

**Solid State Devices, Inc.**

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**SPA513 Series**

**1 AMP, 15,000 to 20,000 VOLTS  
 HIGH VOLTAGE  
 RECTIFIER BRIDGE**

**Designer's Data Sheet****Part Number/Ordering Information <sup>1/</sup>****SPA513-****Finish**

— = Standard Case  
 SAB = Sand Blasted Case

**Screening <sup>2/</sup>**

— = Not Screened  
 TX = TX Level  
 TXV = TXV Level  
 S = Space Level

**Dash Number <sup>3/</sup>****FEATURES:**

- Aerospace High Voltage Power Supply Applications
- Multiple High Voltage Transformer Rectification
- High Voltage Multiplier Design Using External Capacitors
- Low Mechanical Stress Design
- Excellent Thermal Resistance : 2.5°C/W
- TX, TXV, and Space Level Screening Available

**Consult Factory For:**

- Higher Blocking Voltages
- Faster Switching Times
- Other Electrical Configurations
- Available with a sandblasted case to promote adhesion add "SAB" suffix

**MAXIMUM RATINGS**

CHARACTERISTIC	SYMBOL	VALUE	UNIT
<b>Peak Repetitive Reverse and DC Blocking Voltage <sup>3/</sup></b> (Module)	<b>SPA513-02</b> <b>SPA513-03</b> <b>SPA513-04</b> <b>SPA513-05</b> <b>SPA513-06 (BR1)</b> <b>SPA513-06 (BR2)</b>	<b>V<sub>R(MODULE)</sub></b> 15 17.5 20 20 12.5 10	kV
<b>Peak Repetitive Reverse and DC Blocking Voltage</b> (Each Bridge)	<b>T<sub>C</sub> = 55°C</b> <b>V<sub>R</sub></b>	3.3	kV
<b>Average Rectified Forward Current</b> (Non-Repetitive, t = 8.3 msec Pulse)	<b>I<sub>O</sub></b>	1	A
<b>Peak Surge Current</b> (Non-Repetitive, t = 8.3 msec Pulse, T <sub>A</sub> = 25°C)	<b>I<sub>FSM</sub></b>	25	A
<b>Storage &amp; Operating Temperature Range</b>	<b>T<sub>OP</sub> &amp; T<sub>STG</sub></b>	-65 to +150	°C
<b>Thermal Resistance, Junction to Base</b>	<b>R<sub>θJB</sub></b>	2.5	°C/W

**ELECTRICAL CHARACTERISTICS, Each Bridge Leg, @ T<sub>A</sub> = 25°C (Unless Otherwise Specified)**

PARAMETER	SYMBOL	MIN	MAX	UNIT
<b>Instantaneous Forward Voltage Drop</b> (I <sub>F</sub> = 1.0 A, 300 μsec Pulse Minimum)	<b>V<sub>F1</sub></b>	—	7.5	V
<b>Reverse Leakage</b> (V <sub>R</sub> = 2.5 kV, 300 μsec Pulse Minimum)	<b>T<sub>A</sub> = 25°C</b> <b>I<sub>R1</sub></b> <b>T<sub>A</sub> = 100°C</b> <b>I<sub>R2</sub></b>	— —	1.0 50	μA
<b>Insulation Resistance</b> SPA513-02, -03, -04: All Terminals to Base @ 15 kV SPA513-05, -06: All Terminals to Base @ 20 kV	<b>R<sub>INSUL</sub></b>	10	— —	GΩ
<b>Reverse Recovery Time</b> (I <sub>F</sub> = 0.5 A, I <sub>R</sub> = 1.0 A, I <sub>RR</sub> = 0.25 A)	<b>t<sub>rr</sub></b>	—	60	nsec

**Notes:** <sup>1/</sup> For ordering information, price, and availability- Contact factory.

<sup>2/</sup> Screened based on MIL-PRF-19500. Screening flows available on request.

<sup>3/</sup> For each dash number, refer to V<sub>R(MODULE)</sub> rating, schematic, and outline.

**NOTE:** All specifications are subject to change without notification.  
 SCD's for these devices should be reviewed by SSDI prior to release.

