DC/DC Converter 150 W

150 DDB 110 M24 W30

$V_{In\ nom}$ = 72 V, 110V $V_{Out\ nom}$ = 24 V I_{Out} = 6.25 A

SYMBOL	PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNITS
INPUT						
V_I	Input voltage range	Continuously	50.4		137.5	V_{DC}
V_I	Input voltage range	Dynamic t ≤ 0.1s	43.2		50.4	V_{DC}
V_I	Input voltage range	Dynamic t ≤ 1.0s	137.5		154	V_{DC}
$V_{I\ min}$	Converter switch ON		47.0		50.0	V_{DC}
$V_{I\ min}$	Converter switch OFF		40.0	42.0	43.0	V_{DC}
$V_{I\ max}$	Converter switch OFF		154.5		160	V_{DC}
V_{Enable}	Enable Function Reference: - V_{In}	Converter On: Pin 18 Inhibit = Low Converter Off: Pin 18 Inhibit = n.c.	43.2 0		154 6	V_{DC} V_{DC}
I_I	Input current No load Nominal load Nominal load	V_{In} = 154 V, I_O = 0 A V_{In} = 110 V, I_O = 6.25 A V_{In} = 72 V, I_O = 6.25 A V_{In} = 43.2 V, I_O = 6.25 A		25 1.5 2.3 4.0	40 4.5	mA A A A
	Input current integral, (Inrush current)	V_I = 154 V			10	A^2s
$I_{I\ max}$	Max. input switch on current $V_I \geq V_{I\ min}$,	I_O = 6.25 A Δ t ≤ 100 ms	on request			
	Input fuse	Yes	10AF			
C_I	Converter input capacity			20		µF
	External line inductance				50	µH
	Reverse input protection	Yes	- 154			V_{DC}
	Input voltage transient protection	Varistor + Transil Diode	1.5KE150CA			

OUTPUT: Power Unit		**43.2 V ≤ V_{In} ≤ 154 V**				
$P_{O\ nom}$	Output power	T_A = - 40°C … + 85°C		150		W
$V_{O\ nom}$	Output voltage adjustment, factory set		23.9	24.0	24.1	V_{DC}
Δ V_O	Regulation	0 A ≤ I_{Out} ≤ 6.25 A T_A = - 40°C … + 70°C	≤ 3.0 % $V_{O\ nom}$			V
		T_A = + 70°C … + 85°C Class Tx	10			Min.
Δ $V_{O\ dyn.}$	Load regulation dynamic	Load: 20 - 80 - 20 % x $I_{O\ nom}$		100	250	mV
t_{dyn}	Response time	Load: 20 - 80 - 20 % x $I_{O\ nom}$		1	3	ms
$V_{O\ rms}$	Ripple	Nom. load BW 300 kHz		100	250	mV_{rms}
$V_{O\ pp}$	Noise	Nom. load BW 20 MHz			350	mV_{pp}
t_{on}	Turn on time V_O	50.4 V ≤ V_I ≤ 137.5 V, 0 A ≤ I_O ≤ 6.25 A Resistive load	20		200	ms
t_h	Hold up time P_o = 150W Recharge time loading storage cap: t ≤ 8s, @ 0.5A ≤ I_O ≤ 6.25A	0 A ≤ I_O ≤ 6.25 A Class C2 @ EN 50155	30			ms
	Overvoltage shutdown V_O	0 A ≤ I_O ≤ 6.25 A	Converter off: V_O ≤ 32.4 V			V
I_O	Output current	T_A = - 40°C … + 85°C	6.25	6.3		A
	Output current limitation trip point I_O	T_A = - 40°C … + 85°C	6.35		6.6	A
	Output short circuit current	Short circuit between + V_O and – V_O		8	11.5	A
C_O	Internal output capacity			4		mF
	Max. external connected output capacity				100	mF

OUTPUT: Signals				
PF	Power Fail (Option) Open Collector Transistor V_{CEmax} ≤ 70 V, I_{CEmax} ≤ - 20mA* Reference: - V_{Out}	Transistor On: PF = Low, V_O < $V_{O\ min}$ Transistor Off: PF= High, $V_O \geq V_{O\ min}$ Signal defined for $V_O \geq 0.6 \times V_{O\ nom}$	V_O < 0.95 x $V_{O\ nom}$ ± 3 % $V_O \geq 0.95 \times V_{O\ nom}$ ± 3 %	V_{DC} V_{DC}
	Vout o.k.		LED Green	

GENERAL SPECIFICATIONS						
f	Switching frequency	V_I = 110 V, I_O = 6.25 A		125		kHz
η	Efficiency	$P_O \geq 0.7 \times P_{O\ nom}$	88	91		%
	MTBF (SN 29500)	V_I = 110 V, I_O = 6.25 A, T_A = + 40°C		750 000		h
	No load, short circuit proof		Continuously			

*INHIBIT Pin 18 left open (Converter OFF): $0 \leq I_{INH} \leq 1mA$
Pin 18 connected with Pin 14 (Low): $0 \leq I_{INH} \leq 5\ mA$

SYMBOL	PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNITS
SAFETY / DIMENSIONS						
	Creepage / clearance distances PD2 PCB FR4, V0, TG = + 140°C (+150°C on request), IPC 6012E class 3	Input | Output Input | Case Output | Case	2.0 2.0 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: 15 pins	H15 DIN 41612 Pin 24 leading			
	Protection class, protection system	SE M4 metal case	I, IP 20			
	Dimensions with mounting plate Drill distance 159mm x 89mm	w x h x d Chassis mounting	175 x 120 x 71			mm
	Assembling	Chassis mounting with 4 screws	Diameter Φ 6.3mm			
	Weight			1300	1400	g
ENVIROMENTAL CONDITIONS						
T_A	Operating temperature range T_A	Continuously EN 50155 Classe Tx 10 minutes	- 40 + 70		+ 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 Cat. I 3 Shocks per axis	50 m / s² , 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	10 V_{eff} , R_i = 150 Ω Performance criteria - A -			

STANDARDS

	Applied standards:	EN 50155: 2008	EN 60529	EN 50124 - 1: 2006	EN 50121 - 3 - 2: 2007	IEC 60571
		SN 29500	EN 50121 - 1	EN 50125 - 1	EN 60068 - 2 - 6, 2…27	EN 61000 - 4 - 2…6
		IEC 60571	IEC 61373: 1999	EN 60721 - 3 - 5	EN 61373 : 1999	EN 60695 - 4

Technical specifications valid for: - 40° C ≤ T_A ≤ + 70° C, 50.4 V ≤ V_I ≤ 137.5 V, unless otherwise noted.

Dimensions (in mm) **and Pin Assignment**

H15 – Pin Assignment

Pin	
z 4	+ Vo
d 6	+ V_o
z 8	- Vo
d 10	- Vo
z 12	+ Sense Vo
d 14	EN (- Vin)
z 16	- Sense Vo
d 18	Inhibit
z 20	PF Collector
d 22	PF Emitter
z 24	⏚
d 26	+ V_{In}
z 28	+ V_{In}
d 30	- V_{In}
z 32	- V_{In}

Converter **ON**: Pin 14 connected with Pin 18

Order Code:
150 DDB 110 M24 W 30

W = Chassis mounting

SE: ≥ 4,0mm² connected to case
Keep free space on top and below the converter unit: ≥ 25 mm.
Attention: Take care to a close thermal connection between converter mounting plate and wall.

Fire load mass: 35000kJ @ EN 60695 - 4