

Constant current independent driver
BQL(S) Series suffix S



Features

- 16-level current output can be realized by DIP-switch
- Flicker-free output, which meets the requirement of ErP standard
- Withstand 380VAC high voltage short-time shock
- Mains surge capability up to 2KV
- Screw-free design, easy wiring
- High PF, high efficiency, low THD
- Optional Junction box: support up to 2.5mm² cable and loop-through function
- Pushable strain relief design, easy to crimp and install
- SELV and Class II design, suitable for use outside or inside of the luminaires
- 5.5-year guarantee

Functions

- Support central emergency application (100% output in DC input)
- Support self-contained emergency application
- Protective features (short-circuit, no-load, overload, over temperature protection)

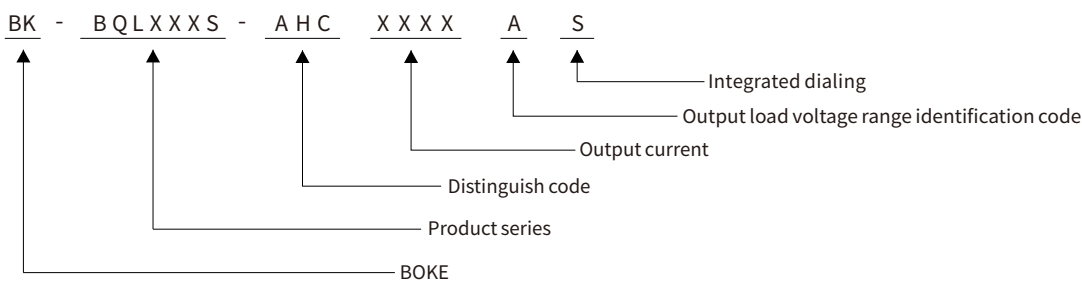
Suitable for lights

- Suitable for lights with independent drivers such as downlights, spotlights, panel lights, etc
- It is necessary to evaluate the chamber temperature of the light when it is used in the built-in

Typical applications

- LED educational lighting
- LED indoor lighting
- LED office lighting
- LED commercial lighting

Model coding rules of BQL(S) series



Model list

Model	Input voltage	Output power	Output voltage	Output current	Dimension
BK-BQL042S-AHC1050AS	200-240VAC/DC	42W MAX.	3-49VDC	0.3-1.05A	L97.5*W44*H23.4mm(Built-in) L137.5*W44*H23.4mm(Independent)

