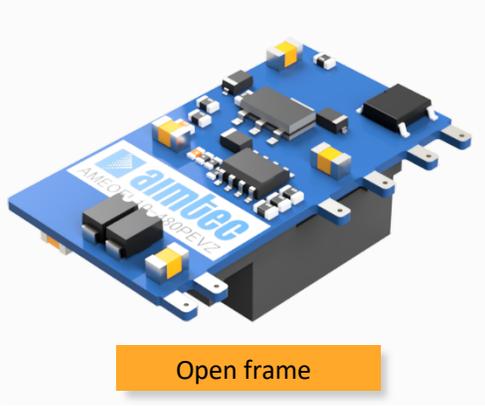




## AMEOFL10-480PEVZ



Open frame

AMEOFL10-480PEVZ series is one of Aimtec's highly efficient 10W AC-DC converter series. They feature an ultra-wide input range accepting either AC or DC voltage, high efficiency, compact size, an open-frame package, low power consumption and CLASS II reinforced insulation. A variety of EMC external circuits meet the needs of multiple industries.

This new series offers great operating temperatures, from -40°C to 85°C also features an isolation of 4000VAC for improved reliability and system safety. Furthermore, a high MTBF of 500,000h, output short circuit protection (OSCP) and an output over-current protection (OCP) come standard with the series.

All models are particularly suitable for industrial control, EV charger, electric power, instrumentation and smart home applications.

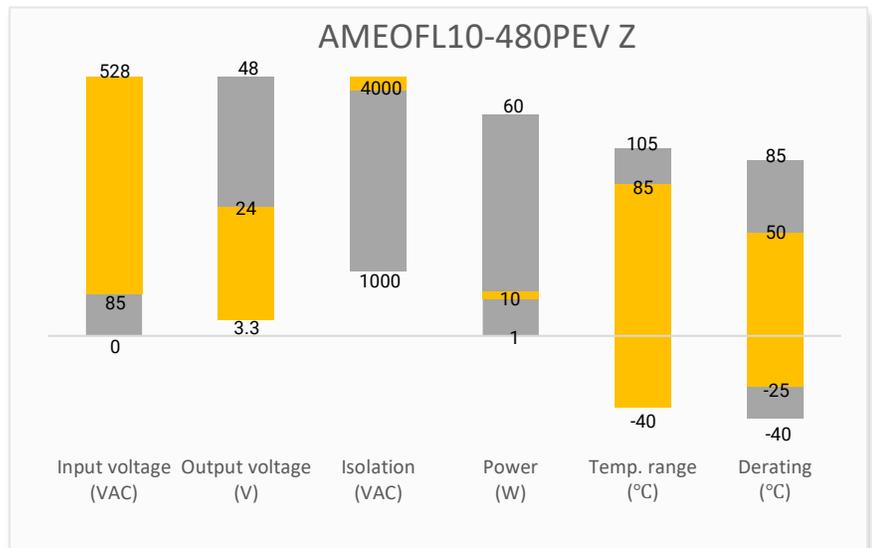
## Features



- Ultra-Wide Input: 85 - 528VAC/100 - 745VDC
- Operating Temp: -40 °C to +85 °C
- High isolation voltage: 4000VAC
- Low ripple & noise, 180mV(p-p), max.
- Output short circuit, over-current protection
- Open frame package



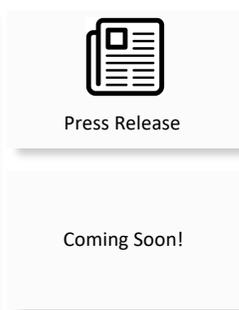
## Summary



## Training



Product Training Video  
(click to open)



Application Notes

## Applications



Power Grid



Industrial



Telecom



Instrumentation

## Models & Specifications

Single Output							
Model	Input Voltage (VAC/Hz)	Input Voltage (VDC)	Max Output wattage (W)	Output Voltage (V)	Output Current max (A)	Maximum capacitive load ( $\mu$ F)	Efficiency @ 230VAC Typ. (%)
AMEOFL10-3S480PEVZ	85 – 528 / 47 – 63	100 – 745	6.6	3.3	2.0	1500	70
AMEOFL10-5S480PEVZ	85 – 528 / 47 – 63	100 – 745	10	5	2.0	1500	77
AMEOFL10-9S480PEVZ	85 – 528 / 47 – 63	100 – 745	10	9	1.1	1000	80
AMEOFL10-12S480PEVZ	85 – 528 / 47 – 63	100 – 745	10	12	0.83	680	82
AMEOFL10-15S480PEVZ	85 – 528 / 47 – 63	100 – 745	10	15	0.67	470	82
AMEOFL10-24S480PEVZ	85 – 528 / 47 – 63	100 – 745	10	24	0.42	330	83

