

CM10A Series

10W 4:1 Regulated Single & Dual output



Features

- Ultra Wide 4:1 Input Range
- 1600VDC Isolation
- Efficiency up to 87%
- Continuous Short Circuit Protection
- Over Load Protection
- Under Voltage Lockout
- Adjustable Output Voltage
- High Power Density : 10W in DIP16 Package
- Built-in EMI Filter meets EN55032 Class A
- Operating Temperature Range -40 ~ 100°C max.



CE US CB CE UK CA

PART NUMBER STRUCTURE

CM10A - 24 05 S 10
(1) (2) (3) (4) (5)

(1) Series

(2) Input Voltage Range

24 - 9-36 V
48 - 18-75 V

(4) Output Type

S - Single Output
D - Dual Output

(3) Output Voltage

3R3 - 3.3 V
05 - 5.0 V
12 - 12 V
15 - 15 V
24 - 24 V

(5) Watt

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ALL SPECIFICATIONS ARE TYPICAL AT 25°C, NOMINAL INPUT AND FULL LOAD UNLESS OTHERWISE NOTED

Model Number	Input Voltage Range (VDC)	Input Current		Output Voltage (VDC)	Output Current		Efficiency @FL (% , typ.)	Capacitive Load (µF, max.)
		No-Load (mA, max.)	Full Load (mA, typ.)		Min. load (mA)	Full load (mA)		
CM10A-243R3S10	9-36	10	464	3.3	0	2700	80	3300
CM10A-2405S10	9-36	10	502	5	0	2000	83	2200
CM10A-2412S10	9-36	10	478	12	0	833	87	1000
CM10A-2415S10	9-36	10	478	15	0	666	87	680
CM10A-2424S10	9-36	10	478	24	0	416	87	330
CM10A-2412D10	9-36	10	478	±12	0	±416	87	±680
CM10A-2415D10	9-36	10	478	±15	0	±333	87	±470
CM10A-483R3S10	18-75	7	232	3.3	0	2700	80	3300
CM10A-4805S10	18-75	7	251	5	0	2000	83	2200
CM10A-4812S10	18-75	7	239	12	0	833	87	1000
CM10A-4815S10	18-75	7	239	15	0	666	87	680
CM10A-4824S10	18-75	7	239	24	0	416	87	330
CM10A-4812D10	18-75	7	239	±12	0	±416	87	±680
CM10A-4815D10	18-75	7	239	±15	0	±333	87	±470

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INPUT SPECIFICATIONS

Parameter	Conditions		Min.	Typ.	Max.	Unit
Input Voltage Range	24V Input		9	24	36	VDC
	48V Input		18	48	75	
Under Voltage Protection	24V Input	Module ON		8.8		VDC
		Module OFF		7.0		
	48V Input	Module ON		17.8		
		Module OFF		16.0		
Input Filter			Pi Type			
Input Reflected Ripple Current (1)					20	mApk-pk
Start up Time	Nominal Vin and constant resistive load			20		ms
Recommended input fuse (slow blow)	24V Input		2.5			A
	48V Input		1.6			
Note : 1. Measured with a simulated source inductance of 8.2μH and a source capacitor Cin (47μF, ESR<1.0Ω at 100kHz).						

OUTPUT SPECIFICATIONS

Parameter	Conditions		Min.	Typ.	Max.	Unit
Output Voltage Accuracy			-1.0		+1.0	%
Output Voltage Adjustability (Trim)			-10		+10	%
Line Regulation			-0.5		+0.5	%
Load Regulation	From 0% to 100% Load	Single Output	-1.0		+1.0	%
		Dual Output	-1.0		+1.0	
Cross Regulation	Asymmetrical Load 25% / 100% for Dual Output		-5		+5	%
Ripple & Noise (1)	20MHz bandwidth	3.3V & 5V Output			60	mVpk-pk
		Others Output			80	
Over Current Protection				160		% of FL
Short Circuit Protection			Indefinite (hiccup) (Automatic Recovery)			
Temperature Coefficient			-0.02		+0.02	%/°C
Maximum Capacitive Load	Minimum Vin and constant resistive load		See Table			
Transient Recovery Time	Nominal Vin and 25% load step change (100%-75%-50%-25% of Io)	All models		250		μs
Transient Response Deviation		3.3V & 5V Output	-5		+5	%
		Other Output	-3		+3	
Note : 1. Measured with a 1.0μF MLCC and 10μF electrolytic capacitor.						

ABSOLUTE MAXIMUM RATINGS

Parameter	Conditions	Min.	Typ.	Max.	Unit
Input Surge Voltage (100 ms)	24V Input			50	VDC
	48V Input			100	
Soldering Temperature	1.5mm from case 10sec max.			260	°C
Note : These are stress ratings. Exposure of devices to any of these conditions may adversely affect long-term reliability.					

