

40 WBB 110 M110 W10 Input Reversal Protection MOSFET Minus Input

$V_{I\text{ nom}} = 110\text{ V}$ $V_{O\text{ nom}} = 110\text{ V}$ $I_{O\text{ nom}} = 0.35\text{ A}$

SYMBOL	PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
INPUT:						
V_{IN}	Input voltage range	Continuously	50.4		137.5	V_{DC}
$V_{IN\text{ Dyn}}$	Input voltage range dynamic	$V_{IN} = 43.2\text{ V} \dots 50.4\text{ V}$ $t \leq 0.1\text{ s}$ $V_{IN} = 137.5\text{ V} \dots 154.0\text{ V}$ $t \leq 1.0\text{ s}$	43.2		154.0	V_{DC} V_{DC}
$V_{IN\text{ Min}}$	Converter shutdown		40		43	V_{DC}
$V_{IN\text{ Max}}$	Converter shutdown		156		160	V_{DC}
I_{IN}	Input current no load	$V_{IN} = 154\text{ V}, I_{OUT} = 0\text{ A}$		0.5	40	mA
	Nominal load	$V_{IN} = 110\text{ V}, I_{OUT} = 0.35\text{ A}$			1.0	A
	Nominal load	$V_{IN} = 66.0\text{ V}, I_{OUT} = 0.35\text{ A}$				A
	Input current integral	$V_{IN} = 154.0\text{ V}$			5	A ² s
$I_{IN\text{ Max}}$	Switch on current at $V_{IN} \geq V_{IN\text{ min}}$	$I_{OUT} = 0.35\text{ A}$ $\Delta t \leq 200\text{ ms}$			5	A
	Input Fuse		4 A Pico Fuse			
C_{IN}	Converter input capacitance			10	15	μF
	External Line Inductance				50	μH
	Reverse input protection	MOSFET in minus input line				

OUTPUT: Power Unit

$50.4\text{ V}_{DC} \leq V_{IN} \leq 137.5\text{ V}_{DC}$

$P_{OUT\text{ Nom}}$	Output power			40		W
$V_{OUT\text{ Nom}}$	Output voltage adjustment, factory set	Nominal load	+ 105	+ 110	+ 115	V_{DC}
ΔV_{OUT}	Load regulation static	$0\text{ A} \leq I_{OUT} \leq 0.35\text{ A}$ $T_A = -40^\circ\text{C} \dots +70^\circ\text{C}$ (+ 85°C 10 Min.)	$\pm 3.0\% V_{out\text{ nom}}$			V
$\Delta V_{O\text{ dyn}}$	Load regulatin dynamic	Pulse load: 20 - 80 - 20 % x I_{OUT}			± 1.0	V
t_{dyn}	Response time	Pulse load: 20 - 80 - 20 % x I_{OUT}		1	2	ms
$V_{O\text{ rms}}$	Ripple	Nominal load BW 300 kHz		150	250	mV
$V_{O\text{ pp}}$	Noise	Nominal load BW 20 MHz		100	250	mV
t_{on}	Turn on time V_{out}	$0\text{ A} \leq I_{OUT} \leq 0.35\text{ A}$ resistive load	25		200	ms
t_h	Hold Up Time Recharge time $t \leq 5\text{ sec.}$ at $I_{out} > 0.1\text{ A}$	$0\text{ A} \leq I_{OUT} \leq 0.35\text{ A}$	10			ms
	Overvoltage Protection electronic monitor with separate Ref and independent Transil diode for second protection $V_{out\text{ max}} < 154\text{ V}$	$0\text{ A} \leq I_{OUT} \leq 0.35\text{ A}$ Transil $V_{out} = f(I_{out})$ chart on request	Vout max $\leq 137.5\text{ V}$ Transil Diode 1.5 KE 120A			
I_{OUT}	Output current			0.35		A
	Output current limitation		0.37	0.4	0.5	A
I_{AK}	Output short circuit current	short circuit between + V_O and - V_O			12.0	A
	Sense Lines	no				
C_O	Converter Capacitance	output		1		mF

Signals

	Signals (no threshold monitoring)	Input Output	LED yellow LED yellow	
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GENERAL SPECIFICATIONS

f	Switching frequency	$V_{IN} = 110\text{ V}, I_{OUT} = 0.35\text{ A}$		75		kHz
η	Efficiency	$P_{OUT} \geq 0.7 \times P_{OUT\text{ Nom}}$	88	91		%
	MTBF (SN 29500)	$V_{IN} = 110\text{ V}, I_{OUT} = 0.35\text{ A}, T_A = +40^\circ\text{C}$		500 000		h
	No load, short circuit proof		Continuously			

SYMBOL	PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
SAFETY / DIMENSIONS						
	Creepage, Clearance PCB FR4 V0 PD 2 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			2100 1500 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 drawing	w x h x d	110 x 170 x 52			mm
	Assembling	Wall mounting with screws	4 x M4			
	Weight			750		g

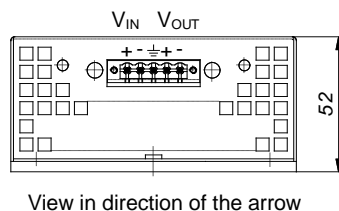
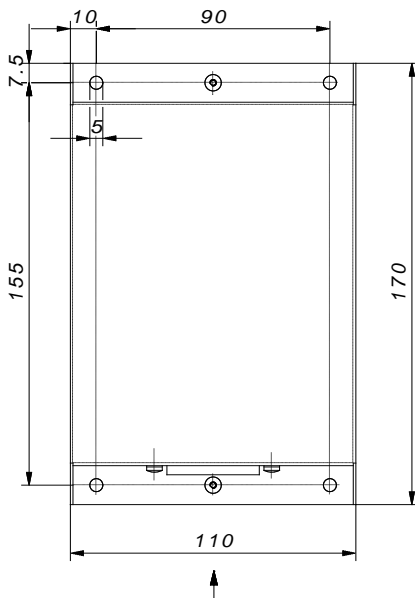
ENVIRONMENTAL CONDITIONS						
T _A	Operating Range	Continuously EN 50155 class Tx for 10 Min.	- 40 - 40		+ 70 + 85	°C °C
T _{Sto}	Storage Range		- 40		+ 85	°C
	Cooling		Free convection			
	Humidity	EN 50155, IEC 60571	75% averaged year, 95% 30 days			
	Vibration / Shock	IEC 61373, IEC 68-2-27, EN 50155 Cat. I 3 shocks each Axis	50 m / s ² , 30 ms			

EMV			
	Emission	Line conducted and radiated	EN 50121 - 3 - 2: 2006
	Immunity	ESD EN 61000 - 4 - 2	6 kV / 8 kV performance criteria - B -
	1400 MHz – 2100MHz 10V/m 2100MHz – 2500MHz 5V/m	High Frequency Field EN 61000 - 4 - 3	20 V/m 80 MHz ... 2.5GHz 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 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: 2006	BN 411 002	EN 50124 - 1: 2006	EN 50121 - 3 - 2: 2006	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, 50.4 V ≤ V_{IN} ≤ 127.5 V, unless otherwise noted.

Dimensions (in mm) and pin assignment



Function	Wire gauge **
+ V _{IN}	≥ 1.5 mm ²
- V _{IN}	≥ 1.5 mm ²
PE	2.5 mm ²
+ V _{OUT}	≥ 1.5 mm ²
- V _{OUT}	≥ 1.5 mm ²

Option:
- V_{IN} and - V_{OUT} is connected (same potential)