

150 DDB 024 M24 □ □ □

$V_{I\text{ nom}} = 24\text{ V}, 36\text{ V}$ $V_{O\text{ nom}} = 24\text{ V}$ $I_o = 6.25\text{ A}$

SYMBOL	PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNITS
INPUT						
V_I	Input voltage range	Continuously	14.4		45.0	V_{DC}
	Input voltage range: dynamic	$V_I = 14.4\text{ V} \dots 16.8\text{ V}$ for $t \leq 0.1\text{ s}$ $V_I = 45.0\text{ V} \dots 50.4\text{ V}$ for $t \leq 1\text{ s}$	14.4		50.4	V_{DC}
$V_{I\text{ min}}$	Converter shutdown		13.0	14.0	14.3	V
$V_{I\text{ max}}$	Converter shutdown		51.0		53.5	V
V_{Enable}	Enable Function Reference: $-V_I$	Converter on: Enable = low $V_{\text{Enable}} \leq 1.0\text{ V}, I \leq 2.5\text{ mA}$ Converter off: Enable = high $V_{\text{Enable}} \geq 3.0\text{ V}, I \leq -50\text{ }\mu\text{A}^*$	0		0.8	V
	Stand by current	$14.4\text{ V} \leq V_I \leq 50.4\text{ V}, \text{Enable} = \text{high}$			18	mA
I_I	Input current	No load $V_I = 50.4\text{ V}, I_o = 0\text{ A}$ Nominal load $V_I = 36.0\text{ V}, I_o = 6.25\text{ A}$ Nominal load $V_I = 24.0\text{ V}, I_o = 6.25\text{ A}$ Nominal load $V_I = 14.4\text{ V}, I_o = 6.25\text{ A}$		4.8 7.1	25	mA A A A
	Input current integral	$V_I = 50.4\text{ V}$			15	A^2s
$I_{I\text{ max}}$	Max. input switch on current $V_I \geq V_{I\text{ min}}, (V_{\text{Enable}} \rightarrow \leq 0.8\text{ V})$	$I_o = 6.25\text{ A}$ $\Delta t \leq 100\text{ ms}$	on request			
	Input fuse		20 A			
C_I	Converter input capacity			100		μF
	External line inductance				25	μH
	Reverse input protection	Parallel diode + fuse	1.5KE47A			

OUTPUT: Power unit

$14.4\text{ V} \leq V_I \leq 50.4\text{ V}$

$P_{O\text{ nom}}$	Output power			150		W
$V_{O\text{ nom}}$	Output voltage adjustment, factory set		23.9	24.0	24.2	V
ΔV_O	Regulation	$0\text{ A} \leq I_o \leq 6.25\text{ A}$ $T_A = -40^\circ\text{C} \dots +70^\circ\text{C}$ $T_A = -40^\circ\text{C} \dots +85^\circ\text{C}$	$\leq 2.5\% V_{O\text{ nom}}$ $\leq 3\% V_{O\text{ nom}}$			V
$\Delta V_{O\text{ dyn.}}$	Load regulation dynamic	Load: $20 - 80 - 20\% \times I_{O\text{ nom}}$			500	mV
t_{dyn}	Response time	Load: $20 - 80 - 20\% \times I_{O\text{ nom}}$		1	2	ms
T_A	Operating temperature range	Class Tx EN 50155	-40		+85	$^\circ\text{C}$
$V_{O\text{ rms}}$	Ripple	Nom. load BW 300 kHz		100	250	mV
$V_{O\text{ pp}}$	Noise	Nom. load BW 20 MHz			350	mV
t_{on}	Turn on time V_O	$0\text{ A} \leq I_o \leq 6.25\text{ A}$ Resistive load			200	ms
t_h	Option: Hold up time	$0\text{ A} \leq I_o \leq 6.25\text{ A}$ Class S2 @ EN 50155	10			ms
	Oversvoltage shutdown V_O	$0\text{ A} \leq I_o \leq 6.25\text{ A}, \text{Converter off:}$	$V_O \leq 32.4\text{ V}$			V
I_o	Output current	$14.4\text{ V} \leq V_I \leq 50.4\text{ V}$		8.5		A
	Output current limitation of I_o	$14.4\text{ V} \leq V_I \leq 50.4\text{ V}$	8.6			A
	Output short circuit current	Short circuit between $+V_O$ and $-V_O$			12	A
C_O	Output capacity			10		mF

OUTPUT: Signals

PF	Power Fail Open Collector Transistor $V_{CE\text{ max}} \leq 70\text{ V}, I_{CE\text{ max}} \leq -20\text{ mA}^*$ Reference: $-V_O$	Transistor on: PF= low, $V_O < V_{O\text{ min}}$ Transistor off: PF= high, $V_O \geq V_{O\text{ min}}$ Signal defined for $V_O \geq 0.6 \times V_{O\text{ nom}}$	$V_O < 0.95 \times V_{O\text{ nom}} \pm 2\%$ $V_O \geq 0.95 \times V_{O\text{ nom}} \pm 2\%$	V_{DC} V_{DC}
	Signals	Input: Output:	LED yellow LED yellow	

