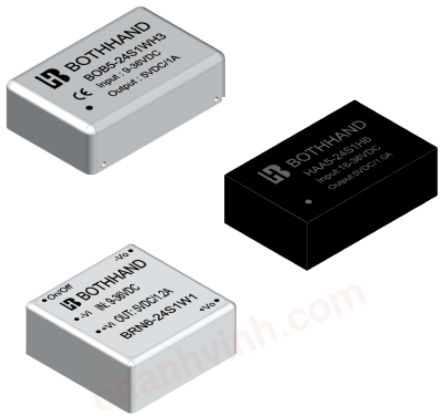
chanhvinh.com

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

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

Pulse
a YAGEO company



- *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

chanhvinh.com

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

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

Pulse a YAGEO company

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

chanhvinh.com

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

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

Pulse a YAGEO company

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

chanhvinh.com

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

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

Pulse a YAGEO company

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

chanhvinh.com

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 Nominal:24V	5.1	0	2400	31	600	85	18000
BOB12-24S2		12	0	1000	25	575	87	3730

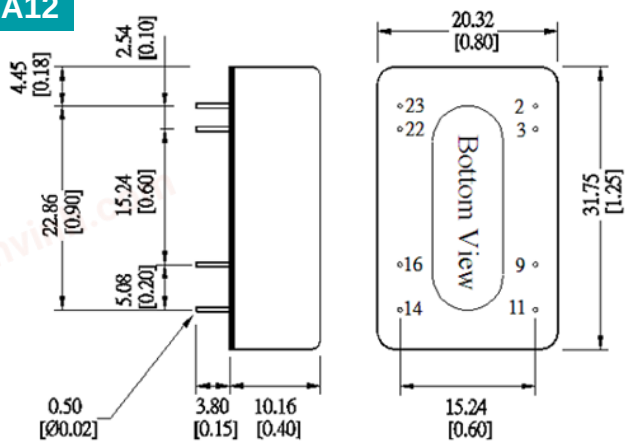
Process and Materials

1. Storage Temperature: -55°C to +125°C
2. Compliance to J-STD:
   A. J-STD-002: Solderability of Dipping at 255~260°C
   B. J-STD-020: Moisture Sensitive Level 1
3. All parts are packaged in tubes - see pages 8 and 9 for details
4. For full electrical characteristics, curves and applications, please refer to the detailed specification sheets available on request
5. 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

chanhvinh.com

Mechanical

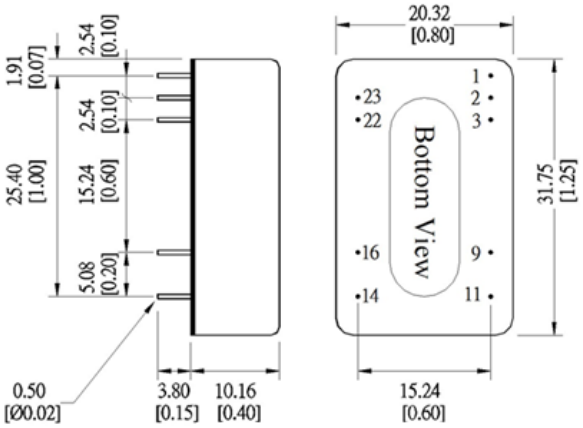
BOA5 / BOA5W / BOA8 BOA8H3 / BOA8W / BOA12



	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

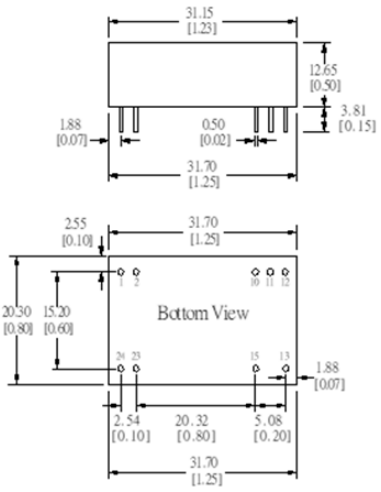
BOB5H3 / BOB5W /BOB5WH3 / BOB8 / BOB8H3 /BOB8W / BOB12



