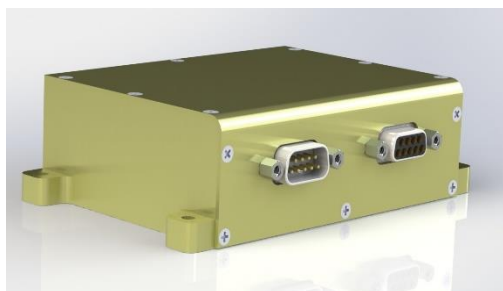




MP2185

300W TRANSIENT VOLTAGE PROTECTION MODULE



- 44VDC Max. Output Clamping
- $\pm 600\text{Vdc}/\pm 250\text{Vdc}$ Input Spike Protection
- 100V/50mS 80V/100mS Input Surge protection
- IP67 Rated enclosure
- Optional Reverse Polarity Protection
- Optional EMI Filtering Availability

DESCRIPTION:

Prime Power's MP2185 Transient Voltage Protection Module is capable of protecting sensitive utilization equipment from high-energy transients and overvoltage power surges per MIL-STD-704A/D/E/F, MIL-STD-1275A/B/C/D, and DO-160E Cat. A/B/Z. The MP2185 will clamp transient input voltages and spikes to 44 volts on the output and provide inrush current limiting. The module also has available EMI filtering to MIL-STD-461D/E/F and DO-160E Cat. Sec. 20/21 for conducted emission and susceptibility, and optional reverse polarity protection.

GENERAL SPECIFICATIONS	
INPUT VOLTAGE (L-N)	28VDC NOM. (9VDC – 42VDC)
OUTPUT VOLTAGE	9VDC – 42VDC (44VDC MAX. CLAMPED)
OUTPUT POWER	UP TO 300W (12A MAX.)
PHYSICAL SIZE	3.000" L X 4.875" W X 1.350" H
WEIGHT	<1.5 LBS

PHYSICAL CHARACTERISTICS	
MAXIMUM CASE SIZE	3.000" L X 4.875" W X 1.350" H
COOLING METHOD	BASEPLATE
ENCAPSULATION	CONFORMAL COATING/SILICON RTV
ENCLOSURE FINISH	YELLOW CHROMATE
BASEPLATE FINISH	YELLOW CHROMATE
INPUT/OUTPUT TERMINATION	MIL-C-24308 D-SUB 9PIN RCPT. MIL-C-24308 D-SUB 9PIN PLUG
MOUNTING	4X .150" THRU

TEMPERATURE SPECIFICATIONS	
OPERATING TEMPERATURE	-40°C to +85°C (BASEPLATE)
STORAGE TEMPERATURE	-55°C to +125°C



MP2185

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ELECTRICAL SPECIFICATIONS

Parameter	Conditions	Limit or typical	Units	Result
Input				
Permanent input voltage range (Ui) in normal operation	Full temperature range Full load	Minimum	VDC	9
		Maximum	VDC	42
Compliance with standards voltage transient limit	Full temperature range	Maximum	VDC/ms	100V/50ms
		Maximum	VDC/s	48V/1s
		MIL-STD-704A/F	80V/75ms	Compliant
		AECMA EN2282	60V/50ms	Compliant
		AIR2021E	60V/100ms	Compliant
		DO160E cat A/Z	80V/100ms	Compliant
		MIL-STD-1275A/D	100V/50ms	Compliant
Compliance with standards voltage spike limit	50 Ohms impedance	MIL-STD-704A/F	600V/10µs	Compliant
	50 Ohms impedance	AECMA EN2282	400V/100µs	Compliant
	50 Ohms impedance	AIR2021E	600V/10µs	Compliant
	50 Ohms impedance	DO160E cat A/Z	600V/10µs	Compliant
	15 mJ energy content	MIL-STD-1275A/D	250V/70µs	Compliant
Under voltage lock- out (UVLO)	Turn-on/Turn-off threshold	Minimum	VDC	7
		Maximum	VDC	9
Start up time	Ui nominal 28V Full load	Maximum	ms	6
Inrush current limitation	Full temperature range C=1000µF	Typical	A	5
No load input current	Ui nominal 28V No load	Maximum	mA	10
Output				
Nominal voltage in normal operation	Ui < 42V Full load	Maximum	/	Ui - 150mV
Nominal voltage in transient protection mode	In transient Input voltage range	Minimum	VDC	40
		Nominal	VDC	42
		Maximum	VDC	44
Output voltage slew rate	During start-up time	Typical	VDC/ms	5
Output current	Full temperature range Ui min. to max.	Maximum	A	12 (or 300W)
Output Power	Full temperature range Ui min. to max.	Maximum	W	See fig. 2
Power dissipation	Output current 20A	Maximum	W	3



