



- High reliability, small size
- High efficiency up to 85%
- Inhibit function
- Soft start
- Galvanic isolation 3000 VDC
- Short circuit protection
- Output voltage adjustable
- -55 to +105°C operation



PX32 SERIES

POWER SUPPLY DESIGN EXCELLENCE

The PX32 Series are a full family of high performance DC-DC power modules designed for aerospace, high reliability and high-end industrial applications. The modules are potted with a high performance thermally conductive compound and packaged in a metallic case to ensure module integrity under harsh environmental conditions. The input voltage range is 21-33V. Available outputs include 250-500V & 500-1000V at up to 20W and 1000-1800V, 500V at up to 16W. The output voltage is adjusted with an external trim resistor or potentiometer.

PX32 Series modules employ a fixed frequency switching technology; providing high reliability, low

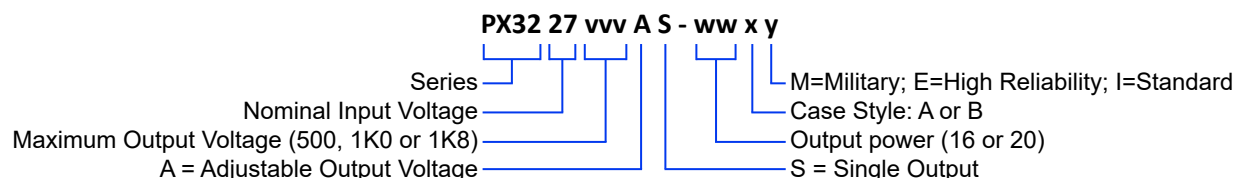
noise characteristics and high-power density.

They incorporate LC network filters to minimise reflected input ripple current and output voltage ripple.

Soft-start, and indefinite short circuit protection are included to ensure effective module protection. The soft-start allows current limiting and eliminates inrush current during start-up. The short circuit protection completely protects the modules against short-circuits of any duration by a shut-down and restores to normal when the overload is removed. It also includes inhibit function and output voltage detection function.

STANDARD MODEL	OUTPUT VOLTAGE	OUTPUT CURRENT	OUTPUT POWER	INPUT VOLTAGE
PX3227500AS-20xy	250-500V	40mA	20W	21-33V
PX32271K0AS-20xy	500-1000V	20mA	20W	
PX32271K8AS-16xy	1000-1800V	9mA	16W	

ORDERING GUIDE





	PX3227500AS-20	PX32271K0AS-20	PX32271K8AS-16
INPUT SPECIFICATIONS			
Voltage Range	21-33V		
Voltage Transient	50V / 50ms		

OUTPUT SPECIFICATIONS¹			
Minimum Voltage	250V ±10%	500V ±10%	1000V ±10%
Maximum Voltage	500V ±10%	1000V ±10%	1800V ±10%
Maximum Current Power	40mA 20W	20mA 20W	9mA 16W
Line Regulation, 21-33Vin	≤1V	≤1.5V	≤3V
Load Regulation, FL-NL	≤2V	≤3V	≤6V
Efficiency @ Max. Voltage	≥85%	≥83%	≥82%
Ripple, pk-pk 20MHz	≤1V	≤1.5V	≤3V