**DATA SHEET #: PM0012H****DOC**



## Solid State Devices, Inc.

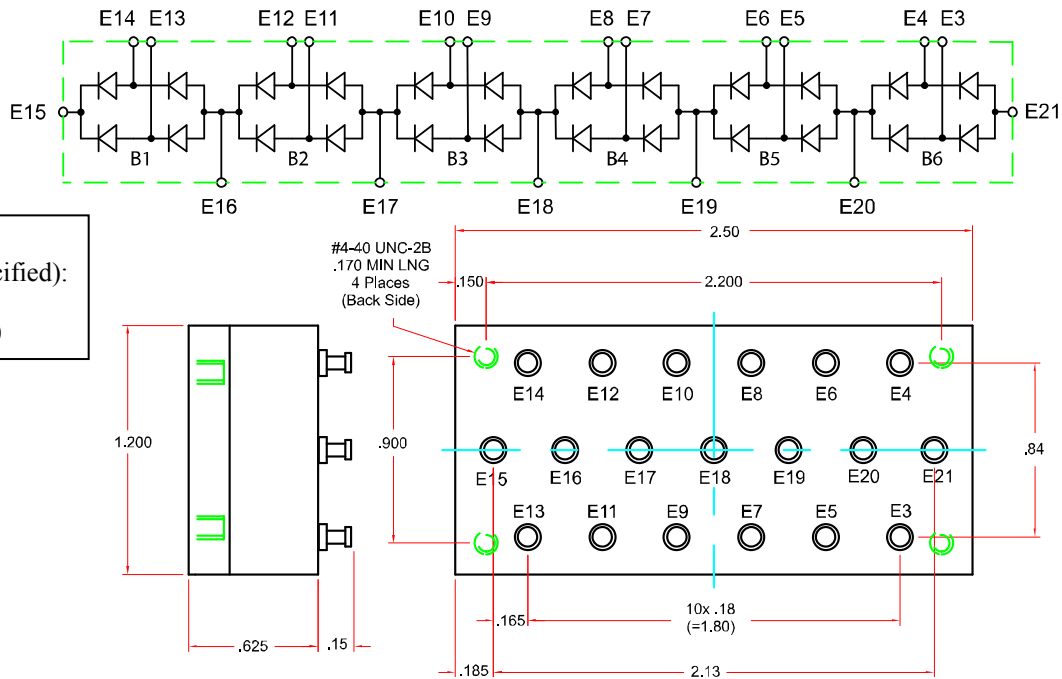
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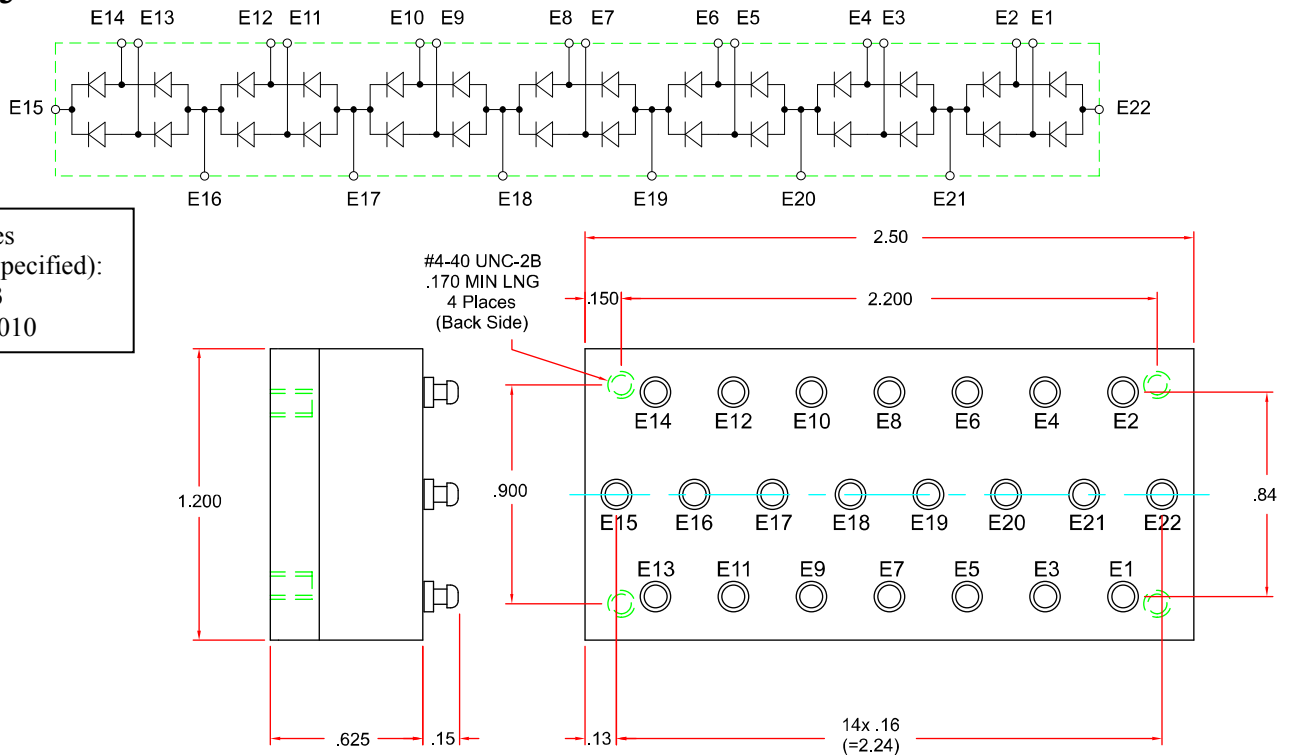
## SPA513 Series

