

## Part I: Basic Technical Data

<b>Certifications</b>	TUV	UL
<b>Standard</b>	IEC 62790、2PFG 2305 / 06.13、IEC62109	UL3730、UL1741
<b>Certification No.</b>	Pending	Pending
<b>Wire Size</b>	1X4.0mm <sup>2</sup>	12AWG
<b>Rated System Voltage</b>	1000V DC or 1500V DC	
<b>Rated Current</b>	Z8S-A/B/C:12A Z8S-D:13.7A	
<b>Temperature Range</b>	-40°C ~ 85°C	
<b>Safety Class</b>	Class II	
<b>Flame Resistance</b>	5VB & UL94 V-0	
<b>Protection Degree</b>	IP68	
<b>Sealing type</b>	O-ring	
<b>Distance between contact rails</b>	17.0mm Or 9.5mm	
<b>Material of contact rails</b>	Copper	
<b>Bus ribbons size</b>	Width: 3.0 - 8.0mm, Thickness: 0.2 - 0.5mm	
<b>Connecting of bus ribbons</b>	Soldering	
<b>Single Box size</b>	143.0X48.0X20.0 mm	
<b>Insulation Material</b>	PPE	

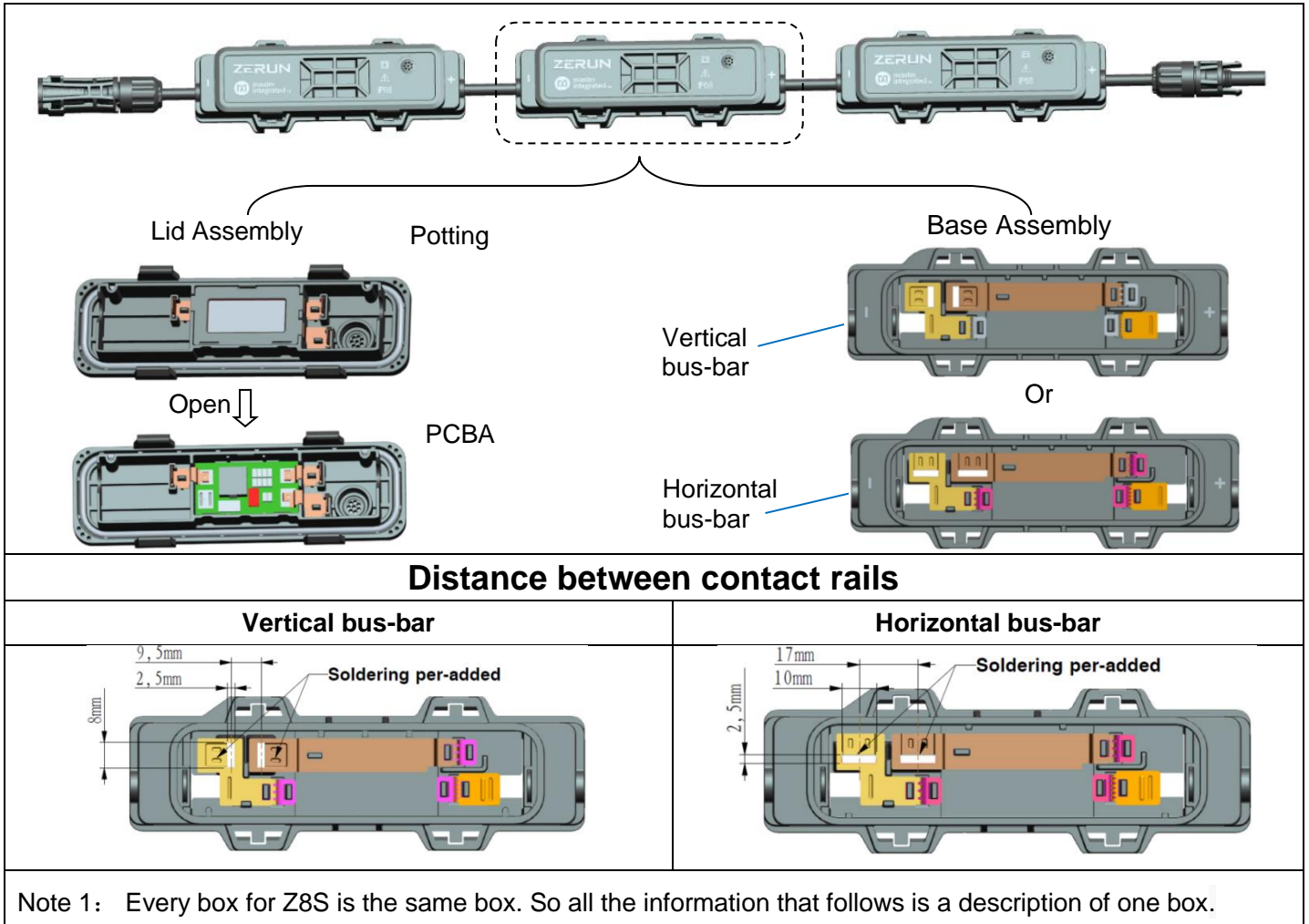
### Benefits and features:

