

50 WBB 024 M48 W01 Input Reversal Protection MOSFET Minus Input

$$V_{I \text{ nom}} = 24 \text{ V} \quad V_{O \text{ nom}} = 48 \text{ V} \quad I_{O \text{ nom}} = 1.0 \text{ A}$$

SYMBOL	PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
INPUT:						
V_{IN}	Input voltage range	Continuously	16.8		30.0	V_{DC}
$V_{IN \text{ Dyn}}$	Input voltage range dynamic	$V_{IN} = 14.4 \text{ V} \dots 16.8 \text{ V}$ for $t \leq 0.1 \text{ s}$ $V_{IN} = 30.0 \text{ V} \dots 33.6 \text{ V}$ for $t \leq 1 \text{ s}$	14.4		33.6	V_{DC}
$V_{IN \text{ Min}}$	Converter shutdown				14.3	V_{DC}
$V_{IN \text{ Max}}$	Converter shutdown		34			V_{DC}
I_{IN}	Input current no load	$V_{IN} = 33.6 \text{ V}, I_{OUT} = 0 \text{ A}$		2.5	40	mA
	Nominal load	$V_{IN} = 24.0 \text{ V}, I_{OUT} = 1.0 \text{ A}$			4.2	A
	Nominal load	$V_{IN} = 14.4 \text{ V}, I_{OUT} = 1.0 \text{ A}$			5	A^2s
	Input current integral	$V_{IN} = 33.6 \text{ V}$				
$I_{IN \text{ Max}}$	Switch on current at $V_{IN} \geq V_{IN \text{ min}}$	$I_{OUT} = 1.0 \text{ A}$ $\Delta t \leq 200 \text{ ms}$			5	A
	Input Fuse		10 A Pico Fuse			
C_{IN}	Converter input capacitance			30	35	μF
	External Line Inductance				25	μH
	Reverse input protection	MOSFET in minus line				

OUTPUT: Power Unit

$P_{OUT \text{ Nom}}$	Output power	$14.4 \text{ V} \leq V_{IN} \leq 30.0 \text{ V}$		50		W
$V_{OUT \text{ Nom}}$	Output voltage adjustment, factory set	$16.8 \text{ V} \leq V_{IN} \leq 30.0 \text{ V}$	+ 47.8	+ 48.0	+ 48.2	V_{DC}
ΔV_{OUT}	Load regulation static	$14.4 \text{ V} \leq V_{IN} \leq 33.6 \text{ V}$ $0 \text{ A} \leq I_{OUT} \leq 1.0 \text{ A}$ $T_A = -40^\circ\text{C} \dots +70^\circ\text{C}$	$\pm 2.5 \% V_{OUT \text{ nom.}}$			V
$\Delta V_{O \text{ dyn.}}$	Load regulatin dynamic	$14.4 \text{ V} \leq V_{IN} \leq 33.6 \text{ V}$ Pulse load: 20 - 80 - 20 % x I_{OUT}			± 200	mV
t_{dyn}	Response time	$14.4 \text{ V} \leq V_{IN} \leq 33.6 \text{ V}$ Pulse load: 20 - 80 - 20 % x I_{OUT}		1	2	ms
$V_{O \text{ rms}}$	Ripple	$14.4 \text{ V} \leq V_{IN} \leq 33.6 \text{ V}$ Nominal load BW 300 kHz		100	250	mV
$V_{O \text{ pp}}$	Noise	$14.4 \text{ V} \leq V_{IN} \leq 33.6 \text{ V}$ Nominal load BW 20 MHz			250	mV
t_{on}	Turn on time V_o	$16.8 \text{ V} \leq V_{IN} \leq 30 \text{ V}, 0 \text{ A} \leq I_{OUT} \leq 1.0 \text{ A}$ resistive load	25		250	ms
t_h	Hold Up Time	$16.8 \text{ V} \leq V_{IN} \leq 30.0 \text{ V}$ $0 \text{ A} \leq I_{OUT} \leq 1.0 \text{ A}$	10			ms
	Overvoltage Protection	$14.4 \text{ V} \leq V_{IN} \leq 33.6 \text{ V}$ $0 \text{ A} \leq I_{OUT} \leq 1.0 \text{ A}$	Transil Diode 1,5KE56A			
I_{OUT}	Output current	$14.4 \text{ V} \leq V_{IN} \leq 33.6 \text{ V}$		1.0		A
	Output current limitation	$14.4 \text{ V} \leq V_{IN} \leq 33.6 \text{ V}$	1.1			A
I_{AK}	Output short circuit current	short circuit between + V_o and - V_o $14.4 \text{ V} \leq V_{IN} \leq 33.6 \text{ V}$			1.6	A
	Sense Lines	no				
C_o	Converter Capacitance	Output		2		mF

Signals

	Signals	Input Output	LED yellow LED yellow	
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GENERAL SPECIFICATIONS

f	Switching frequency	$V_{IN} = 24 \text{ V}, I_{OUT} = 1.0 \text{ A}$		135		kHz
η	Efficiency	$P_{OUT} \geq 0.7 \times P_{OUT \text{ Nom}}$	83	87		%
	MTBF (SN 29500)	$V_{IN} = 24 \text{ V}, I_{OUT} = 1.0 \text{ A}, T_A = +40^\circ\text{C}$		500 000		h
	No load, short circuit proof		Continuously			

SYMBOL	PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
SAFETY / DIMENSIONS						
	Creepage, Clearance for PD 2 // OV2 PCB FR4 V0 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			2'100 1'500 750	V _{DC} V _{DC} V _{DC}
	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

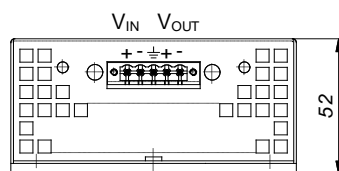
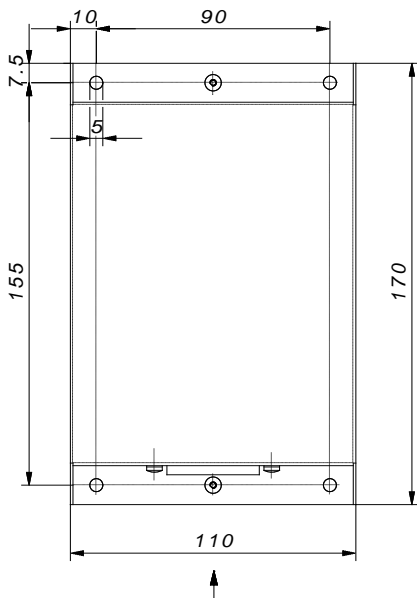
ENVIRONMENTAL CONDITIONS						
T _A	Operating Range	Continuously EN 50155 class Tx for 10 Min.	- 40 - 40		+ 70 + 85	°C °C
T _{Sto}	Storage Range		- 40		+ 85	°C
	Cooling		convection			
	Humidity	EN 50155, IEC 60571	75% averaged year, 95% 30 days			
	Vibration / Shock	IEC 61373, IEC 68-2-27, EN 50155 Cat. 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	prEN 50 121 - 1	prEN 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, 16.8 V ≤ V_{IN} ≤ 30.0 V, unless otherwise noted.

Dimensions (in mm) and pin assignment



View in direction of the arrow



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
*) recommended	