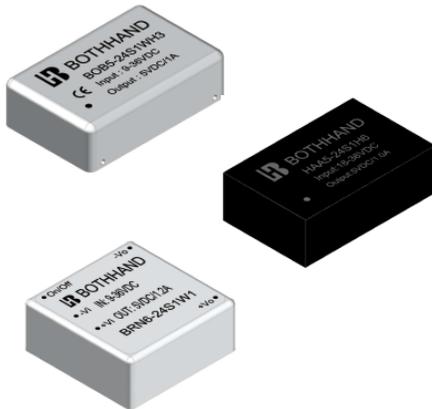


DC-DC Converters (1.5kV, 3kV & 6kV Isolation) 4W to 12W DIP

BOAx/BOBx/BRNx/ERDx/ERNx/HAAx- series



- Ⓢ Input Voltage Range: 9-18V, 9-36V, 18-36V, 18075 and 36-75V
- Ⓢ Output Voltage Range: 3.3V to 24V, Single and Dual (+/-Vout)
- Ⓢ Power Level: 4W to 12W
- Ⓢ Isolation: 1.5kVdc, 3kVdc and 6kVdc
- Ⓢ Efficiency : up to 88% , no heatsinks required
- Ⓢ Operating Temperature Range: -40°C to +85°C
- Ⓢ Additional Features:
 - Ⓢ IEC/EN 62368-1 Approved
 - Ⓢ Low Ripple and Noise,
 - Ⓢ Output Short Circuit protection
 - Ⓢ Remote On/Off control, Thermal Shut-Down

Electrical Specification @ 25°C (For BOA5 1.5K Vdc Isolation Op: -40°C to +85°C)

Model Number	Input Voltage Range	Output Voltage (V)	Output Current (mA)		Input Current (mA)		Eff .(%)	Capacitive Load, max. (uF)
			Min. Load	Full. Load	No Load	Full Load		
BOA5-24S1	18~36V Nominal:24Vdc	5	0	1000	10	254	82	3080

Electrical Specification @ 25°C (For BOA5 1.5K Vdc Isolation Op: -40°C to +85°C)

Model Number	Input Voltage Range	Output Voltage (V)	Output Current (mA)		Input Current (mA)		Eff .(%)	Capacitive Load, max. (uF)
			Min. Load	Full. Load	No Load	Full Load		
BOA5-24S1W	9~36V Nominal:24Vdc	5	4	1000	9.7	260	80	7030
BOA5-24S2W		12	0	500	7.1	301	83	1220
BOA5-24D3W		±15	0	±200	13	301	83	200

Electrical Specification @ 25°C (For BOB5 3K Vdc Isolation Op: -40°C to +85°C)

Model Number	Input Voltage Range	Output Voltage (V)	Output Current (mA)		Input Current (mA)		Eff .(%)	Capacitive Load, max. (uF)
			Min. Load	Full. Load	No Load	Full Load		
BOB5-24S2H3	18~36V Nominal:24V	12	0	500	13	294	85	147

Electrical Specification @ 25°C (For BOB5 1.5K Vdc Isolation Op: -40°C to +85°C)

Model Number	Input Voltage Range	Output Voltage (V)	Output Current (mA)		Input Current (mA)		Eff .(%)	Capacitive Load, max. (uF)
			Min. Load	Full. Load	No Load	Full Load		
BOB5-48S0W	18~75V Nominal:48V	3.3	49.4	1200	2.8	110	75	4400

Electrical Specification @ 25°C (For BOB5 3K Vdc Isolation Op: -40°C to +85°C)								
Model Number	Input Voltage Range	Output Voltage (V)	Output Current (mA)		Input Current (mA)		Eff. (%)	Capacitive Load, max. (uF)
			Min. Load	Full. Load	No Load	Full Load		
BOB5-24S3WH3	9~36V Nominal:24V	15	0	400	9	305	82	147

Electrical Specification @ 25°C (For HAA5 6K Vdc Isolation Op: -40°C to +85°C)								
Model Number	Input Voltage Range	Output Voltage (V)	Output Current (mA)		Input Current (mA)		Eff. (%)	Capacitive Load, max. (uF)
			Min. Load	Full. Load	No Load	Full Load		
HAA5-24S0H6	18~36V Nominal:24V	3.3	0	1200	10	206	80	3000
HAA5-24S1H6		5	0	1000	13	254	82	2000
HAA5-24S5H6		24	0	250	19	294	85	68
HAA5-24D3H6		±15	0	±200	21	294	85	±220
HAA5-003H6		±6	0	±417	34	251	83	±400