- Perform MPPT on 20-24 Series-Connected PV Cells
- Fast MPPT Reacts Quickly to Changing Conditions
- Integrated Voltage-Limiting Clamps Output Voltage
- Active Bypass Function Eliminates Diodes and Hot Spots
- Supports Panel Flash and Electroluminescence (EL) Testing
- Peak 99.1%、CEC98.7% and Euro 98.3% Efficiency

### Alternate Connector:

Manufacturer	Type	Approval
Dongguan Zerun Electronics Technology Co.,Ltd.	Z4S	TUV:R50363877 UL:E351402
Tyco Electronics (Shanghai) Co., Ltd.	PV4-S1yx(PV4-S)	TUV:R50372137 UL:E353372
Multi-Contact AG Basel	PV-KST4/xy-UR; PV-KBT4/xy-UR	TUV:R60111354 UL:E343181
	PV-KBT4-EVO2/xy; PV-KST4-EVO2/xy	TUV:R60098495 UL:E349713

**Part III: Description of product structure**



**Part II: Naming Code:**

**Z8S - a b c d ( x y )**

Connector:	-Z: Z4S	-M: MC4	-E: EVO2
Cable:	-A: Zerun	-B: JHOSIN	-C: Baohing
Structure:	-V: Vertical bus-bar	-H: Horizontal bus-bar	
System Voltage:	-K: 1000V DC	-O: 1500V DC	
Number of Series:	-N: One Box	-W: Two Box	-H: Three Box
PCBA Type:	-A: Sirius_1_A: Voc Max : 10.6V & Iout Rated: 12A -B: Sirius_1_B: Voc Max : 11.2V & Iout Rated: 12A -C: Sirius_1_C: Voc Max : 12.4V & Iout Rated: 12A -D: Sirius_1_D: Voc Max : 11.7V & Iout Rated: 13A		
J-Box Series :	ZS: Optimizer J-Box		

**Mode number example:ZS- CHOV ( AZ)**

Optimizer Junction Box,Sirius\_1\_C PCBA,Voc Max 12.4V, Iout Rating 12A;Sirius\_1\_D PCBA,Voc Max 11.7V, Iout Rating 13A,Three Box of Structure,TUV/UL 1.5KV Certificate, Zerun Cable, Z4S connector.

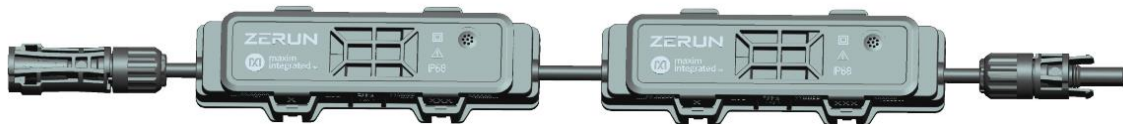
### Part IV: Z8S Pictures for Three Box



The Max. Output Power :

Mode NO.	PCBA Type	Voc Max.	Power Max.
Z8S-abcd (a=A, b=H)	Sirius_1_A	31.8V	335W
Z8S-abcd (a=B, b=H)	Sirius_1_B	33.6V	355W
Z8S-abcd (a=C, b=H)	Sirius_1_C	37.2V	395W
Z8S-abcd (a=D, b=H)	Sirius_1_D	35.1V	420W

### Part V: Z8S Pictures for Two Box



The Max. Output Power :