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GENERAL SPECIFICATIONS

Parameter	Conditions	Min.	Typ.	Max.	Unit
Isolation Voltage	Input-output, and rated for 60sec	1600			VDC
	Case-I/O, and rated for 60sec	1000			
Isolation Resistance	Input-output	1000			MΩ
Isolation Capacitance	Input-output			1200	pF
Switching Frequency			370		kHz
MTBF	MIL-HDBK-217 F @ 25°C	485			k hours
Safety Approval	IEC / EN / UL 62368-1	DK-108519-UL, E252573			
Environmental compliance		RoHS			

ENVIRONMENT SPECIFICATIONS

Parameter	Conditions	Min.	Typ.	Max.	Unit
Operating Ambient Temperature	See the Derating Curve	-40		100	°C
Maximum Case Temperature				105	°C
Thermal Impedance		18			°C/W
Storage Humidity				95	% rel. H
Storage Temperature		-55		125	°C
Cooling	Natural Convection	30-65 LFM			

EMC SPECIFICATIONS

Parameter	Standard	Condition	Criterion
Conducted Emissions	EN55032		A
Radiated Emissions	EN55032		A
ESD	IEC 61000-4-2	Contact: ±6kV	A
RS	IEC 61000-4-3	20V/m	A
EFT	IEC 61000-4-4	±2kV with external components	A
Surge	IEC 61000-4-5	±2kV with external components	A
CS	IEC 61000-4-6	10Vrms	A
PFMF	IEC 61000-4-8	100A/m	A

PHYSICAL SPECIFICATIONS

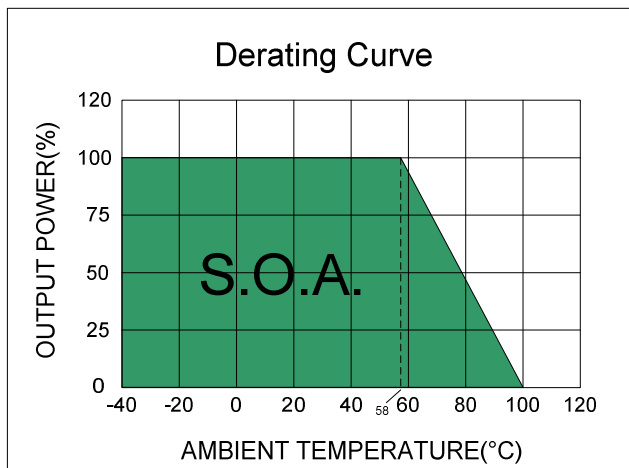
Parameter	Value
Case Material	Copper
Base Material	Nonconductive Black Plastic (UL94V-0 rated)
Pin Material	Ø0.5mm Brass Solder-coated
Potting Material	Epoxy (UL94V-0 rated)
Weight	10.0 g, typ.
Dimensions	0.94" x 0.54" x 0.41"

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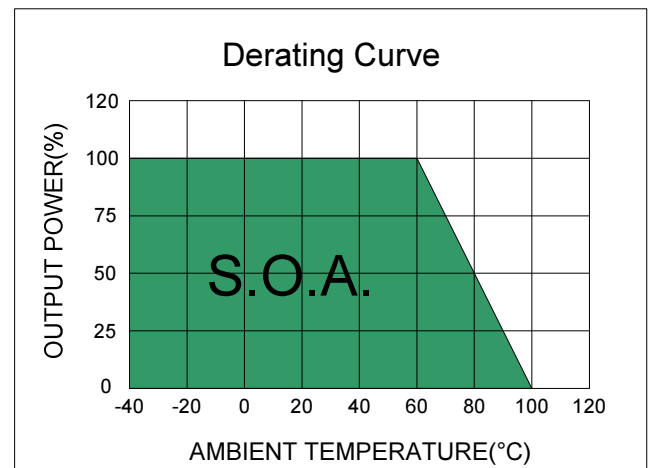
10W 4:1 Regulated Single & Dual output