Input Specifications				
Parameters	Conditions	Typical	Maximum	Units
Input Current	115VAC		300	mA
	230VAC		150	mA
	380VAC		100	mA
Inrush current	115VAC	15		A
	230VAC	30		A
	380VAC	50		A
External fuse	Slow blow type, required	2		A
Leakage current	480VAC/50Hz		0.5	mA <sub>(RMS)</sub>

Output Specifications				
Parameters	Conditions	Typical	Maximum	Units
Voltage accuracy	Full load, 3.3V output	$\pm 6$		%
	0-10% load, 5V output	$\pm 5$		%
	10-100% load, 5V output	$\pm 4$		%
	Full load, Others	$\pm 5$		%
Line regulation	Full load, 3.3V output	$\pm 2$		%
	Full load, Others	$\pm 1.5$		%
Load regulation	10-100% load	$\pm 3$		%
Ripple & Noise	20MHz bandwidth	100	180	mV p-p
Hold-up time	115VAC	8		ms
	230VAC	35		ms
	380VAC	80		ms

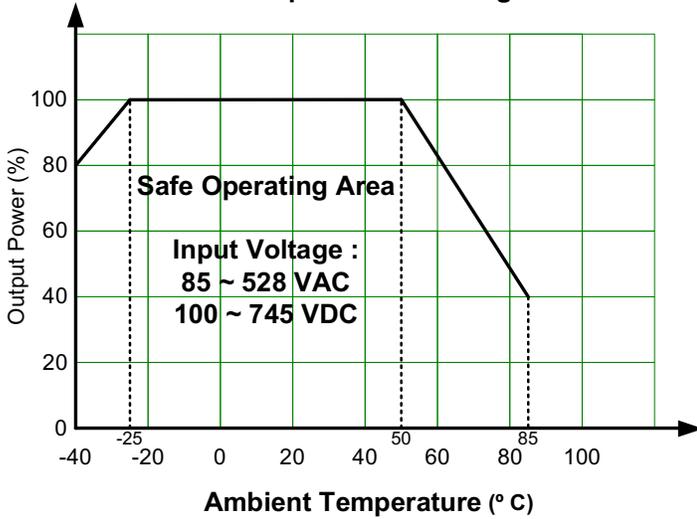
Isolation Specifications				
Parameters	Conditions	Typical	Rated	Units
Tested I/O voltage	60 sec, 5mA max		4000	VAC
Insulation resistance	500VDC	>50		M $\Omega$

General Specifications				
Parameters	Conditions	Typical	Maximum	Units
Safety class	Class II			
Over Current protection	Auto recovery	≥ 110		% of I <sub>out</sub>
Short circuit protection	Hiccup, Continuous, Auto recovery			
Power consumption	230VAC		0.3	W
	380VAC		0.5	W
Power derating	+50 °C to +85 °C	1.72		% / °C
	-40 °C to -25 °C	1.33		% / °C
	85VAC ~ 100VAC	1.33		% /VAC
	480VAC ~ 528VAC	0.42		% /VAC
Operating temperature	-40 to +85			°C
Storage temperature	-40 to +105			°C
Temperature coefficient		±0.2		% / °C
Cooling	Free air convection			
Storage Humidity			95	% RH
Weight		10		g
Dimensions (L x W x H)	1.50 x 0.79 x 0.60 inches ( 38.00 x 20.00 x 15.25mm )			
MTBF	> 500 000 hrs (MIL-HDBK -217F, t=+25°C)/Full Load			
NOTE: All specifications in this datasheet are measured at an ambient temperature of 25°C, humidity<75%, nominal input voltage and at rated output load unless otherwise specified.				

