370 VDC " N " to DC " + " ; "L " to DC " - "	
Input frequency	47~440Hz	
Input current	115VAC • 1.5A (max)	230VAC • 1A (max)
Inrush current (<2ms, cold start)	115VAC • 55A (typ)	230VAC • 95A (typ)
Leakage current	< 0.1mA/264VAC (touch current)	
Recommended external fuse	• 3.15A	• slow-blow

Protection specifications

Short circuit protection	Protection type: Automatic recovery
Over-voltage protection	Protection type: Zener diode clamp
Over-power protection	Protection type: Hiccup model, auto recovery

Example:
60ACMEB_05S4
60= 60Watt; AC= AC-DC; MEB= series; 5Vout; S= Single Output; 4= 4kVAC

Output specifications

Item	Test conditions	Min	Typ	Max	Units
Output wattage	• 60ACMEB_05S4 • Others			51 60	W W
Output voltage accuracy	Full load		±2		%
Line regulation			0.5		%
Load regulation	1% to 100% load • 60ACMEB_05S4/ 60ACMEB_09S4 • Others		1.5 1		% %
Ripple & noise*	• 60ACMEB_05S4/ 60ACMEB_09S4 • Others			100 1% of Vout	mV
Hold-up time	full load			10	ms

* Measured at 20MHz of bandwidth with 0.1uF & 47uF parallel capacitor.

Note:

1. **This product is not designed for use in critical life support systems, equipment used in hazardous environment, nuclear control systems or other such applications which necessitate specific safety and regulatory standards other the ones listed in this datasheet.**
2. Safety approvals cover frequency 47-63 Hz.
3. That "natural convection" is about 20LFM but is not equal to still air (0 LFM).
4. It's recommended to add Varistor 14S471K at L / N input side in parallel.
5. All specifications valid at normal input voltage, full load and +25°C after warm-up time unless otherwise stated.

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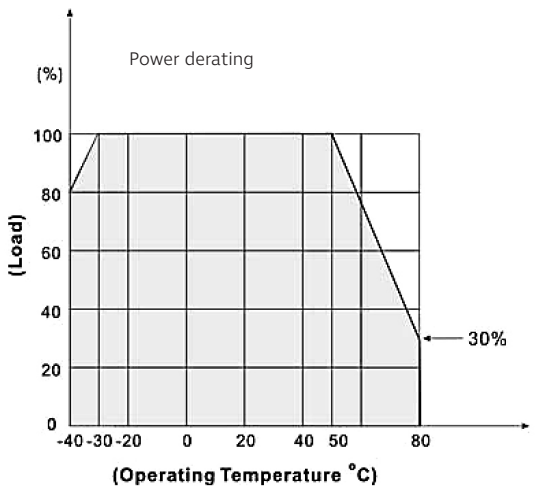
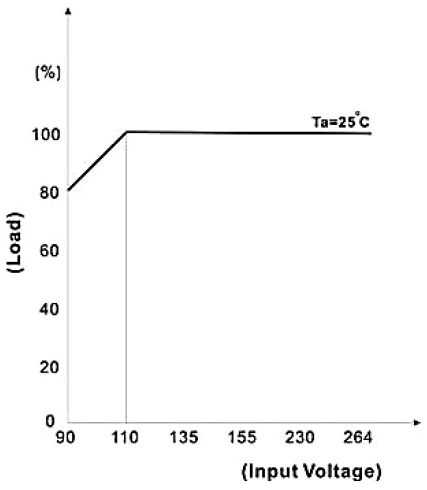
Common specifications			
Operating temperature range	-40°C ~ +80°C (with derating)		
Power derating temperature range	55°C ~ 70°C: 3.75%/°C -40°C ~ -10°C: 2%/°C		
Storage temperature range	-40°C ~ +90°C		
Case temperature range	Under 115VAC 73°C, others 80°C		
Humidity (non-condensing)	95% MAX		
Cooling	Free air convection		
Temperature coefficient	±0.05%/°C		
I/O-isolation voltage	4000VAC		
Altitude during operation	5000m		
Atmospheric pressure	70kPa to 106kPa		
EMC / EMI / Conducted and radiated EMI	EN55011 class B (Radiation Class A for 60ACMEB_S4CM series)		
EMC / EMS / ESD	IEC/EN 61000-4-2	Contact ±4KV / Air ±8KV	perf. Criteria B
EMC / EMS / Radiated Immunity	IEC/EN 61000-4-3	10V/m	perf. Criteria A
EMC / EMS / Fast Transient	IEC/EN 61000-4-4	±2kV	perf. Criteria B
EMC / EMS / Surge	IEC/EN 61000-4-5	±1KV	perf. Criteria B
EMC / EMS / Conducted immunity	IEC/EN 61000-4-6	10Vr.m.s	perf. Criteria A
EMC / EMS / PFMF	IEC/EN 61000-4-8	30A/m	perf. Criteria A
EMC / EMS / Dips	IEC/EN 61000-4-11	30% / 10ms	perf. Criteria B
EMC / EMS / Interruption	EN61000-4-11	>95% 5000ms	
Safety standards	IEC60950, EN60950, UL60950		
Safety approvals	cUL / UL Standard: UL 60950-1, CAN/CSA C22.2 No. 60950-1-07 ANSI/AAMI ES60601-1 (2005 + C1:09 + A2:10), CAN/CSA-C22.2 No. 60601-1 (2008), 2 x MOPP CB Standard: IEC 60950-1:2005 (2nd Edition) + Am 1:2009 + Am 2:2013 IEC 60601-1:2005 (3rd Edition) + CORR. 1 (2006) + CORR. 2 (2007) + AM1 (2012) or IEC 60601-1 (2012 reprint), 2 x MOPP		
Case material	UL94V-0		
MTBF	200,000 h~400,000 h @25°C		
Package	89.0 x 63.5 x 27.0 mm		
Weight	260g		

