Solid State Devices, Inc.
14701 Firestone Blvd * La Mirada, Ca 90638
Phone: (562) 404-4474 * Fax: (562) 404-1773
ssdi@ssdi-power.com * www.ssdi-power.com

SPA513 Series

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

Designer's Data Sheet

Part Number/Ordering Information 1/

SPA513- ___ ___ ___

- **Finish**
  - __ = Standard Case
  - SAB = Sand Blasted Case
- **Screening** 2/
  - __ = Not Screened
  - TX = TX Level
  - TXV = TXV Level
  - S = Space Level
- **Dash Number** 3/

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 : 2.5ºC/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
Peak Repetitive Reverse and DC Blocking Voltage 3/ (Module)	**SPA513-02** **SPA513-03** **SPA513-04** **SPA513-05** **SPA513-06 (BR1)** **SPA513-06 (BR2)**	$V_{R\,(MODULE)}$	15 17.5 20 20 12.5 10	kV
Peak Repetitive Reverse and DC Blocking Voltage (Each Bridge)	T_C = 55ºC	V_R	3.3	kV
Average Rectified Forward Current (Non-Repetitive, t = 8.3 msec Pulse)		I_O	1	A
Peak Surge Current (Non-Repetitive, t = 8.3 msec Pulse, T_A = 25ºC)		I_{FSM}	25	A
Storage & Operating Temperature Range		T_{OP} & T_{STG}	-65 to +150	ºC
Thermal Resistance, Junction to Base		$R_{\theta JB}$	2.5	ºC/W

ELECTRICAL CHARACTERISTICS, Each Bridge Leg, @ T_A = 25ºC (Unless Otherwise Specified)

PARAMETER		SYMBOL	MIN	MAX	UNIT
Instantaneous Forward Voltage Drop (I_F = 1.0 A, 300 µsec Pulse Minimum)		V_{F1}	–	7.5	V
Reverse Leakage (V_R = 2.5 kV, 300 µsec Pulse Minimum)	T_A = 25ºC T_A = 100ºC	I_{R1} I_{R2}	– –	1.0 50	µA
Insulation Resistance	SPA513-02, -03, -04: All Terminals to Base @ 15 kV SPA513-05, -06: All Terminals to Base @ 20 kV	R_{INSUL}	10	– –	GΩ
Reverse Recovery Time (I_F = 0.5 A, I_R = 1.0 A, I_{RR} = 0.25 A)		t_{rr}	–	60	nsec

Notes: 1/ For ordering information, price, and availability- Contact factory.
2/ Screened based on MIL-PRF-19500. Screening flows available on request.
3/ For each dash number, refer to $V_{R(MODULE)}$ rating, schematic, and outline.

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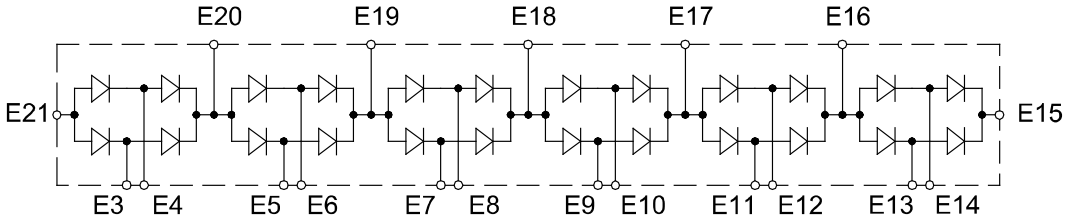
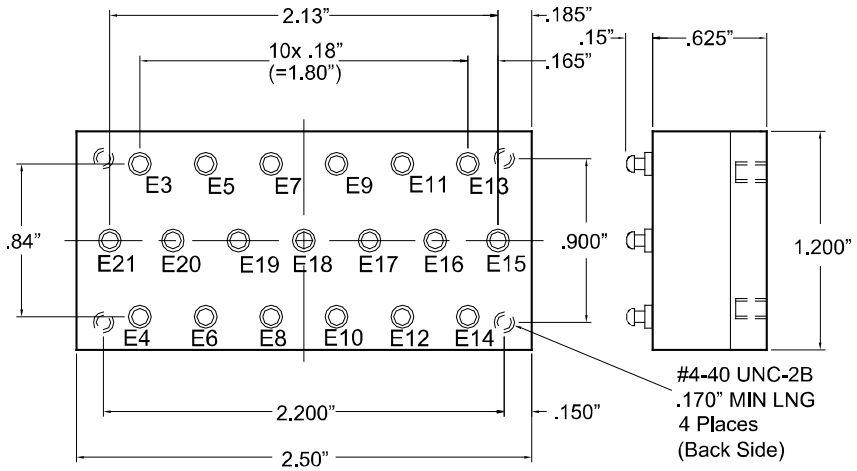
SPA513 Series