Electrical Specification @ 25°C (For BRN6 1.5K Vdc Isolation Op: -40°C to +85°C)								
Model Number	Input Voltage Range	Output Voltage (V)	Output Current (mA)		Input Current (mA)		Eff. (%)	Capacitive Load, max. (uF)
			Min. Load	Full. Load	No Load	Full Load		
BRN6-24S1W	9~36V Nominal:24V	5	0	1200	8	313	80	680
BRN6-24S2W		12	0	500	10	301	83	220
BRN6-24S3W		15	0	400	10	301	83	147
BRN6-24S5W		24	0	250	15	301	83	47
BRN6-48S1W	18~75V Nominal:48V	5	0	1200	6	156	80	680
BRN6-48S2W		12	0	500	6	151	83	220
BRN6-48S3W		15	0	400	5	147	85	147
BRN6-48S5W		24	0	250	8	151	83	47

Electrical Specification @ 25°C (For ERD6 1.5K Vdc Isolation Op: -40°C to +85°C)								
Model Number	Input Voltage Range	Output Voltage (V)	Output Current (mA)		Input Current (mA)		Eff. (%)	Capacitive Load, max. (uF)
			Min. Load	Full. Load	No Load	Full Load		
ERD6-24S1W	9~36V Nominal:24Vdc	5	0	1200	5	305	82	1000
ERD6-48S1W	18~75V Nominal:48Vdc	5	0	1200	5	152	82	1000

Electrical Specification @ 25°C (For ERN6 1.5K Vdc Isolation Op: -40°C to +85°C)								
Model Number	Input Voltage Range	Output Voltage (V)	Output Current (mA)		Input Current (mA)		Eff. (%)	Capacitive Load, max. (uF)
			Min. Load	Full. Load	No Load	Full Load		
ERN6-48S1W	18~75V Nominal:48Vdc	5	0	1200	5	152	82	1000

Electrical Specification @ 25°C (For BOA8 1.5K Vdc Isolation Op: -40°C to +85°C)								
Model Number	Input Voltage Range	Output Voltage (V)	Output Current (mA)		Input Current (mA)		Eff. (%)	Capacitive Load, max. (uF)
			Min. Load	Full. Load	No Load	Full Load		
BOA8-12S1	9~18V Nominal:12Vdc	5	62	1500	3.4	762	82	3300

Electrical Specification @ 25°C (For BOA8 3K Vdc Isolation Op: -40°C to +85°C)								
Model Number	Input Voltage Range	Output Voltage (V)	Output Current (mA)		Input Current (mA)		Eff. (%)	Capacitive Load, max. (uF)
			Min. Load	Full. Load	No Load	Full Load		
BOA8-48S0H3	36~75V Nominal:48Vdc	3.3	72	2000	2	172	80	6800

Electrical Specification @ 25°C (For BOA8 1.5K Vdc Isolation Op: -40°C to +85°C)								
Model Number	Input Voltage Range	Output Voltage (V)	Output Current (mA)		Input Current (mA)		Eff. (%)	Capacitive Load, max. (uF)
			Min. Load	Full. Load	No Load	Full Load		
BOA8-48S1W	18~75V Nominal:48Vdc	5	0	1500	21	182	86	13000

Electrical Specification @ 25°C (For BOB8 1.5K Vdc Isolation Op: -40°C to +85°C)								
Model Number	Input Voltage Range	Output Voltage (V)	Output Current (mA)		Input Current (mA)		Eff. (%)	Capacitive Load, max. (uF)
			Min. Load	Full. Load	No Load	Full Load		
BOB8-12D2	9~18V Nominal:12V	±12	0	±335	31	779	86	160
BOB8-48D3T1	36~75V Nominal:48V	±15	0	±265	10	195	85	250

Electrical Specification @ 25°C (For BOB8 3K Vdc Isolation Op: -40°C to +85°C)								
Model Number	Input Voltage Range	Output Voltage (V)	Output Current (mA)		Input Current (mA)		Eff. (%)	Capacitive Load, max. (uF)
			Min. Load	Full. Load	No Load	Full Load		
BOB8-24S1H3	18~36V Nominal:24V	5	0	1500	12	377	83	1600