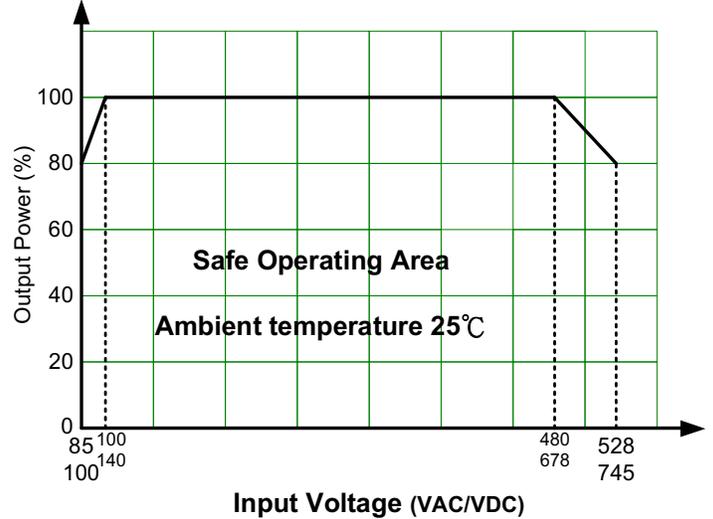
Safety Specifications		
Parameters		
Standards	Design to meet IEC/EN62477-1, EN61010-1, IEC/EN/UL62368-1, BS EN62368-1	
	EMI - Conducted and radiated emission	CISPR32 / EN55032, Class A (With EMI class A recommended circuit) CISPR32 / EN55032, Class B (With EMI class B recommended circuit)
	Electrostatic Discharge Immunity	IEC61000-4-2 Contact ±6KV, Air ±8KV, Criteria B
	RF, Electromagnetic Field Immunity	IEC61000-4-3 10V/m, Criteria A
	Electrical Fast Transient/Burst Immunity	IEC61000-4-4 ±2KV, Criteria B (With the recommended circuit for basic application, outdoor general or strong lightning surge environment) IEC61000-4-4 ±4KV, Criteria B (With the recommended circuit for indoor general, indoor industrial or outdoor industrial environment)
	Surge Immunity	IEC61000-4-5 L-L ±1KV, Criteria B (With surge immunity Class III recommended circuit) IEC61000-4-5 L-L ±2KV, Criteria B (With surge immunity Class IV recommended circuit) IEC61000-4-5 L-L ±2KV, L-G ±4KV, Criteria B (With outdoor industrial environment recommended circuit) IEC61000-4-5 L-L ±4KV, Criteria B (With strong lightning surge environment recommended circuit)
	RF, Conducted Disturbance Immunity	IEC61000-4-6 10Vr.m.s, Criteria A
	Voltage dips, Short Interruptions Immunity	IEC61000-4-11 0%, 70%, Criteria B

Derating

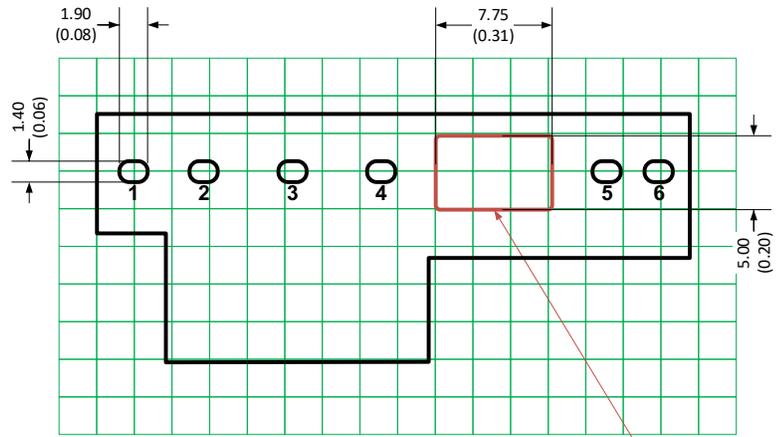
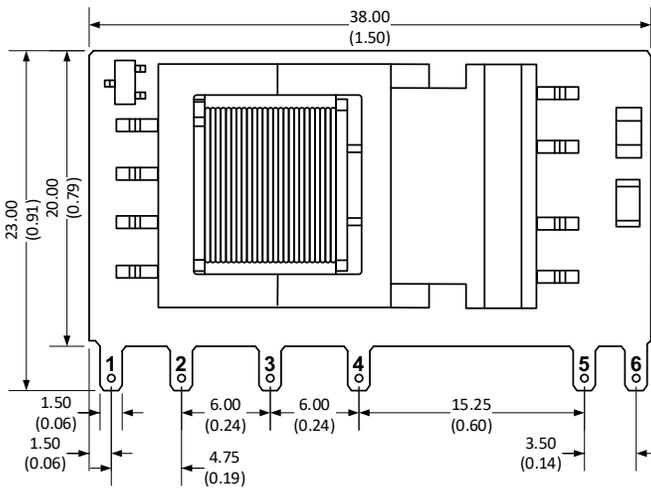
Temperature Derating