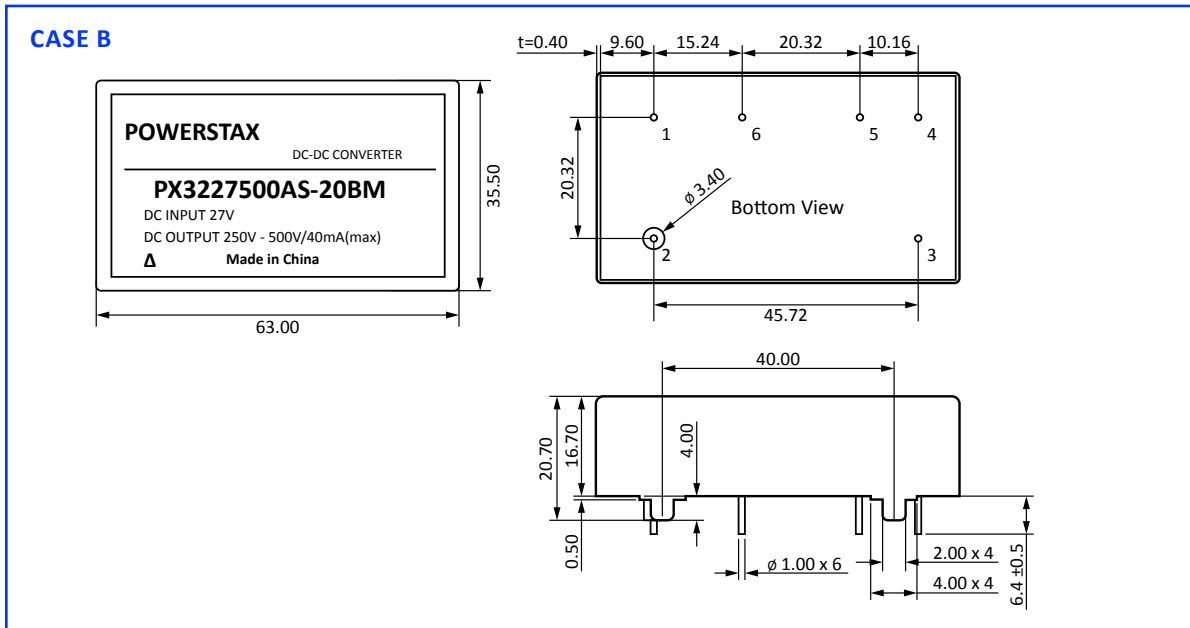
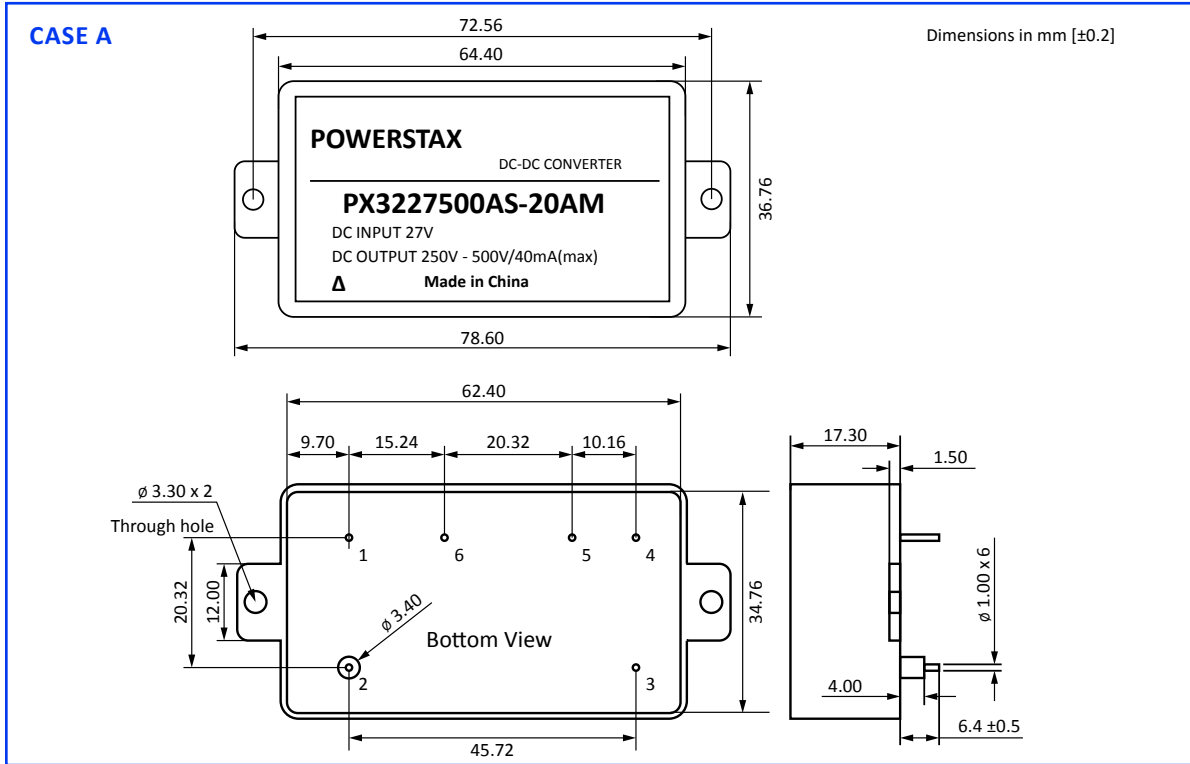
1. Unless otherwise specified, ambient temperature is +25°C, input voltage is 27V, output full load.