Electrical Specification @ 25°C (For BOB8 1.5K Vdc Isolation Op: -40°C to +85°C)								
Model Number	Input Voltage Range	Output Voltage (V)	Output Current (mA)		Input Current (mA)		Eff. (%)	Capacitive Load, max. (uF)
			Min. Load	Full. Load	No Load	Full Load		
BOB8-24S1W	9~36V Nominal:24V	5	0	1500	45	368	85	14400
BOB8-48S0W	18~75V Nominal:48V	3.3	0	2000	13	164	84	22200

Electrical Specification @ 25°C (For BRN10 1.5K Vdc Isolation Op: -40°C to +85°C)								
Model Number	Input Voltage Range	Output Voltage (V)	Output Current (mA)		Input Current (mA)		Eff. (%)	Capacitive Load, max. (uF)
			Min. Load	Full. Load	No Load	Full Load		
BRN10-48S5	36~75V Nominal:48V	24	5	410	15	241	85	100

Electrical Specification @ 25°C (For BRN10 1.5K Vdc Isolation Op: -40°C to +85°C)								
Model Number	Input Voltage Range	Output Voltage (V)	Output Current (mA)		Input Current (mA)		Eff. (%)	Capacitive Load, max. (uF)
			Min. Load	Full. Load	No Load	Full Load		
BRN10-24S2W	9~36V Nominal:24V	12	0	830	39	472	88	680
BRN10-24S3W		15	0	660	41	469	88	330
BRN10-24S5W		24	0	410	45	466	88	100
BRN10-48S2W	18~75V Nominal:48V	12	0	830	19	239	87	680
BRN10-48S3W		15	0	660	21	237	87	330
BRN10-48S5W		24	0	410	22	236	87	100

Electrical Specification @ 25°C (For BOA12 1.5K Vdc Isolation Op: -40°C to +85°C)								
Model Number	Input Voltage Range	Output Voltage (V)	Output Current (mA)		Input Current (mA)		Eff. (%)	Capacitive Load, max. (uF)
			Min. Load	Full. Load	No Load	Full Load		
BOA12-24S1	18~36V Nominal:24V	5.1	0	2400	31	600	85	18000

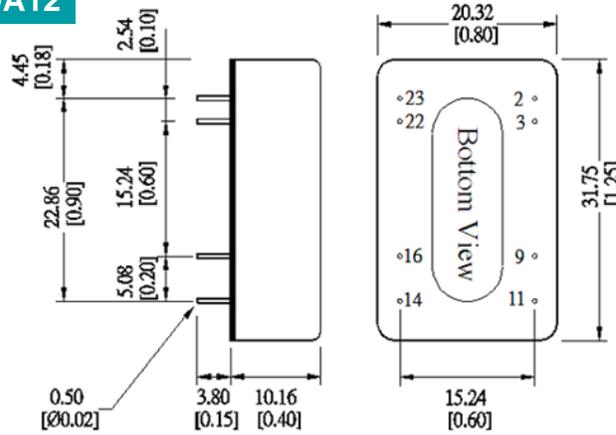
Electrical Specification @ 25°C (For BOB12 1.5K Vdc Isolation Op: -40°C to +85°C)								
Model Number	Input Voltage Range	Output Voltage (V)	Output Current (mA)		Input Current (mA)		Eff. (%)	Capacitive Load, max. (uF)
			Min. Load	Full. Load	No Load	Full Load		
BOB12-12S3	9~18V Nominal:12V	15	0	800	64	1163	86	2300
BOB12-24S1	18~36V	5.1	0	2400	31	600	85	18000
BOB12-24S2	Nominal:24V	12	0	1000	25	575	87	3730

Process and Materials

- Storage Temperature: -55°C to +125°C
- Compliance to J-STD:
 - J-STD-002: Solderability of Dipping at 255~260°C
 - J-STD-020: Moisture Sensitive Level 1
- All parts are packaged in tubes - see pages 8 and 9 for details
- For full electrical characteristics, curves and applications, please refer to the detailed specification sheets available on request
- Lead Frame: Cooper Alloy
 - Underplated: Half Hard Ductile Nickel 40-118" (1.0-3.0um)
 - Over plated: 100% Tin electro-deposited per 240~400u"Min(6~10um)
 - Finish: Matte finish 100% Tin solder

