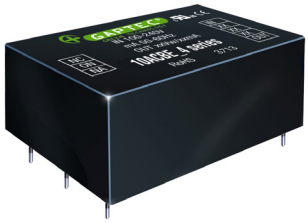
10ACBE_4 Series

10W - Single/Dual Output AC-DC Converter - Universal Input - Isolated & Regulated



AC-DC Converter 10 Watt

- Universal input: 85~264VAC, 100~370VDC
- Regulated output, low ripple and noise
- High efficiency up to 82%
- Plastic case, meets UL94V-0
- Over current protection
- Short circuit protection (SCP)
- Over voltage protection
- Meets IEC62368, UL62368, EN62368 standards
- PCB mounting, chassis mounting, DIN rail mounting

The 10ACBE_4 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, which meet IEC/EN61000-4, CISPR32/EN55032, UL62368 and EN62368 standards, and it's widely used in industrial, office and civil applications. For harsh EMC environment, the application circuit in the datasheet is strongly recommended.

UL-62368-1 (E347551)

Certification	Model*	Output power [W]	Output [Vo]	Output [mA]	Capacitive Load [µF, max]	Efficiency [%, typ]
UL/CE/CB	10ACBE_03S4	6.6	3.3	2000	27000	70
UL/CE/CB	10ACBE_05S4	10	5	2000	9500	76
UL/CE/CB	10ACBE_09S4	10	9	1100	3600	78
UL/CE/CB	10ACBE_12S4	10	12	900	2400	80
UL/CE/CB	10ACBE_15S4	10	15	700	1200	81
UL/CE/CB	10ACBE_24S4	10	24	450	470	82

* Add suffix CM for Chassis mounting with screw terminals (f.ex. 10ACBE_03S4CM) or suffix DR for DIN rail mounting (f.ex. 10ACBE_03S4DR).
See different package measurements at mechanical specifications.

Input specifications		
Input voltage range	85~264VAC, 100~370VDC	
Input frequency	47~63Hz	
Input current	115VAC • 0.26A (max)	230VAC • 0.16A (max)
Inrush current	115VAC • 13A (typ)	230VAC • 23A (typ)
Leakage current	0.3mA RMS typ./230VAC/50Hz	
Recommended External Input Fuse	• 2A/250V	• slow fusing
Hot plug	Unavailable	

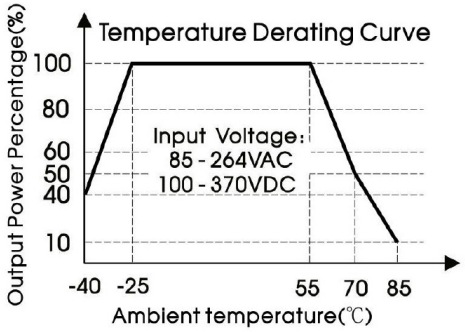
Output specifications	
Voltage accuracy	±2%; 3.3V output voltage: ±3%
Input variation	±0.5% (main output) ±1.5% (supplement output)
Line regulation (full load)	±0.5%
Load regulation (0% to 100%)	±1%
Minimum load	0%
Ripple & Noise (p-p)	20MHz Bandwidth: 50mV (typ), 100mV (max)
Short circuit protection	Continuous, and auto resume
Over current protection	≥110% I_o self-recovery
Output over-voltage protection • 3.3/5VDC models • 9VDC models • 12/15VDC models • 24VDC models	 • ≤7.5VDC • ≤15VDC • ≤20VDC • ≤30VDC
Hold-up time	Vin=115VAC: 15ms TYP Vin=230VAC: 80ms TYP
Temperature coefficient	0.02%/°C

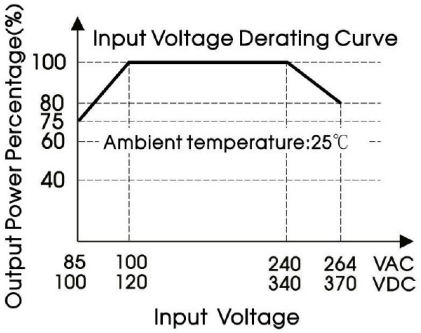
Example:
10ACBE_05S4
10= 10Watt; AC= AC-DC; B= series; E= Cost effective; 5Vout; S= Single Output; 4= 4kVAC

Note:
1. Unless otherwise specified, parameters in this datasheet were measured under the conditions of Ta = 25°C, humidity <75% with nominal input voltage and rated output load;
2. All index testing methods in this datasheet are based on our Company's corporate standards;
3. We can provide product customization service, please contact our technicians directly for specific information;
4. Products are related to laws and regulations: see „Features" and „EMC";
5. Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units.

