CFM40C SERIES
40WATT DIN RAIL AC-DC MODULES

Features

- Universal Input Range 90~264V_{ac}
- Efficiency to 87%
- Meets Class I
- Approval IEC/EN/UL 62368-1
- Approval EN 55032 Class B and CISPR/FCC Class B
- Continuous Short Circuit Protection
- LED Indicator for Power On
- Can be Installed on DIN Rail TS-35/7.5 or 15



MODEL NUMBER	OUTPUT VOLTAGE	OUTPUT CURRENT	VOLTAGE ACCURACY NOTE1	RIPPLE& NOISE NOTE2	LINE REGULATION NOTE3	LOAD REGULATION NOTE4	%EFF. (Typ.) NOTE5
CFM40C033-DR	3.3 V	6 A	±1%	50 mV	±0.5%	±1%	70%
CFM40C050-DR	5 V	6 A	±1%	50 mV	±0.5%	±1%	76%
CFM40C090-DR	9 V	4.45 A	±1%	90 mV	±0.5%	±1%	84%
CFM40C120-DR	12 V	3.34 A	±1%	120 mV	±0.5%	±1%	85%
CFM40C150-DR	15 V	2.67 A	±1%	150 mV	±0.5%	±1%	85%
CFM40C240-DR	24 V	1.67 A	±1%	240 mV	±0.5%	±1%	85%
CFM40C300-DR	30 V	1.33 A	±1%	300 mV	±0.5%	±1%	86%
CFM40C360-DR	36 V	1.11 A	±1%	360 mV	±0.5%	±1%	87%
CFM40C480-DR	48 V	0.834 A	±1%	480 mV	±0.5%	±1%	87%

Note:

1. Voltage accuracy is set at 100% full load and 25℃ Ta.
2. Add a 0.1uF ceramic capacitor and a 10uF E.L. capacitor to output for ripple & noise measuring @20MHz B.W.
3. Line regulation is measured from high line to low line with 100% full load.
4. Load regulation is measured from 10% to 100% full load.
5. Typical efficiency at 230 V_{ac} and 100% full load at 25℃.
6. Input connector mates with DECA T40MBB27-03 (pitch 6.35mm) 3pin positions terminal blocks.
7. Output connector mates with DECA T40MBB27-04 (pitch 6.35mm) 4pin positions terminal blocks.

PART NUMBER

Series	Number of Outputs	Nominal Output Voltage	Type
CFM40	C	XXX	-X (Option)
CFM40	C : Chassis Modules	033 : 3.3V 050 : 05V 090 : 09V 120 : 12V 150 : 15V 240 : 24V 300 : 30V 360 : 36V 480 : 48V	DR : DIN Rail

Part Number Example:

CFM40C120-DR: DIN Rail Type, 40W, Chassis Modules, 12Vdc Output

TECHNICAL SPECIFICATIONS

(All specifications are typical at nominal input, 100% full load at 25℃ unless otherwise noted.)

ABSOLUTE MAXIMUM RATINGS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Input Voltage	Safety approvals only to the AC input	All	90 120		264 370	V_{ac} V_{dc}
Operating Temperature	See Derating Curve	All	0		70	℃
Storage Temperature		All	-20		85	℃
Operating Altitude		All			2000	m

INPUT CHARACTERISTICS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Operating Voltage Range		All	100		240	V_{ac}
Input Frequency Range		All	47		63	Hz
Maximum Input Current	100% full load, V_{in}=100V_{ac}	All			1.4	A
Leakage Current		All			3.5	mA
Inrush Current	V_{in}=240V_{ac}, Cold start at 25℃	All			50	A