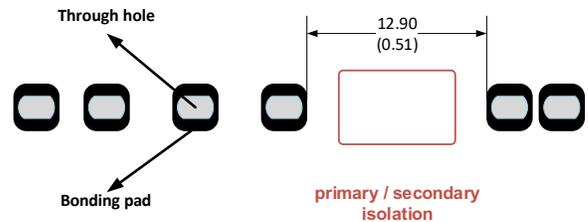
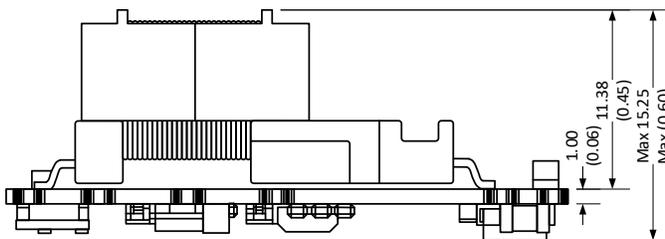
Input Voltage Derating



Dimensions



Note : Grid 2.54\*2.54 mm **Cutting area**

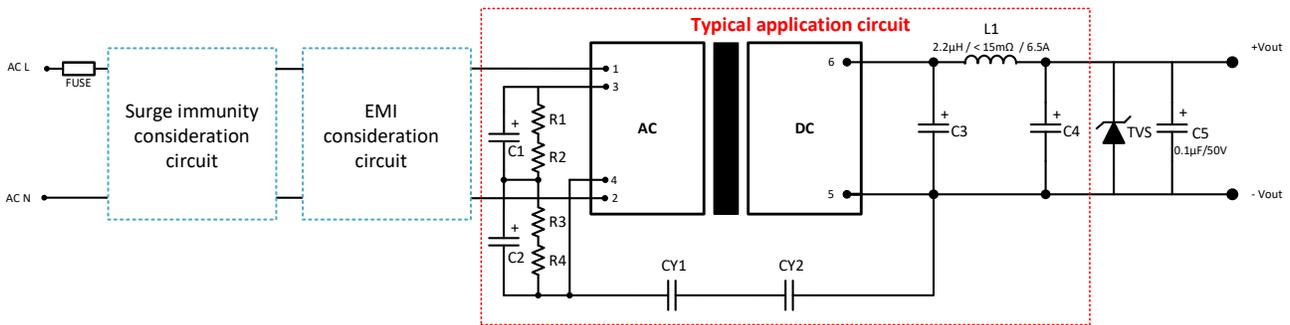


Note:  
Unit: mm [inch]  
General tolerances:  $\pm 1.00 [\pm 0.040]$

Pin Output Specifications	
Pin	Function
1	Input AC L
2	Input AC N
3	+V_Cap
4	-V_Cap
5	-V Output
6	+V Output

1. It is necessary to add C1 between pin3 to pin4
2. It is necessary to add circuit to the output as shown in recommended circuit
3. The layout of the device is for reference only, please refer to the actual product