MP2185

300W TRANSIENT VOLTAGE PROTECTION MODULE

ENVIRONMENTAL SPECIFICATIONS

Characteristics	Conditions	Severity	Test procedure
Climatic Qualifications			
Life at high temperature	Duration Temperature / status of unit	Test D : 1 000 Hrs @ 105°C case, unit operating @ 125°C ambient, unit not operating	MIL-STD-202G Method 108A
Altitude	Altitude level C Duration Climb up Stabilization Status of unit	40 000 ft@-55°C 30 min. 1 000 ft/min to 70 000 ft@-55°C, 30 min. unit operating	MIL-STD-810E Method 500.3
Humidity cyclic	Number of cycle Cycle duration Relative humidity variation Temperature variation Status of unit	10 Cycle I : 24 Hrs 60 % to 88 % 31°C to 41°C unit not operating	MIL-STD-810E Method 507.3
Humidity steady	Damp heat Temperature Duration Status of unit	93 % relative humidity 40°C 56 days unit not operating	MIL-STD-202G Method 103B
Salt atmosphere	Temperature Concentration NaCl Duration Status of unit	35°C 5 % 48 Hrs unit not operating	MIL-STD-810E Method 509.3
Temperature cycling	Number of cycles Temperature change Transfert time Steady state time Status of unit	200 -40°C / +85°C 40 min. 20 min. unit operating	MIL-STD-202A Method 102A
Temperature shock	Number of shocks Temperature change Transfert time Steady state time Status of unit	100 -55°C / +105°C 10 sec. 20 min. unit not operating	MIL-STD-202G Method 107G
Mechanical Qualifications			
Vibration (Sinusoidal)	Number of cycles Frequency / amplitude Frequency / acceleration Duration Status of unit	10 cycles in each axis 10 to 60 Hz / 0.7 mm 60 to 2 000 Hz / 10 g 2h 30 min. per axis unit not operating	MIL-STD-810D Method 514.3
Shock (Half sinus)	Number of shocks Peak acceleration Duration Shock form Status of unit	3 shocks in each axis 100 g 6 ms 1/2 sinusoidal unit not operating	MIL-STD-810D Method 516.3
Bump (Half sinus)	Number of bumps Peak acceleration Duration Status of unit	2 000 Bumps in each axis 40 g 6 ms unit not operating	MIL-STD-810D Method 516.3



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Figure 1 : Transfer Function

