Solid State Devices, Inc.
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SPA663 Series

20 kV, 2 AMPS
HIGH VOLTAGE
RECTIFIER BRIDGE MULTIPLIER

Designer's Data Sheet

Part Number/Ordering Information [1/]

SPA663- ___ ___ ___

- **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
- Optimized for TWT Power Supplies
- Low Mechanical Stress Design
- TX, TXV, and Space Level Screening Available

Consult Factory For:

- Higher Blocking Voltages
- Faster Switching Times
- Other Electrical Configurations Available
- 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)	SPA663-01	$V_{R\ (MODULE)}$	20	kV
Peak Repetitive Reverse and DC Blocking Voltage (Each Bridge)	T_C = 55ºC	$V_{R\ (Br1\ –\ Br\ 4)}$ $V_{R\ (Br5\ –\ Br\ 8)}$	2.0 3.0	kV
Average Rectified Forward Current (Each Bridge)		$I_{O\ (Br1\ –\ Br\ 4)}$ $I_{O\ (Br5\ –\ Br\ 8)}$	2.0 0.4	A
Peak Surge Current (Each Bridge: Non-Repetitive, t = 8.3 msec Pulse, T_A = 25ºC)		$I_{FSM\ (Br1\ –\ Br\ 4)}$ $I_{FSM\ (Br5\ –\ Br\ 8)}$	100 18	A
Storage & Operating Temperature Range		T_{OP} & T_{STG}	-65 to +150	ºC
Thermal Resistance, Junction to Base (Each Bridge)		$R_{\theta JB\ (Br1\ –\ Br\ 4)}$ $R_{\theta JB\ (Br5\ –\ Br\ 8)}$	10 15	ºC/W

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

PARAMETER		SYMBOL	MIN	MAX	UNIT
Instantaneous Forward Voltage Drop (pulsed)	I_{F1} = 2.0 A (Br1 – Br 4) I_{F1} = 0.4 A (Br5 – Br 8)	$V_{F1\ (Br1\ –\ Br\ 4)}$ $V_{F1\ (Br5\ –\ Br\ 8)}$	– –	3.5 10.5	V
Reverse Leakage (pulsed)	T_a = 25ºC, Vr = 2.0 kV (Br1 – Br 4)	$I_{R1\ (Br1\text{-}Br4)}$	–	1.0	µA
	T_a = 25ºC, Vr = 2.0 kV (Br5 – Br 8)	$I_{R1\ (Br5\text{-}Br8)}$	–	1.0	
	T_a = 100ºC, Vr = 2.0 kV (Br1 – Br 4)	$I_{R2\ (Br1\text{-}Br4)}$	–	50	
	T_a = 100ºC, Vr = 2.0 kV (Br5 – Br 8)	$I_{R2\ (Br5\text{-}Br8)}$	–	50	
Insulation Resistance	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)		$t_{rr\ (Br1\text{-}Br4)}$ $t_{rr\ (Br5\text{-}Br8)}$	–	70 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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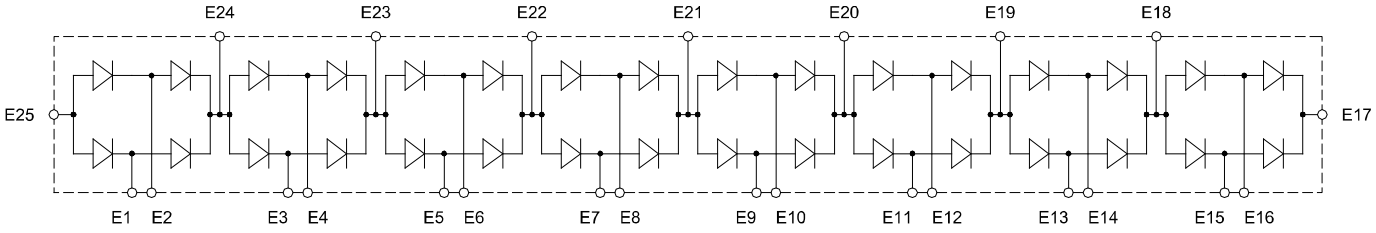
SPA663 Series

SPA663-01



Br1 Br2 Br3 Br 4 Br 5 Br 6 Br7 Br8