MLD030-□□ Series

▲ Specification

ultra-thin width 35mm(2SU)

Protection: Over Voltage/Over load/
Short circuit/reverse polarity protection · input undervoltage protection

-40～+85℃ wide range working temperature

capable of natural air cooling

Output voltage (DC) adjustable (±10%)

4:1wide range input

rail installation: TS-35/7.5 or 15

no minimum load requirement

4KVdc · input/output isolation · enhanced isolation ·

3 years warranty

▲ Application

Industrial automation control system

wireless network

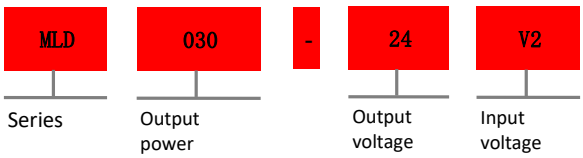
Telecommunication and data communication systems

Electonic instruments and devices

Factory automation

semiconductor manufacturing equipment

▲ Model encoding



Mibbo

Specification

Input				
Input voltage note1	9～36Vdc			
Input Current (Typ.)	1.5A/24Vdc			
Surge current (Typ.)	15A/24Vdc			
Output				
Model	MLD030-05V2	MLD030-12V2	MLD030-15V2	MLD030-24V2
DC voltage (V)	5V	12V	15V	24V
Efficiency (Typ.)	85%	86%	87%	89%
Voltage adjustment range	4.5～5.5V	9～13.2V	13.5～16.5V	21.6～28V
Rated current	6A	2.5A	2A	1.25A
Current range	0～6A	0～2.5A	0～2A	0～1.25A
Rated power	30W	30W	30W	30W
Ripple & noise (max MVP-P)note2	60mVp-p	75mVp-p	75mVp-p	100mVp-p
Voltage tolerance note3	±2.0%	±2.0%	±2.0%	±2.0%
Line regulation	±0.5%	±0.5%	±0.5%	±0.5%
Load regulation	±1.5%	±0.5%	±0.5%	±0.5%
Setup, rise time	120ms, 85ms(at full load)			
Hold up time (Typ.)	type:7ms@24Vdc input			
External capacitive load (ma	3300uF	2200uF	1500uF	1000uF
Status indicator	Green LED			
Protection				
Over load	110%-150% of the rated output power			
	Protection mode: constant current mode, recover automatically after fault condition is removed			
Over voltage (V)	5.75～7V	13.8～16.2V	17.25～20.25V	28.8～34V
	Protection mode: Output shutdown, recoverable after power reset			
Reverse polarity	Automatically recovers through MOSFET after abnormal condition is removed, without damage			
Undervoltage lockout	Power ON≥9V , OFF≤8.5V			
Safety and EMC				
Withstand voltage	I/P-O/P:4KVdc			
Insulation resistance	I/P-O/P>100M Ohms/500Vdc/25℃/70% RH			
Safety standard	Reference UL 62368-1,IEC 62368-1,AS/NZS 62368.1			
EMC emission	**Parameter**	**Standard**	**Test Level/Note**	
	Conducted	BS EN/EN55032	Class B	
	Radiated	BS EN/EN55032	Class B	
	Voltage Flicker	BS EN/EN61000-3-3	.....	
EMC immunity	BS EN/EN55024 , BS EN/EN61000-6-2(BS EN/EN50082-2)			
	Parameter	**Standard**	**Test Level/Note**	
	ESD	BS EN/EN61000-4-2	Level 3,8KV air;Level 3,6KV contact;criteria A	
	Radiated	BS EN/EN61000-4-3	Level 3,10V/m;criteria A	
	EFT/Burst	BS EN/EN61000-4-4	Level 3,2KV;criteria A	
	Surge	BS EN/EN61000-4-5	Level 3,1KV/Line-Line;criteria A	
	Conducted	BS EN/EN61000-4-6	Level 3,10V;criteria A	
	Magnetic Field	BS EN/EN61000-4-8	Level 4,30A/m;criteria A	
Environment				
Working temperature	-40～+85℃(Please refer to the "derating curve")			
Working humidity	5～95% RH, No condensation			
Storage temp./humidity	-40～+85℃, 5～95% RH, No condensation			
Temperature coefficient	±0.03%/℃ (0～60℃)			
Vibration resistance	Component: 10～500Hz, 2G 10Min/Circle 60min in each X,Y,Z direction			
Altitude	5000m			
Others				
MTBF	≥484K hrs,MIL-HDBK-217F(25℃)			
Weight	0.12Kg			
Dimension	35*90*54.5mm			

Data	Model	Rated output power	Output voltage current	Efficiency	maximum capacitive load at ambient temperature
	MLD030-05V2	30W	5V/6A	85%	3300uF
	MLD030-12V2	30W	12V/2.5A	86%	2200uF
	MLD030-15V2	30W	15V/2A	87%	1500uF
	MLD030-24V2	30W	24V/1.25A	89%	1000uF

