



MP2183

300W TRANSIENT VOLTAGE PROTECTION MODULE FOR MIL-STD-704A



- 200W Peak Pulse Power Dissipation
- Output Over Voltage Protection
- Inrush Current Limiting
- Over Temperature Protection
- Reverse Polarity Protection
- 10-40VDC Input
- 6 Watt Hold Up for 50mS

DESCRIPTION:

Prime Power's MP2183 Transient Voltage Protection Module is capable of protecting sensitive electrical systems from high-energy transients, and over voltage power surges in either direction per MIL-STD-704A. The MP2183 will clamp transient voltage to 50 volts on the output. The module also incorporates inrush current limiting, along with hold up time of 6mS at 6 watts.

GENERAL SPECIFICATIONS				
INPUT VOLTAGE (L-N)	10VDC – 40VDC			
FREQUENCY RANGE	N/A			
PHYSICAL SIZE	3.00" L X 4.00" W X 2.00" H			
WEIGHT	<1.5 LBS			
RELIABILITY	STANDARD	ENVIRONMENT	TEMP.	MTBF
	MIL-HDBK-217F	AIRBORNE INHABITED	85°C	250,000 HRS

PHYSICAL CHARACTERISTICS		
MAXIMUM CASE SIZE	3.00" L X 4.00" W X 2.00" H	
COOLING METHOD	BASEPLATE	
ENCAPSULATION	N/A	
ENCLOSURE FINISH	YELLOW CHROMATE	
BASEPLATE FINISH	YELLOW CHROMATE	
INPUT/OUTPUT TERMINATION	MS3470W14-5P	MS3470W14-9S
MOUNTING	4X 10-32 .22 DEEP	

TEMPERATURE SPECIFICATIONS	
OPERATING TEMPERATURE	-40°C – 71°C
STORAGE TEMPERATURE	-55°C – 125°C

WWW.PRIME-POWER.COM

SALES@PRIME-POWER.COM

PRIME POWER INC: (603) 329-4675.
1 OWENS CT.
HAMPSTEAD NH, 03841.



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ENVIRONMENTAL SPECIFICATIONS

HIGH TEMPERATURE	MIL-STD-810F	METHOD 501.4 PROCEDURE 1 & 2
LOW TEMPERATURE	MIL-STD-810F	METHOD 502.4 PROCEDURE 1 & 2
HUMIDITY	MIL-STD-202G	METHOD 103B
FUNGUS	MIL-STD-810F	METHOD 508, CONDITION A
SALT FOG	MIL-STD-202G	METHOD 101 E, TEST CONDITION A
SAND AND DUST	MIL-STD-810F	METHOD 501.4, PROCEDURE 1 & 2
EXPLOSIVE ATMOSPHERE	MIL-STD-810F	METHOD 511, CONDITION A
ACCELERATION	MIL-STD-810F	METHOD 513.5, PROCEDURE 1 & 2
VIBRATION	MIL-STD-810F	METHOD 514.2
SHOCK	MIL-STD-810F	HIGH IMPACT SHOCK
ALTITUDE	MIL-STD-810E	METHOD 500.3

ELECTRICAL SPECIFICATIONS

	MIN	MAX	UNITS
STEADY STATE INPUT	10	40	VDC
OUTPUT CURRENT	-	10	A
OUTPUT VOLTAGE (CLAMP)	-	50	VDC
INPUT SURGE LIMIT (FOR 0.1S)	-	80	VDC
INPUT SPIKE LIMIT (FOR 50 μ S)	-	+250	VDC
INPUT SPIKE LIMIT (FOR 100 μ S)	-	+250	VDC
INPUT SPIKE LIMIT (FOR 10 μ S)	-	+600	VDC
NO LOAD POWER DISSIPATION	-	2.5	W
EFFICIENCY	90	-	%