OTHER SPECIFICATIONS	
Operating Temp. Range	Grade M: -55°C to +105°C Grades E & I: -40°C to +85°C
Storage Temp. Range	-55°C to +105°C
Pin Solder Temperature	300°C for 10s max.
Insulation Resistance	500VDC, ≥100MΩ
Dielectric Withstand Voltage	Input to Case: 500VDC, Leakage Current <1mA Input to Output: 3000VDC, Leakage Current <1mA Output to Case: 3000VDC, Leakage Current <1mA
Isolation Capacitance	4700pF Input to Output

ENVIRONMENTAL SCREENING		CLASS I	CLASS E	CLASS M
Internal Inspection	MIL-STD-883 Method 2017	✓	✓	✓
High Temperature Storage	125°C, 48 hours	✗	✗	✓
Temperature Cycling	MIL-STD-883 Method 1010 Condition B, (x10)	✗	✓	✓
Intermediate Electrical Test	Tc : +25°C	✗	✓	✓
Burn-in	TCMax ⁺⁸ / ₀ °C, ≥160H	✗	✗	✓
	TCMax ⁺⁸ / ₀ °C, ≥96H	✗	✓	✗
	TCMax ⁺⁸ / ₀ °C, ≥48H	✓	✗	✗
Final Electrical Test	Tc : -55°C, +25°C, +105°C	✗	✗	✓
	Tc : -40°C, +25°C, +85°C	✓	✓	✗
External Inspection	MIL-STD-883 Method 2009	✓	✓	✓



MECHANICALS



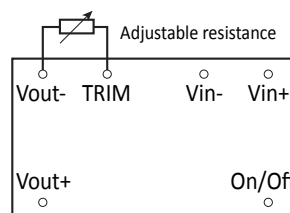
Connections					
Pin	Function		Pin	Function	
1	VOUT-	Output Negative	4	VIN+	Output Positive
2	VOUT+	Output Positive	5	VIN-	Output Negative
3	ON/OFF	Remote Control	6	TRIM	Output Adjust

PX32 SERIES

APPLICATION NOTES

1. **Vout-** Negative output voltage. (Ground)
2. **Vout+** Positive output voltage.
3. **ON/OFF** The control pin INH can be used as an external shut down for applications requiring on/off operation.
 - Connect to PIN 5 (Vin-) disables the converter.
 - No connection on pin INH enables the converter.
4. **Vin+** Positive input voltage.
5. **Vin-** Negative input voltage.
6. **Trim** Output voltage adjust pin; used to adjust the output voltage. When the pin is floating, the module outputs the lowest voltage; shorting this pin to output ground (pin1 Vout-) sets the output to the highest voltage. Connect a trim resistor R between the TRIM pin and pin1 to adjust the output voltage; recommended adjustable resistance range of 0-1000KΩ.

The adjustable resistance must be selected based on the value of output voltage as follows: Wherein, Vout, the output voltage required, unit is V. R, the adjustable resistor, unit is KΩ.



$$R = \frac{5.5 \times 10^3}{V_{out} - 252.5} - 20.5 \quad \text{PX3227500AS-20}$$

$$R = \frac{25 \times 10^3}{V_{out} - 487.7} - 47 \quad \text{PX32271K0AS-20}$$

$$R = \frac{67.5 \times 10^3}{V_{out} - 902.5} - 75 \quad \text{PX32271K8AS-16}$$

7. Module ground pins

Input and output ground are completely isolated. Pins galvanically connected to input ground are pin3 (On/Off), pin4 (Vin+) and pin5 (Vin-). Pins galvanically connected to output ground are pins are pin1 (Vout-), pin2 (Vout+) and pin6 (TRIM).

8. Output short circuit protection

The module has short-circuit protection function: When the output is shorted, the module enters the state of output short circuit protection; automatically return to normal operation when the fault is removed. It is not recommend that the module is placed in an extended short-circuit mode.

Warning:

These modules have a high output voltage, please pay attention to safety issues, and use caution to avoid electric shock. After installing this product, terminals must be encapsulated with a high voltage output terminal insulation (such as silicone rubber for potting, coating and other protective measures), in order to avoid arcing which may occur in humid or low pressure environments.

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