Mechanical

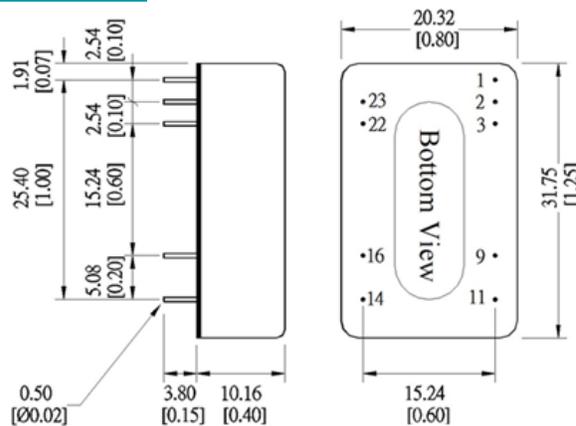
BOA5 / BOA5W / BOA8 BOA8H3 / BOA8W / BOA12



BOA5/8/12-xxxx/W/H3	
PIN	Single
2	-Vin
3	-Vin
9	No Pin
11	No function
14	+Vout
16	-Vout
22	+Vin
23	+Vin

Unit: mm (inch for reference only)
Pin Section tolerances +/-0.1
General tolerances +/-0.5

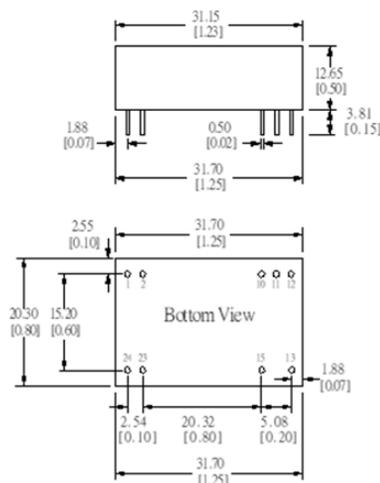
BOB5H3 / BOB5W / BOB5WH3 / BOB8 / BOB8H3 / BOB8W / BOB12



BOB5/8/12-xxxx/W/H3	
PIN	Single
1	Remote On/Off
2	-Vin
3	-Vin
9	No Pin
11	No function
14	+Vout
16	-Vout
22	+Vin
23	+Vin

Unit: mm (inch for reference only)
Pin Section tolerances +/-0.1
General tolerances +/-0.5

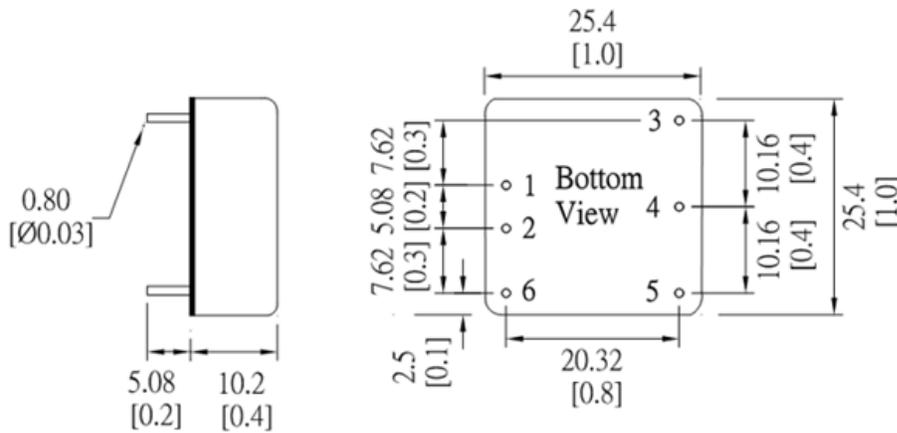
HAA5H6



HAA5-xxS/DxH6		
PIN	Single	Dual
1	+Vin	+Vin
2	+Vin	+Vin
10	N/C	Common
11	N/C	Common
12	-Vout	N/C
13	+Vout	-Vout
15	N/C	+Vout
23	-Vin	-Vin
24	-Vin	-Vin

Unit: mm (inch for reference only)
Pin Section tolerances +/-0.1
General tolerances +/-0.5

