

Regulated SIL-8 DC/DC Converters

FS-Series 2 Watt, Single & Dual Outputs



- 2:1 input voltage range
- DC/DC regulated converter modules
- Industry standard pinning
- Continuous short circuit proof
- 1kVdc isolation voltage
- UL 94V-0 package material
- Remote On/Off control

- 2:1 Eingangsspannungsbereich
- DC/DC Wandler geregelt
- Industriestandard pinning
- Dauerkurzschlussfest
- 1kVdc galvanische Trennung
- UL 94V-0 Gehäusematerial und Vergussmasse
- Inhibit

- Large gamme d'entrée 2:1
- Convertisseur DC/DC régulé
- Brochage standard industriel
- Protection contre court-circuit permanentes
- Isolation galvanique 1kVdc
- Matériaux de boîtier et masse de remplissage conformes UL 94V-0
- Fonction inhibit

Product range

Typenübersicht

Sommaire des types

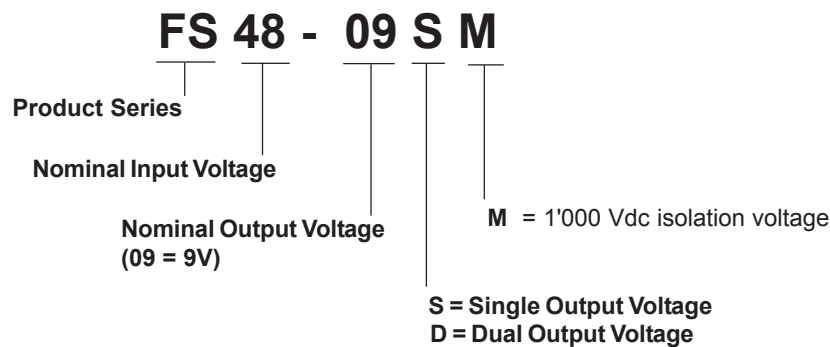
PART NUMBER	INPUT VOLTAGE		Voltage	OUTPUT		EFFICIENCY Typical
	Nominal	Range		Current	Ripple & Noise	
SINGLE OUTPUT						
FS05-3V3SM	5 VDC	4.5..9 VDC	3.3 VDC	500 mA	50 mVpp	68%
FS05-05SM			5 VDC	400 mA	50 mVpp	73%
FS05-09SM			9 VDC	222 mA	50 mVpp	74%
FS05-12SM			12 VDC	166 mA	50 mVpp	75%
FS05-15SM			15 VDC	134 mA	50 mVpp	75%
FS12-3V3SM	12 VDC	9..18 VDC	3.3 VDC	500 mA	50 mVpp	69%
FS12-05SM			5 VDC	400 mA	50 mVpp	75%
FS12-09SM			9 VDC	222 mA	50 mVpp	78%
FS12-12SM			12 VDC	166 mA	50 mVpp	80%
FS12-15SM			15 VDC	134 mA	50 mVpp	80%
FS24-3V3SM	24 VDC	18..36 VDC	3.3 VDC	500 mA	50 mVpp	70%
FS24-05SM			5 VDC	400 mA	50 mVpp	78%
FS24-09SM			9 VDC	222 mA	50 mVpp	81%
FS24-12SM			12 VDC	166 mA	50 mVpp	83%
FS24-15SM			15 VDC	134 mA	50 mVpp	83%
FS48-3V3SM	48 VDC	36..72 VDC	3.3 VDC	500 mA	50 mVpp	73%
FS48-05SM			5 VDC	400 mA	50 mVpp	78%
FS48-09SM			9 VDC	222 mA	50 mVpp	81%
FS48-12SM			12 VDC	166 mA	50 mVpp	83%
FS48-15SM			15 VDC	134 mA	50 mVpp	83%

PART NUMBER	INPUT VOLTAGE		OUTPUT			EFFICIENCY Typical
	Nominal	Range	Voltage	Current	Ripple & Noise	
DUAL OUTPUT						
FS05-3V3DM	5 VDC	4.5..9 VDC	±3.3 VDC	±250 mA	50 mVpp	68%
FS05-05DM			±5 VDC	±200 mA	50 mVpp	73%
FS05-09DM			±9 VDC	±111 mA	50 mVpp	74%
FS05-12DM			±12 VDC	±83mA	50 mVpp	75%
FS05-15DM			±15 VDC	±67 mA	50 mVpp	75%
FS12-3V3DM	12 VDC	9..18 VDC	±3.3 VDC	±250 mA	50 mVpp	69%
FS12-05DM			±5 VDC	±200 mA	50 mVpp	75%
FS12-09DM			±9 VDC	±111 mA	50 mVpp	78%
FS12-12DM			±12 VDC	±83mA	50 mVpp	80%
FS12-15DM			±15 VDC	±67 mA	50 mVpp	80%
FS24-3V3DM	24 VDC	18..36 VDC	±3.3 VDC	±250 mA	50 mVpp	70%
FS24-05DM			±5 VDC	±200 mA	50 mVpp	78%
FS24-09DM			±9 VDC	±111 mA	50 mVpp	81%
FS24-12DM			±12 VDC	±83mA	50 mVpp	83%
FS24-15DM			±15 VDC	±67 mA	50 mVpp	83%
FS48-3V3DM	48 VDC	36..72 VDC	±3.3 VDC	±250 mA	50 mVpp	73%
FS48-05DM			±5 VDC	±200 mA	50 mVpp	78%
FS48-09DM			±9 VDC	±111 mA	50 mVpp	81%
FS48-12DM			±12 VDC	±83mA	50 mVpp	83%
FS48-15DM			±15 VDC	±67 mA	50 mVpp	83%