OUTPUT CHARACTERISTICS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Output Voltage Set Point	V_{in}=Nominal V_{in}, I_o=I_o max., T_c=25℃	CFM40C033-DR CFM40C050-DR CFM40C090-DR CFM40C120-DR CFM40C150-DR CFM40C240-DR CFM40C300-DR CFM40C360-DR CFM40C480-DR	3.26 4.95 8.91 11.88 14.85 23.76 29.70 35.64 47.52	3.3 5.0 9.0 12.0 15.0 24.0 30.0 36.0 48.0	3.33 5.05 9.09 12.12 15.15 24.24 30.30 36.36 48.48	V_{dc}
Operating Output Current Range	V_{in}=90V_{ac} ~264V_{ac} , See Derating Curve	CFM40C033-DR CFM40C050-DR CFM40C090-DR CFM40C120-DR CFM40C150-DR CFM40C240-DR CFM40C300-DR CFM40C360-DR CFM40C480-DR			6 6 4.45 3.34 2.67 1.67 1.33 1.11 0.834	A
Holdup Time	V_{in}=115V_{ac}	All		8		ms
Output Voltage Regulation						
Load Regulation	10% load to 100% full load	All			±1.0	%
Line Regulation	V_{in}=High line to low line	All			±0.5	%
Over Current Protection	Hiccup mode (auto recovery)	All	120		180	%
Short Circuit Protection	Hiccup mode (auto recovery)	All				

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Over Voltage Protection	Uses a TVS component to clamp output voltage	CFM40C033-DR		6.8		V_{dc}
		CFM40C050-DR		6.8		
		CFM40C090-DR		11		
		CFM40C120-DR		15		
		CFM40C150-DR		18		
		CFM40C240-DR		30		
		CFM40C300-DR		36		
		CFM40C360-DR		47		
		CFM40C480-DR		56		
Output Ripple and Noise	1. Add a 0.1uF ceramic capacitor and a 10uF aluminum electrolytic capacitor to output 2. Oscilloscope is 20MHz bandwidth 3. Ambient temperature=25℃	CFM40C033-DR			50	mV
		CFM40C050-DR			50	
		CFM40C090-DR			90	
		CFM40C120-DR			120	
		CFM40C150-DR			150	
		CFM40C240-DR			240	
		CFM40C300-DR			300	
		CFM40C360-DR			360	
		CFM40C480-DR			480	
Load Capacitance	1. V_{in}=115V_{ac} and 230V_{ac} 2. Output is 100% full load 3. Ambient temperature=25℃	CFM40C033-DR			6000	uF
		CFM40C050-DR			6000	
		CFM40C090-DR			4450	
		CFM40C120-DR			3700	
		CFM40C150-DR			1980	
		CFM40C240-DR			1710	
		CFM40C300-DR			940	
		CFM40C360-DR			1050	
		CFM40C480-DR			850	
Efficiency	1. V_{in}=230V_{ac} 2. Output is 100% full load 3. Ambient temperature=25℃	CFM40C033-DR		70		%
		CFM40C050-DR		76		
		CFM40C090-DR		84		
		CFM40C120-DR		85		
		CFM40C150-DR		85		
		CFM40C240-DR		85		
		CFM40C300-DR		86		
		CFM40C360-DR		87		
		CFM40C480-DR		87		

ISOLATION CHARACTERISTICS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Input to Output	1 Minute	All			3000	V_{ac}
Input to Earth (Ground)	1 Minute	All			1500	V_{ac}
Output to Earth (Ground)	1 Minute	All			500	V_{ac}
Isolation Resistance	Input to output	All	100			MΩ

FEATURE CHARACTERISTICS

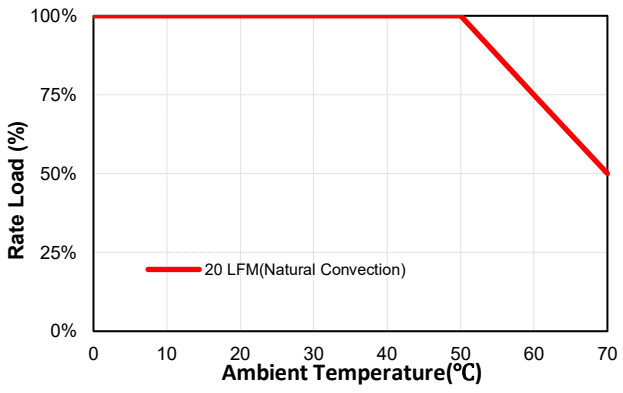
PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Switching Frequency	P_{out}=max. rated power	All		66		kHz