Accessory	Description	Model

Electrical specifications

Input parameters				
Input voltage note1	18～75Vdc			
Input current (Typ.)	0.8A/48Vdc			
Surge current (Typ.)	15A/48Vdc			
Output parameters				
Model	MLD030-05V3	MLD030-12V3	MLD030-15V3	MLD030-24V3
DC voltage	5V	12V	15V	24V
Efficiency(Typ.)	86%	89%	90%	91%
Voltage adjustment range	4.5～5.5V	9～13.2V	13.5～16.5V	21.6～28V
Rated current	6A	2.5A	2A	1.25A
Current range	0～6A	0～2.5A	0～2A	0～1.25A
Rated power	30W	30W	30W	30W
Ripple & noise(max MVP-P) note2	60mVp-p	75mVp-p	75mVp-p	100mVp-p
Voltage tolerance note3	±2.0%	±2.0%	±2.0%	±2.0%
Line regulation	±0.5%	±0.5%	±0.5%	±0.5%
Load regulation	±1.5%	±0.5%	±0.5%	±0.5%
Setup, rise time	120ms, 85ms(满载时)			
Hold up time (Typ.)	type:18ms@48Vdc input			
External capacitive load (ma	3300uF	2200uF	1500uF	1000uF
Status indicator	Green LED			
Protection				
Over load	110%-150% of the rated output power			
	Protection mode: Hiccup mode, recover automatically after fault condition is removed			
Over voltage	5.75～7V	13.8～16.2V	17.25～20.25V	28.8～34V
	Protection mode: Output shutdown, recoverable after power reset			
Reverse polarity	Automatically recovers through MOSFET after abnormal condition is removed, without damage			
Undervoltage lockout	Power ON≥18V , OFF≤17V			
Safety and EMC				
Withstand voltage	I/P-O/P:4KVdc			
Insulation resistance	I/P-O/P>100M Ohms/500Vdc/25℃/70% RH			
Safety standard	Reference UL/IEC 62368-1,AS/NZS 62368.1			

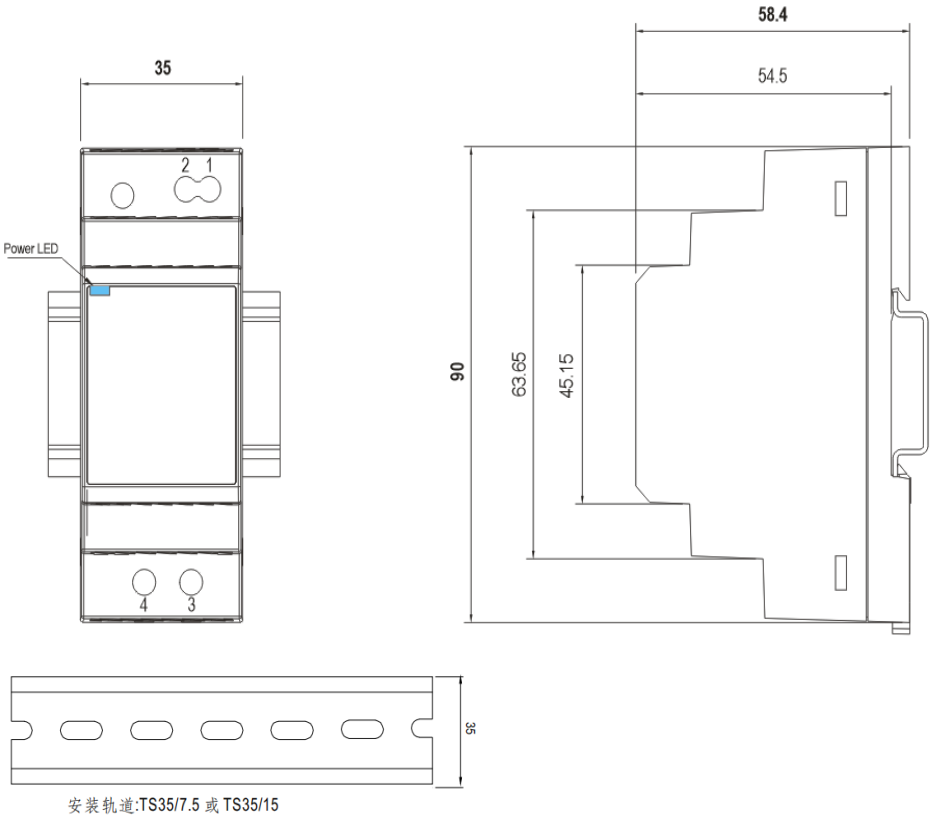
EMC emission	Parameter	Standard	Test Level/Note
	Conducted	BS EN/EN55032	Class B
	Radiated	BS EN/EN55032	Class B
	Voltage Flicker	BS EN/EN61000-3-3	.....

