

500 DDB 024 M110 W □□□

$V_{In\ nom} = 24\ V$

$V_{Out\ nom} = 110\ V$

$I_{Out\ nom} = 4.5\ A$

SYMBOL	PARAMETER	TEST CONDITION	MIN	TYP	MAX	UNIT
INPUT						
V_{In}	Input voltage range	Cont.	16.8		30.0	V_{DC}
	Input voltage range dynamic	$V_{In} = 14.4V \dots 16.8V$ for $t \leq 0.1\ s$ $V_{In} = 30.0V \dots 33.6V$ for $t \leq 1.0\ s$	14.4		33.6	V_{DC}
$V_{In\ min}$	Converter ON		16.8		18.0	V_{DC}
$V_{In\ min}$	Converter OFF		14.0		14.5	V_{DC}
$V_{In\ max}$	Converter OFF		34.0		36.0	V_{DC}
I_{In}	Input current	no load condition Nominal load Nominal Load		50 24 41	100 — 45	mA A A
	Input Inrush Current integral	$V_{In} = 33.6\ V$			15	A^2s
$I_{In\ max}$	Input current $16.8\ V \leq U_E \leq 18.0V$	@ $I_{Out} = 4.5\ A$ $\Delta t \leq 100\ ms$			15	A
	Fuse	Internally		60A		
C_{In}	Input converter capacity			150		μF
	External permitted max. line inductance				50	μH
	Input transient protection	Transil protection diode		1,5 KE 33 CA		
	Input reverse protection (Option)	Diode Function: MOSFET Transistor integrated in minus input line				

OUTPUT: Power Stage

$16.8 \leq V_{In} \leq 30.0\ V$

$P_{Out\ Nom}$	Output power			500		W
$V_{Out\ Nom}$	Output voltage factory adj.	$I_{Out} = 2.0 \dots 2.5\ A$	108	110	112	V_{DC}
ΔV_{Out}	Load regulation staticly	$0\ A \leq I_{Out} \leq 4.5\ A$ $T_{amb} = -40^\circ C \dots +70^\circ C$	$\leq 3\ \% U_{A\ Nenn}$			V
$\Delta U_{A\ dyn.}$	Load regulation dynamic	Pulse lload: $20 - 80 - 20\ \% \times I_{Out\ Nom}$		0.2	0.5	V_p
t_{dyn}	Load regulation time	Pulse load: $20 - 80 - 20\ \% \times I_{Out\ Nom}$		1	3	ms
$V_{Out\ rms}$	Ripple, Noise voltage	Nominal load BW 300 kHz		250	500	mV_{rms}
$V_{Out\ pp}$	Spikes (10 Ω / 0.1 μF)	Nominal BW 20 MHz			1	mV_{pp}
t_{on}	Einschaltzeit: $0V \rightarrow U_{A, nenn}$	$0A \leq I_{Out} \leq 4.5\ A$ resistive load	50		500	ms
$T_{hold\ up}$	Hold Up time	$0\ A \leq I_{Out} \leq 4.5\ A$ class S1 @ EN 50155	0			ms
	Overvoltage Switch OFF $V_{Hsp} \sim V_{Out}$ monitoring	$0\ A \leq I_A \leq 4.5\ A$		Converter OFF: $V_{Out} \leq 130V$		V
I_{Out}	Output current			4.5		A
	Current limitation tresholf		4.6			A
I_{Outsc}	Short current	Short circuit between $+V_{AOut} -V_{Out}$		5.5	8	A
C_{Out}	Output capacity			3		mF

OUTPUT: Signaling

PF	Power Fail (Option Open Collector Trs.) Relais 3 polig $V_s \leq 250\ V, I \leq 50mA$	PF = LOW for $V_{Out} \leq V_{Out\ min}$	$V_{Out} \leq 105V \pm 3\ \%$	
	input: no defined threshold value output:	$V_{In} > 14.4V$ LED ON $V_{Out} > 108V$ LED ON	LED Green LED Green	

COMMON DATA

f	Switching frequency	$V_{In} = 24\ V, I_{Out} = 4.5\ A$		75		kHz
η	Efficiency	$P_{Out} \geq 0,7 \times P_{A\ nenn}$	88	92		%
	MTBF (SN 29500)	$V_{In} = 24\ V, I_A = 4.5\ A, T_{amb} = +40^\circ C$		400 000		h
	No load -, short circuit proofed			continuously		

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SYMBOL	PARAMETER	TEST CONDITION	MIN	TYP	MAX	UNIT
SAFETY / DIMENSIONS						
	Creepage- a. clearance @ PD2 PCB: FR4, V-0, TG typ.: + 150°C	input – output input – case output – case	4.0 3.0 1.0			mm mm mm
	Converter Isolation Test Voltage Piece test Ramp function 2 s - 3 s - 2 s	input – output input – case output – case			2100 1500 750	V _{DC} V _{DC} V _{DC}
	Connectors	Input: WAGO Cage Clamp Output : WAGO Cage Clamp Signal : WAGO Cage Clamp		745 – 304 745 – 152 236 – 402		
	Protection class, protection degree	Erdanschluss: M5 Schraubbolzen		I, IP 40		
	Dimensions incl. mounting plate	L x H x B		325 x 155 x 71,5		mm
	Mounting	Wall mounting with screws		4 x M6		
	Weight			3.0		kg

AMBIENT CONDITIONS

T _{amb}	Operating temperature range	Cont. class T3 EN 50155	- 40		+ 70	°C
T _{Storage}	Storage temperature range		- 40		+ 85	°C
	Cooling		Free convection			
	Humidity	EN 50155, IEC 60571	75% average per year 95% 30 days			
	Vibration / Shock valid only for wall mounting	IEC 61373, IEC 68-2-27 Kat. I 3 Shocks per Axis	50 m / s ² , 30 ms			

EMC

	Radiation	Line and radiated	EN 50121 - 3 - 2: 2010			
	Immunity	ESD EN 61000 - 4 - 2	6 kV / 8 kV Performance criteria - B -			
		HF- 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 criteria - A -			input
		Surge EN 61000 - 4 - 5	2 kV asym. / 1 kV sym. R _i = 42 Ω, perf. criteria - A -			Input
		HF – Injection EN 61000 - 4 - 6	10 V _{eff} , R _i = 150 Ω Performance criteria - A -			input

STANDARDS

Applied standards:	EN 50155: 2010	EN 60529	EN 50124 - 1: 2006	EN 50121 - 3 - 2: 2010	IEC 60571
	SN 29500	EN 50121 - 1	EN 50125 - 1	EN 60068 - 2 - 6, 2...27	EN 61000 - 4 - 2...6
	IEC 571	IEC 61373: 1999	EN 60721 - 3 - 5	EN 61373 : 1999	

Technical Specifications valid for: - 40° C ≤ T_{amb} ≤ + 70° C, 14.4 V ≤ V_{in} ≤ 33.6V, if not otherwise specified.

Dimensions in mm: **see Mech. Drawing**

For free convection cooling keep space free: ≥ 100 mm

*) 1400 MHz – 2100MHz 10V/m 2100MHz – 2500MHz 5V/m

Pin Assignment		
Input X1		Wire gauge
Pin 1	+ V _{in}	6.0mm ²
Pin 2	+ V _{in}	6.0mm ²
Pin 3	- V _{in}	6.0mm ²
Pin 4	- V _{in}	6.0mm ²
Output X2		
Pin 1	+ U _A	2.5mm ²
Pin 2	+ U _A	2.5mm ²
SIGNAL X3		
Pin 1-2 closed.	o.k.	1.0mm ²
Pin 1-2 open	Error-	1.0mm ²