GENERAL SPECIFICATIONS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
MTBF	I_o=100%; T_a=25℃ per MIL-HDBK-217F I_o=100%; T_a=25℃ Telcordia SR332	All	350 5420			k hours
Humidity	Non-condensing	All			93	% RH
Shock	Meet MIL-STD-810F Table 516.5,Table 516.5-I 10ms, each axis 3 times(±X、±Y、±Z axis)	All		75		g
Vibration	Meet MIL-STD-810F Table 514.5C-VIII,15~2000Hz, X、Y、Z axis, 1 hour (each axis),. Total 3 hrs.	All		4		g
Weight		All		475		grams
Dimensions		All	5.433x2.323x1.894 Inches (138.00x59.00x48.10 mm)			
Safety	Class I, IEC/EN/UL 62368-1					Ed.3.0
EMC Emission	EN 55032:2015+A11:2020, EN 61000-6-3:2007+A1:2011+AC:2012, Class B, EN 61204-3:2018, EN 61000-3-2:2019, EN 61000-3-3:2013+A1:2019, FCC CFR 47 Part 15					
Conducted Disturbance	EN 55032:2015+A11:2020, EN 61000-6-3:2007+A1:2011+AC:2012, EN 61204-3:2018, FCC CFR 47 Part 15					Class B
Radiated Disturbance	EN 55032:2015+A11:2020, EN 61000-6-3:2007+A1:2011+AC:2012, EN 61204-3:2018, FCC CFR 47 Part 15					Class B
Harmonic Current Emissions	EN 61000-3-2:2019					Class A
Voltage Fluctuations & Flicker	EN 61000-3-3:2013+A1:2019					
EMC Immunity	EN 55035:2017+A11:2020, EN 61000-6-1:2019, EN 61204-3:2018, IEC 61000-4-2, 3, 4, 5, 6, 8, 11					
Electrostatic Discharge (ESD)	IEC 61000-4-2:2008, Air Discharge: ±8kV Contact, Discharge: ±4kV					Criterion A
Radio-Frequency, Continuous Radiated Disturbance	IEC 61000-4-3:2020					Criterion A
Electrical Fast Transient (EFT)	IEC 61000-4-4:2012, ±0.5kV, ±1kV					Criterion A
Surge	IEC 61000-4-5:2014+A1:2017, L-N: ±0.5kV, ±1kV					Criterion A
Conducted Disturbances, Induced by RF Fields	IEC 61000-4-6:2013+COR1:2015					Criterion A
Power Frequency Magnetic Field	IEC 61000-4-8:2009					Criterion A
Voltage Dips	IEC 61000-4-11:2020, Dips: 30% Reduction, Dips: >95% Reduction					Criterion A
Voltage Interruptions	IEC 61000-4-11:2020, >95% Reduction					Criterion B
Application Note Link						CFM40C Series App Notes

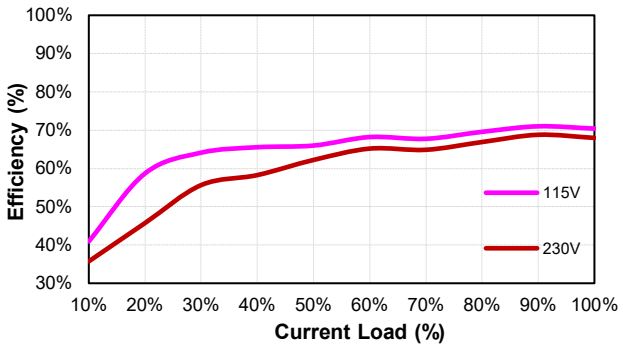
CHARACTERISTIC CURVE

Power Derating Curve

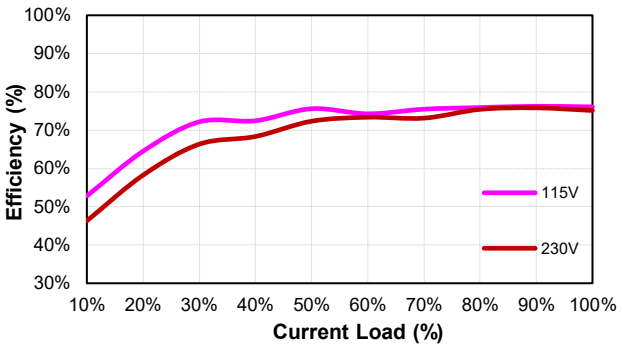


Performance Data

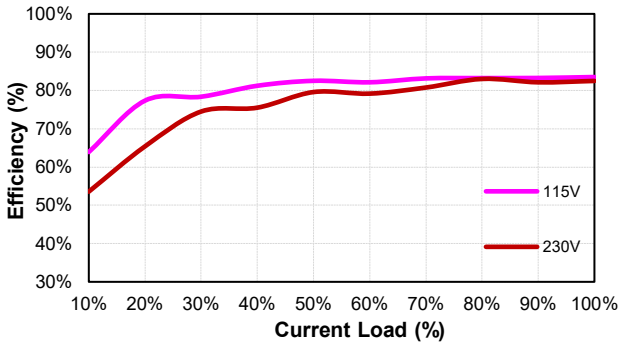
CFM40C033-DR (Eff Vs Io)



