

**Features**

- Efficiency up to 80%
- 1500VDC Isolation( Suffix " H " for 3000VDC)
- Singl/Double output
- Continuous short circuit protection
- Over load protection
- Wide voltage range
- Wide temperature -40 to 85
- Low ripple and noise



**Model Selection Guide**

Order Code	Vin(V)		Output		Recommend capacitive(uF)	Efficiency(%) (Typ)		
	Nominal	Range	Vo(V)	Io(mA)				
DDM5-05S05(P/H)	5	4.5-9.0	5	1000	220	76		
DDM5-05S09(P/H)			9	556	150	76		
DDM5-05S12(P/H)			12	417	150	77		
DDM5-12S3V3(P/H)	12	9-18	3.3	1500	220	75		
DDM5-12S05(P/H)			5	1000	220	78		
DDM5-12S09(P/H)			9	556	220	78		
DDM5-12S12(P/H)			12	417	100	82		
DDM5-12S15(P/H)			15	333	100	82		
DDM5-12S24(P/H)			24	208	100	82		
DDM5-12D05(P/H)			±5	±500	150	78		
DDM5-12D09(P/H)			±9	±278	150	78		
DDM5-12D12(P/H)			±12	±208	100	80		
DDM5-12D15(P/H)			±15	±167	100	81		
DDM(F)5-24S3V3(P/H)			24	18-36 (F)9-36	3.3	1500	220	75
DDM(F)5-24S05(P/H)					5	1000	220	80
DDM(F)5-24S09(P/H)	9	556			220	80		
DDM(F)5-24S12(P/H)	12	417			100	81		
DDM(F)5-24S15(P/H)	15	333			100	82		
DDM(F)5-24S24(P/H)	24	208			100	82		
DDM(F)5-24D05(P/H)	±5	±500			150	78		
DDM(F)5-24D09(P/H)	±9	±278			150	79		
DDM(F)5-24D12(P/H)	±12	±208			100	80		
DDM(F)5-24D15(P/H)	±15	±167			100	81		
DDM(F)5-48S3V3(P/H)	48	36-72 (F)18-72			3.3	1500	220	76
DDM(F)5-48S05(P/H)					5	1000	220	80
DDM(F)5-48S09(P/H)			9	556	220	80		
DDM(F)5-48S12(P/H)			12	417	100	81		
DDM(F)5-48S15(P/H)			15	333	100	82		
DDM(F)5-48S24(P/H)			24	208	100	82		
DDM(F)5-48D05(P/H)			±5	±500	150	80		
DDM(F)5-48D09(P/H)			±9	±278	150	80		
DDM(F)5-48D12(P/H)			±12	±208	100	81		
DDM(F)5-48D15(P/H)			±15	±167	100	82		

**Input Characteristics**

Parameter	Condition	Min	Typ	Max	Units
Input Surge Voltage (1 sec. Max.)	5V Input Models	-0.7	--	15	VDC
	12V Input Models	-0.7	--	25	
	24V Input Models	-0.7	--	50	
	48V Input Models	-0.7	--	90	
Input Filter Type	All Models	Internal Capacitor			

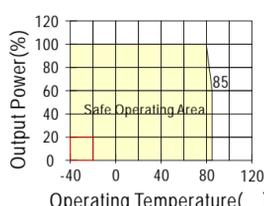
**Output Characteristics**

Parameter	Condition	Min	Typ	Max	Units
Output Voltage Accuracy	+Vo	--	1%	--	%
	-Vo	--	2%	3%	%
Load regulation	10% ~ 100% load	--	±0.5	±1	%
Line regulation	Vin(Min-Max)	±0.1	--	±0.5	%
Ripple and noise	BW=DC to 20MHz	--	50	100	mVp-p
Switching frequency	Full load,nominal input	--	300	400	KHz
Transient Recovery Time	25% Load Step Change	--	--	500	uS
Short circuit Protection	Continuous, Automatic Recovery				

**General Characteristics**

Parameter	Condition	Min	Typ	Max	Units
Operating Temperature	All output types	-40	--	+85	
Storage		-55	--	+125	
Storage humidity		--	--	+95	%
Cooling	Free air convection	--	--	--	
Isolation voltage	2mA 1minute	1500	--	--	VDC
		3000	--	--	VDC
Isolation resistance	500VDC	1000	--	--	M
MTBF	2 × 10 <sup>5</sup>				K hours
Case material					Metal
	/P				Plastic

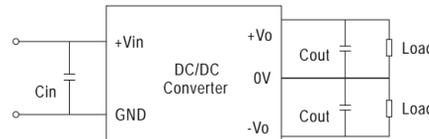
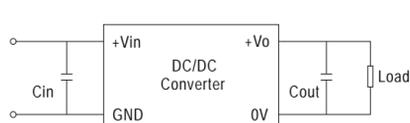
**Temperature Derating Graph Curve**



**Design & Feature Considerations**

**1. Input/Output Ripple Reduction**

Reduce output ripple, it is recommended to use capacitors at the input/output. It is recommended to use 10uF ~ 100uF capacitors at the input; 47~220uF capacitors at the output.



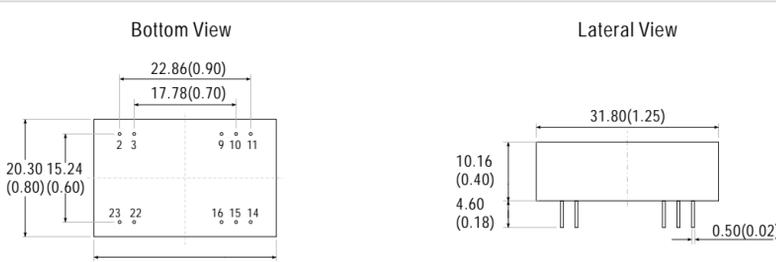
**2. Overload Protection**

The products provide protection against overload, the unit is equipped with internal current limiting circuitry .

**Note**

- 1.All the specifications typical at Ta=+25 resistive load, nominal voltage and rated output current unless otherwise noted.
- 2.Operation under no-load conditions will not damage these modules; however they may not meet all specifications listed.
- 3.Ripple & Noise measurement bandwidth is 0-20MHz.
- 3.Other input and output voltage may be available, please
- 4.To order the converter with 4:1 input voltage range, add letter " F " (e.g:DDMF5-24S05) in the order code.
- 5.All DC/DC converters should be externally fused at the front end for protection.
- 6.Specifications subject to change without notice

**Mechanical Dimension & Pin Connections**



Pin	2,3	9	10	11	14	15	16	22,23
Single	-Vin	NC	NP	NC	+Vo	NP	-Vo	+Vin
Double	-Vin	COM	NP	-Vo	+Vo	NP	COM	+Vin

Note:  
Unit:mm(inch)