EMI SPECIFICATIONS

TEST	SUBJECT	TEST LIMITS
CE102	Conducted Emissions, Power Leads	10 kHz to 10 MHz
CS101	Conducted Susceptibility, Power Leads	30 Hz to 150 kHz
CS114	Conducted Susceptibility, Bulk Cable Injection	10 kHz to 200 MHz
CS115	Conducted Susceptibility, Bulk Cable Injection, Impulse Excitation	
CS116	Conducted Susceptibility, Damped Sinusoidal Transients, Cable and Power Leads	10 kHz to 100 MHz
CS117	Conducted Susceptibility, Lightning Induced Transients, Cables and Power Leads	
CS118	Personnel Borne Electrostatic Discharge	
RE102	Radiated Emissions, Electric Field	10 kHz to 18 GHz
RE103	Radiated Susceptibility, Electric Field	2 MHz to 18 GHz



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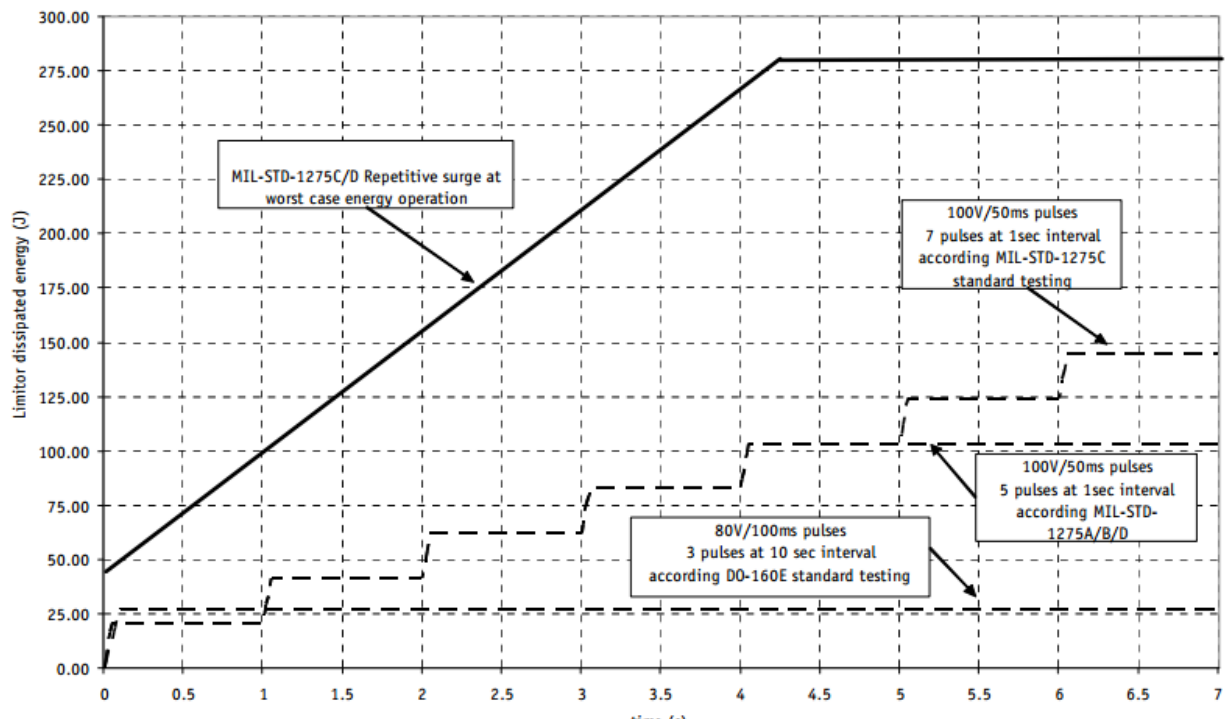
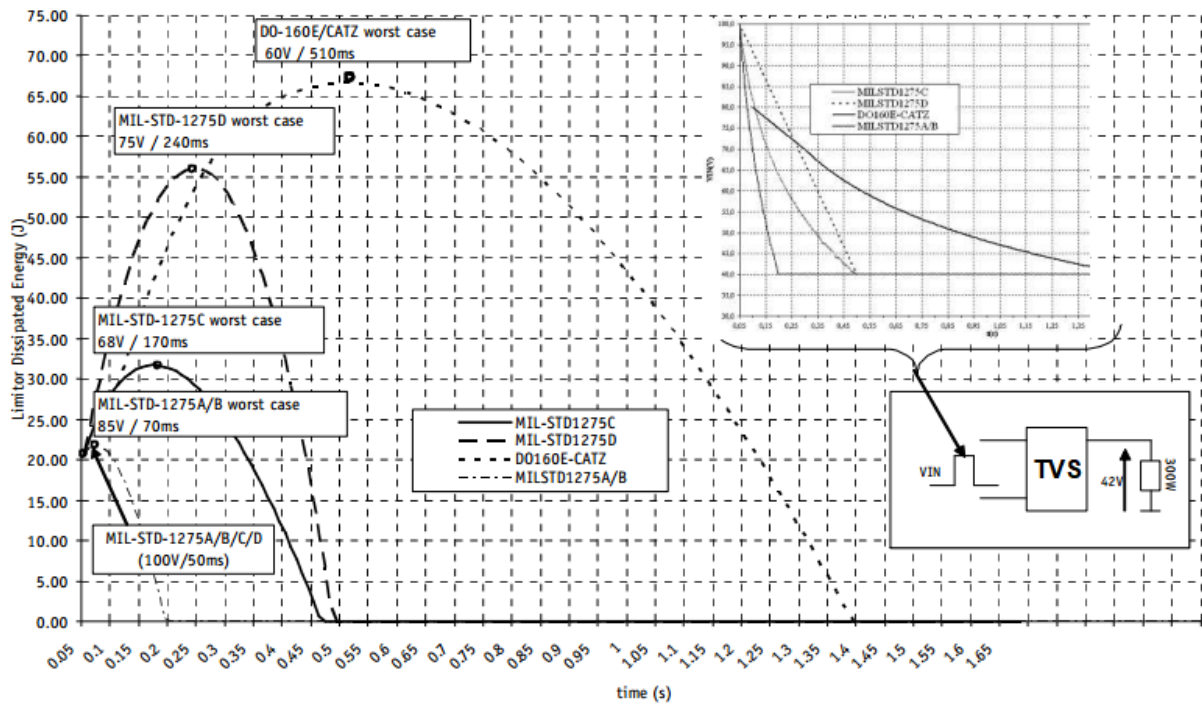
ELECTRICAL SPECIFICATIONS (CONT.)