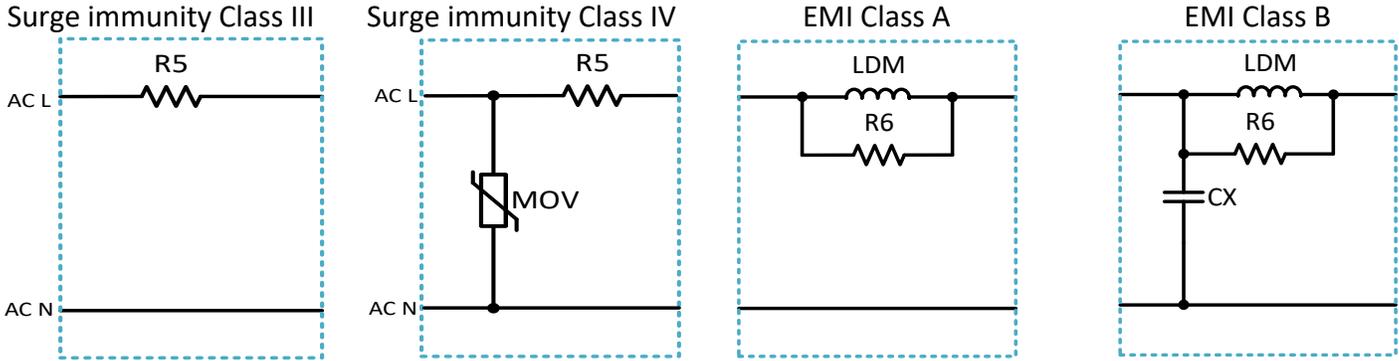
## Recommended EMC external circuit



Model name	C1/C2	R1/R2/R3/R4	C3	C4	TVS
AMEOFL10-3S480PEVZ	47μF/400V	1MΩ/1206/0.25W	1500μF/6.3V solid-state capacitor	680μF/25V	7V
AMEOFL10-5S480PEVZ			820μF/16V solid-state capacitor	330μF/25V	7V
AMEOFL10-9S480PEVZ			470μF/16V solid-state capacitor	1000μF/16V	12V
AMEOFL10-12S480PEVZ			470μF/16V solid-state capacitor	330μF/25V	20V
AMEOFL10-15S480PEVZ			470μF/25V solid-state capacitor	100μF/35V	20V
AMEOFL10-24S480PEVZ			470μF/35V	100μF/35V	30V

- With the variable combination of below Surge and EMI circuits which offer the different level of protection.
- The components are the must for typical application circuit in red frame area.
- A suppressor diode (TVS) is recommended to protect the application in case of a converter failure and specification should be 1.2 times of the output voltage.
- C1/C2 capacitor recommendation: ripple current > 200mA@100KHz, ESR ≤ 100Ω at low temperature

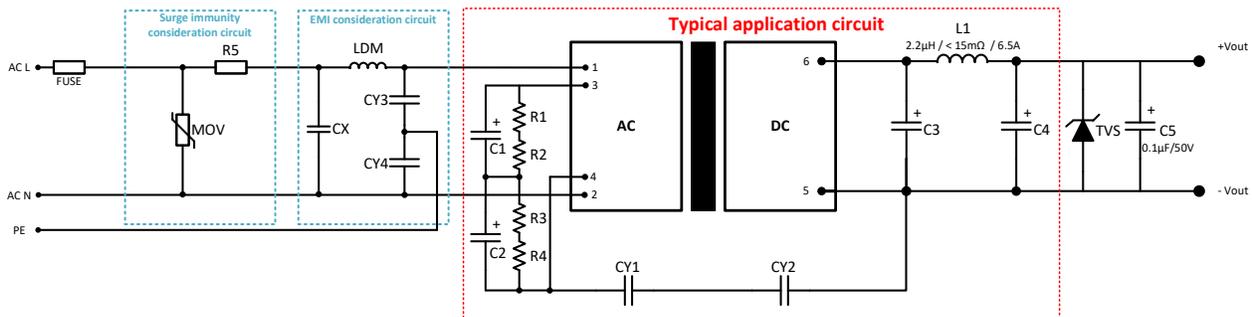
**EMI & Surge Recommended Circuit**



Application environment	Environment Condition		Recommended Circuit & Component Selection			
	Ambient temperature	EFT	Surge immunity	EMI CLASS	CY1	CY2
Basic application	-40 °C ~ +85 °C	±2KV	CLASS III	CLASS A	1nF/400VAC	Wire
Indoor general	-25 °C ~ +55 °C	±4KV	CLASS III	CLASS B	2.2nF/250VAC	2.2nF/250VAC
Indoor industrial	-25 °C ~ +55 °C	±4KV	CLASS IV	CLASS B	1nF/400VAC	Wire
Outdoor general	-40 °C ~ +85 °C	±2KV	CLASS IV	CLASS A	1nF/400VAC	Wire

Component	Surge immunity		EMI	
	Class III	Class IV	CLASS A	CLASS B
MOV	-	S14K550	-	-
R5(Wire-wound resistor)	6.8Ω/3W		-	
R6 (Chip resistor)	3.3V / 5V / 12V output	-	10KΩ/1206/0.25W	
	9V / 15V / 24V output	-	4.7KΩ/1206/0.25W	
CX	-	-	-	0.1μF/480VAC
LDM	-	-	2.2mH / < 4.81Ω / > 0.31A	
FUSE	2A/500V slow blow		-	