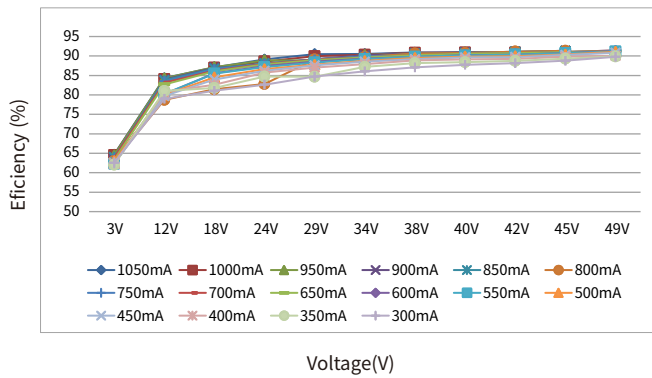
Technical data

Product model	BK-BQL042S-AHC1050AS
Output parameters	
Regulation method	Constant Current
Rated output current range	0.3-1.05A,see the DIP-switch for details
Rated output voltage range	3-49VDC,see the DIP-switch for details
Rated output power	42W Max,see the DIP-switch for details
Output current adjustment	DIP S.W(16 levels)
Output current ripple(typ.)	±5%(100Hz)
Output current accuracy	±5%
Linear regulation	±5%
Load regulation	±5%
No load output voltage	60VDC
Flicker-free(typ.)	Flickering percent(IEEE 1789)=0.424%(100Hz), Flicker index(IEEE 1789)=0.001(100Hz), Pst LM = 0.032, SVM = 0.011, (The above parameters are obtained from testing the panel lights)
Input parameters	
Rated input voltage range	200-240VAC 200-240VDC
Input voltage range	180-264VAC 180-264VDC
Input votage shock	<380V AC
Input current	<0.24A (Rated input voltage)
Input frequency	0/50/60Hz
Input PF/Input DF(typ.)	PF:0.97 ,DF:0.98 ,see the electrical values below for details
Input THD(typ.)	9% ,see the electrical values below for details
Efficiency(typ.)	91.5% ,see the electrical values below for details
In-rush current(typ.)	1.85A peak ,74us duration(50 % Ipeak), see the description below for details
Start/Switchover/Turn off	<0.5s(AC start),<0.5s(DC start),<0.3s(AC/DC switchover),<0.5s(Turn off)
Switching cycles	> 100,000 switching cycles
Power consumption(typ.)	Full load(Pin):45.9W, No load(Pno): <0.5W, On stand-by(Psb) : N/A , Network stand-by(Pnet) : N/A
Safety	
Withstand voltage	I/P-O/P:3750V AC
Mains surge capability	L-N:2KV (90°/270° , 5 times each with an interval of 60s)(Performance criterion:B)
Leakage current(typ.)	0.57mA
Isolation resistance	I/P-O/P:100MΩ/500Vdc/25°C/70% RH
Control interface	
DALI dimming port	N/A
pushDIM dimming port	N/A
1-10V 3in1 dimming port	N/A
Auxiliary power supply	N/A
Dimming range	N/A
Dimming drive mode	N/A
Emergency support	
Central emergency system	Supported(100% output in DC input)
Self-contained emergency	Supported
Environment & Life time	
Operating temperature	Ta=-20-45/50/60°C,see the operating temperature for details
Case temperature	Tc=85°C
Operating humidity	5-85% RH, non-condensing
Storage temp./humidity	-40-80°C, 5-85% RH, non-condensing
IP grade	IP20
MTBF	500,000H,MIL-HDBK-217F(25°C)
Life-time	Nominal life-time up to 100,000 h, see the description below for details
Vibration resistant	10~500Hz,5G 12min./1cycle,period for 72min. each along X,Y,Z axes
Acoustic Noise	<25dB(30cm, Normal operation)
Environmental protection	RoHS
Certifications and standards	
Compliance Certification	CE, ENEC, UKCA, RCM, CCC, EL
Safety	GB/T 19510.1,GB/T 19510.213, EN61347-1, EN61347-2-13, EN62384
EMC	GB/T 17743 , GB17625.1, EN55015, EN61000-3-2 , EN61000-3-3, EN61000-4-2,3,4,5,6,8,11, EN61547
DALI-2	N/A
EL	Compatible IEC 61347-2- 13 Annex J , compatible with EN 60598-2-22 and EN 50172
RF	N/A

