

XBO Traditional & Xtreme Life (XL) Lamps



Areas of application

- Film Projection
- Spotlights
- Searchlights
- Solar Simulation

Product features and benefits

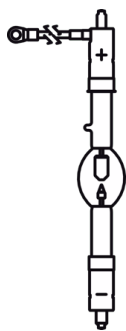
- High luminance for brighter screen illumination
- Consistent performance with constant 6000 K color temperature
- Continuous spectrum in the visible range
- High arc stability
- High arc stability
- Dimmable over a wide range
- Hot restart
- Long lamp life with eXtreme Life technology



Product family datasheet



XBO XENON SHORT ARC LAMP - 3000WHTP CL



XBO XENON SHORT ARC LAMP - 2000 WH XL



XBO XENON SHORT ARC LAMPS

Product family datasheet

Technical data

General Product Information				
Product description	Product number (Americas)	Product name (Americas)	Lamp type	Global order reference
XBO 1000 W/HS OFR ¹⁾	69263	XBO 1000W/HS 1/CS 1/SKU	XENON	XBO 1000 W/HS OFR
XBO 1000 W/HSC OFR ²⁾	69264	XBO 1000W/HSC 1/CS 1/SKU	XENON	XBO 1000 W/HSC OFR
XBO 1000 W/HTP OFR ³⁾	69265	XBO 1000W/HTP 1/CS 1/SKU	XENON	XBO 1000 W/HTP OFR
XBO 2000 W/HS OFR ⁴⁾	69270	XBO 2000W/HS 1/CS 1/SKU		XBO 2000 W/HS OFR
XBO 1600 W XL OFR	69524	XBO 1600W/HS XL 1/CS 1/SKU		XBO 1600 W XL OFR
XBO 1600 W/HSC XL OFR	69525	XBO 1600W/HSC XL 1/CS 1/SKU	XENON	XBO 1600 W/HSC XL OFR
XBO 2000 W/SHSC OFR ⁵⁾				XBO 2000 W/SHSC OFR
XBO 2000 W/H XL OFR	69477	XBO 2000W/H XL 1/CS 1/SKU		XBO 2000 W/H XL OFR
XBO 2000 W/HTP XL OFR	69495	XBO 2000W/HTP XL 1/CS 1/SKU		XBO 2000 W/HTP XL OFR
XBO 2500 W/HS XL OFR	69507	XBO 2500W/HS XL 1/CS 1/SKU		XBO 2500 W/HS XL OFR
XBO 3000 W/H XL OFR	69478	XBO 3000W/H XL 1/CS 1/SKU		XBO 3000 W/H XL OFR
XBO 3000 W/HS XL OFR	69479	XBO 3000W/HS XL 1/CS 1/SKU		XBO 3000 W/HS XL OFR
XBO 3000 W/HTP XL OFR	69152	XBO 3000W/HTP XL 1/CS 1/SKU		XBO 3000 W/HTP XL OFR
XBO 4000 W/HSA OFR				XBO 4000 W/HSA OFR
XBO 4000 W/HS XL OFR	69474	XBO 4000W/HS XL 1/CS 1/SKU		XBO 4000 W/HS XL OFR
XBO 4000 W/HTP XL OFR				XBO 4000 W/HTP XL OFR
XBO 4500 W/HS XL OFR	4008321412881	XBO 4500W/HS XL 1/CS 1/SKU		XBO 4500 W/HS XL OFR
XBO 5000 W/H XL OFR				XBO 5000 W/H XL OFR
XBO 6000 W/HS XL OFR				XBO 6000 W/HS XL OFR
XBO 7000 W/HS XL OFR	69527	XBO 7000W/HS XL 1/CS 1/SKU		XBO 7000 W/HS XL OFR
XBO 10000 W/HS OFR ¹⁾				XBO 10000 W/HS OFR

		Electrical Data		Photometric Data
Product description	Family brand	Nominal wattage	Current control range	Luminance
XBO 1000 W/HS OFR ¹⁾		1000 W	30...55 A	60000 cd/cm ² ⁶⁾

