

DC/DC Converter

150 W

150 FDB 750 M110 W40

$V_{In\ nom} = 600\ V_{DC}, 750\ V_{DC}$ $V_{O\ nom} = 110\ V$ $I_O = 1.4\ A$

SYMBOL PARAMETER TEST CONDITIONS MIN TYP MAX UNITS

INPUT

V_{In}	Input voltage range	Continuously	400		1'000	V_{DC}
V_{In}	Input voltage range: dynamic short time	$V_{In} = 1'000\ V \dots 1'100\ V$ for 1 s $V_{In} = 1'100\ V \dots 1'269\ V$ for 20 ms			1'100 1269	V_{DC}
$V_{In\ min}$	Converter shutdown				390	V_{DC}
$V_{In\ max}$	Converter shutdown			1'150		V_{DC}
	Switch ON OFF ENABLE condition Ext. $V_{control} \leq 154V$	$0V \leq V_{out_control} < 90\ V_{DC} \pm 5\%$ and $400V_{DC} \leq V_{In} \leq 1'000V_{DC}$				
	Input transients	2 kV / transient pulses				for $t \leq 1\ ms / \geq 10^6$ pulses
I_I	Input current No load Nominal load Nominal load	$V_I = 1'000\ V_{DC}, I_O = 0\ A$ $V_I = 750\ V_{DC}, I_O = 1.4\ A$ $V_I = 400\ V_{DC}, I_O = 1.4\ A$		0.25	15	mA A A
	Input current integral	$V_I = 1'000\ V, 0\ A \leq I_O \leq 1.4\ A$			5	A ² s
$I_{I\ max}$	Max. input switch on current $V_I \geq V_{I\ min}$	$I_O = 1.4\ A$ $\Delta t \leq 100\ ms$		on request		
	Input fuse			2 A		

OUTPUT: Power unit

$400\ V_{DC} \leq V_{In} \leq 1'000\ V_{DC}$

$P_{O\ nom}$	Output power			150		W
$V_{O\ nom}$	Output voltage adjustment, factory set	@ $I_{out} = 0.7\ A$ 50% output load	105	110	112	V_{DC}
ΔV_O	Regulation	$0\ A \leq I_O \leq 1.4\ A$ $T_A = -40^\circ C \dots +70^\circ C$	$\leq 3\ \% V_{O\ nom}$			V
$\Delta V_{O\ dyn.}$	Load regulation dynamic	Load: 20 - 80 - 20 % x $I_{O\ nom}$			500	mV
t_{dyn}	Response time	Load: 20 - 80 - 20 % x $I_{O\ nom}$		1	2	ms
$V_{O\ rms}$	Ripple	Nom. load BW 300 kHz		100	250	mV
$V_{O\ pp}$	Noise	Nom. load BW 20 MHz			750	mV
t_{on}	Turn on time V_O	$0\ A \leq I_O \leq 1.4\ A$ Resistive load			200	ms
t_h	Hold up time	$0\ A \leq I_O \leq 1.4\ A$	-	-	-	ms
	Overvoltage shutdown V_O	$0\ A \leq I_O \leq 1.4\ A$	converter off: $V_O \leq 137.5\ V$			V_{DC}
I_O	Output current			1.4		A
	Output current limitation of I_O		1.5			A
	Output short circuit current	Short circuit between + V_O and - V_O $400\ V \leq V_I \leq 1'000\ V$			3	A
C_O	Output capacity			2		mF

CONTROL Signals

Enable	Converter "ON" only under following conditions:	$400\ V_{DC} \leq V_{In} \leq 1'000\ V_{DC}$ AND $0V \leq V_{out_control} < 90V_{DC} \pm 5\%$	Signals CTRL+, CTRL - referenced to -24V output
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GENERAL SPECIFICATIONS

f	Switching frequency	$V_{In} = 750\ V, I_O = 1.4\ A$		100		kHz
η	Efficiency	$P_O \geq 0.7 \times P_{O\ nom}$	82	85		%
	MTBF (SN 29500)	$V_{In} = 750\ V, I_O = 1.4\ A, T_A = +40^\circ C$		450 000		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 Base isolation acc. to EN 50124-1 / 0V 3 PCB FR4 V0	input – output input – housing/baseplate output – housing/baseplate	8.0 6.0 2.0			mm mm mm
	Dielectric strength test Unit test ramp function: 2s – 3s – 2s Type test 1minute only allowed at factory Attention: Repetition tests with max. 60% voltage level	input – output input – housing/baseplate output – housing/baseplate			4'300 1'500 500	V _{eff} V _{eff} V _{eff}
	Connectors	Input: + V _I and – V _I Output: + V _O and – V _O Control	IP20: screw terminal			
	Protection class, protection system	Depends on model	I, IP 20			
	Dimensions w x h x d <i>see drawing</i>	Din rail mounting, Wall mounting IP 20	315 x 240 x 70			mm mm
	Assembling	Wall mounting with screws	4 x M5			
	Weight			2.5		kg

ENVIROMENTAL CONDITIONS

T _A	Operating temperature range	Continuously for 10 min. EN 50155 Class Tx	- 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	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: 2007			
	Transient withstand	V _I = 1'100 V ... 1'269 V 2 kV 3 kV	for t ≤ 20 ms for t ≤ 1 ms / ≥ 10 ⁶ pulses for t ≤ 0,2 ms			

STANDARDS

	Applied standards:	EN 50155: 2007	BN 411 002	EN 50124 - 1: 2006	EN 50121 - 3 - 2: 2007	IEC 60571
		SN 29500	prEN 50121 - 1	prEN 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
		EN 50163				

Technical specifications valid for: - 40° C ≤ T_A ≤ + 70° C, 400 V_{DC} ≤ V_I ≤ 1'000 V_{DC}, unless otherwise noted.

Dimensions (in mm) and Pin assignment,

PCB varnished

Wall mounting: 150 FDB 750 M110 W40

Din rail mounting, metall housing: e.g.: 150 FDB 750 M110 H41