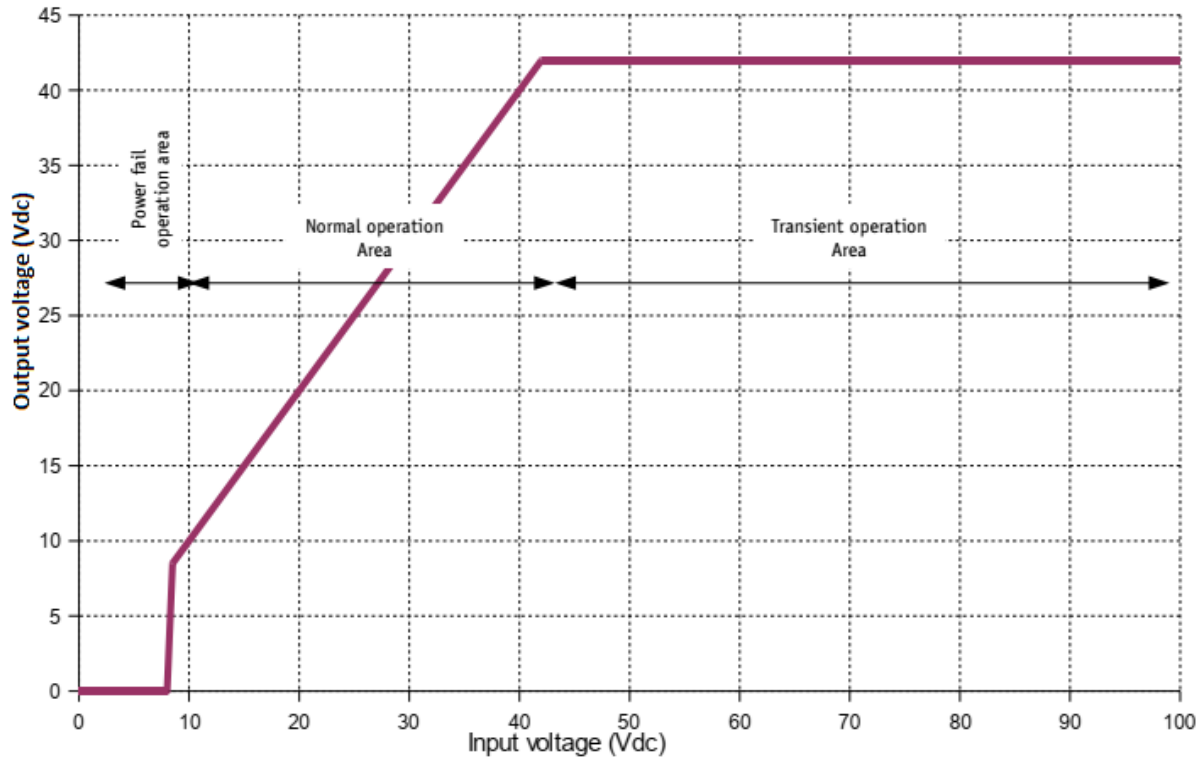
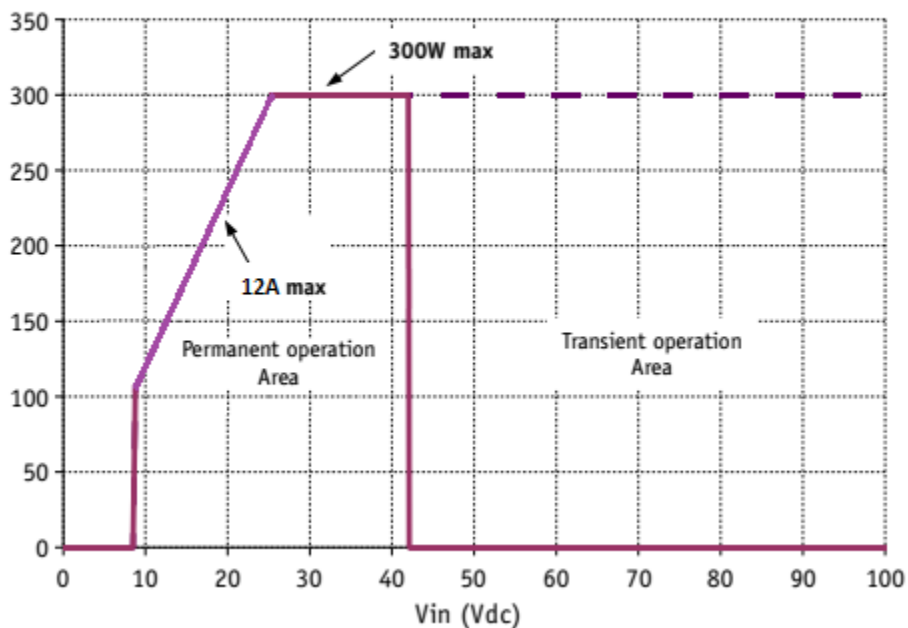


