

FD20-XXSXXA3(C)

Application Field

FD20-XXSXXA3(C) is a newly designed DIP 1X1 packed 20W output power, ultra wide input range 4:1, low stand-by power consumption, isolated regulated output DC-DC converter, could be widely used for industrial control, instrument, communication, power electricity, internet of things field. For harsh EMC environment, the application circuit in the datasheet is strongly recommended.

Typical Product List

Certificate	Part no.	Input Voltage Range (VDC)		Output Voltage/Current(Vo/Io)		Input Current (mA) (Nominal Voltage)		Max. Capacitive Load	Ripple & Noise		Efficiency (%)@output full load	
		Nominal	Range	Voltage (VDC)	Current(mA)MAX./Min	Full load typ.	No Load typ.	uF	mVp-p		Min	Typ
									Typ.	Max.		
CE ROHS	FD20-18S3V3A3(C)	24	9-36	3.3	5000/0	795	45	10000	50	100	85	87
CE ROHS	FD20-18S05A3(C)	24	9-36	5	4000/0	926	45	5000	50	100	87	90
CE ROHS	FD20-18S09A3(C)	24	9-36	9	2222/0	926	30	3000	50	100	87	90
CE ROHS	FD20-18S12A3(C)	24	9-36	12	1667/0	926	5	1000	50	100	87	90
CE ROHS	FD20-18S15A3(C)	24	9-36	15	1333/0	926	5	800	50	100	87	90
CE ROHS	FD20-18S24A3(C)	24	9-36	24	833/0	926	5	500	50	100	87	90
CE ROHS	FD20-36S3V3A3(C)	48	18-75	3.3	5000/0	396	15	10000	50	100	85	87

Input Specification

Stand-by Consumption	0.05 W(TYP)	
Input Filter	π filter	
Input Under-Voltage Protection	5~9VDC@FD20-18SXXA3 Input	
CTRL*	Module turn-on	CTRL suspended or TTL high level (2.5-12VDC)
	Module turn-off	CTRL connect to GND or low level (0-1.2VDC)
	Input current when switched off	5mA (TYP)

Note: *The voltage of CTRL pin is relative to GND pin.

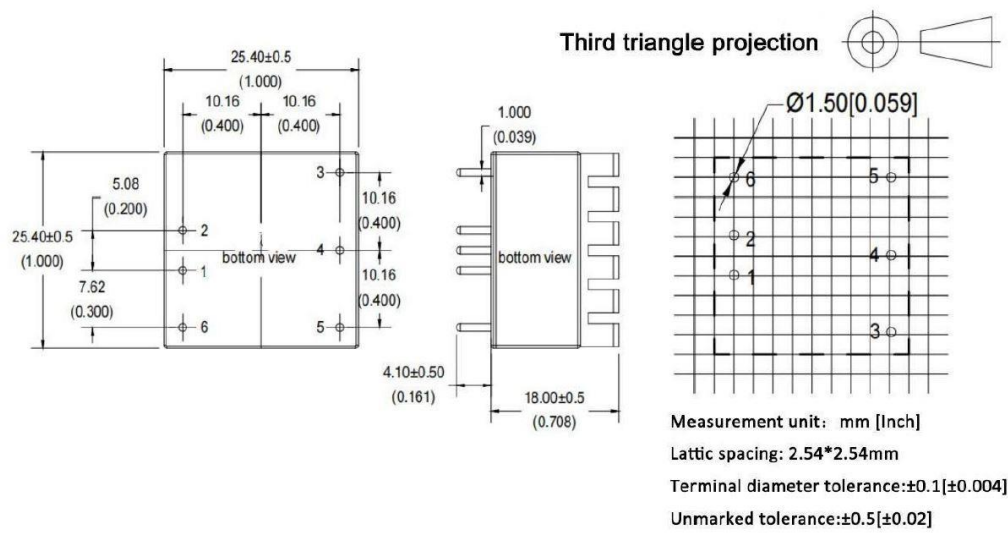
Output Specification

Output Voltage Accuracy	Full voltage full load	Vo	±2.0%
Voltage Regulation	Nominal load, full voltage range	Vo	≤±0.5%
Load Regulation	10% ~ 100% nominal load	Vo	≤±1.0%
Ripple & Noise	Nominal load, nominal voltage, Parallel Line Test Method, 20M Hz bandwidth;	≤15% load	5%Vo mVp-p typ
		≥15% load	50mVp-p typ, 100mVp-p max
Output Over-voltage Protection	120%~200%Vo		
Output Over-load Protection	110%~220%Io		
Output Short circuit Protection	Continuous, Self-recovery		
Dynamic Response	25% nominal load step	3.3V, 5V	±3% typ , ±8% max /500us

General Specification		
Switching Frequency	Typical	350KHz
Operating Temperature	Refer to Temperature Derating Curve	-40℃ ~ +85℃
Storage Temperature	-	-55℃ ~ +125℃
Max Case Temperature	Within Operating Curve	+105℃
Relative Humidity	No condensing	5%~95%
Case Material	-	Aluminum Metal Case
Cooling Method	-	Free air convection
Isolation Voltage	Input to Output	1500Vdc ≤ 0.5mA / 1min
MTBF	MIL-HDBK-217F@25℃	2X10 ⁵ Hrs
Product Weight	Average	18g