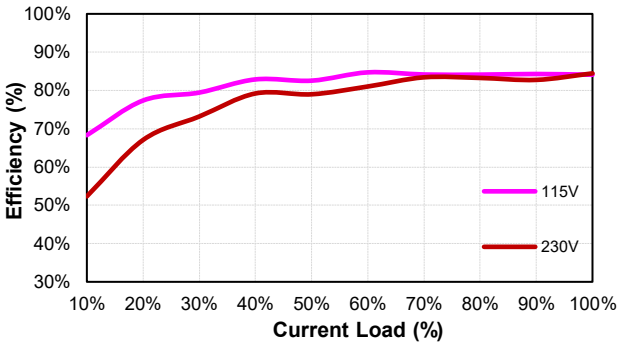
CFM40C050-DR (Eff Vs Io)



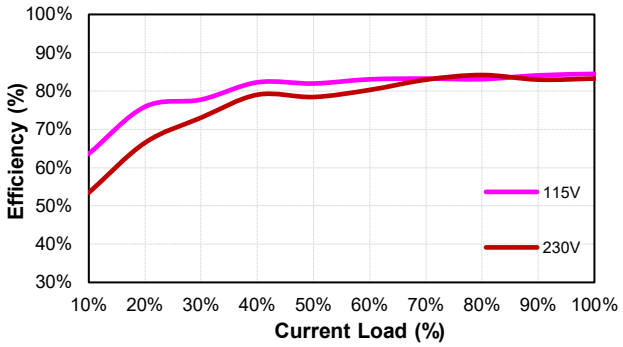
CFM40C090-DR (Eff Vs Io)



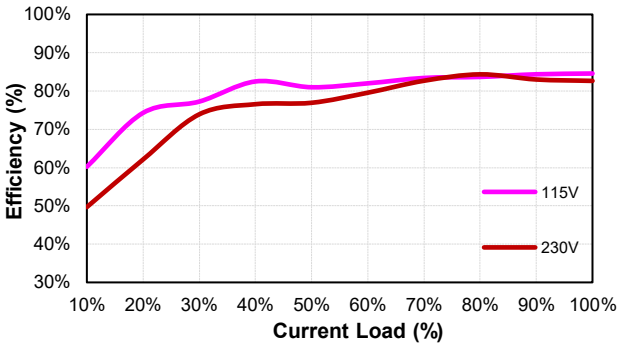
CFM40C120-DR (Eff Vs Io)



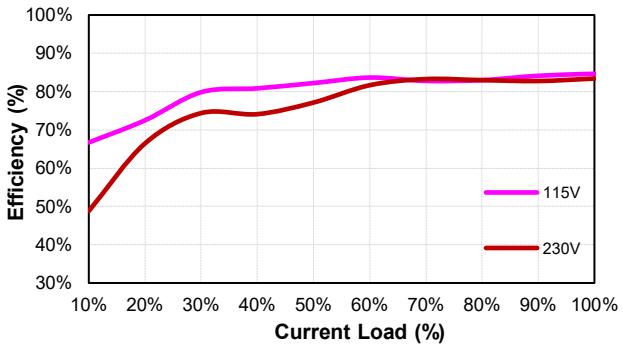
CFM40C150-DR (Eff Vs Io)



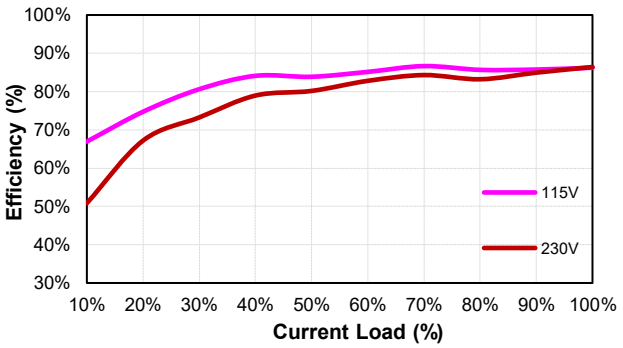
CFM40C240-DR (Eff Vs Io)