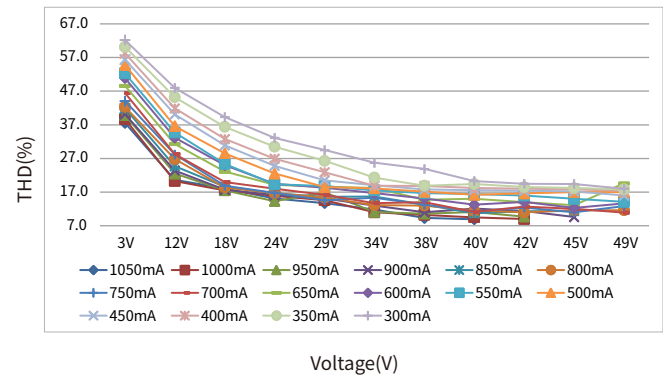
Electrical values

BK-BQL042S-AHC

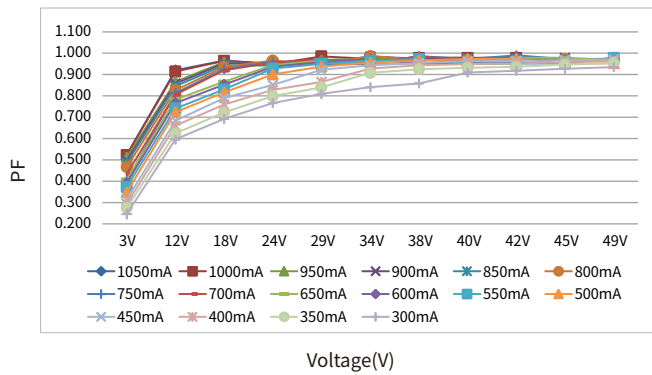
Efficiency vs voltage



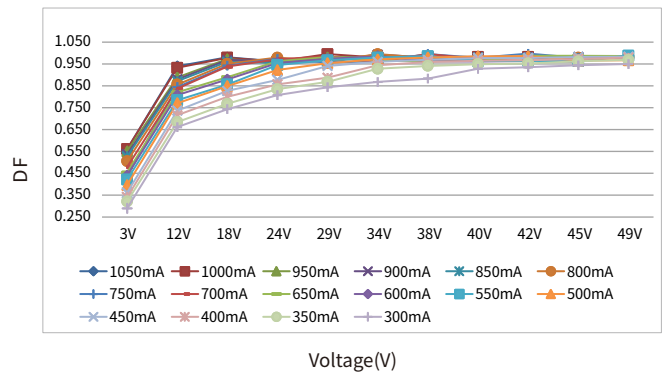
THD vs. voltage



Power factor vs. voltage

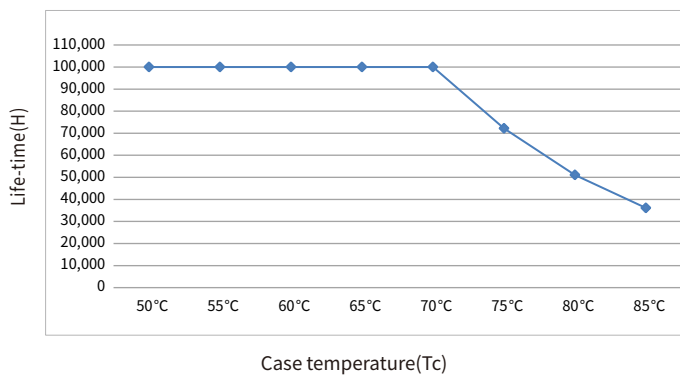


Displacement factor vs. voltage



Expected life-time

Life-time vs. case temperature

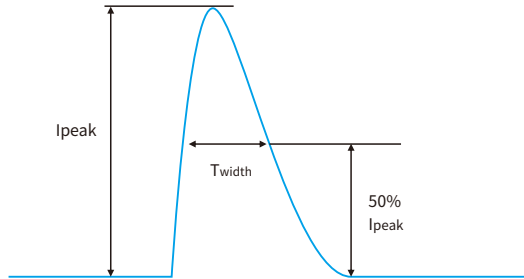


-The life-time of the LED driver is shown in the figure above (calculated based on the 90% survival rate).

- The relation of t_c to t_a temperature depends also on the luminaire design.

Surge

Model	Ipeak	Twidth	Condition	Relative number of MCB/pcs															
				B10	B13	B16	B20	B25	C10	C13	C16	C20	C25	D10	D13	D16	D20	D25	
BK-BQL042S-AHC	1.85A	74us	AC 230V,Full load, Cold start,Ta≤30°C, MCB is not installed side by side	39	51	62	78	97	39	51	62	78	97	39	51	62	78	97	



Remarks

- The number of drives mounted under different MCBs in the table is the maximum value. Please do not exceed this number during installation.
- Calculation uses typical values from ABB series S200 as a reference.
- Different brands and models of miniature circuit breakers, the number of drives mounted will be slightly different.
- If the ambient temperature of the MCB installation exceeds 30°C or multiple MCBs are installed side by side, the number of drives mounted will be reduced and the calculation needs to be recalculated.
- Electrician's usually consider Type B for household lighting and Type C for commercial lighting application.

Functions

Output short-circuit behaviour

- Output short-circuit will not damage the driver.
- After removing the short circuit fault, the driver will automatically resume output.

Output no-load operation

- Output no-load will not damage the driver.
- Please turn off the driver first if you need to connect the LED load.

Output overload protection

- The LED driver turns off the output if the output voltage range is exceeded.
- The output will be activated again after restart the LED driver .

Output over temperature

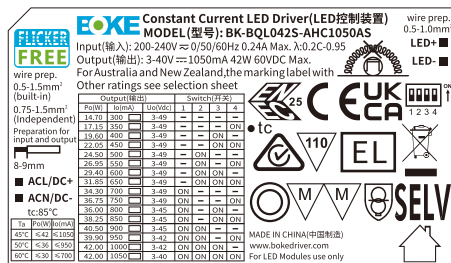
- When the operating temperature exceeds the set over temperature protection value of the internal circuit of the power supply, the power supply enters protection states such as output derating, output hiccup or output shutdown.
- After the external temperature is normal, restart and resume operation.