EMC Characteristics				
Total Items	Sub Items		Test Standard	Class
EMC	EMI	CE	CISPR22/EN55032	CLASS B (see recommended circuit photo ②)
		RE	CISPR22/EN55032	CLASS B (see recommended circuit photo ②)
	EMS	RS	IEC/EN61000-4-3	10V/m Perf.Criteria B (see recommended circuit photo 2)
		CS	IEC/EN61000-4-6	3Vr.m.s Perf.Criteria B (see recommended circuit photo 2)
		ESD	IEC/EN61000-4-2	Contact ±4KV Perf.Criteria B
		Surge	IEC/EN61000-4-5	±2KV Perf.Criteria B (see recommended circuit photo 1)
		EFT	IEC/EN61000-4-4	±2KV Perf.Criteria B (see recommended circuit photo 1)
		Voltage dips, short interruptions and voltage variations immunity	IEC/EN61000-4-11	0%~70% Perf.Criteria B

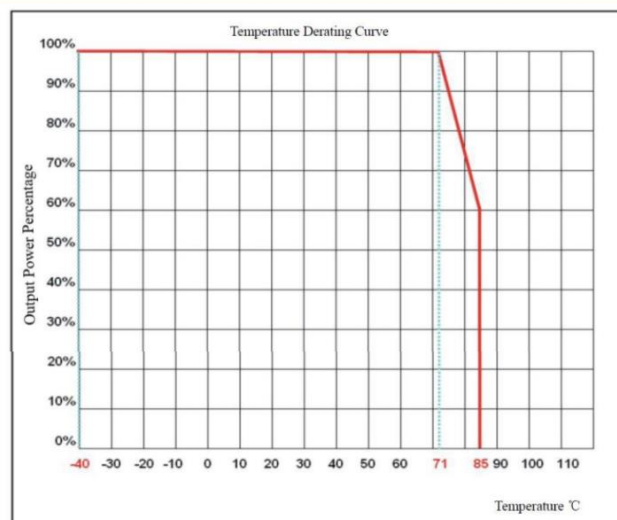
A3(C)-H Packing Dimension(With Heat Sink)



Pin Definition

FD20-XXSXXA3	1	2	3	4	5	6
	-Vin	+Vin	+Vout	NP	GND	CTRL

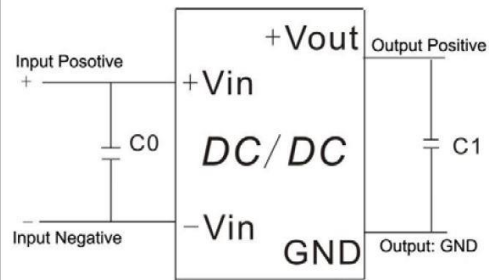
Product characteristic curve



Recommended circuit

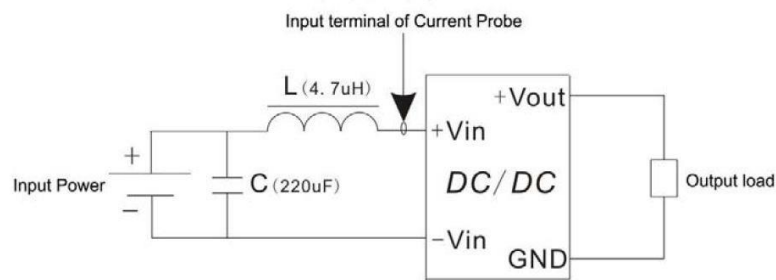
1. DC/DC test circuit:

Normal recommended capacitors: C0:47-100uF; C1: 470uF.

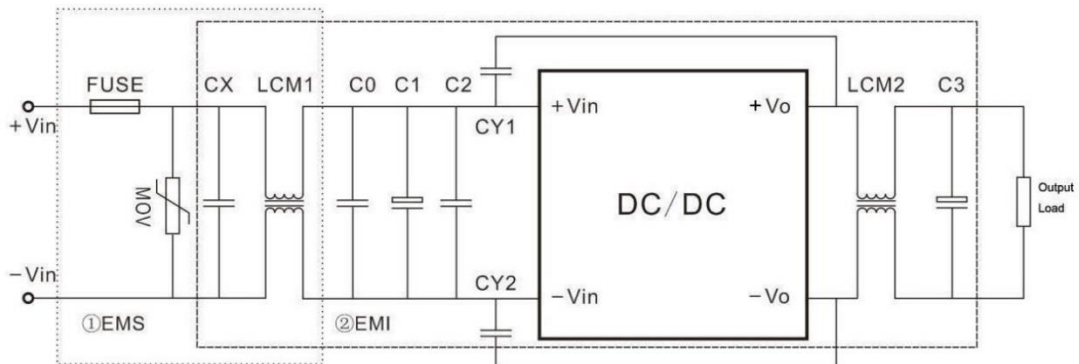


2. Input reflecting ripple current test circuit:

Capacitor C choose low ESR ones, withstand voltage value should be bigger than max input voltage;



EMC external recommended circuit:



Recommended Spec:

Component	FD20-18SXXA3 Input	FD20-36SXXA3 Input
FUSE	According to customer's request	
MOV	14D560K	14D101K
CX	0.47uF	0.47uF
LCM1	10mH	10mH
C0	1uF/100V	1uF/100V
C1	220uF/100V	220uF/100V
C2	1uF/100V	1uF/100V
LCM2	30uH	30uH
C3	47uF/50V	47uF/50V
CY1,CY2	2.2nF/2000V	

Note:

1. The product should be used under the specification range, otherwise it will cause permanent damage to it.
2. If the product worked beyond the load range or below the minimum load, we cannot ensure that the performance of product is in accordance with all the indexes in this manual;
3. Unless otherwise specified, data in this datasheet should be tested under conditions of $T_a=25^{\circ}\text{C}$, humidity<75% when inputting nominal voltage and outputting rated load(pure resistance load);
4. All index testing methods in this datasheet are based on our Company's corporate standards
5. The performance indexes of the product models listed in this manual are as above, but some indexes of non-standard model products will exceed the above-mentioned requirements, and please directly contact our technician for specific information;
6. We can provide customized product service;
7. The product specification may be changed at any time without prior notice.