EMC immunity	BS EN/EN55024 , BS EN/EN61000-6-2(BS EN/EN50082-2)		
	Parameter	Standard	Test Level/Note
	ESD	BS EN/EN61000-4-2	Level 3,8KV air;Level 3,6KV contact;criteria A
	Radiated	BS EN/EN61000-4-3	Level 3,10V/m;criteria A
	EFT/Burst	BS EN/EN61000-4-4	Level 3,2KV;criteria A
	Surge	BS EN/EN61000-4-5	Level 3,1KV/Line-Line;criteria A
	Conducted	BS EN/EN61000-4-6	Level 3,10V;criteria A
	Magnetic Field	BS EN/EN61000-4-8	Level 4,30A/m;criteria A

Environment	
Working temperature	-40～+85℃(Please refer to the "derating curve)
Working humidity	5～95% RH, No condensation
Storage temp./humidity	-40～+85℃, 5～95% RH, No condensation
Temperature coefficient	±0.03%/℃ (0～60℃)
Vibration resistance	Component: 10～500Hz, 2G 10Min/Circle 60min in each X,Y,Z direction;
Altitude	5000m

Others					
MTBF	≥484K hrs,MIL-HDBK-217F(25℃)				
Weight	0.12Kg				
Dimension	35*90*54.5mm				
Data	**Model**	**Rated output power**	**Output voltage/current**	**Efficiency**	**maximum capacitive load at ambient temperature**
	MLD030-05V3	30W	5V/6A	86%	3300uF
	MLD030-12V3	30W	12V/2.5A	89%	2200uF
	MLD030-15V3	30W	15V/2A	90%	1500uF
	MLD030-24V3	30W	24V/1.25A	91%	1000uF
Accessory	**Description**		**Model**		

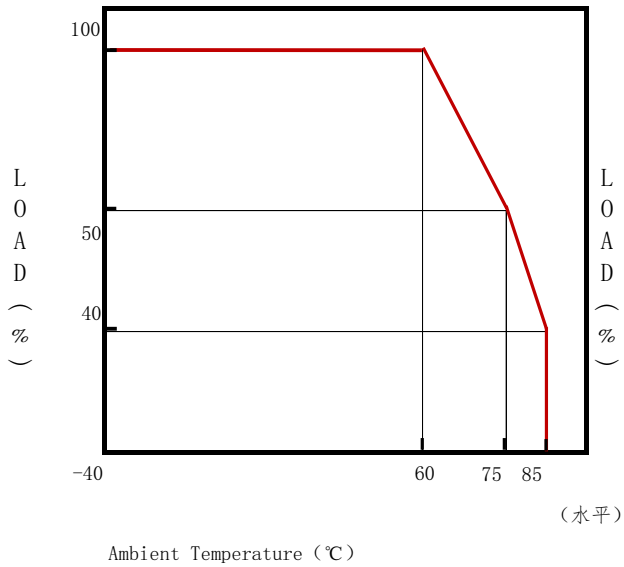
Installation instruction



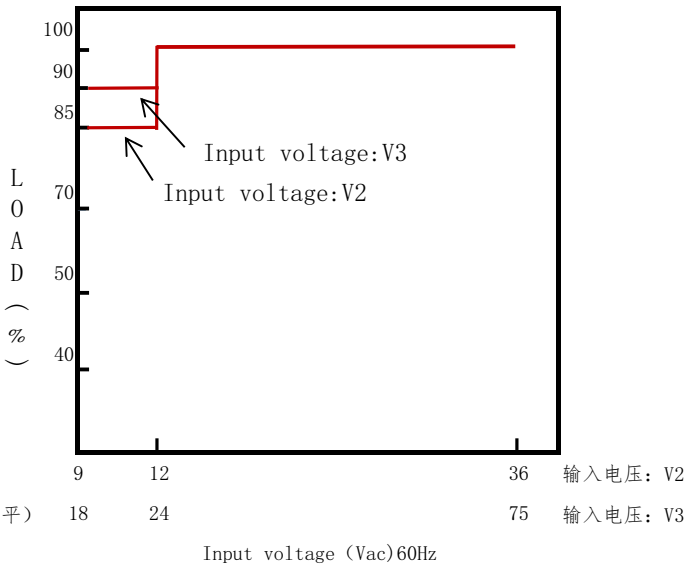
Terminal Pin Numbering

Pin Numbering	Function
1	DC Output +Vo
2	DC Output -Vo
3	DC Input -Vin
4	DC Input +Vin

Derating Curve



Derating vs Input Voltage Curve



Note:
1:Under low input voltage conditions, output derating is required. Please refer to the derating curve for specifics.
2:Ripple & noise are measured at 20MHZ of bandwidth by using a 12" twisted pair-wire teminated with a 0.1uf & 47uf parallel capacitor
3:Tolerance: includes set up tolerance, line regulation and load regulation.
4:Unless otherwise specified, all specifications are tested at an input of V2: 24Vdc; V3: 48Vdc, rated load, and 25° C ambient temperature.
5:When operating at an altitude higher than 2000 meters (6500 feet), the ambient temperature for fanless models decreases by 3.5° C per 1000 meters, and for models with fans, it decreases by 5° C per 1000 meters.