### SPA513-02



Tolerances  
(Unless Specified):  
.XX ± .03  
.XXX ± .010

### SPA513-03



Tolerances  
(Unless Specified):  
.XX ± .03  
.XXX ± .010

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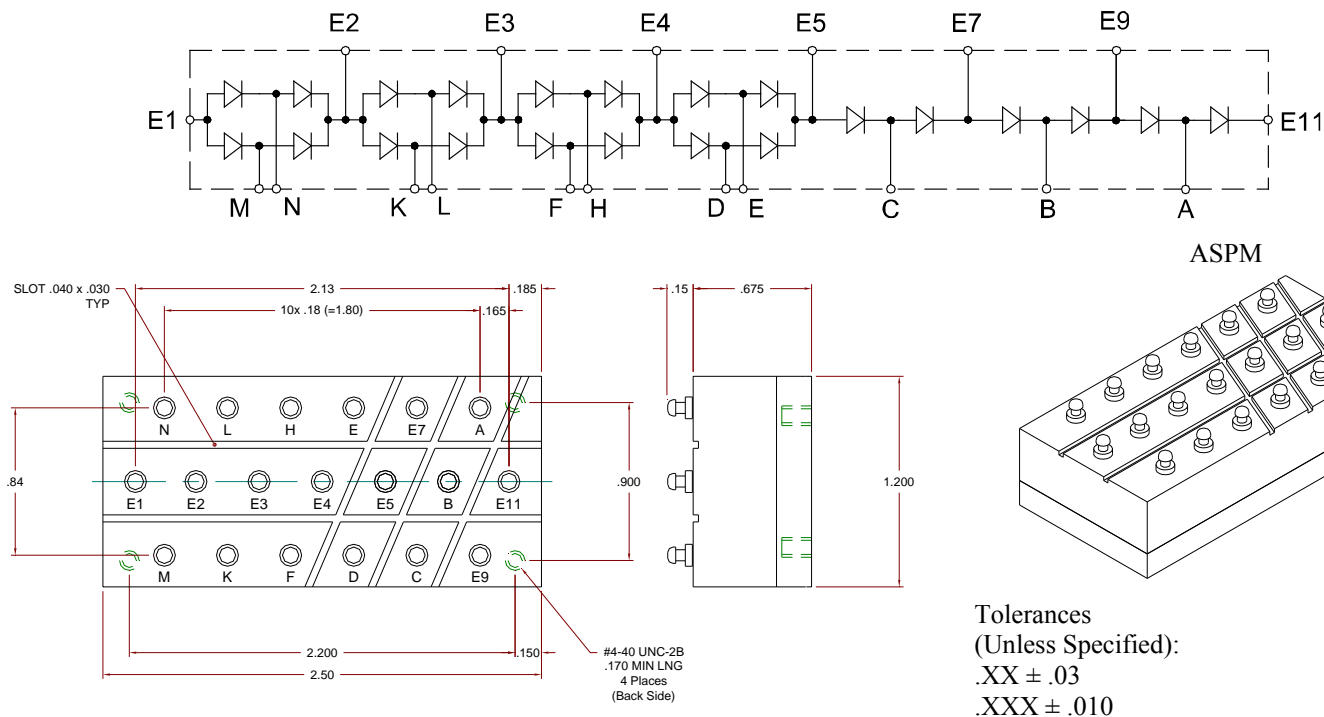