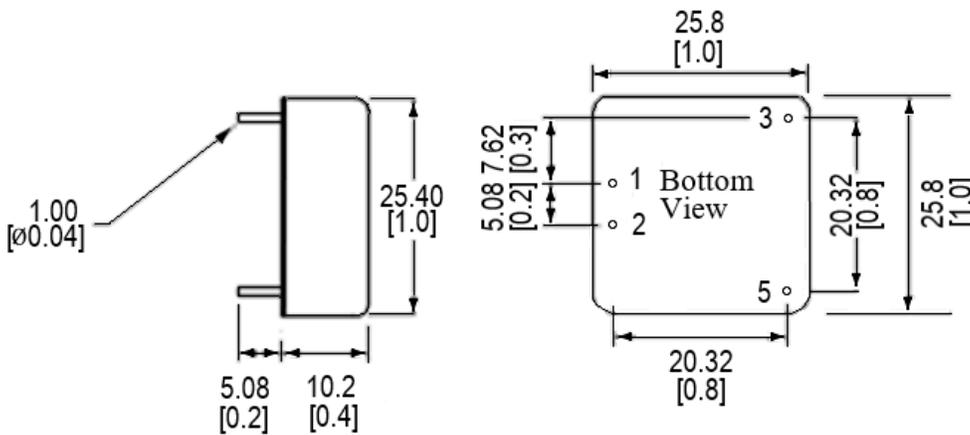
BRN6W / BRN10 / BRN10W



BRN6/10-xxxx/W	
PIN	Single
1	+Vin
2	-Vin
3	+Vout
4	No Pin
5	-Vout
6	Remote On/Off (optional)

Unit: mm (inch for reference only)
Pin Section tolerances +/-0.1
General tolerances +/-0.5

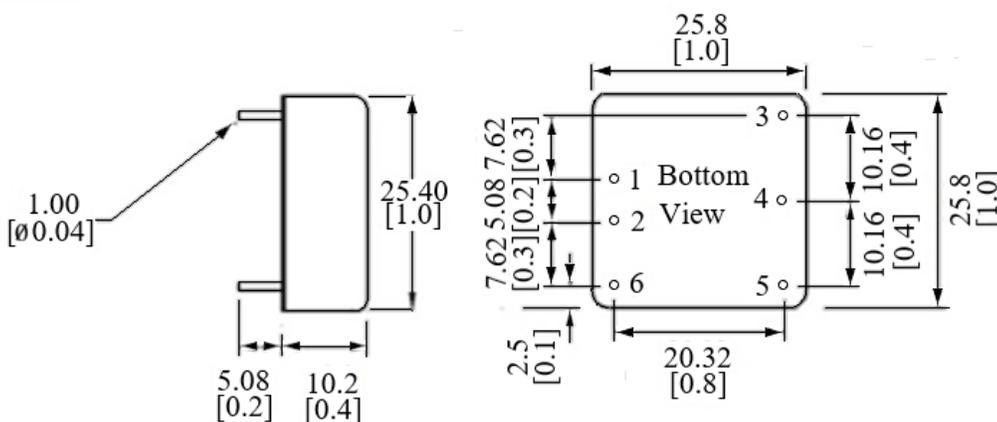
ERD6W



ERD6-xxxxW	
PIN	Single
1	+Vin
2	-Vin
3	+Vout
5	-Vout

Unit: mm (inch for reference only)
Pin Section tolerances +/-0.1
General tolerances +/-0.5