Nomenclature

Nomenklatur

Nomenclature



Specifications

Spezifikationen

Spécifications

All values refer to an ambient temperature of 25°C and nominal rated values where nothing else is specified

INPUT SPECIFICATIONS

Characteristics		Conditions	min	typ	max	unit
U _{in}	Input voltage	T _A < T _{Amax}	see "product range", page 1			Vdc
	Remote on/off control		TTL compatible			
C _{Ein}	External input capacitor* (Recommended to improve EMC)	U _{in nom} = 5, 12,24 Vdc		10uF / 50V		
		U _{in nom} = 48 Vdc		10uF / 100V		

*) See "External capacitors - improved EMC behaviour", page 3

OUTPUT SPECIFICATIONS

Characteristics		Conditions	min	typ	max	unit
U _{acc}	Output voltage accuracy	of nominal output voltage, Single		±1		% U _{out}
		of nominal output voltage, Dual		±2		% U _{out}
	Line regulation	Single output			±0.2	% U _{out}
		Dual output			±0.5	% U _{out}
	Load regulation	25% to 100% load		±0.5		% U _{out}
U _{rn}	Output ripple & noise	With external capacitor on pin 8**			50	mVpp
	Output short circuit characteristic			fold-back		
	Output short circuit protection			continuous		
C _{Eout}	External output capacitor* (Recommended to improve EMC)	U _{in nom} = 48 Vdc		100µF / 250V		
C _m	External output capacitor**	Improves ripple & noise	100µF/LowESR			

*) See "External capacitors - improved EMC behaviour", page 3

***) See "External capacitor - improved ripple & noise", page 3

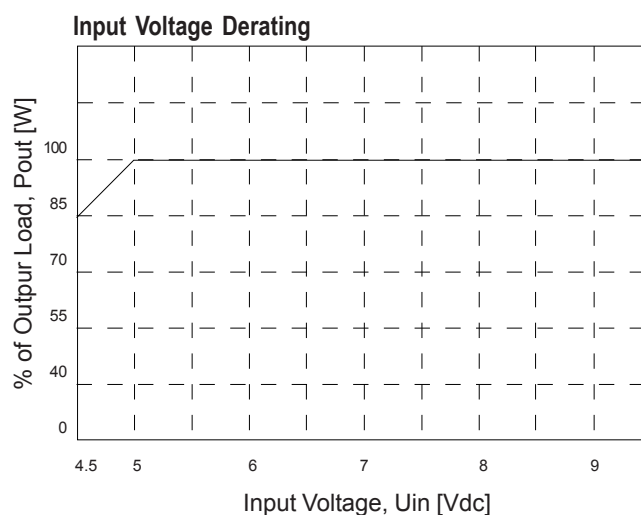
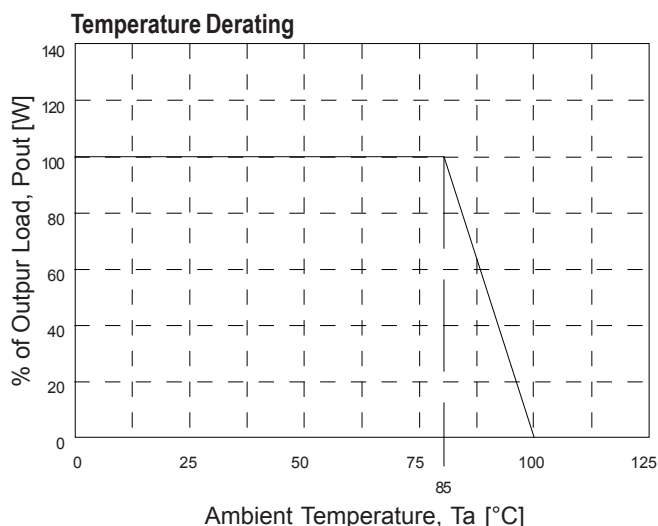
GENERAL SPECIFICATIONS