Insulation between circuits

Isolation	Input	Output	Case
Input	-	Double	Double
Output	Double	-	Basic
Case	Double	Basic	-

Label

BK-BQL042S-AHC1050AS



Operating temperature & output current

T _c	T _a	P _o (W)	I _o (mA)
85°C	45°C	≤42	≤1050
	50°C	≤36	≤950
	60°C	≤30	≤700

DIP-switch & output current

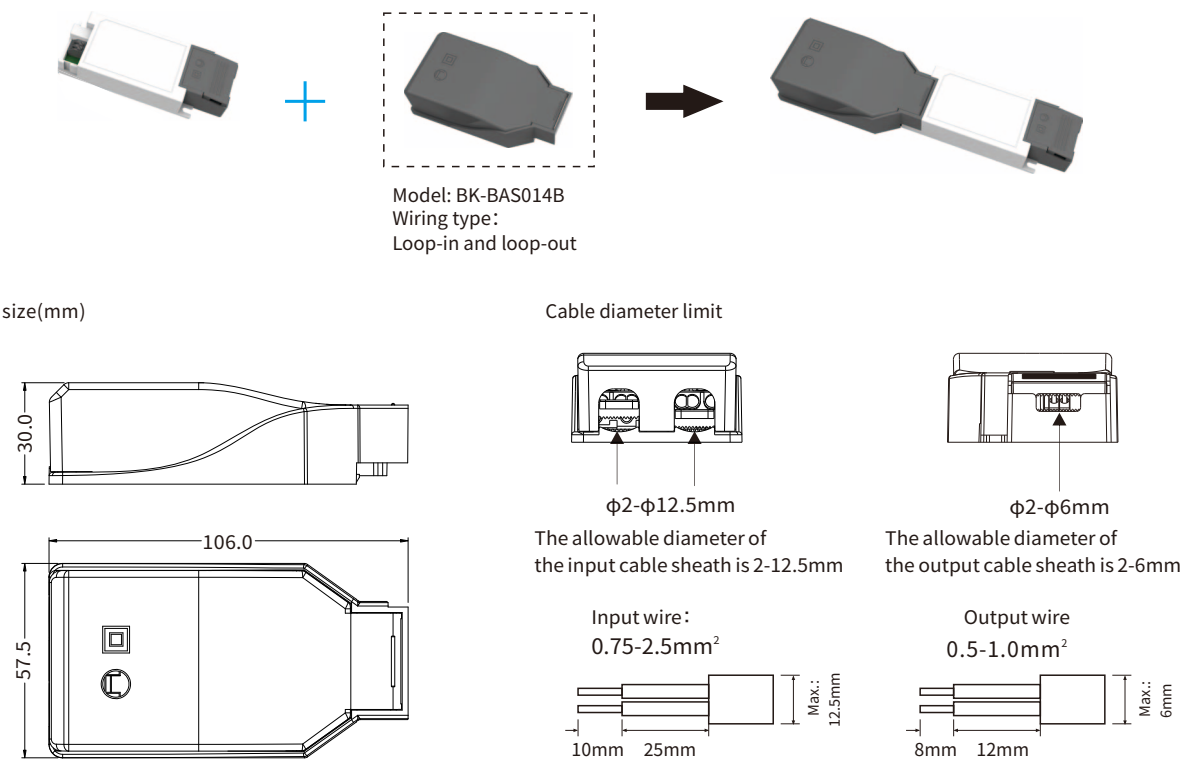
BK-BQL042S-AHC1050AS

Output			1	2	3	4
Prated(w)	I _{rated} (mA)	Voltage(Vdc)				
14.70	300	3-49	--	--	--	--
17.15	350	3-49	--	--	--	ON
19.60	400	3-49	--	--	ON	--
22.05	450	3-49	--	--	ON	ON
24.50	500	3-49	--	ON	--	--
26.95	550	3-49	--	ON	--	ON
29.40	600	3-49	--	ON	ON	--
31.85	650	3-49	--	ON	ON	ON
34.30	700	3-49	ON	--	--	--
36.75	750	3-49	ON	--	--	ON
36.00	800	3-45	ON	--	ON	--
38.25	850	3-45	ON	--	ON	ON
40.50	900	3-45	ON	ON	--	--
39.90	950	3-42	ON	ON	--	ON
42.00	1000	3-42	ON	ON	ON	--
42.00	1050 ★	3-40	ON	ON	ON	ON

Remarks:

- ★ It means that this item is the factory default current.
- It means that this channel is OFF.