Common specifications			
Operating temperature range	-40°C ~ +85°C		
Power derating temperature range	• -40°C ~ -25°C: 4.0 %/°C (min) •+45°C ~ +70°C: 3.3 %/°C (min) • +55°C ~ +70°C: 2.7%/°C (min) • 85VAC-100VAC: 1.67%/VAC (min) • 240VAC-264VAC: 0.83%/VAC (min)		
Storage temperature range	-40°C ~ +105°C		
Humidity (non-condensing)	95% MAX		
Welding Temperature	Wave-soldering: 260±5°C, time:5~10s Manual-welding: 360±10°C, time:3~5s		
Switching frequency	100kHz TYP		
Cooling	Free air convection		
I/O-isolation voltage	Input-output: 4000VAC/1Mmin Input-PE: 2500VAC/1min		
EMC / EMI / CE	CISPR32/EN55032	CLASS B	
EMC / EMI / RE	CISPR32/EN55032	CLASS B	
EMC / EMS / ESD	IEC/EN 61000-4-2	±6KV / ±8KV	perf. Criteria B
EMC / EMS / RS	IEC/EN 61000-4-3	10V/m	perf. Criteria A
EMC / EMS / EFT	• IEC/EN 61000-4-4 • IEC/EN 61000-4-4	± 2kV ± 4kV (see EMC solution recommended circuit)	perf. Criteria B perf. Criteria B
EMC / EMS / Surge	• IEC/EN 61000-4-5 • IEC/EN 61000-4-5	line to line ±1KV/line to ground ±2KV line to line ±2KV/line to ground ±4KV (see EMC solution recommended circuit)	perf. Criteria B perf. Criteria B
EMC / EMS / Conducted disturbance immunity	IEC/EN 61000-4-6	10Vr.m.s	perf. Criteria A
EMC / EMS / Immunities of voltage dip, drop and short interruption	IEC/EN 61000-4-11	0%-70%	perf. Criteria B
Safety standards	IEC62368/EN62368/UL62368		
Safety certification	IEC62368/EN62368/UL62368 (pending)		
Safety class	CLASS I		
Case material	UL94V-0		
Install	PCB mounting, chassis mounting, DIN rail mounting		
MTBF	>300,000h @25°C		
Package	• 55.00*45.00*21.00 mm (PCB mounting) • 96.10*54.00*29.50 mm (Chassis mounting) • 96.10*54.00*34.10 mm (DIN rail mounting)		
Weight	• 75g (PCB mounting) • 125g (Chassis mounting) • 165g (DIN rail mounting)		

Typical characteristics

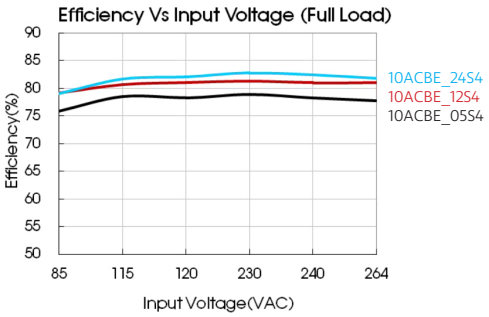


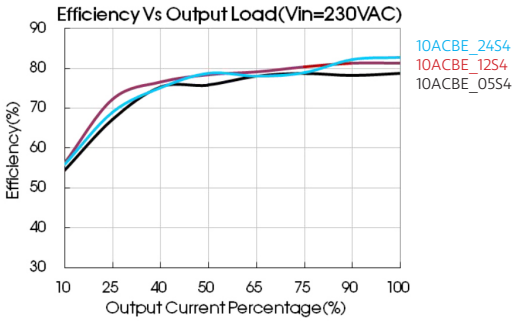


Note:

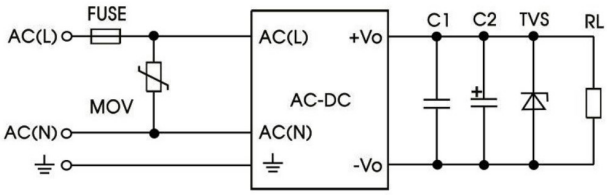
1. When input 85~100VAC/240~264VAC/100~120VDC/340~370VDC, it needs to be voltage derated on basis of temperature derating;
2. This product is suitable for use in natural air cooling environments, if in a closed environment, please contact our company's FAE.

