

DA series

PCB mount ultra-compact, regulated, high voltage DC-DC converters



- 72 standard products
- Vin: 15Vdc or 24Vdc
- Vout: 0 to 1kV, 2kV or 4kV
- Pout: 1W, 2W or 4W

(The DA & DE series are complementary)



Mains applications:

Avalanche Photo Diodes (APD)	Electrostatic Chuck (E-chuck)	Gas Chromatography
Geiger-Müller Tubes (GM Tubes)	Particle physics detectors	Scanning electron microscopes
Laser range finder detectors	Photomultiplier Tubes (PMT)	PZT Drivers

Features :

Small and lightweight	Tight line / load regulation	Low ripple (0.005% Vpk-to-pk)
PCB flat mounting	Voltage & current monitors	Low noise due to metal shielding
Adjustable output from 0 to 100%	Arc and short circuit protected	Thermal protection

Specifications (at Tamb=25°C unless otherwise specified):

Input voltage Vin, (pins 2 & 3)	15Vdc $\pm$ 1.5Vdc or 24Vdc $\pm$ 2Vdc, according to model
HV output Vout, (pin 8)	0 to 1000V through 0 to 4000V according to model
Polarity	Fixed positive [DAxxP] or negative [DAxxN]; refer to the Selection Guide
HV setting, (pins 4 & 6)	Option C5: via external voltage source 0/ 5V $\pm$ 0.1 % at full scale, impedance input = 1M Ω Option C10: via external voltage source 0/ 10V $\pm$ 0.1 % at full scale, impedance input =166K Ω
Max. output current Iout	Limited to 110 % of nominal current; refer to the Selection Guide
Load voltage regulation	$\pm$ 0,01 % of full output voltage for no load to full load
Line voltage regulation	$\pm$ 0,01 % of full output voltage over specified input voltage range
Ripple	0,005 % peak-to-peak at full load
Temperature coefficient	100ppm/°C
Output HV monitoring (pin 7) (still operating in inhibition mode)	• Option C5: analog 0/+ 5V buffered output signal, accuracy $\pm$0.2 % • Option C10: analog 0/+10V buffered output signal, accuracy $\pm$0.2 % Output impedance = 1k Ω Temperature coefficient: 100ppm/°C
Output current monitoring (pin 5) (still operating in inhibition mode)	Option C5: analog 0/+ 5V buffered output signal, accuracy $\pm$ 2 % Option C10: analog 0/+10V buffered output signal, accuracy $\pm$ 2 % Output impedance = 1k Ω Temperature coefficient: 100ppm/°C
HV power ON/OFF (pin 1)	To enable HV output, connect pin 1 to ground. Open collector and TTL level signal compatible. Unconnected pin1 disables HV output.
Operating temperature	Refer to Derating Curve below
Storage temperature	-10°C to +70°C



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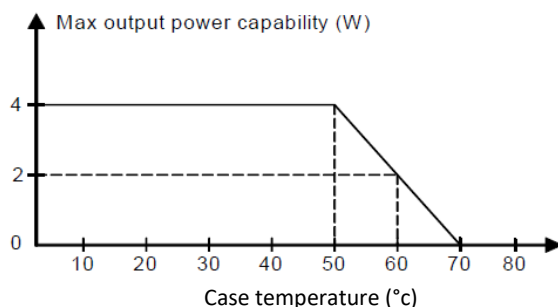
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Safeguards

- Protected against reverse V_{in}
- Soft start feature : the start is guaranteed with no overshoot
- Auto inhibition if $T_{case} > 75^{\circ}\text{C}$ (automatic restart after cooling)
- HV setting internally limited to 10.6V for the C10 models and to 5.3V for the C5 models

Derating curve:



The installation of a heatsink might be necessary in a confined environment.

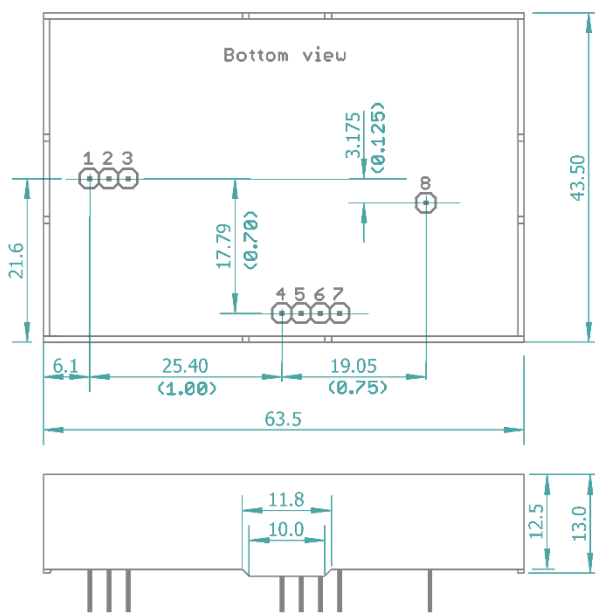
Mechanical dimensions & pinout:

Material: RoHS tinned steel sheet 0.8mm

Dimensions in mm (inch).
Overall tolerance: ± 0.1



European projection



Warning: do not trace any copper track on the top side of the substrate board to prevent contact with the metal case



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Package configuration:

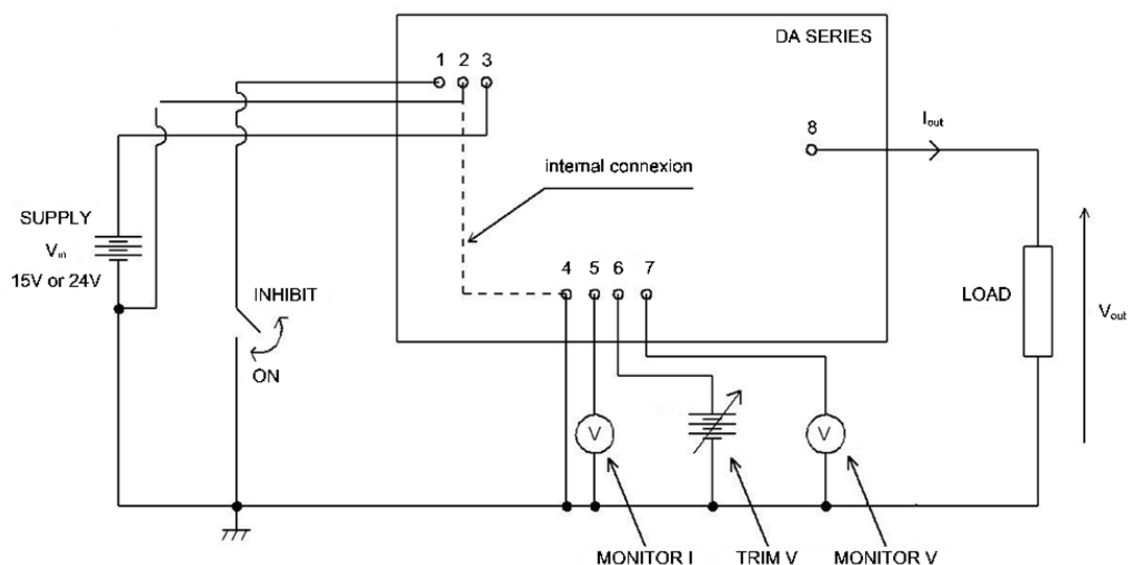
Case material	Tin steel plate
Case dimensions LxWxH	63.5 x 44.0 x13.0 mm
Pins	Square 0.63 x 0.63 mm
Weight	72g
Insulation	Fully potted in an UL registered epoxy resin

Pins function:

HV inhibition (logic input)	1: input inhibit
Input supply	2: supply 0V 3: supply V+
Signal ground	4: 0V signal
HV current monitor (analog output)	5: current monitor
HV setting (analog input)	6: control input
HV voltage monitor (analog output)	7: voltage monitor
HV output	8: HV

Note : Pin 2, pin 4 and the case are internally connected. HV return path must be connected to pin 2.

Pins function:



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Ordering selection guide:

Vout	Iout/pout	Vin	Polarity	Ctrl/ Monitor	Old reference	Ordering Ref.	#
1kV	1mA / 1W	15	-	0/5V	DA15N102102-5	DA15N1-1-C5	#1
				0/10V	DA15N102102-10	DA15N1-1-C10	#2
			+	0/5V	DA15P102102-5	DA15P1-1-C5	#3
				0/10V	DA15P102102-10	DA15P1-1-C10	#4
		24	-	0/5V	DA24N102102-5	DA24N1-1-C5	#5
				0/10V	DA24N102102-10	DA24N1-1-C10	#6
			+	0/5V	DA24P102102-5	DA24P1-1-C5	#7
				0/10V	DA24P102102-10	DA24P1-1-C10	#8
	2mA / 2W	15	-	0/5V	DA15N102202-5	DA15N1-2-C5	#9
				0/10V	DA15N102202-10	DA15N1-2-C10	#10
			+	0/5V	DA15P102202-5	DA15P1-2-C5	#11
				0/10V	DA15P102202-10	DA15P1-2-C10	#12
		24	-	0/5V	DA24N102202-5	DA24N1-2-C5	#13
				0/10V	DA24N102202-10	DA24N1-2-C10	#14
			+	0/5V	DA24P102202-5	DA24P1-2-C5	#15
				0/10V	DA24P102202-10	DA24P1-2-C10	#16
	4mA / 4W	15	-	0/5V	DA15N102402-5	DA15N1-4-C5	#17
				0/10V	DA15N102402-10	DA15N1-4-C10	#18
			+	0/5V	DA15P102402-5	DA15P1-4-C5	#19
				0/10V	DA15P102402-10	DA15P1-4-C10	#20
		24	-	0/5V	DA24N102402-5	DA24N1-4-C5	#21
				0/10V	DA24N102402-10	DA24N1-4-C10	#22
			+	0/5V	DA24P102402-5	DA24P1-4-C5	#23
				0/10V	DA24P102402-10	DA24P1-4-C10	#24
2kV	0.5mA / 1W	15	-	0/5V	DA15N202501-5	DA15N2-1-C5	#25
				0/10V	DA15N202501-10	DA15N2-1-C10	#26
			+	0/5V	DA15P202501-5	DA15P2-1-C5	#27
				0/10V	DA15P202501-10	DA15P2-1-C10	#28
		24	-	0/5V	DA24N202501-5	DA24N2-1-C5	#29
				0/10V	DA24N202501-10	DA24N2-1-C10	#30
			+	0/5V	DA24P202501-5	DA24P2-1-C5	#31
				0/10V	DA24P202501-10	DA24P2-1-C10	#32
	1,0mA / 2W	15	-	0/5V	DA15N202102-5	DA15N2-2-C5	#33
				0/10V	DA15N202102-10	DA15N2-2-C10	#34
			+	0/5V	DA15P202102-5	DA15P2-2-C5	#35



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	2.0mA / 4W	24	-	0/10V	DA15P202102-10	DA15P2-2-C10	#36	
				0/5V	DA24N202102-5	DA24N2-2-C5	#37	
			0/10V	DA24N202102-10	DA24N2-2-C10	#38		
			+	0/5V	DA24P202102-5	DA24P2-2-C5	#39	
		0/10V		DA24P202102-10	DA24P2-2-C10	#40		
		15	-	0/5V	DA15N202202-5	DA15N2-4-C5	#41	
				0/10V	DA15N202202-10	DA15N2-4-C10	#42	
			+	0/5V	DA15P202202-5	DA15P2-4-C5	#43	
	0/10V			DA15P202202-10	DA15P2-4-C10	#44		
	24		-	0/5V	DA24N202202-5	DA24N2-4-C5	#45	
				0/10V	DA24N202202-10	DA24N2-4-C10	#46	
			+	0/5V	DA24P202202-5	DA24P2-4-C5	#47	
				0/10V	DA24P202202-10	DA24P2-4-C10	#48	
	4kV	0.25mA / 1W	15	-	0/5V	DA15N402251-5	DA15N4-1-C5	#49
					0/10V	DA15N402251-10	DA15N4-1-C10	#50
				+	0/5V	DA15P402251-5	DA15P4-1-C5	#51
0/10V					DA15P402251-10	DA15P4-1-C10	#52	
24			-	0/5V	DA24N402251-5	DA24N4-1-C5	#53	
				0/10V	DA24N402251-10	DA24N4-1-C10	#54	
			+	0/5V	DA24P402251-5	DA24P4-1-C5	#55	
				0/5V	DA24P402251-10	DA24P4-1-C10	#56	
0.50mA / 2W			15	-	0/10V	DA15N402501-5	DA15N4-2-C5	#57
					0/5V	DA15N402501-10	DA15N4-2-C10	#58
				+	0/10V	DA15P402501-5	DA15P4-2-C5	#59
					0/5V	DA15P402501-10	DA15P4-2-C10	#60
		24	-	0/10V	DA24N402501-5	DA24N4-2-C5	#61	
				0/5V	DA24N402501-10	DA24N4-2-C10	#62	
			+	0/10V	DA24P402501-5	DA24P4-2-C5	#63	
				0/5V	DA24P402501-10	DA24P4-2-C10	#64	
1.00mA / 4W		15	-	0/10V	DA15N402102-5	DA15N4-4-C5	#65	
				0/5V	DA15N402102-10	DA15N4-4-C10	#66	
			+	0/10V	DA15P402102-5	DA15P4-4-C5	#67	
				0/5V	DA15P402102-10	DA15P4-4-C10	#68	
		24	-	0/10V	DA24N402102-5	DA24N4-4-C5	#69	
				0/5V	DA24N402102-10	DA24N4-4-C10	#70	
			+	0/10V	DA24P402102-5	DA24P4-4-C5	#71	
				0/5V	DA24P402102-10	DA24P4-4-C10	#72	



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