Optional accessories (See the parts specification for details)

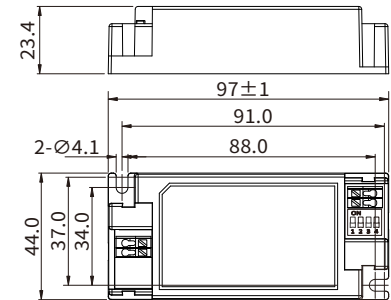


Mechanical Specification

Size

Unit:mm

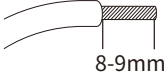
BK-BQL042S-AHC(built-in)



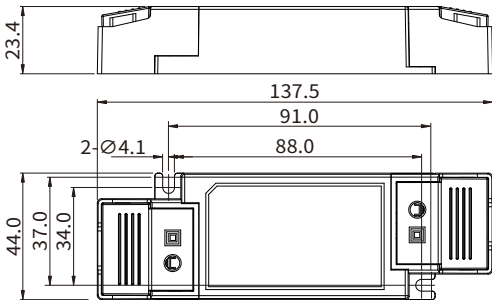
INPUT

numbering	function	colour
1	ACL/DC+	grey
2	ACN/DC-	grey

Input wire
0.5-1.5mm²(Built-in)
0.75-1.5mm²(Independent)



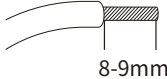
BK-BQL042S-AHC(independent)



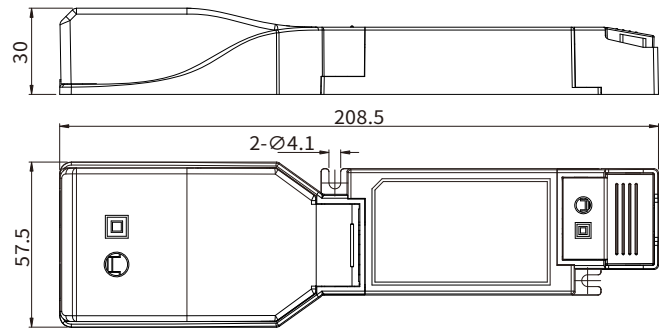
OUTPUT

numbering	function	colour
1	LED+	red
2	LED-	black

Output wire
0.5-1.0mm²



BK-BQL042S-AHC(optional accessory)



INPUT

Numbering	function	colour
1	ACN	white
	ACN	white
2	E	white
	E	white
3	ACL	white
	ACL	white

Input wire
0.75-2.5mm²



OUTPUT

Numbering	function	colour
1	LED+	red
2	LED-	black

Output wire
0.5-1.0mm²



Installation note

Hot plug-in

- Hot plug-in is not supported due to residual output voltage of > 0 V.

Installation requirements

- The driver should be installed in a dry, acid-free, oil-free, fat-free environment.
- The installation ambient temperature of the driver shall not exceed the value of Ta at any time.
- The temperature of the mounting surface of the driver should be lower than the temperature of Ta.
- The driver should keep a certain distance from the heating stuff (such as the lamp radiator).
- If the driver is used externally (it needs to be used with the power end cover), the installation of the driver should also meet the following conditions:
 - 1.The driver should be a certain distance between the drives, as shown in Figure 1.
 - 2.The driver keeps a certain distance from surrounding objects, as shown in Figure 2.