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
		D0160E cat A/Z	80V/100ms	Compliant
Compliance with standards voltage spike limit	50 Ohms impedance	MIL-STD-704A/F	600V/10 μ s	Compliant
	50 Ohms impedance	AECMA EN2282	400V/100 μ s	Compliant
	50 Ohms impedance	AIR2021E	600V/10 μ s	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=1000 μ F	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	10
Output Power	Full temperature range Ui min. to max.	Maximum	W	300W
Power dissipation	Output current 10A	Maximum	W	3



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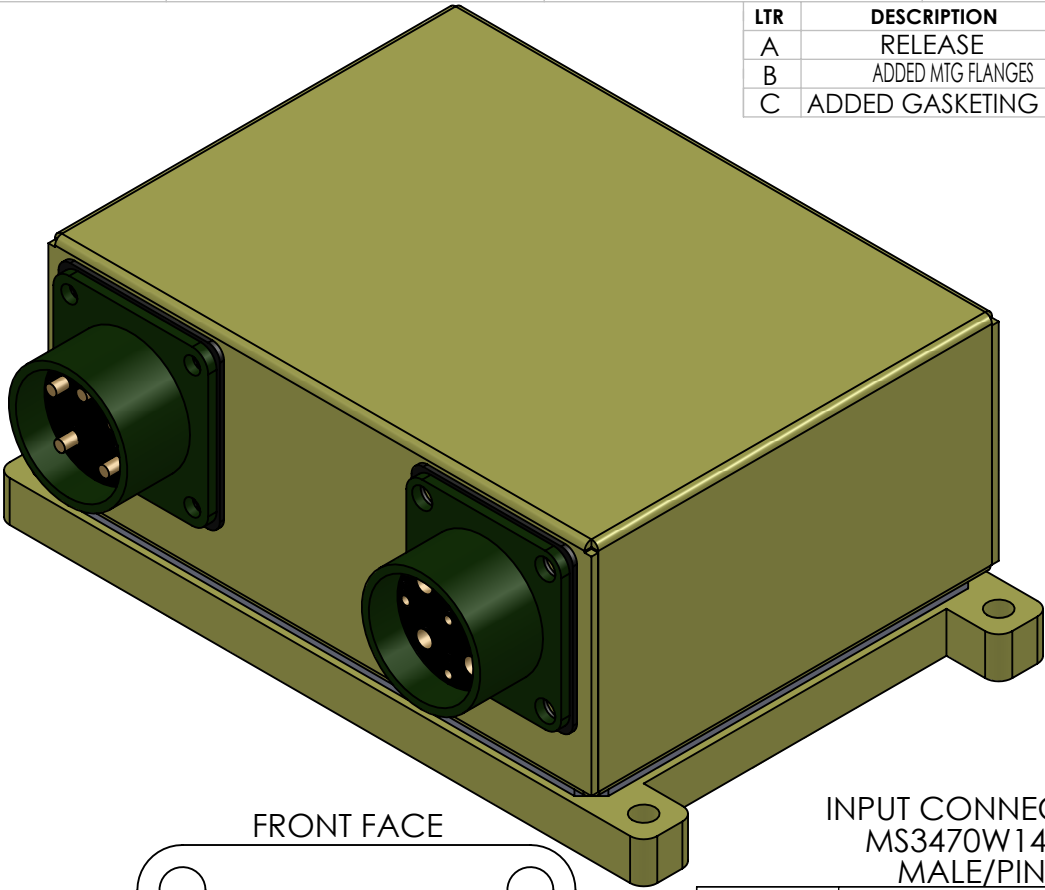
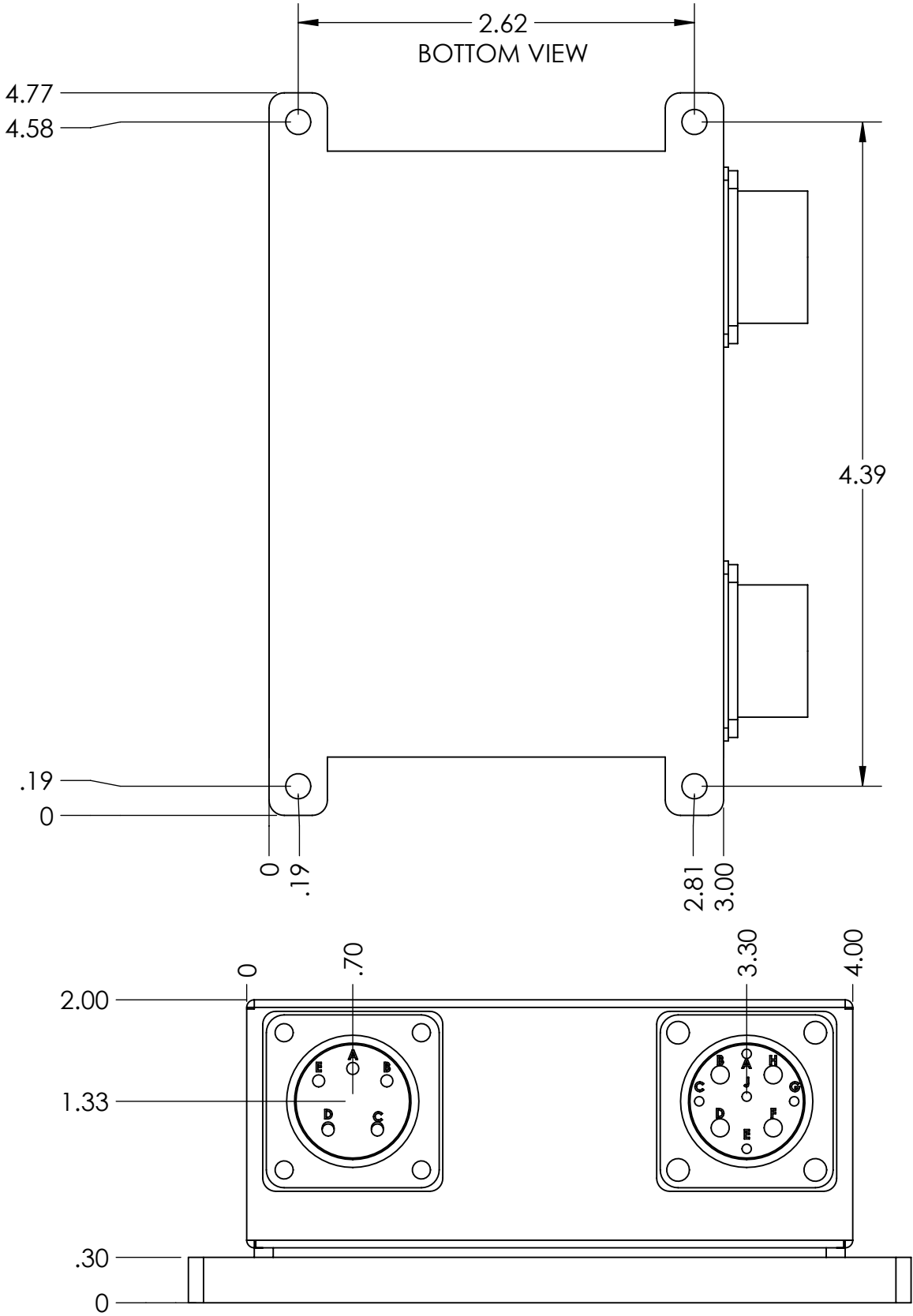
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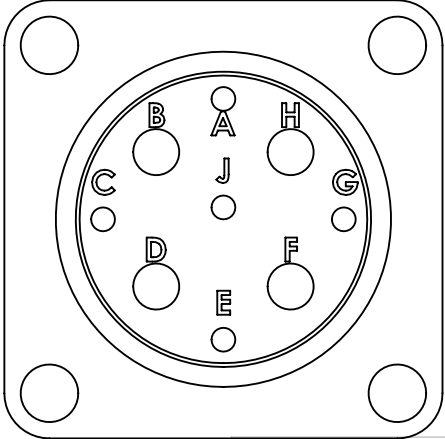
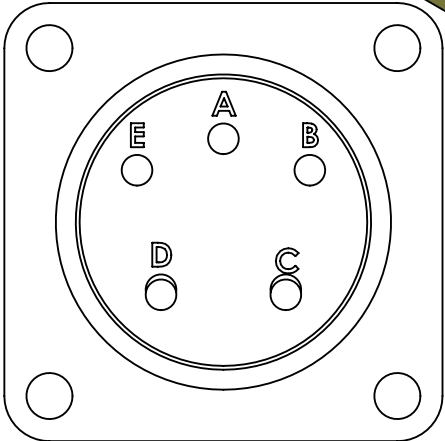
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1 OWENS CT.
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LTR	DESCRIPTION	DATE	BY	APVD
A	RELEASE	12/1/2020	AMT	DB
B	ADDED MTG FLANGES	12/3/2020	AMT	DB
C	ADDED GASKETING	1/27/2021	AMT	DB