	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

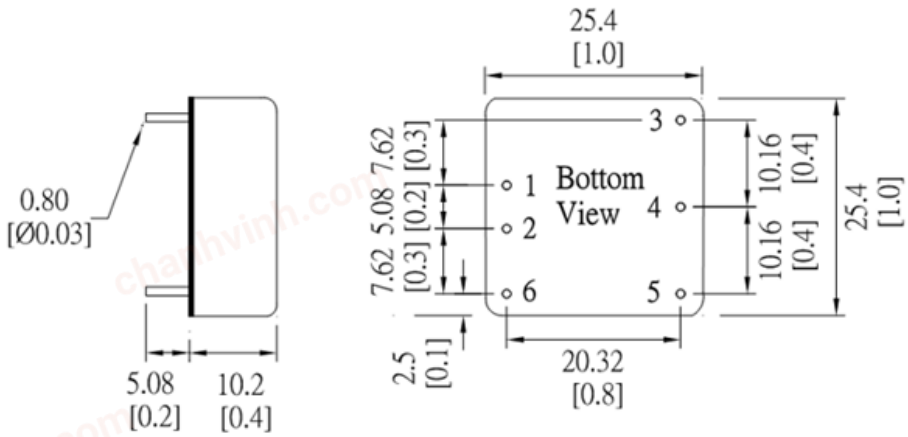


	HAA5-xxS/DxH6	
PIN	Single	Dual
1	+Vin	+Vin
2	+Vin	+Vin
10	N/C	Common
11	N/C	Common
12	-Vout	N/C
13	+Vout	-Vout
15	N/C	+Vout
23	-Vin	-Vin
24	-Vin	-Vin