**Outdoor industrial environment Recommended Circuit**

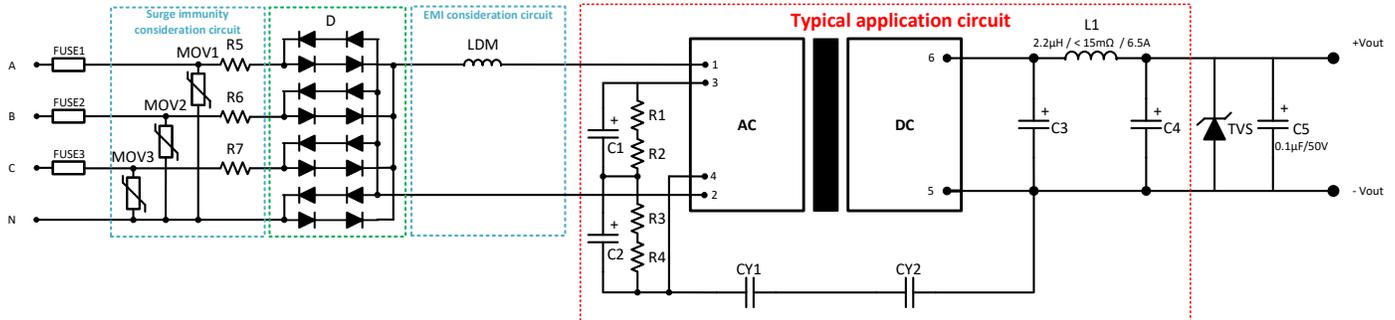


Application environment	Environment Condition		Recommended Circuit & Component Selection			
	Ambient temperature	EFT	Surge immunity	EMI CLASS	CY1/CY3/CY4	CY2
Outdoor industrial	-40 °C ~ +85 °C	±4KV	CLASS IV	CLASS A	1nF/400VAC	Wire

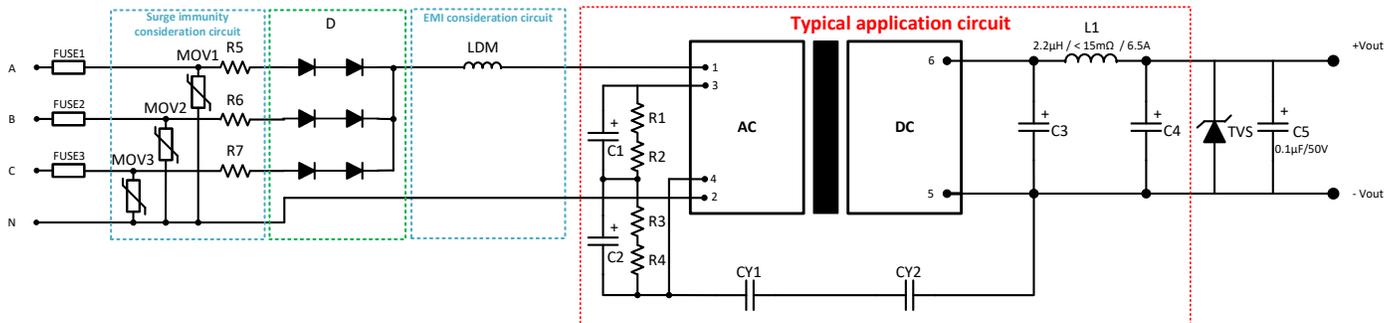
Component	Surge immunity	EMI
	<b>Class IV</b>	<b>CLASS A</b>
MOV	<b>S14K550</b>	-
R5(Wire-wound resistor)	<b>6.8Ω/3W</b>	-
CX	-	<b>0.1μF/480VAC</b>
LDM	-	<b>2.2mH / &lt; 4.81Ω / &gt; 0.31A</b>
FUSE	<b>2A/500V slow blow</b>	-

### Strong lightning surge environment Recommended Circuit

#### Full-wave rectification



#### Half-wave rectification



Application environment	Environment Condition		Recommended Circuit & Component Selection			
	Ambient temperature	EFT	Surge immunity	EMI CLASS	CY1/CY3/CY4	CY2
Strong lightning surge	-40°C ~ +85°C	±2KV	CLASS IV	CLASS A	1nF/400VAC	Wire

Component	Surge immunity	EMI
	<b>Class IV</b>	<b>CLASS A</b>
MOV1 / MOV2 / MOV3	<b>S14K550</b>	-
R5 / R6 / R7(Wire-wound resistor)	<b>12Ω/5W</b>	-
D	<b>2A/1000V</b>	
LDM	-	<b>2.2mH / &lt; 4.81Ω / &gt; 0.31A</b>
FUSE1 / FUSE2 / FUSE3	<b>6.3A/500V slow blow</b>	-

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