

## ASH-20 Series, 20Watt

### FEATURES:

- ✓ Universal AC input/full range
- ✓ Low ripple and noise
- ✓ Short circuit, over current, over voltage protections
- ✓ High efficiency, high density
- ✓ 100% burn-in test
- ✓ 3 year warranty



Model	Input voltage (Vac)	Output 1 (Vdc/mA)	Output 2 (Vdc/mA)	Output power (W)
ASH20-3	85~265	3.3V/4100mA	/	13.5
ASH20-5		5V/3500mA	/	20
ASH20-9		9V/2100mA	/	20
ASH20-12		12V/1600mA	/	20
ASH20-15		15V/1300mA	/	20
ASH20-24		24V/850mA	/	20
ASH20-D5		+5V/2000mA	-5V/2000mA	20
ASH20-D12		+12V/830mA	-12V/830mA	20
ASH20-D15		+15V/650mA	-15V/650mA	20
ASH20-D0512		5V/2500mA	12V/600mA	20
ASH20-D0515		5V/2500mA	15V/500mA	20
ASH20-D0524		5V/2500mA	24V/300mA	20

Note: Other output models may available on request.

### ELECTRICAL

Parameters	Symbols	Test Conditions / Comment	Input			Units
			Min.	Typ.	Max.	
Input voltage	$V_{in}$	--	85	--	265	Vac
			120	--	370	Vdc
Input frequency	$F_{line}$	--	47	--	63	Hz
Leakage current	$I_{leakage}$	$V_{in} = 230Vac/50Hz$	--	--	0.3	mA
Input current	$I_{in}$	Full load, $V_{in} = 115Vac$	--	600	--	mA
		Full load, $V_{in} = 230Vac$	--	340	--	mA

**ASH-20 Series, 20Watt**
**ELECTRICAL**
**Input**

Parameters	Symbols	Test Conditions / Comment	Min.	Typ.	Max.	Units
Inrush current	$I_{inrush}$	Cold start, full load, $V_{in}=115Vac$	--	16	--	A
		Cold start, full load, $V_{in}=230Vac$	--	30	--	A

**Output**

Output voltage accuracy	--	--	--	$\pm 2.0$	--	%
Line regulation	$V_{out-line}$	--	--	$\pm 2.0$	--	%
Load regulation	$V_{out-load}$	10%~100% load	--	$\pm 1.5$	--	%
Efficiency	$\eta$	--	--	70	--	%
Ripple	$V_{ripple}$	20MHz	--	50	100	mVp-p

**Protection**

Short circuit	Hiccup mode, it will auto-recover after fault condition is removed					
Over current	$\geq 110\%I_o$ , it will auto-recover after fault condition is removed					
Over voltage	Diode clamp					

**Environment**

Storage	$T_{storage}$	Humidity: 10% RH to 95% RH	-25	--	+105	$^{\circ}C$
Ambient operating temperature	$T_a$	Startup at rated voltage(please refer to derating curve)	-25	--	+70	$^{\circ}C$
Operating relative humidity	$H_a$	Non condensing	10	--	95	%
Temperature coefficient	--	--	--	0.02	--	%/ $^{\circ}C$
MTBF	$T_{MTBF}$	MIL-HDBK-217F(25 $^{\circ}C$ )	300	--	--	kHrs
Dimension(LxWxH)	70.0 x 48.0 x 23.5mm					

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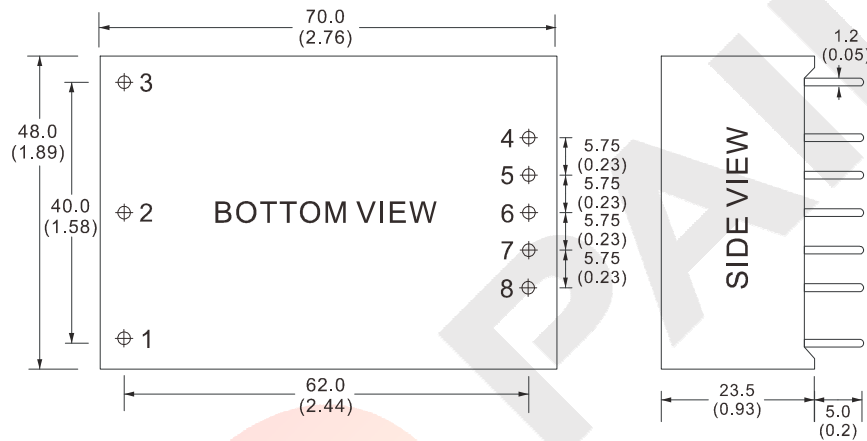
**ELECTRICAL**

**Safety / EMC**

Safety standards	Design refer to UL1012, UL60950, UL60950
Isolation voltage	I/P-O/P:3.0KVAC
EMC	EN55022 Class B, EN55024

**Notes: Unless otherwise specified, all the above parameters are measured at ambient temperature of 25°C and Vin = 85Vac to 265Vac.**