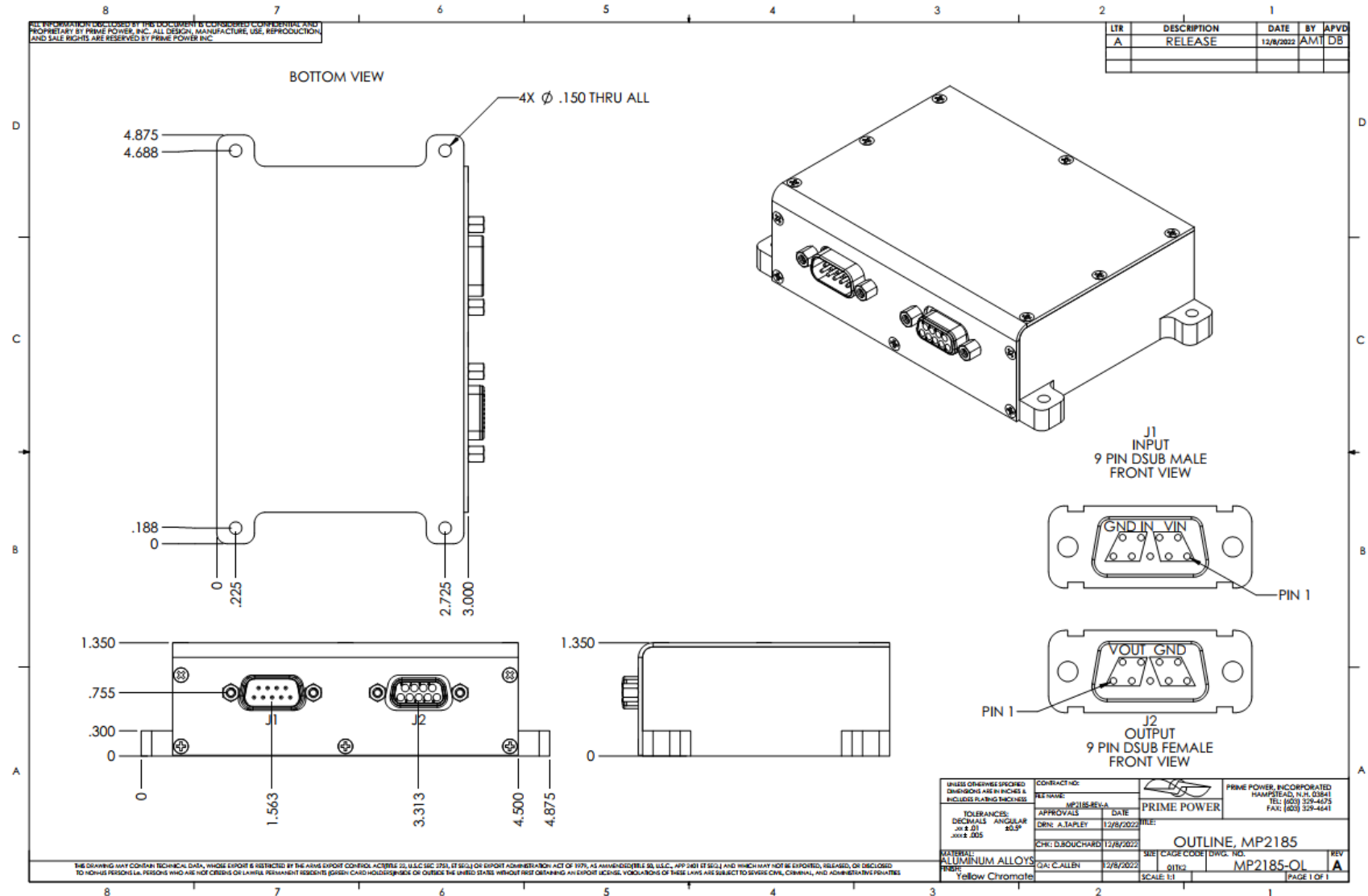
Figure 2 : Output Power versus Input Voltage





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