Efficiency





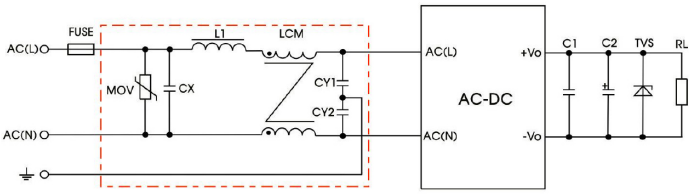
Typical application circuit



Note:
Output filtering capacitors C2 is electrolytic capacitors, it is recommended to use high frequency and low impedance electrolytic capacitor. For capacitance and current of capacitor please refer to manufacture's datasheet. Capacitor voltage reduced to at least 80%. C1 is ceramic capacitors, which is used to filter high-frequency noise. TVS is a recommended component to protect post-circuits if converter fails.

External circuit parameters				
Model	C2 (µF)	Fuse	MOV	TVS1
10ACBE_03S4	470	2A/250V slow fusing, necessary	S14K300	SMBJ7.0A
10ACBE_05S4	330			SMBJ7.0A
10ACBE_09S4	120			SMBJ12A
10ACBE_12S4	120			SMBJ20A
10ACBE_15S4	120			SMBJ20A
10ACBE_24S4	68			SMBJ30A

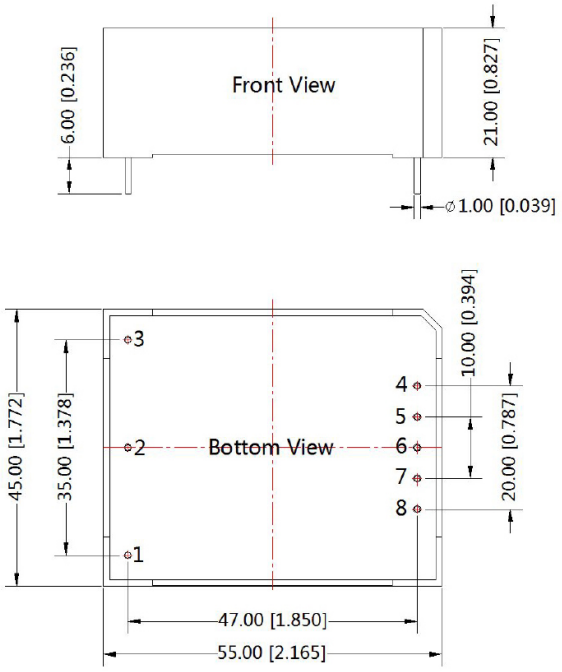
EMC solution recommended circuit

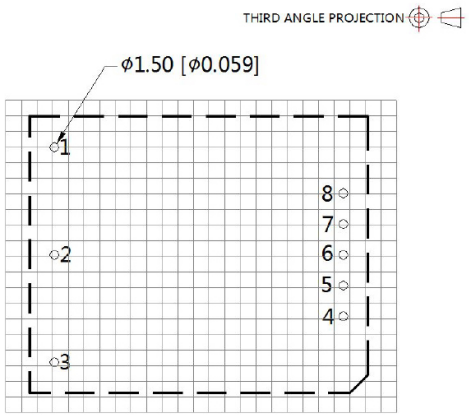


EMC Recommended circuit with higher requirements

Components	Recommend Parameter
MOV	S14K300
CY1, CY2	1000pF/400VAC
CX	0.1µF/275VAC
LCM	10mH
LDM	4.7uH/2A
FC-LX1D	2KV/4KV EMC filter
FUSE	2A/250V slow fusing, necessary