Typical characteristics

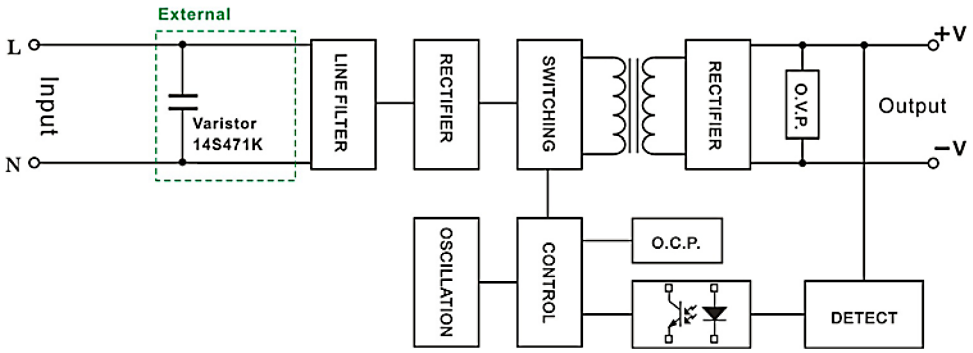
Derating graphs



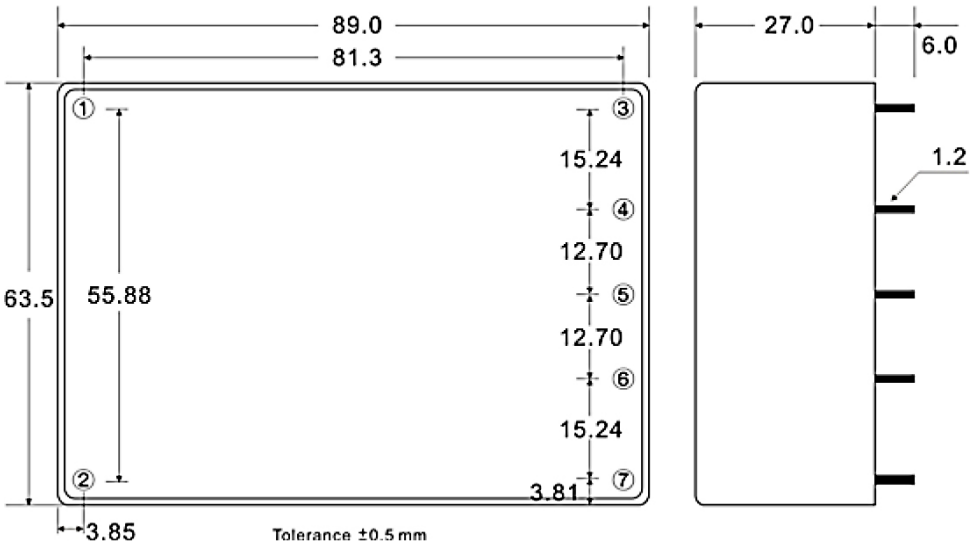


Block diagram

Single Output



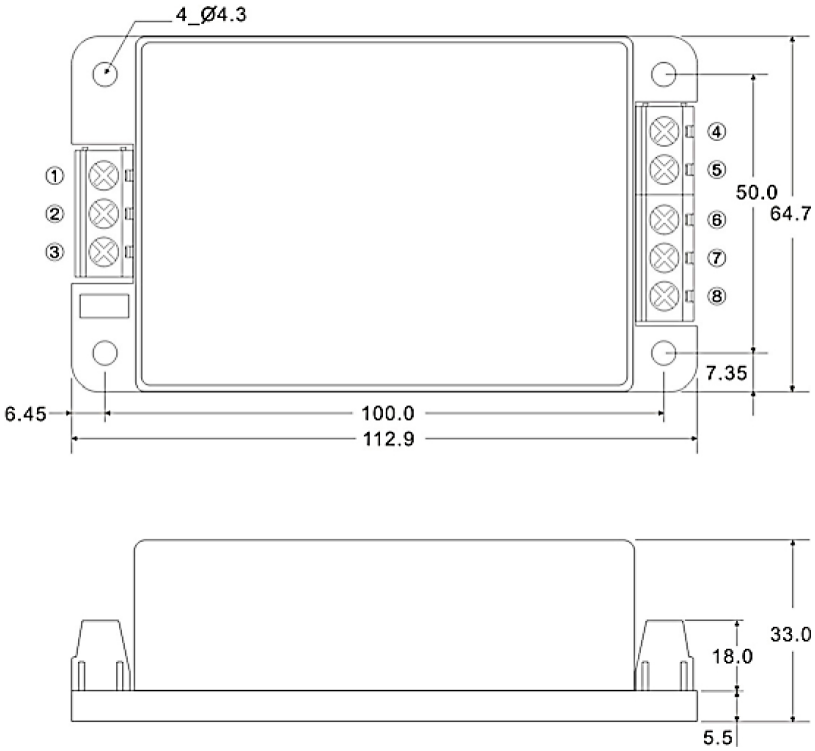
Mechanical dimensions



PIN	Single
1	AC IN (L)
2	AC IN (N)
3	+DC OUT
4	NO PIN
5	-DC OUT
6	NO PIN
7	NO PIN

Note:
Unit: mm[inch]
General tolerances: ±0.50mm [±0.020inch]

Chassis mounting with screw terminals



PIN	Single
1	NO CONNECT
2	AC IN (L)
3	AC IN (N)
4	+DC OUT
5	NO CONNECT
6	-DC OUT
7	NO CONNECT
8	NO CONNECT