Product family datasheet

Product description	Family brand	Electrical Data		Photometric Data
		Nominal wattage	Current control range	Luminance
XBO 1000 W/HSC OFR ²⁾		1000 W	30...55 A	60000 cd/cm ² ⁶⁾
XBO 1000 W/HTP OFR ³⁾		1000 W	30...55 A	45000 cd/cm ² ⁶⁾
XBO 2000 W/HS OFR ⁴⁾		2000 W	50...85 A	
XBO 1600 W XL OFR		1600 W	45...75 A	65000 cd/cm ² ⁶⁾
XBO 1600 W/HSC XL OFR		1600 W	50...70 A	70000 cd/cm ² ⁶⁾
XBO 2000 W/SHSC OFR ⁵⁾		2000 W	50...85 A	8000 cd/cm ² ⁶⁾
XBO 2000 W/H XL OFR		2000 W	50...85 A	80000 cd/cm ² ⁶⁾
XBO 2000 W/HTP XL OFR		2000 W	50...85 A	75000 cd/cm ² ⁶⁾
XBO 2500 W/HS XL OFR		2500 W	70...100 A	80000 cd/cm ² ⁶⁾
XBO 3000 W/H XL OFR		3000 W	70...110 A	85000 cd/cm ² ⁶⁾
XBO 3000 W/HS XL OFR	XBO	3000 W	70...110 A	90000 cd/cm ² ⁶⁾
XBO 3000 W/HTP XL OFR		3000 W	70...110 A	85000 cd/cm ² ⁶⁾
XBO 4000 W/HSA OFR		4000 W	80...150 A	105000 cd/cm ² ⁶⁾
XBO 4000 W/HS XL OFR		4000 W	80...150 A	90000 cd/cm ² ⁶⁾
XBO 4000 W/HTP XL OFR		4000 W	100...140 A	90000 cd/cm ² ⁶⁾
XBO 4500 W/HS XL OFR		4500 W	80...150 A	105000 cd/cm ² ⁶⁾
XBO 5000 W/H XL OFR		5000 W	100...150 A	95000 cd/cm ² ⁶⁾
XBO 6000 W/HS XL OFR		6000 W	110...165 A	105000 cd/cm ² ⁶⁾
XBO 7000 W/HS XL OFR		7000 W	110...165 A	100000 cd/cm ² ⁶⁾
XBO 10000 W/HS OFR ¹⁾		10000 W	160...200 A	90000 cd/cm ² ⁶⁾

Product description	Nominal luminous flux	Color temperature	Color rendering index Ra	Light center length (LCL)
XBO 1000 W/HS OFR ¹⁾	32000 lm	6000 K	98	95.0 mm ⁷⁾
XBO 1000 W/HSC OFR ²⁾	32000 lm	6000 K	98	95.0 mm ⁷⁾
XBO 1000 W/HTP OFR ³⁾	35000 lm	6000 K	98	123.0 mm ⁷⁾
XBO 2000 W/HS OFR ⁴⁾				145.0 mm ⁷⁾
XBO 1600 W XL OFR	70000 lm	6000 K	98	143.0 mm ⁷⁾
XBO 1600 W/HSC XL OFR	70000 lm	6000 K	98	95.0 mm ⁷⁾
XBO 2000 W/SHSC OFR ⁵⁾	80000 lm	6000 K	98	95.0 mm ⁷⁾
XBO 2000 W/H XL OFR				142.5 mm ⁷⁾
XBO 2000 W/HTP XL OFR	80000 lm	6000 K	98	142.5 mm ⁷⁾
XBO 2500 W/HS XL OFR				145.0 mm ⁷⁾
XBO 3000 W/H XL OFR				167.5 mm ⁷⁾
XBO 3000 W/HS XL OFR				145.0 mm ⁷⁾
XBO 3000 W/HTP XL OFR	130000 lm			162.5 mm ⁷⁾

Product family datasheet

Product description	Nominal luminous flux	Color temperature	Color rendering index Ra	Light center length (LCL)
XBO 4000 W/HSA OFR				171.0 mm ₇₎
XBO 4000 W/HS XL OFR				171.0 mm ₇₎
XBO 4000 W/HTP XL OFR				167.5 mm ₇₎
XBO 4500 W/HS XL OFR				171.0 mm ₇₎
XBO 5000 W/H XL OFR				167.5 mm ₇₎
XBO 6000 W/HS XL OFR				170.5 mm ₇₎
XBO 7000 W/HS XL OFR				170.5 mm ₇₎
XBO 10000 W/HS OFR ¹⁾	500000 lm			170.5 mm ₇₎