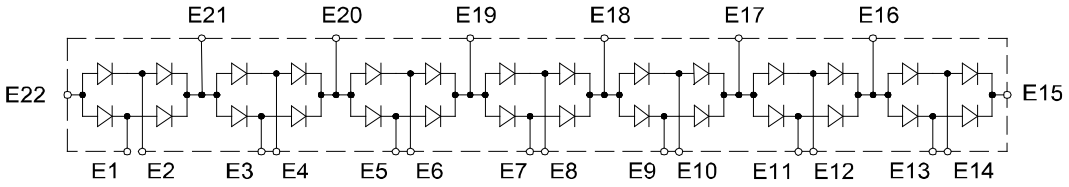
SPA513-02



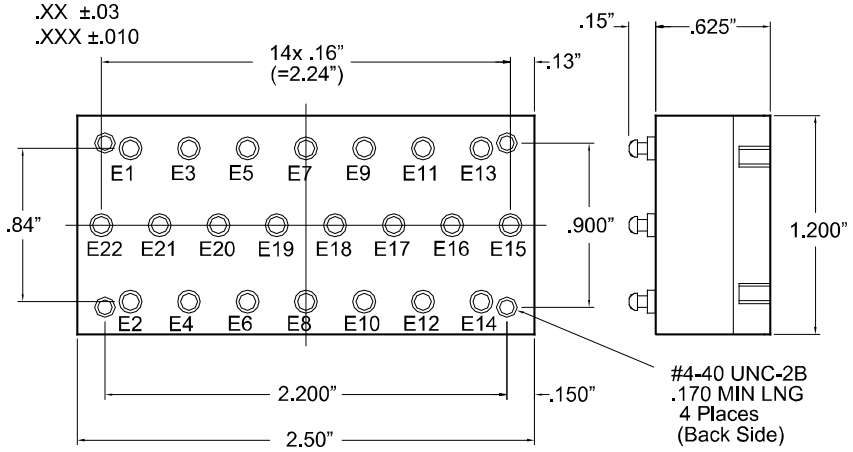
Tolerances
(Unless Specified):
.XX ± .03
.XXX ± .010



SPA513-03



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



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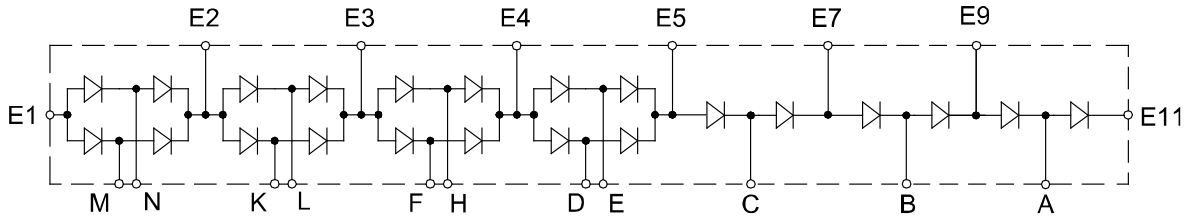
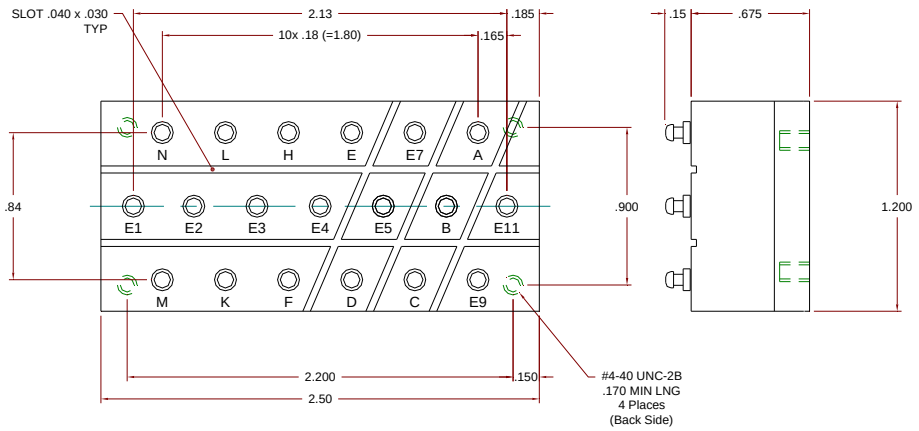
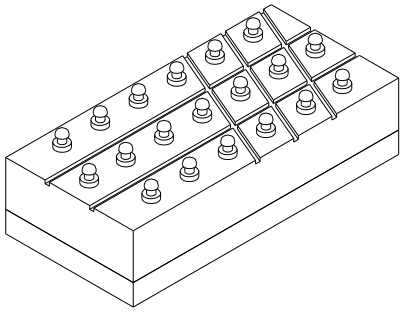
SPA513 Series