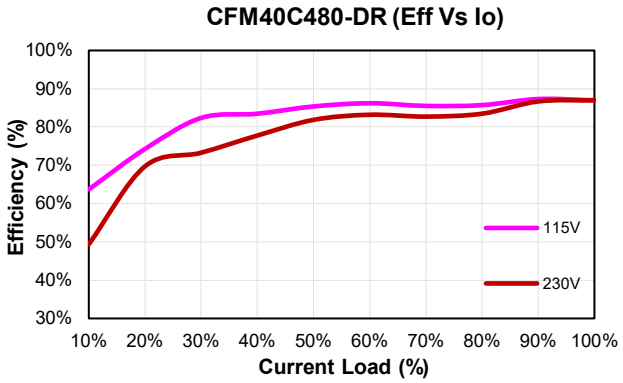


CFM40C300-DR (Eff Vs Io)

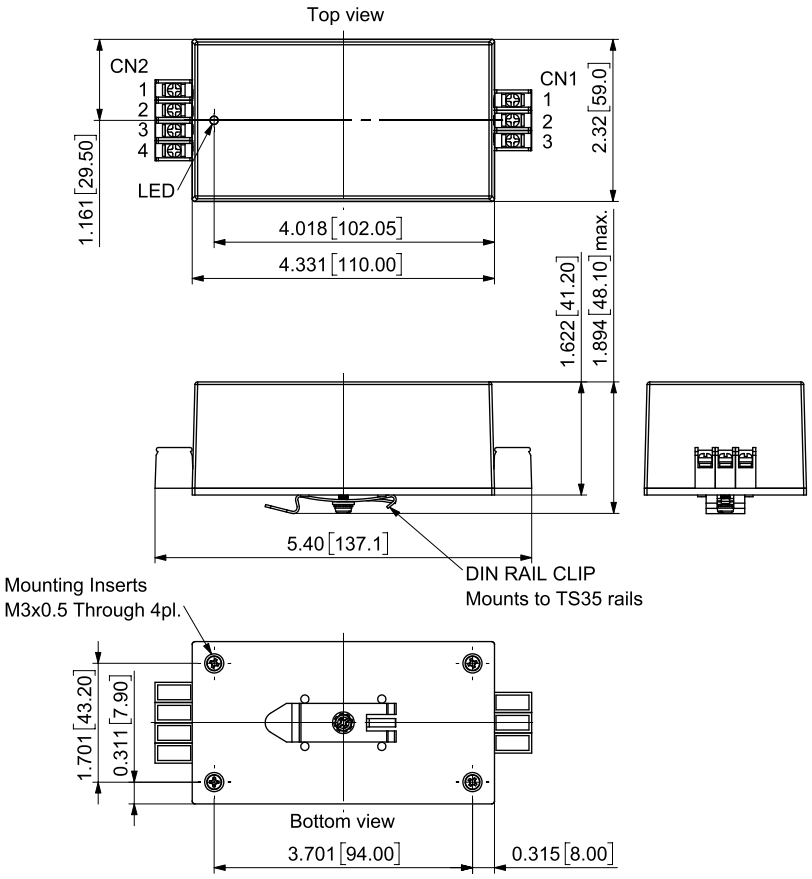


CFM40C360-DR (Eff Vs Io)




CFM40C480-DR (Eff Vs Io)
100%
90%
80%
70%
60%
50%
40%
30%
Efficiency (%)
115V
230V
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Current Load (%)

MECHANICAL SPECIFICATION



All Dimensions in Inches[mm]
Tolerance Inches: x.xx=±0.03, x.xxx=±0.020
Millimeters: x.x=±0.7, x.xx=±0.50

AC Input Connector(CN1):T40M-BB2703 or equivalent

Pin	Function	Mating Wire Range
1	ACL	16~30 AWG
2	ACN	
3	Earth	

DC Output Connector(CN2):T40M-BB2704 or equivalent

Pin	Function	Mating Wire Range
1	+Vo	16~30 AWG
2	+Vo	
3	-Vo	
4	-Vo	

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