Product description	Physical Attributes & Dimensions			
	Electrode gap (cold)	Base (anode)	Base (cathode)	Diameter
XBO 1000 W/HS OFR ¹⁾	3.6 mm	SFa27-11	SFcX27-8	40.0 mm
XBO 1000 W/HSC OFR ²⁾	3.6 mm	SK27/50	SFcX27-8	40.0 mm
XBO 1000 W/HTP OFR ³⁾	4.8 mm	SFa25-14	SFc25-14	46.0 mm
XBO 2000 W/HS OFR ⁴⁾	5.0 mm	SFaX27-9.5	SFa27-7.9	60.0 mm
XBO 1600 W XL OFR	4.8 mm	SFaX27-10	SFa27-12	52.0 mm
XBO 1600 W/HSC XL OFR	3.8 mm	SK27/50	SFcX27-8	46.0 mm
XBO 2000 W/SHSC OFR ⁵⁾	5.0 mm	SK27/50	SFcX27-8	46.0 mm
XBO 2000 W/H XL OFR	5.8 mm	SFaX27-10	SFaX27-12	52.0 mm
XBO 2000 W/HTP XL OFR	5.8 mm	SFa25-14	SFc25-14	52.0 mm
XBO 2500 W/HS XL OFR	5.5 mm	SFaX27-9.5	SFa27-7.9	60.0 mm
XBO 3000 W/H XL OFR	6.0 mm	SFaX30-13	SFaX30-14	66.0 mm
XBO 3000 W/HS XL OFR	6.0 mm	SFaX30-9.5	SFa30-7.9	60.0 mm
XBO 3000 W/HTP XL OFR	6.0 mm	SFa30-14	SFc27-14	60.0 mm
XBO 4000 W/HSA OFR	6.6 mm	SFaX30-9.5	SFa30-7.9	70.0 mm
XBO 4000 W/HS XL OFR	7.0 mm	SFaX30-9.5	SFa30-7.9	70.0 mm
XBO 4000 W/HTP XL OFR	7.0 mm	SFa30-14	SFc30-14	70.0 mm
XBO 4500 W/HS XL OFR	7.5 mm	SFaX30-9.5	SFa30-7.9	70.0 mm
XBO 5000 W/H XL OFR	7.5 mm	SFaX30-16	SFaX28-18	70.0 mm
XBO 6000 W/HS XL OFR	9.0 mm	SFaX30-9.5	SFa30-7.9	78.0 mm
XBO 7000 W/HS XL OFR	11.0 mm	SFaX30-9.5	SFa30-7.9	78.0 mm
XBO 10000 W/HS OFR ¹⁾	13.5 mm	SFaX30-9.5	SFa30-7.9	78.0 mm

Product description	Diameter	Diameter (in)	Length	Length with base excl. base pins/connection
XBO 1000 W/HS OFR ¹⁾	40.0 mm	1.614 in	235.0 mm	205.00 mm

Product family datasheet

Product description	Diameter	Diameter (in)	Length	Length with base excl. base pins/connection
XBO 1000 W/HSC OFR ²⁾	40.0 mm	1.575 in	236.0 mm	220.00 mm
XBO 1000 W/HTP OFR ³⁾	46.0 mm	1.811 in	330.0 mm	277.00 mm
XBO 2000 W/HS OFR ⁴⁾	60.0 mm	2.362 in	302.0 mm	302.00 mm
XBO 1600 W XL OFR	52.0 mm	2.047 in	235.0 mm	322.00 mm
XBO 1600 W/HSC XL OFR	46.0 mm	1.811 in	236.0 mm	222.00 mm
XBO 2000 W/SHSC OFR ⁵⁾	46.0 mm	1.811 in	236.0 mm	220.00 mm
XBO 2000 W/H XL OFR	52.0 mm	2.047 in	370.0 mm	322.00 mm
XBO 2000 W/HTP XL OFR	52.0 mm	2.047 in	375.0 mm	322.00 mm
XBO 2500 W/HS XL OFR	60.0 mm	2.362 in	342.0 mm	302.00 mm
XBO 3000 W/H XL OFR	66.0 mm	2.362 in	428.0 mm	382.00 mm
XBO 3000 W/HS XL OFR	60.0 mm	2.362 in	342.0 mm	302.00 mm
XBO 3000 W/HTP XL OFR	60.0 mm	2.598 in	405.0 mm	357.00 mm
XBO 4000 W/HSA OFR	70.0 mm		416.0 mm	370.00 mm
XBO 4000 W/HS XL OFR	70.0 mm	2.756 in	416.0 mm	370.00 mm
XBO 4000 W/HTP XL OFR	70.0 mm	2.756 in	410.0 mm	382.00 mm
XBO 4500 W/HS XL OFR	70.0 mm	2.756 in	413.0 mm	370.00 mm
XBO 5000 W/H XL OFR	70.0 mm	2.756 in	433.0 mm	382.00 mm
XBO 6000 W/HS XL OFR	78.0 mm	3.071 in	436.0 mm	393.00 mm
XBO 7000 W/HS XL OFR	78.0 mm	3.071 in	436.0 mm	393.00 mm
XBO 10000 W/HS OFR ¹⁾	78.0 mm		393.0 mm	393.00 mm