SPA513-04



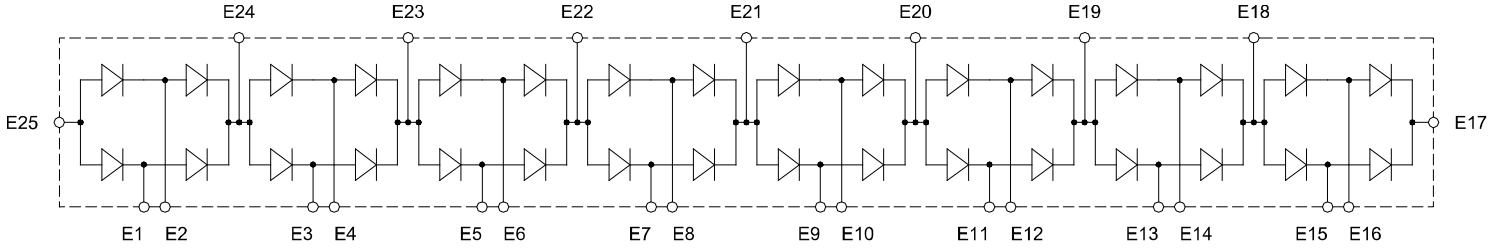


ASPM

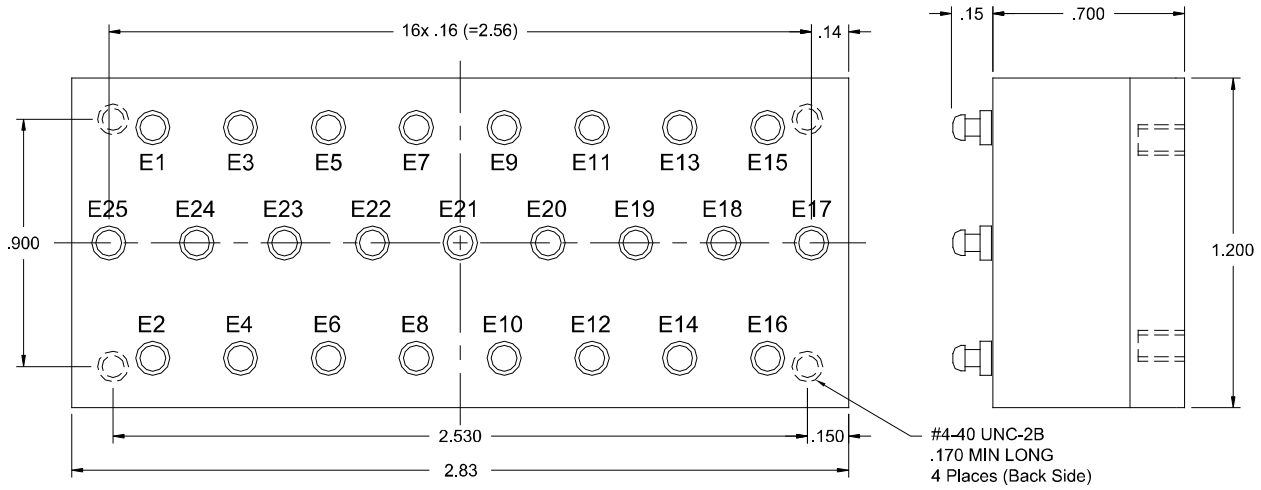


Tolerances
(Unless Specified):
.XX ± .03
.XXX ± .010

SPA513-05



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



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SPA513 Series

SPA513-06

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