DC/DC Converter 50 Watt

50 WBB 024 M12 W00

$V_{I\ nom}$ = 24 V $V_{O\ nom}$ = 12 V $I_{O\ nom}$ = 4.1 A

SYMBOL	PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
INPUT:						
V_{IN}	Input voltage range	Continuously	16.8		30.0	V_{DC}
$V_{IN\ Dyn}$	Input voltage range dynamic	V_{IN} = 14.4 V … 16.8 V for t ≤ 0.1 s V_{IN} = 30.0 V … 33.6 V for t ≤ 1 s	14.4		 33.6	V_{DC} V_{DC}
$V_{IN\ Min}$	Converter shutdown		12.0		14.3	V_{DC}
$V_{IN\ Max}$	Converter shutdown		34.0		37.0	V_{DC}
I_{IN}	Input current no load Nominal load Nominal load	V_{IN} = 33.6 V, I_{OUT} = 0 A V_{IN} = 24.0 V, I_{OUT} = 4.1 A V_{IN} = 14.4 V, I_{OUT} = 4.1 A		 2.4	40 4.9	mA A A
	Input current integral	V_{IN} = 33.6 V			10	A^2s
$I_{IN\ Max}$	Switch on current at $V_{In} \geq V_{In\ min}$	I_{OUT} = 4.1 A Δ t ≤ 200 ms			5	A
	Input Fuse		10 A Pico Fuse			
C_{IN}	Converter input capacitance			30	35	µF
	External Line Inductance				10	µH
	Reverse input protection	parallel diode + input fuse	1.5KE36A			

OUTPUT: Power Unit		16.8 V ≤ V_{IN} ≤ 30.0 V				
$P_{OUT\ Nom}$	Output power			50		W
$V_{OUT\ Nom}$	Output voltage adjustment, factory set		+ 11.9	+ 12.0	+ 12.2	V
Δ V_{OUT}	Load regulation static	0 A ≤ I_{OUT} ≤ 4.1 A T_A = - 40°C … + 70°C	± 2.5 % $V_{out\ nom.}$			V
Δ $V_{O\ dyn.}$	Load regulatin dynamic	Pulse load: 20 - 80 - 20 % x I_{OUT}			± 200	mV
t_{dyn}	Response time	Pulse load: 20 - 80 - 20 % x I_{OUT}		1	2	ms
$V_{O\ rms}$	Ripple	Nominal load BW 300 kHz		100	200	mV
$V_{O\ pp}$	Noise	Nominal load BW 20 MHz			250	mV
t_{on}	Turn on time Vo	0 A ≤ I_{OUT} ≤ 4.1 A resistive load	25		200	ms
t_h	Hold Up Time Option class S2 10ms	0 A ≤ I_{OUT} ≤ 4.1 A	10			ms
	Overvoltage Protection	0 A ≤ I_{OUT} ≤ 4.1 A	Transil Diode 1,5KE15A			
I_{OUT}	Output current			4.1		A
	Output current limitation		4.2			A
I_{AK}	Output short circuit current	short circuit between + V_O and – V_O			6.0	A
	Sense Lines	no				
C_O	Converter Capacitance	Output		8.8		mF

Signals				
	Signals	Input Output	LED yellow LED yellow	

GENERAL SPECIFICATIONS						
f	Switching frequency	V_{IN} = 24 V, I_{OUT}= 4.1 A		100		kHz
η	Efficiency	$P_{OUT} \geq 0.7 \times P_{OUT\ Nom}$	84	87		%
	MTBF (SN 29500)	V_{IN} = 24 V, I_{OUT} = 4.1 A, T_A = + 40°C		500 000		h
	No load, short circuit proof		Continuously			