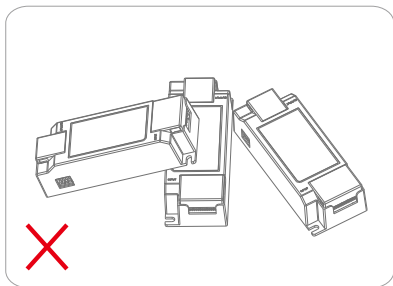


Figure 1

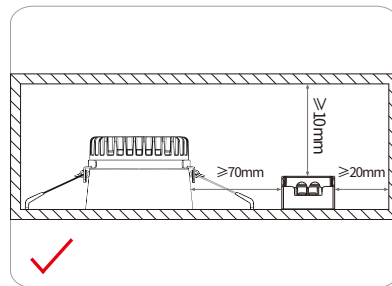
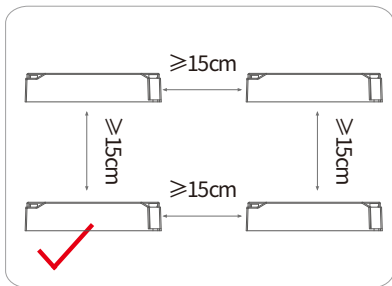
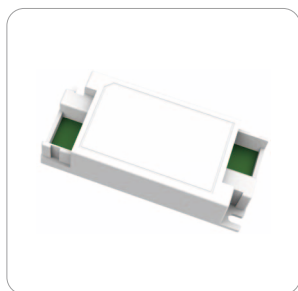


Figure 2

Packaging



Product

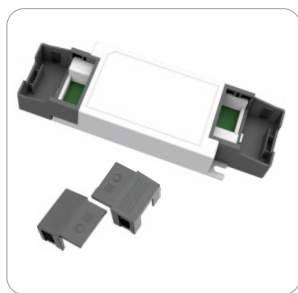


Packaging



20pcs×3boxes=60pcs/CTN

Model	Product size	Weight	Packaging size	Carton size	Qty/carton	N.W	G.W
BQL042S(bilt-in)	L97.5*W44*H23.4mm	132g	L210*W122*H94mm	L300*W230*H150mm	60pcs	7.92kg	8.95kg



Product

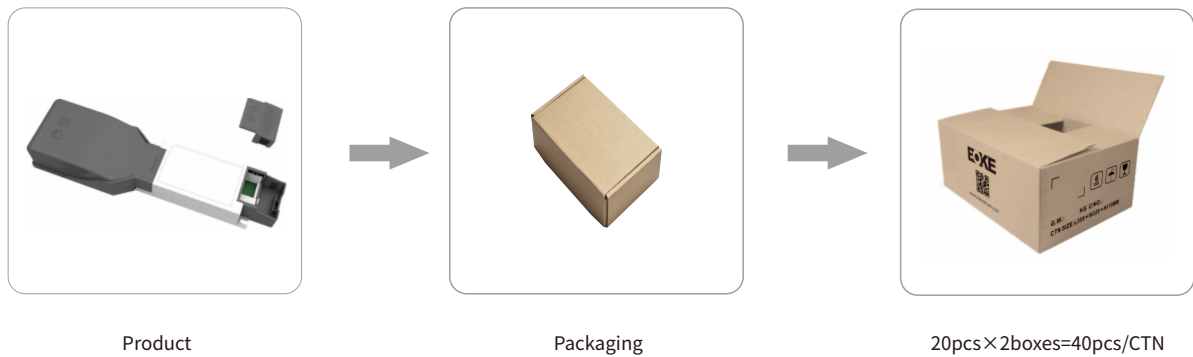


Packaging



20pcs×3boxes=60pcs/CTN

Model	Product size	Weight	Packaging size	Carton size	Qty/carton	N.W	G.W
BQL042S(independent)	L137.5*W44*H23.4mm	150g	L252*W142*H94mm	L300*W270*H170mm	60pcs	9.00kg	10.1kg



Model	Product size	Weight	Packaging size	Carton size	Qty/carton	N.W	G.W
BQL042S(independent)	L208.5*W57.5*H30mm	200g	L282*W213*H122mm	L300*W265*H230mm	40pcs	8.00kg	9.40kg

Additional information

- When the driver is used as an internal power supply for luminaires, re-evaluation of performance including temperature rise, conducted interference, radiated interference, surge immunity and electrostatic discharge (ESD) are required due to differences in luminaire structure and wiring. Ensure compliance with practical application requirements and stable & reliable operation of the driver.
- Unless otherwise specified, all specifications and parameters are measured under conditions of 230VAC input, 50Hz, full load and ambient temperature of 25°C.
- Product service life and MTBF values are for reference only and do not constitute a warranty statement.
- BOKE reserves the final right to interpret the above parameters. For further information, please send an email to info@bokedriver.com.
- The above information is subject to change without prior notice. Please ensure you use the latest version of the datasheet.