FRONT FACE



INPUT CONNECTOR:
MS3470W14-5P
MALE/PINS

PIN	DESCRIPTION
A	CHGND
B	28VDC
C	NC
D	NC
E	28VDC GND

OUTPUT CONNECTOR:
MS3470W14-9S
FEMALE/SOCKET

PIN	DESCRIPTION
A	SPARE/OPT P.F.
B	+VDC OUT
C	SPARE/OPT C.C.
D	+VDC OUT
E	SPARE/SIG GND
F	-VDC OUT
G	SPARE/OPT C.D.
H	-VDC OUT
J	SPARE

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES &
INCLUDES PLATING THICKNESS

TOLERANCES:
DECIMALS .xx ± .01
ANGULAR ±0.5°
.xxx ± .005

MATERIAL:
ALUMINUM ALLOYS
FINISH:
Yellow Chromate

CONTRACT NO:

FILE NAME:

MP2183-OL-REV-C

APPROVALS

DRN: A.TAPLEY

CHK: D.BOUCHARD

QA: C.ALLEN

DATE

12/1/2020

12/1/2020

12/1/2020



PRIME POWER

TITLE:

SIZE

CAGE CODE

DWG. NO.

01TK2

SCALE: 1:1

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PRIME POWER, INCORPORATED
HAMPSTEAD, N.H. 03841
TEL: (603) 329-4675
FAX: (603) 329-4641

OUTLINE, MP2183

MP2183-OL

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