Mode NO.	PCBA NO.	Voc Max.	Power Max.
Z8S-abcd (a=A, b=W)	Sirius_1_A	21.2V	223.4W
Z8S-abcd (a=B, b=W)	Sirius_1_B	22.4V	236.8W
Z8S-abcd (a=C, b=W)	Sirius_1_C	24.8V	263.4W
Z8S-abcd (a=C, b=W)	Sirius_1_D	23.4V	280W

### Part IV: Z8S Pictures for One Box



The Max. Output Power :

Mode NO.	PCBA NO.	Voc Max.	Power Max.
Z8S-abcd (a=A, b=N)	Sirius_1_A	10.6V	111.7
Z8S-abcd (a=B, b=N)	Sirius_1_B	11.2V	118.4W
Z8S-abcd (a=C, b=N)	Sirius_1_C	12.4V	131.7W
Z8S-abcd (a=D, b=N)	Sirius_1_D	11.7V	140 W

## Electrical Characteristics

(Connected to a standard crystalline 60-cell module, unless otherwise noted. All voltages are referenced between OUT+ and OUT-, unless otherwise noted. Typical values are at TA=+25°C.)(Note 2)

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
<b>Absolute Maximum Input Voltage</b>	V <sub>pv_abs.max</sub>	Each PV+ / PV - pair	-0.3		21	V
<b>Maximum Input (operating) current</b>	I <sub>pv, Max_OP</sub>	Sirius_1A,1B,1C Each PV+ / PV - pair			11.55	A
		Sirius_1D Each PV+ / PV - pair			13.4	
<b>Maximum Input short circuit current</b>	I <sub>pv, Max_SC</sub>	Each PV+ / PV - pair			20	A
<b>Input Voltage Range for MPPT</b>	V <sub>pv+</sub>	Each PV+ / PV - pair	6.5		15.5	V
<b>Input Quiescent Current</b>	I <sub>pv+</sub>	Open circuit	60.0			mA
		Active Bypass	8.0			
<b>Output-Current Limiting</b>	I <sub>out, MPPT</sub>	Sirius_1A,1B, 1C,max sourcing current for MPPT mode	11.2			A
		Sirius_1D,max sourcing current for MPPT mode	13			
	I <sub>out, Max</sub>	Sirius_1A,1B,1C,max sourcing current		11.9	12.6	
		Sirius_1D, max sourcing current		13.7	14.4	
	I <sub>out, Max_SC</sub>	Max sourcing current with OUT+ < 1V		4.0		
<b>Output-Voltage Limiting</b>	V <sub>MP, Max</sub>	Sirius_1_A, full power		10.0		V
		Sirius_1_B, full power		10.6		
		Sirius_1_C, full power		11.8		
		Sirius_1_D, full power		11		
	V <sub>oc, Max</sub>	Sirius_1_A, open circuit		10.6	10.9	
		Sirius_1_B, open circuit		11.2	11.5	
		Sirius_1_C, open circuit		12.4	12.7	
		Sirius_1_D, open circuit		11.7	12	
<b>Bypass-Voltage Drop</b>	V <sub>BYPASS</sub>	PV+=1.5V, I <sub>out</sub> =12A	120			mV
<b>Over temperature Threshold</b>	T <sub>SHUTDOWN</sub>	MPPT disable	150			°C
<b>Duty-Cycle Range</b>	D	I <sub>out</sub> =8A	97			%
<b>MPPT Loop Response Time</b>	t <sub>MPPT</sub>		0.4			ms
<b>MPPT Efficiency</b>	η <sub>MPPT</sub>	I <sub>out</sub> =8A	99.9			%
<b>Peak Efficiency</b> (Note 3)	η <sub>PEAK</sub>		99.1			%
<b>CEC Efficiency</b> (Note 3)	η <sub>CEC</sub>		98.7			%
<b>European-Weighted Efficiency</b> (Note 3)	η <sub>EURO</sub>		98.3			%
<b>Body Diode Forward Voltage</b> (Note 4)	V <sub>F</sub>	PV- to PV+ I <sub>TEST</sub> =4mA to 20mA	250		700	mV
		OUT- to OUT+ I <sub>TEST</sub> =4mA to 20mA	100		500	

Note 2: Limits are 100% tested at TA = +32°C. Limits over the operating temperature range and relevant supply voltage range are guaranteed by design and characterization.

Note 3: On the B0X Reference Design.

Note 4: Parameter is guaranteed at room temperature.