Characteristics		Conditions	min	typ	max	unit
U _{iso}	Isolation voltage	input/output	1'000			Vdc
f _s	Switching frequency	Fixed, at full load (Single output)	85			kHz
		Fixed, at full load (Dual output)	100		700	kHz
	Case material		Plastic, UL 94V-0			
	Weight	SIL-8		4.8		g
	Dimensions	LxWxH	21.8 x 9.2 x 11.1			mm

ENVIRONMENTAL SPECIFICATIONS

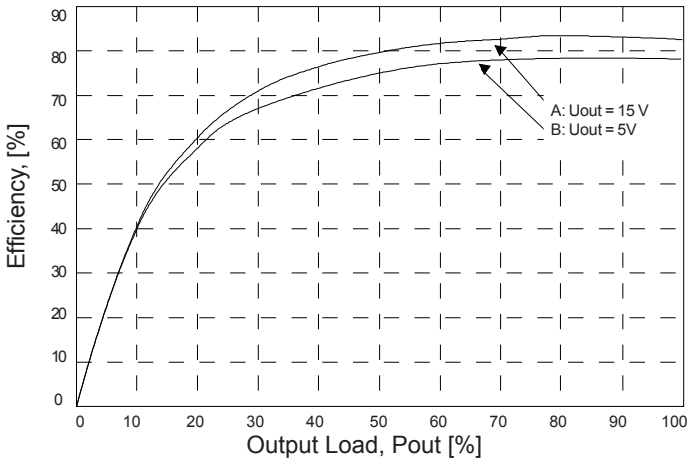
Characteristics		Conditions	min	typ	max	unit
T _A	Operating temperature	Ambient temperature, see also "Derating" page 3	-40		+85	°C
	Storage temperature	Ambient temperature	-50		+125	°C

Typical characteristics

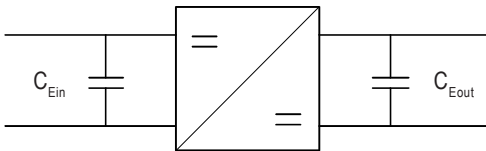


Typical characteristics

Efficiency (typical values)

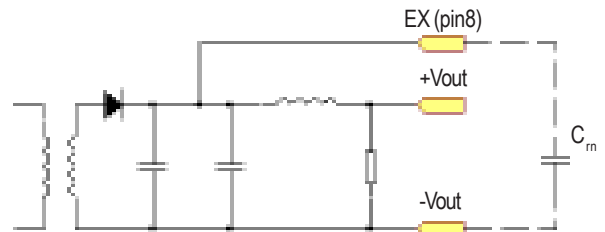


External capacitors - improved EMC behaviour:



Values C_{Ein} and C_{Eout} see specifications, page 2

External capacitors - improved ripple & noise:



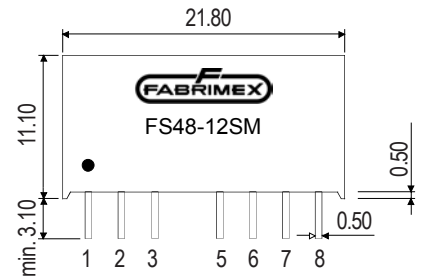
C_m = minimum 100uF, low ESR

Case

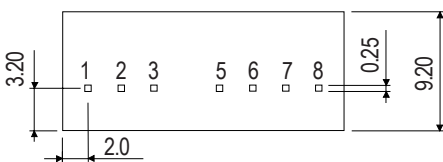
Gehäuse

Boîtier

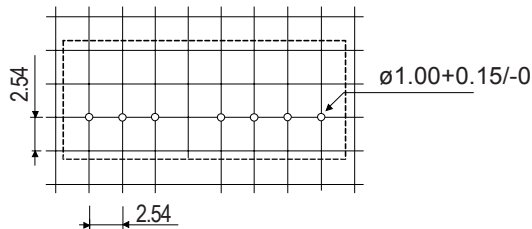
Dimensions in mm. Normal tolerance 1/10 ±0.5 mm, 1/100 ±0.25 mm



Bottom View



Recommended Footprint, Bottom View



Pin	Single	Dual
1	-Vin	-Vin
2	+Vin	+Vin
3	On/off	On/off
4	NP	NP
5	NE	NE
6	+Vout	+Vout
7	-Vout	Com
8	EX	-Vout

NP = No Pin
NE = No connection allowed
EX = Optional external capacitor

Notice: All statements, technical information, and recommendations related to FABRIMEX's products are based on information believed to be reliable, but the accuracy or completeness thereof is not guaranteed. Before utilizing the product, the user should determine the suitability of the product for its intended use.



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