GENERAL SPECIFICATIONS

f	Switching frequency	$V_I = 24\text{ V}, I_o = 6.25\text{ A}$		100		kHz
η	Efficiency	$P_O \geq 0.7 \times P_{O\text{ nom}}$	86	89		%
	MTBF (SN 29500)	$V_I = 24\text{ V}, I_o = 6.25\text{ A}, T_A = +40^\circ\text{C}$		400 000		h
	No load, short circuit proof		Continuously			

* - sign: sink current

SYMBOL	PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNITS
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SAFETY / DIMENSIONS

	Creepage / clearance distances PD2 PCB FR4, V0, TG = + 140°C	Input – output Input – case Output – case	6.0 4.0 2.0			mm mm mm
	Converter dielectric strength test every unit 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 , Output, SE: 5 pins Required femal plug Enable Signal, Power Fail each 2 pins Required femal plug	Combicon PC 6-16/5-G1F-10,16 Combicon PC 6/5-STF-10,16			
	Protection class, protection system		I, IP 20			
	Dimensions with mounting plate <i>see drawing</i>	w x h x d Chassis mounting or Din rail monting TS35	210 x 160 x 81.5			mm
	Assembling	Chassis mounting with screws or Din rail monting TS35	4 x M5			
	Weight			2.4		kg

ENVIROMENTAL CONDITIONS

T _A	Operating temperature range T _A	Continuously EN 50155 Classe Tx for 10 min.	- 40 - 40		+ 70 + 85	°C °C
T _{Storage}	Storage Temperature		- 40		+ 85	°C
	Cooling		free air convection			
	Humidity	EN 50155, IEC 60571	75% averaged year, 95% 30 days			
	Vibration / Shock valid only for chassis mounting	IEC 61373, IEC 68-2-27, BN 411002 Cat. I 3 Shocks per axis	50 m / s ² , 30 ms			

EMC

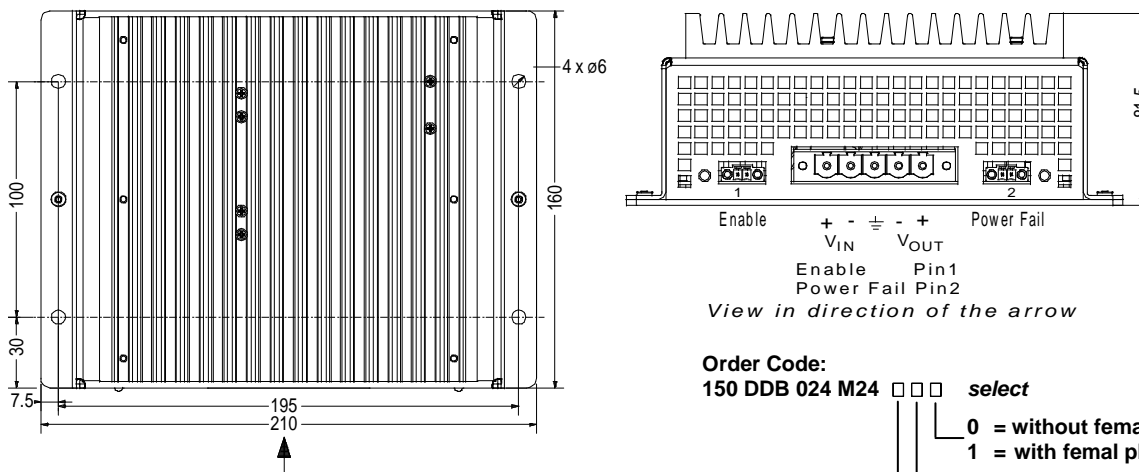
	Emission	Line conducted and radiated	EN 50121 - 3 - 2: 2006		
	Immunity	ESD EN 61000 - 4 - 2	6 kV / 8 kV Performance criteria - B -		
		High frequency field EN 61000 - 4 - 3	20 V / m 80 MHz ... 1 GHz Performance criteria - A -		
		Burst EN 61000 - 4 - 4	Level 3 asym., sym. Performance criteria - A -		
		Surge EN 61000 - 4 - 5	2 kV asym. / 1 kV sym. R _i = 42 Ω, Perf. criteria - A -		
		HF – Current injection EN 61000 - 4 - 6	3 V _{eff} , R _i = 150 Ω Performance criteria - A -		

STANDARDS

Applied standards:	EN 50155: 2006	BN 411 002	EN 50124 - 1: 1996	EN 50121 - 3 - 2: 2006	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	EN 60529

Technical specifications valid for: - 40° C ≤ T_A ≤ + 70° C, 16.8 V ≤ V_i ≤ 45.0 V, unless otherwise noted.

Dimensions (in mm) and Pin Assignment



Keep free space over and under the unit: ≥ 100 mm.

Attention: Take care to a close thermal connection between mounting plate and case.