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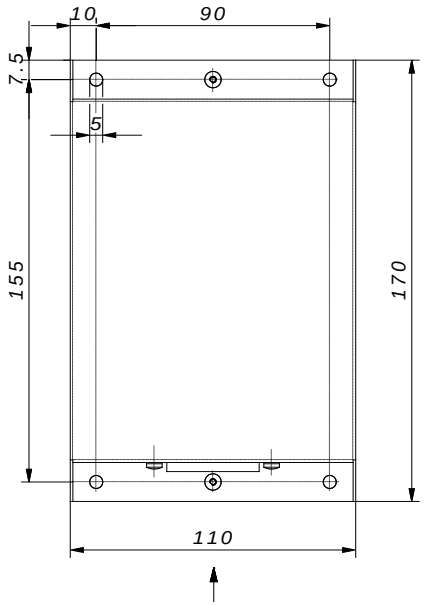
SYMBOL	PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
SAFETY / DIMENSIONS						
	Creepage, Clearance for PD2 and OV 2 PCB: FR4, V0, TG = +140°C	Input – Output Input – Case Output – Case	2.0 2.0 1.0			mm mm mm
	Converter Dielectric Strength Test each unit ramp function 2 s – 3 s – 2 s	Input – Output Input – Case Output – Case			2'100 2'100 750	VDC VDC VDC
	Connector	Input, Output, SE: Combicon 5-pins Required femal plug:	DFK-MSTBA 2.5/5-GF-5.08 MSTB 2.5 HC/5-STF-5.08			
	Pin Assignment		*see drawing*			
	Protection Class, Protection degree		I, IP 20			
	Dimensions *see drwawing*	w x h x d	110 x 170 x 52			mm
	Assembling	Wall mounting with screws	4 x M4			
	Weight			600		g
ENVIRONMENTAL CONDITIONS						
T_A	Operating Range	Continuously EN 50155 class Tx for 10 Min.	- 40 - 40		+ 70 + 85	°C °C
T_{Sto}	Storage Range		- 40		+ 85	°C
	Cooling		convection			
	Humidity	EN 50155, IEC 60571	75% averaged year, 95% 30 days			
	Vibration / Shock	IEC 61373, IEC 68-2-27, EN 50155 Cat. I 3 shocks each Axis	50 m / s² , 30 ms			
EMV						
	Emission	Line conducted and radiated	EN 50121 - 3 - 2: 2007			
	Immunity	ESD EN 61000 - 4 - 2	6 kV / 8 kV performance criteria - B -			
		High Frequency Field EN 61000 - 4 - 3	20 V / m 80 MHz ... 1 GHz performance criteria - A -			
		Burst EN 61000 - 4 - 4	Level 3 asym., sym. performance crtieria - A -			
		Surge EN 61000 - 4 - 5	2 kV asym. / 1 kV sym. R_i = 42 Ω performance criteria - B -			
		HF – Current Injection EN 61000 - 4 - 6	10 V_{eff} , R_i = 150 Ω performance criteria - A -			

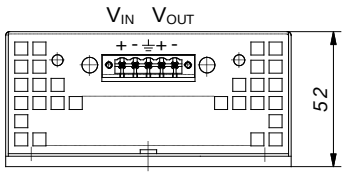
STANDARDS

	Applied Standards:	EN 50155: 2008	BN 411 002	EN 50124 - 1: 2006	EN 50121 - 3 - 2: 2007	IEC 60571
		SN 29 500	EN 50 121 - 1	EN 50125 - 1	EN 60068 - 2 - 6, 2…27	EN 61000 - 4 - 2…6
		IEC 571	IEC 61373	EN 60721 - 3 - 5	EN 61373	EN 60529

Technical specifications valid for: - 40° C ≤ T_A ≤ + 70° C, 16.8 V ≤ V_{IN} ≤ 30.0 V, unless otherwise noted.

Dimensions (in mm) **and pin assignment**





View in direction of the arrow

Order Key

W00	class S1 0ms
W01	class S2 10ms
W10	with mating connector, class S1
W11	with mating connector, classe S2