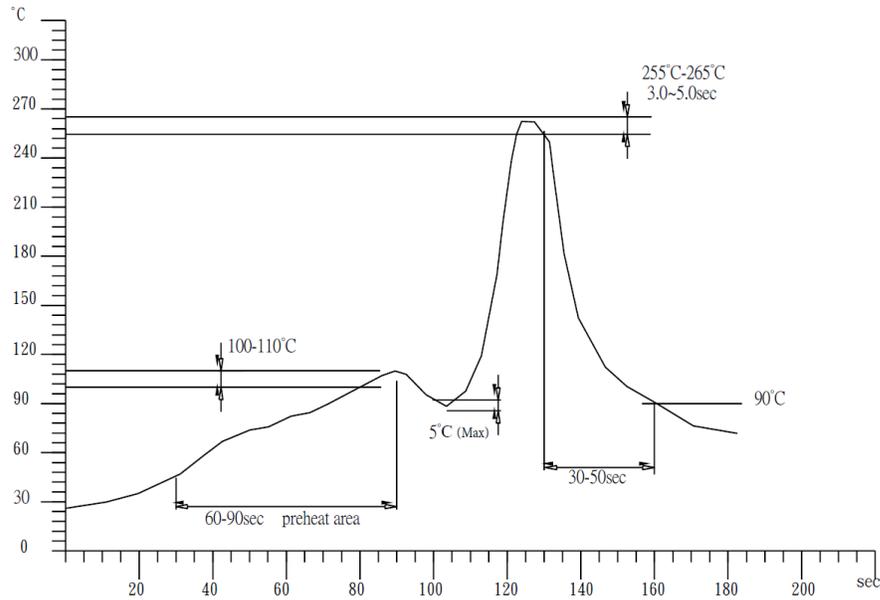
ERN6W



ERN6-xxxxW	
PIN	Single
1	+Vin
2	-Vin
3	+Vout
4	Trim
5	-Vout
6	Remote On/Off (optional)

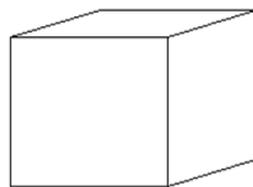
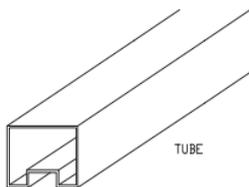
Unit: mm (inch for reference only)
Pin Section tolerances +/-0.1
General tolerances +/-0.5

Wave Soldering Temperature Curve

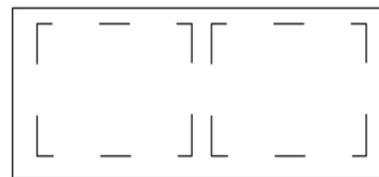


Carton Package

BOA5 / BOA5W / BOB5H3 / BOB5W / BOB5WH3 / BOA8 / BOA8H3 / BOB8W / BOB8 / BOB8H3 / BOB8W / BOA12 / BOB12



INNER CARTON:567*135*125



EXPORT CARTON:598*287*150

TUBE=15PCS

INNER CARTON=25 TUBE=25*15=375PCS

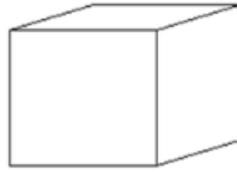
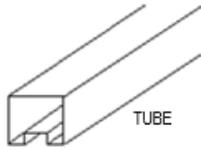
EXPORT CARTON=2 INNER CARTON=2*375=750PCS

DC-DC Converters (1.5kV, 3kV & 6kV Isolation) 4W to 12W DIP

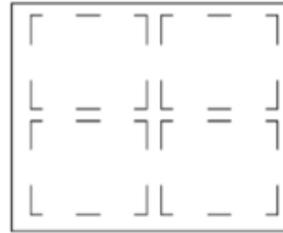
BOAx/BOBx/BRNx/ERDx/ERNx/HAAx- series

Carton Package

HAA5H6



INNER CARTON:388*158*115



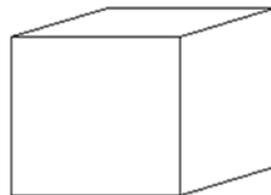
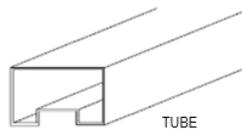
EXPORT CARTON:405*334*283

TUBE=10PCS

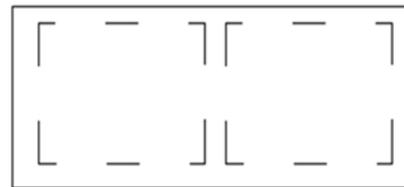
INNER CARTON=30 TUBE=30*10=300PCS

EXPORT CARTON=4 INNER CARTON=4*300=1200PCS

BRN6W/ERD6W/ERN6W/BRN10/BRN10W



INNER CARTON:567*135*125



EXPORT CARTON:598*287*150

TUBE=19PCS

INNER CARTON=20 TUBE=20*19=380PCS

EXPORT CARTON=2 INNER CARTON=2*380=760PCS

For More Information:

Americas - prodinfo_network_americas@yageo.com | Europe - prodinfo_network_emea@yageo.com | Asia - prodinfo_network_asia@yageo.com

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