			Operating Conditions	
Product description	Product weight	Connector: presence	Burning position	Cooling
XBO 1000 W/HS OFR ¹⁾	255.00 g		s20/p20 ⁸⁾	Forced ⁹⁾
XBO 1000 W/HSC OFR ²⁾	303.00 g	Yes	s20/p20 ⁸⁾	Forced
XBO 1000 W/HTP OFR ³⁾	331.00 g		s30/p30 ⁸⁾	Forced
XBO 2000 W/HS OFR ⁴⁾	490.00 g	Yes	s30/p30 ⁸⁾	Forced ⁹⁾
XBO 1600 W XL OFR	301.00 g		Other ¹⁰⁾	Forced
XBO 1600 W/HSC XL OFR	321.00 g	Yes	s20/p20 ⁸⁾	Forced
XBO 2000 W/SHSC OFR ⁵⁾	391.00 g	Yes	s30/p30 ⁸⁾	Forced
XBO 2000 W/H XL OFR	534.00 g	Yes	s30/p30 ⁸⁾	Forced
XBO 2000 W/HTP XL OFR	452.00 g		s30/p30 ⁸⁾	Forced
XBO 2500 W/HS XL OFR	571.00 g	Yes	s30/p30 ⁸⁾	Forced
XBO 3000 W/H XL OFR	687.00 g	Yes	s30/p30 ⁸⁾	Forced ⁹⁾
XBO 3000 W/HS XL OFR	585.00 g	Yes	s30/p30 ⁸⁾	Forced ⁹⁾
XBO 3000 W/HTP XL OFR	560.00 g		s30/p30 ⁸⁾	Forced ⁹⁾
XBO 4000 W/HSA OFR	1022.00 g	Yes	s20/p20 ⁸⁾	Forced ⁹⁾
XBO 4000 W/HS XL OFR	920.00 g	Yes	s30/p30 ⁸⁾	Forced ⁹⁾
XBO 4000 W/HTP XL OFR	820.00 g	Yes	s20/p20 ⁸⁾	Forced ⁹⁾
XBO 4500 W/HS XL OFR	1023.00 g	Yes	s15/p15 ⁸⁾	Forced ⁹⁾
XBO 5000 W/H XL OFR	1028.00 g	Yes	s15/p15 ⁸⁾	Forced ⁹⁾
XBO 6000 W/HS XL OFR	1025.00 g	Yes	s15/p15 ⁸⁾	Forced ⁹⁾
XBO 7000 W/HS XL OFR	1025.00 g	Yes	s15/p15 ⁸⁾	Forced ⁹⁾