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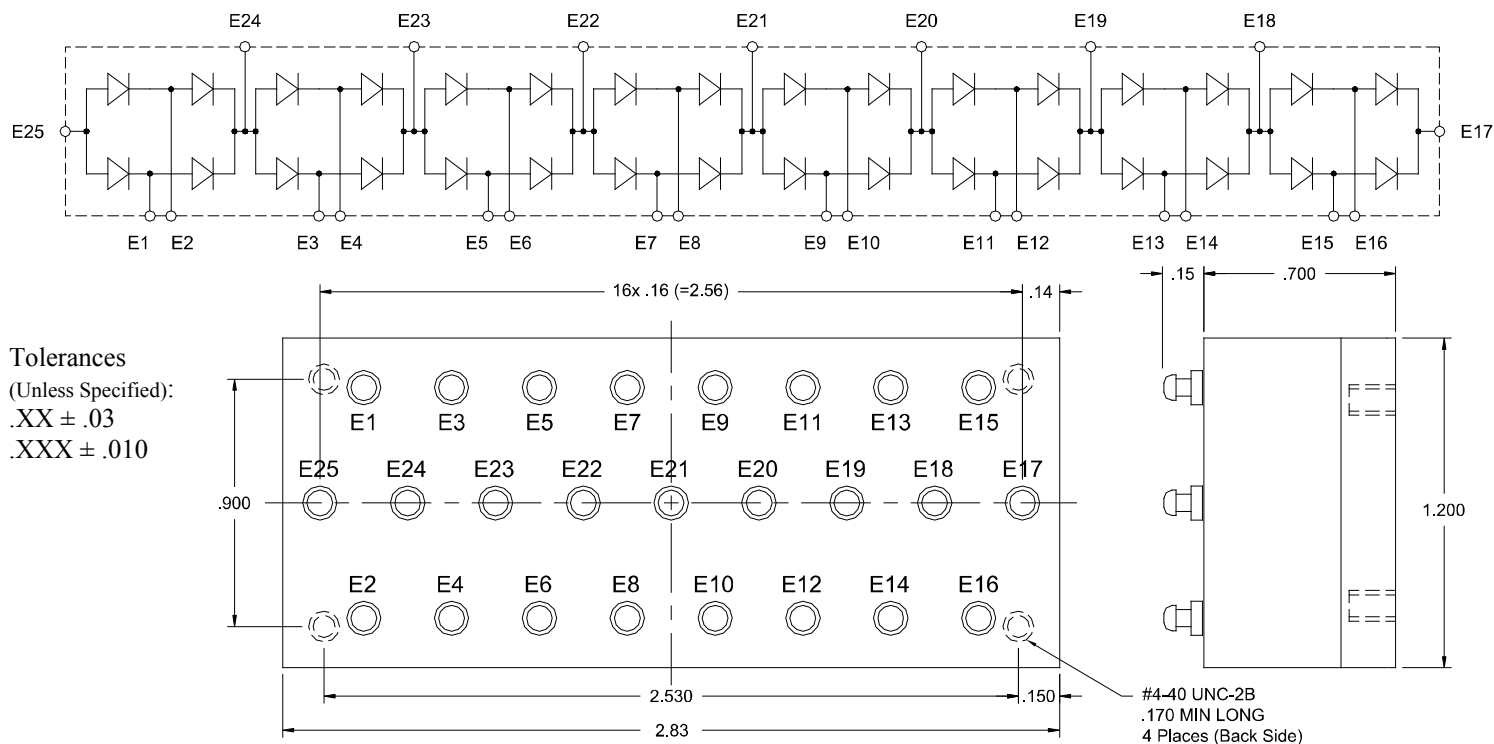
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## SPA513 Series

### SPA513-04



### SPA513-05



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## SPA513 Series

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