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

chanhvinh.com

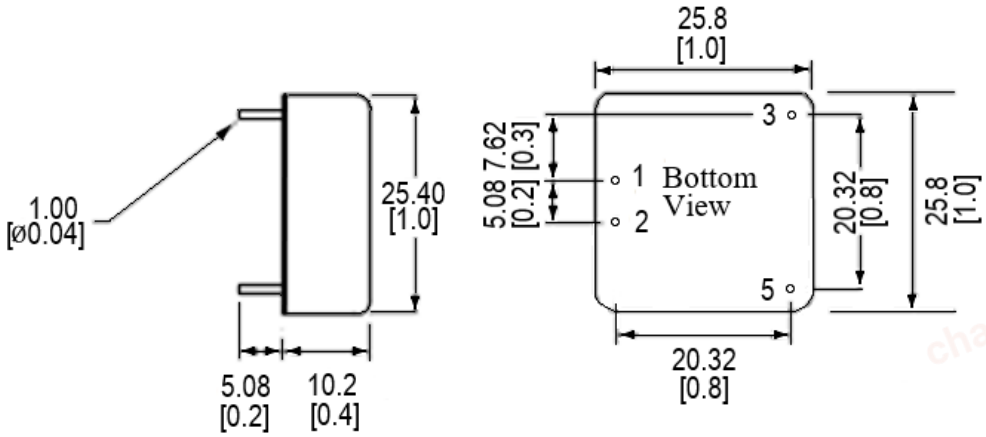
BRN6W / BRN10 / BRN10W



	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

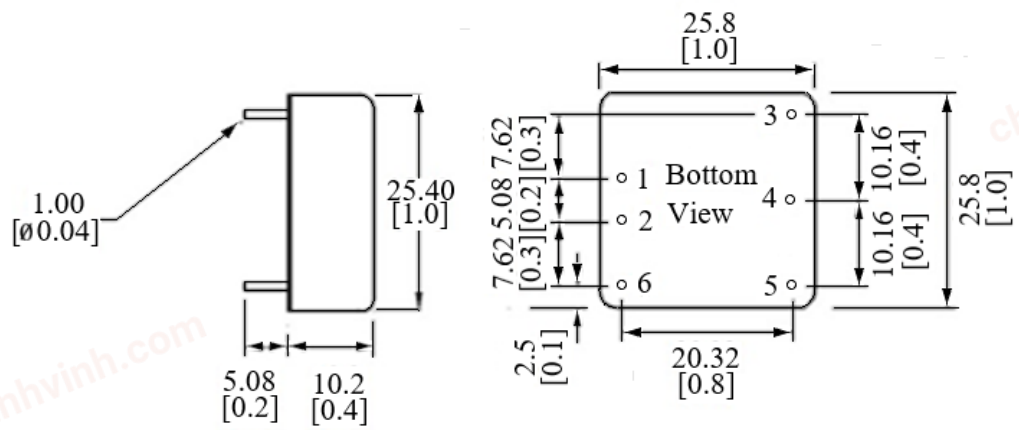
ERD6W



	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

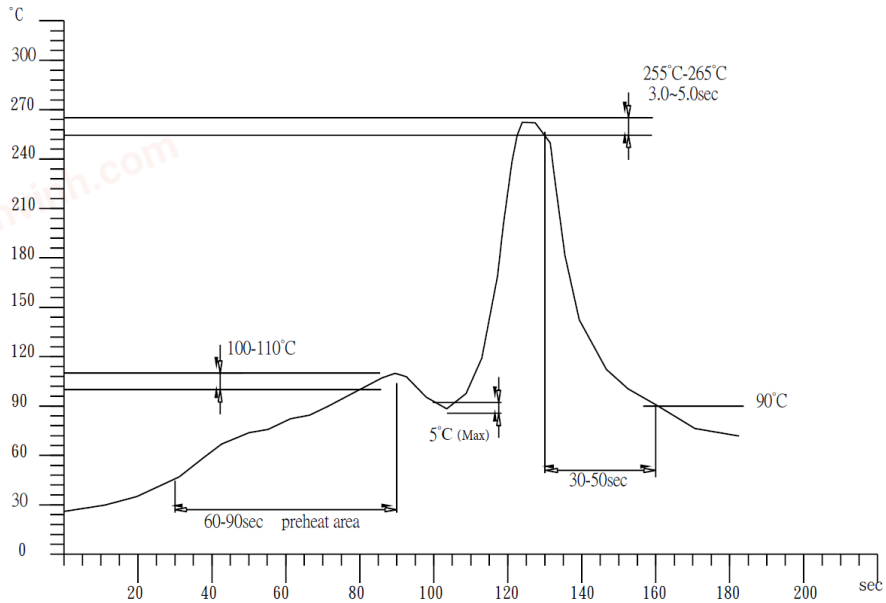


	ERN6-xxxxW
PIN	Single
1	+Vin
2	-Vin
3	+Vout
4	Trim
5	-Vout
6	Remote On/Off (optional)

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

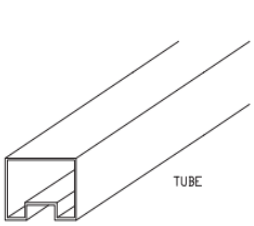
chanhvinh.com

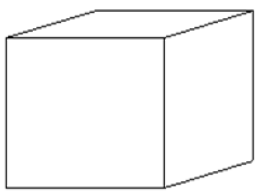
Wave Soldering Temperature Curve



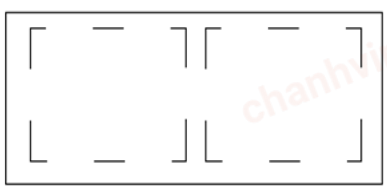
Carton Package

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

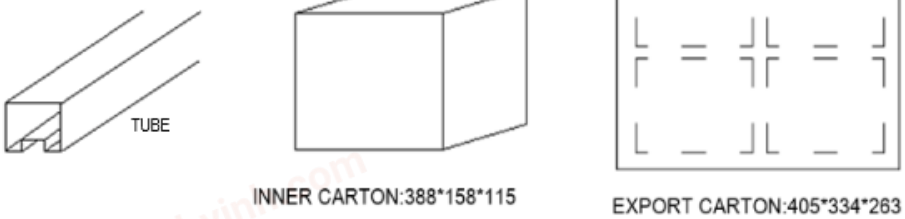
chanhvinh.com

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

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

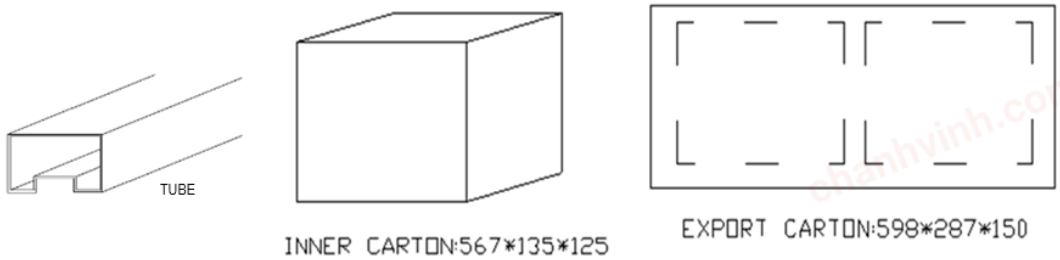
Carton Package

HAA5H6



TUBE=10PCS
INNER CARTON=30 TUBE=30*10=300PCS
EXPORT CARTON=4 INNER CARTON=4*300=1200PCS

BRN6W/ERD6W/ERN6W/BRN10/BRN10W



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

Performance warranty of products offered on this data sheet is limited to the parameters specified. Data is subject to change without notice. Other brand and product names mentioned herein may be trademarks or registered trademarks of their respective owners. © Copyright, 2023. Pulse Electronics, Inc. All rights reserved.