Product family datasheet

			Operating Conditions	
Product description	Product weight	Connector: presence	Burning position	Cooling
XBO 10000 W/HS OFR ¹⁾	1030.00 g	Yes	s15/p15 ⁸⁾	Forced ⁹⁾
		Lifetime Data	Environmental & Regulatory Information Information according Art. 33 of EU Regulation (EC) 1907/2006 (REACH)	
Product description	Max. permitted ambient temp. pinch point	Warranty hours	Primary article identifier	Declaration no. in SCIP database
XBO 1000 W/HS OFR ¹⁾	230 °C	2000 hrs	4008321082114	22b5c075-11fc-41b0-ad60-dec034d8f30c
XBO 1000 W/HSC OFR ²⁾	230 °C	2000 hrs	4008321082107	f094a128-1489-4dbf-8649-bb523f769078
XBO 1000 W/HTP OFR ³⁾	230 °C	2400 hrs	4008321081353 4062172030243	4a09dcc0-a0da-4682-93fa-303d254e4c80
XBO 2000 W/HS OFR ⁴⁾	230 °C	2400 hrs	4008321081360 4062172030359	e8ef51c8-36d5-458d-aa43-bff7de28bede
XBO 1600 W XL OFR	230 °C	3500 hrs	4008321299918 4062172031714	c83dcc90-6023-4924-b0d8-b34998daa554
XBO 1600 W/HSC XL OFR	230 °C	2500 hrs	4008321299932 4062172031721	7a9913f5-169b-4ced-8b20-4a10b8b6fd73 49877f08-b6d6-461c-b64a-018655e8a602
XBO 2000 W/SHSC OFR ⁵⁾	230 °C	2000 hrs	4008321082077	d7d8f0b3-9cce-48bc-b9a2-a440e89f5b64
XBO 2000 W/H XL OFR	230 °C	3500 hrs	4008321211781	9833f335-0b1f-45d1-96ec-3872939e7bed
XBO 2000 W/HTP XL OFR	230 °C	3500 hrs	4008321244031	6289c378-8cb7-40d8-bd67-f74e947878c5
XBO 2500 W/HS XL OFR	230 °C	2200 hrs	4062172030250 4008321299963	ea7f9ace-f767-4dd4-8383-1b55f8e488b7
XBO 3000 W/H XL OFR	230 °C	2200 hrs	4008321226174	57f4a7ba-4fa1-44ab-8b28-00f5e4847066
XBO 3000 W/HS XL OFR	230 °C	2200 hrs	4008321330031 4062172152341 4062172030311	dd2ddf15-037b-4473-8156-97498e721fb3 c331ba5b-e29f-4e83-9bdd-095d344154b8
XBO 3000 W/HTP XL OFR	230 °C	2200 hrs	4008321244017	847c6873-a086-4887-b5a4-0fcb40e47dbc
XBO 4000 W/HSA OFR	230 °C	1000 hrs	4008321412980	0b6df52f-0b97-4d4d-bcc0-6d1dab9f13b9
XBO 4000 W/HS XL OFR	230 °C	1500 hrs	4008321412812	65c64d0a-d452-470b-8914-c022a2c5a556

Product family datasheet

		Lifetime Data	Environmental & Regulatory Information Information according Art. 33 of EU Regulation (EC) 1907/2006 (REACH)	
Product description	Max. permitted ambient temp. pinch point	Warranty hours	Primary article identifier	Declaration no. in SCIP database
XBO 4000 W/HTP XL OFR	230 °C	1500 hrs	4008321412874	35c99854-8d47- 47b1-bfdc- a286862d25e2
XBO 4500 W/HS XL OFR	230 °C	1400 hrs	4008321412881	2a7bfa41-544e-40aa- a314-c9fc5872b500
XBO 5000 W/H XL OFR	230 °C	1200 hrs	4008321412829	6666821c-6025- 4ae2-9049- 74872cf69c52
XBO 6000 W/HS XL OFR	230 °C	750 hrs	4008321412904 4062172030618	ff65d599-ce0d-4b3f- b2e1-ecbcefe3d8f1
XBO 7000 W/HS XL OFR	230 °C	650 hrs	4062172030625 4008321412928	1ed097d6-f451-4c5c- b29a-3f156fd7504f
XBO 10000 W/HS OFR ¹⁾	230 °C	500 hrs	4062172030724 4008321552327	7934c4e7-ad5d- 4e20-9baa- 2349e600f6ad cb26f713-f336-4c5c- b8f4-f0f8d52a0f47

Product description	Candidate list substance 1	CAS No. of substance 1	Safe use instruction
XBO 1000 W/HS OFR ¹⁾	Lead	7439-92-1	The identification of the Candidate List substance is sufficient to allow safe use of the article.
XBO 1000 W/HSC OFR ²⁾	Lead	7439-92-1	The identification of the Candidate List substance is sufficient to allow safe use of the article.
XBO 1000 W/HTP OFR ³⁾	Lead	7439-92-1	The identification of the Candidate List substance is sufficient to allow safe use of the article.
XBO 2000 W/HS OFR ⁴⁾	Lead	7439-92-1	The identification of the Candidate List substance is sufficient to allow safe use of the article.