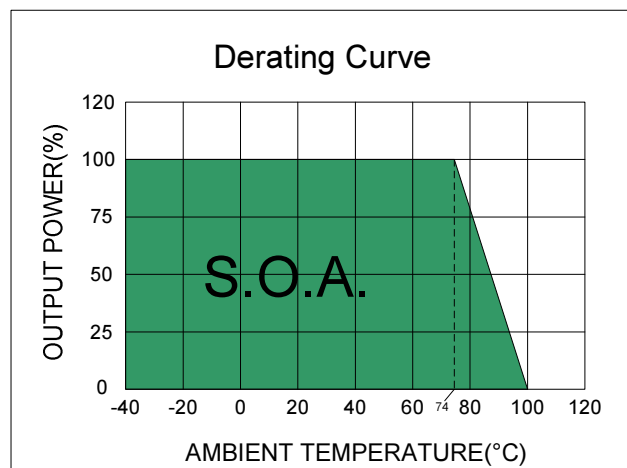
ELECTRICAL CHARACTERISTIC CURVES



Efficiency 80% Models



Efficiency 83% Models

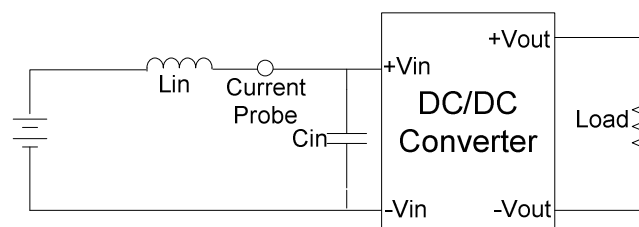


Efficiency 87% Models

TEST CONFIGURATIONS

Input Reflected Ripple Current Test Step

Input reflected ripple current is measured with a source inductor L_{in} (8.2 μ H) and a source capacitor C_{in} (47 μ F, ESR<1.0 Ω at 100kHz) at nominal input and full load.



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DESIGN & FEATURE CONFIGURATIONS

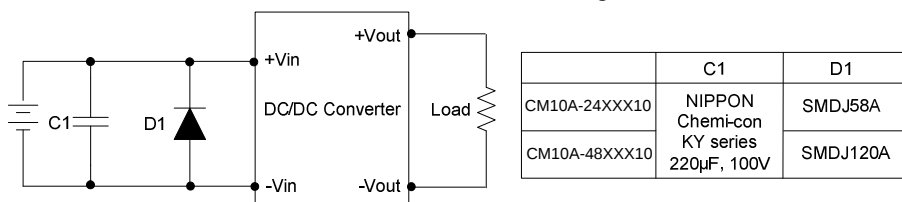
Over Current Protection

The module includes an internal over current protection circuit, which will endure current limiting for an unlimited duration during output over load condition. If the output current exceeds the OCP set point, the module will shut down automatically (hiccup). The module will try to restart after shut down. If the over load condition still exists, the module will shut down again.

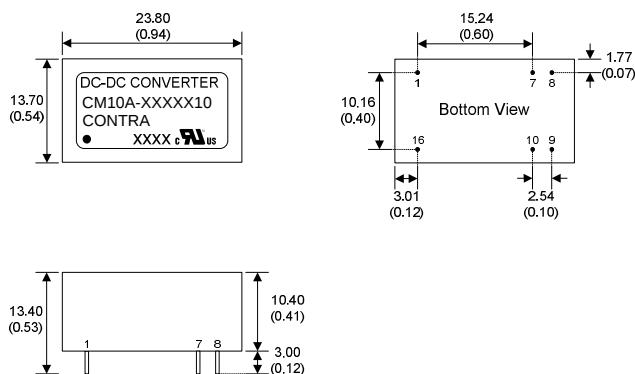
DESIGN & FEATURE CONFIGURATIONS

EMS Filter

The Circuit is used to meet Surge & EFT test.



MECHANICAL SPECIFICATIONS



- Notes : All dimensions are typical in millimeters (inches).
1. Pin diameter: 0.5 ± 0.05 (0.02 ± 0.002)
 2. Pin pitch and length tolerance: ± 0.35 (± 0.014)
 3. Case Tolerance: ± 0.5 (± 0.02)

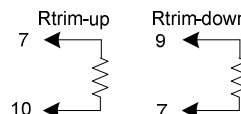
PIN CONNECTIONS

PIN NUMBER	SINGLE	DUAL
1	-Vin	-Vin
7	Trim	N.C.
8	N.C.	COM
9	+Vout	+Vout
10	-Vout	-Vout
16	+Vin	+Vin

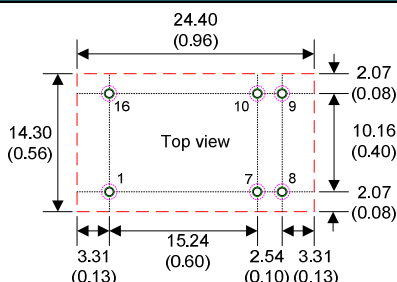
*N.C. : No Connection

EXTERNAL OUTPUT TRIMMING

Output can be externally trimmed by using the method as below. (single output models only)



RECOMMENDED FOOTPRINT DETAILS



- Notes : 1. All dimensions are typical in millimeters (inches).
- Through hole (black) 1 ~ 16: $\varnothing 0.80$ (0.031)
 - Top view pad (green) 1 ~ 16: $\varnothing 1.00$ (0.039)
 - Bottom view pad (pink) 1 ~ 16: $\varnothing 1.60$ (0.063)