Mechanical dimensions



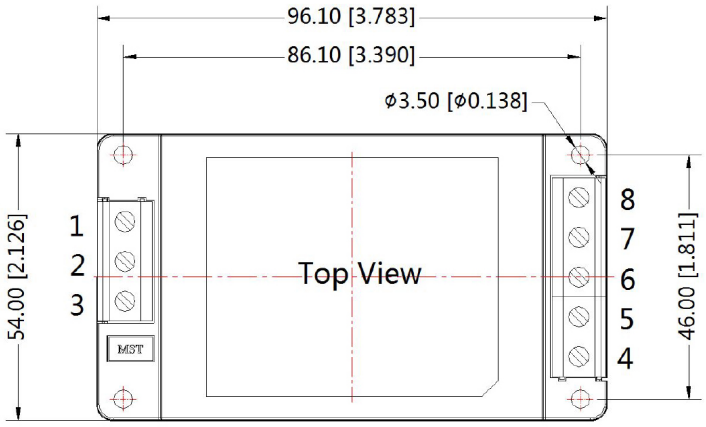


Note: grid 2.54*2.54mm

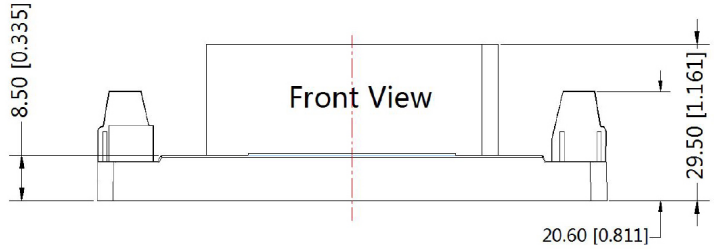
Pin-Out	
PIN	10ACBE_4
1	⏚
2	AC(N)
3	AC(L)
4	+Vo
5	No Pin
6	No Pin
7	No Pin
8	-Vo

Note:
Unit :mm[inch]
Pin diameter tolerances :±0.10[±0.004]
General tolerances:±0.50[±0.020]

Chassis mounting with screw terminals

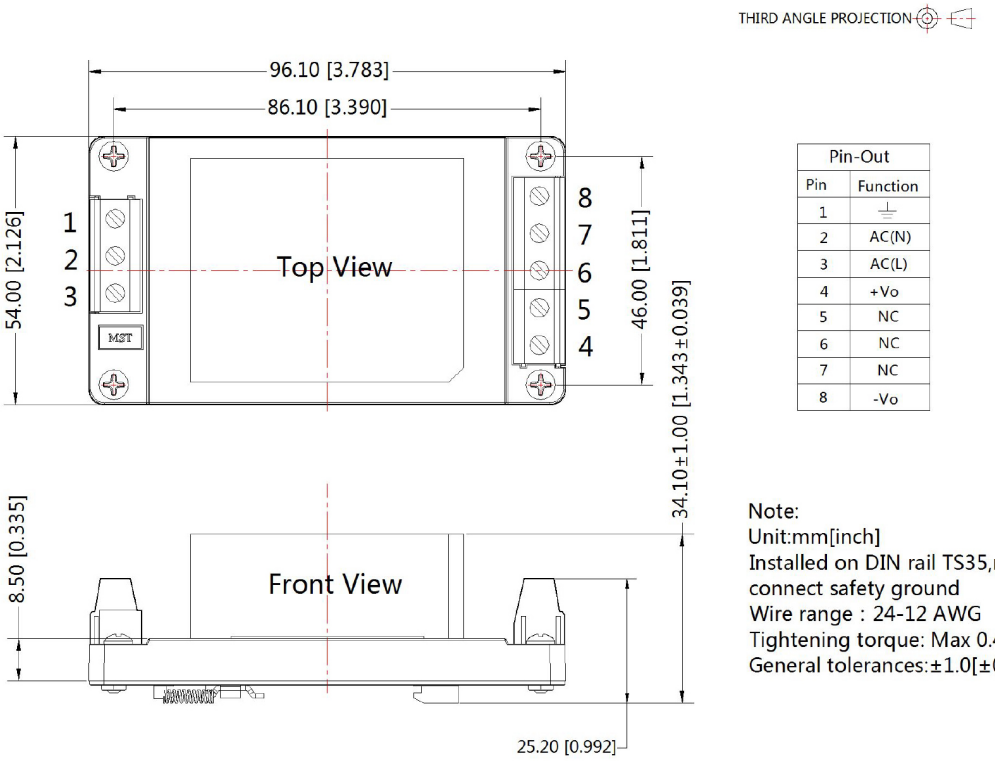


Pin-Out	
Pin	Function
1	⏚
2	AC(N)
3	AC(L)
4	+Vo
5	NC
6	NC
7	NC
8	-Vo



Note:
Unit:mm[inch]
Wire range : 24-12 AWG
Tightening torque: Max 0.4 N·m
General tolerances:±1.0[±0.040]

Mechanical dimensions



Pin-Out	
Pin	Function
1	⏚
2	AC(N)
3	AC(L)
4	+Vo
5	NC
6	NC
7	NC
8	-Vo

Note:
Unit:mm[inch]
Installed on DIN rail TS35,rail needs to connect safety ground
Wire range : 24-12 AWG
Tightening torque: Max 0.4 N·m
General tolerances:±1.0[±0.040]