Product family datasheet

Product description	Candidate list substance 1	CAS No. of substance 1	Safe use instruction
XBO 1600 W XL OFR	Lead	7439-92-1	The identification of the Candidate List substance is sufficient to allow safe use of the article.
XBO 1600 W/HSC XL OFR	Lead	7439-92-1	The identification of the Candidate List substance is sufficient to allow safe use of the article.
XBO 2000 W/SHSC OFR ⁵⁾	Lead	7439-92-1	The identification of the Candidate List substance is sufficient to allow safe use of the article.
XBO 2000 W/H XL OFR	Lead	7439-92-1	The identification of the Candidate List substance is sufficient to allow safe use of the article.
XBO 2000 W/HTP XL OFR	Lead	7439-92-1	The identification of the Candidate List substance is sufficient to allow safe use of the article.
XBO 2500 W/HS XL OFR	Lead	7439-92-1	The identification of the Candidate List substance is sufficient to allow safe use of the article.
XBO 3000 W/H XL OFR	Lead	7439-92-1	The identification of the Candidate List substance is sufficient to allow safe use of the article.
XBO 3000 W/HS XL OFR	Lead	7439-92-1	The identification of the Candidate List substance is sufficient to allow safe use of the article.
XBO 3000 W/HTP XL OFR	Lead	7439-92-1	The identification of the Candidate List substance is sufficient to allow safe use of the article.

Product family datasheet

Product description	Candidate list substance 1	CAS No. of substance 1	Safe use instruction
XBO 4000 W/HSA OFR	Lead	7439-92-1	The identification of the Candidate List substance is sufficient to allow safe use of the article.
XBO 4000 W/HS XL OFR	Lead	7439-92-1	The identification of the Candidate List substance is sufficient to allow safe use of the article.
XBO 4000 W/HTP XL OFR	Lead	7439-92-1	The identification of the Candidate List substance is sufficient to allow safe use of the article.
XBO 4500 W/HS XL OFR	Lead	7439-92-1	The identification of the Candidate List substance is sufficient to allow safe use of the article.
XBO 5000 W/H XL OFR	Lead	7439-92-1	The identification of the Candidate List substance is sufficient to allow safe use of the article.
XBO 6000 W/HS XL OFR	Lead	7439-92-1	The identification of the Candidate List substance is sufficient to allow safe use of the article.
XBO 7000 W/HS XL OFR	Lead	7439-92-1	The identification of the Candidate List substance is sufficient to allow safe use of the article.
XBO 10000 W/HS OFR ¹⁾	Lead	7439-92-1	The identification of the Candidate List substance is sufficient to allow safe use of the article.

¹⁾ OFR = Ozone-free version/H = Suitable for horizontal burning position/S = Short

²⁾ OFR = Ozone-free version/H = Suitable for horizontal burning position/S = Short/C = Base with cable

³⁾ OFR = Ozone-free version/H = Suitable for horizontal burning position/TP = Cable with threaded pins

⁴⁾ H = Suitable for horizontal burning position/S = Short

Product family datasheet

⁵⁾ OFR = Ozone-free version. SHSC = Extra short version for horizontal burning position, anode connection via cable (super short). Similar dimensions to XBO 1600 A/HSC OFR

⁶⁾ Measured in the vertical burning position

⁷⁾ Distance from end of base to tip of electrode (cold)

⁸⁾ For vertical burning position: anode (+) on top

⁹⁾ Vertical and horizontal

¹⁰⁾ Anode on top

Product family datasheet

Safety advice

Because of their high luminance, UV radiation and internal pressure in both the hot and cold state, XBO lamps may only be operated in enclosed lamp casings specially constructed for the purpose. Xenon lamps are highly explosive. When hot, xenon lamps can cause burn marks. They should only be handled when the lamp is at room temperature. Always use the protective jackets supplied when handling these lamps. When packing the lamps and when installing or removing the lamps without their protective jackets, always wear protective clothing (face shield with neck protector, protective jacket and lint-free, cut-resistant gloves). For more information see the relevant in-pack leaflets and operating instructions.

Application advice

For more detailed application information and graphics please see product datasheet.

Disclaimer

Subject to change without notice. Errors and omission excepted. Always make sure to use the most recent release.