**MECHANICAL**



**PIN DEFINITION**

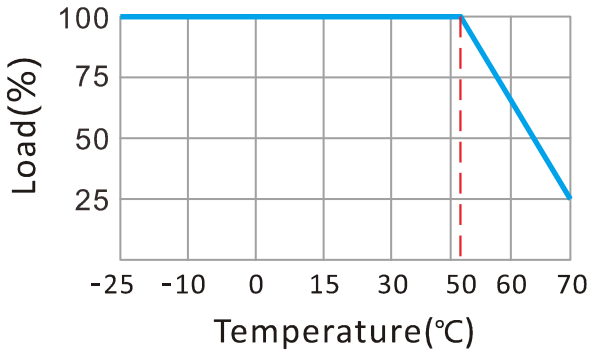
Pin	SINGLE	DUAL	TWO
1	FG	FG	FG
2	AC(N)	AC(N)	AC(N)
3	AC(L)	AC(L)	AC(L)
4	+Vo	+Vo	+Vo2
5	No Pin	No Pin	-Vo2
6	No Pin	COM	No Pin
7	No Pin	No Pin	+Vo1
8	-Vo	-Vo	-Vo1

Unit: mm

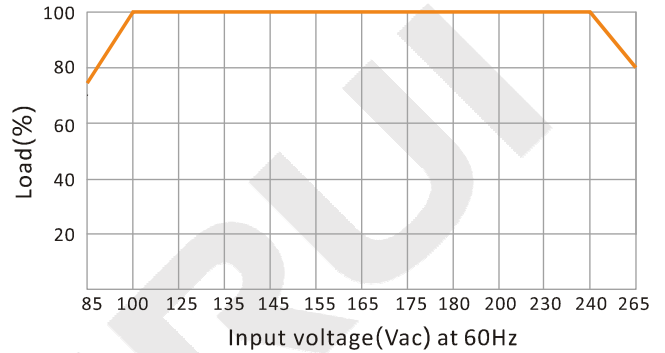
**ASH-20 Series, 20Watt**

**ELECTRICAL CURVE**

**DERATING CURVE**

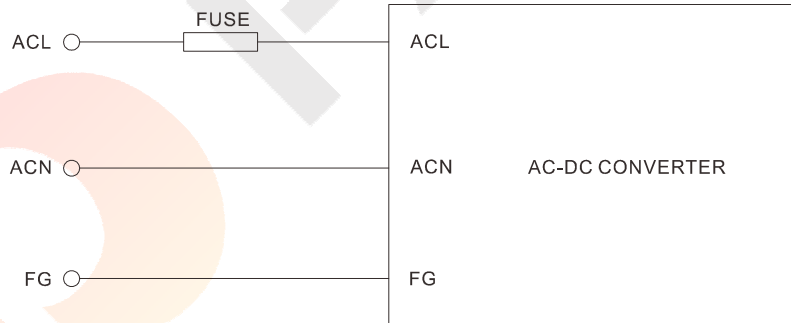


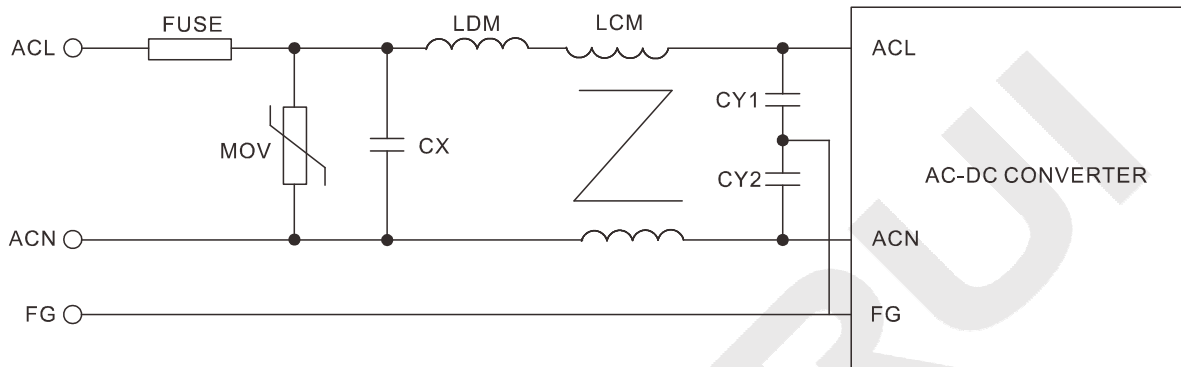
**STATIC CHARACTERISTIC CURVE**



**NOTE**

**RECOMMENDED TEST AND APPLICATION CIRCUIT**



**ASH-20 Series, 20Watt**
**NOTE**
**RECOMMENDED EMC TEST CIRCUIT**


Component	Recommended Value
FUSE	1A/250V, Slow rating
MOV	14D-561K
CY1, CY2	1000pF/400Vac
CX	0.1uF/275Vac
LCM	10mH
LDM	4.7uH/2a