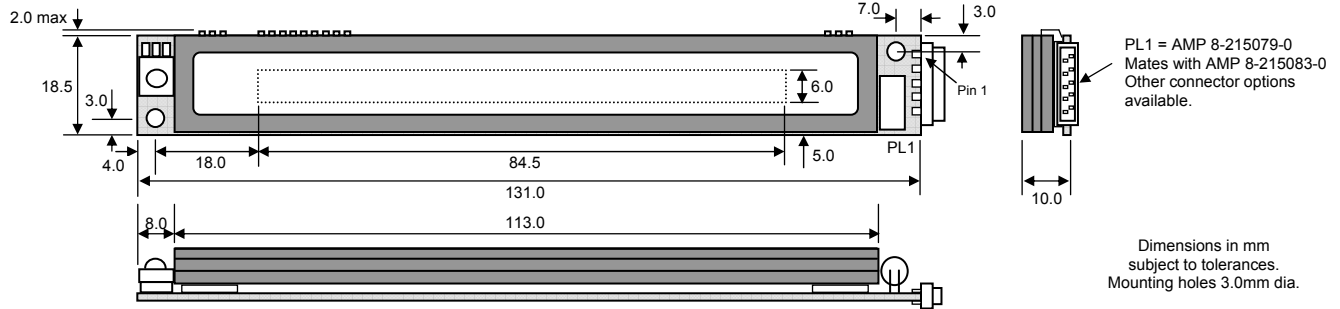


# Dot Graphic VFD Module

# GU128x8F-K660A7

- 128 x 8 High Brightness Dot Graphic Display
- Single 5V DC Supply
- 5x7 ASCII & European Font
- Asynchronous and SPI Serial Interfaces
- Transformerless Low Profile PSU
- Integrated IR Keyboard Receiver
- Terminal Mode with User Definable Edit Fields
- Multi-Address Daisy / Star Point Communication
- Semi-custom IR Codes, Character Fonts and Firmware

The module includes the VFD glass, VF drivers and microcontroller with refresh RAM, character generation, interface logic and patented transformerless DC/DC converter. The module features a unique low profile compact design. Key codes from the integrated IR receiver can be sent to the host. The module can operate in terminal mode where the host sends text with user editable fields. When editing is complete the user presses ENTER to transmit the display content to the host.



## ELECTRICAL SPECIFICATION

Parameter	Sym	Min	Typ	Max	Units	Condition
Supply Voltage	VDD	4.5	5.0	5.5	V	GND=0V
Supply Current	IDD	-	150	-	mA	VDD=5V(Disp on)
Supply Current	IDD	-	30	-	mA	VDD=5V(Disp off)
Logic High Input	VIH	3.0	-	VDD	V	VDD=5V
Logic Low Input	VIL	-0.5	-	1.5	V	VDD=5V
Logic High Output	VOH	4.2	-	-	V	VDD=5V
Logic Low Output	VOL	-	-	0.6	V	VDD=5V

## OPTICAL & ENVIRONMENTAL SPECIFICATION

Parameter	Value
Display Area (XxYmm)	84.5 x 6.0
Dot Size/Pitch (XxY mm)	0.5 x 0.6 / 0.66 x 0.77
Luminance	700 cd/m <sup>2</sup> Typical
Colour of Illumination	Blue-Green (505nm)
Operating Temperature	-40°C to +85°C
Storage Temperature	-40°C to +85°C
Operating Humidity	20 to 85% RH @ 25°C

Optical filters can provide violet, red, yellow, blue & green output.

### PL1 (Asynchronous interface)

Pin	Signal	Description
1	VDD	5V Supply
2	-	Do not used
3	RXD	Serial input
4	-	Do not used
5	0V	0V supply
6	-	Do not used
7	TXD	Serial output
8	RESET	Reset input
9	MB	Module busy
10	HB	Host busy

### PL1 (Synchronous interface)

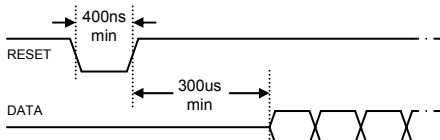
Pin	Signal	Description
1	VDD	5V Supply
2	SCK	Serial clock
3	/SS	Select
4	MOSI	Serial data in
5	0V	0V supply
6	MISO	Serial data out
7	-	Do not used
8	RESET	Reset input
9	MB	Module busy
10	HB	Host busy

## CHARACTER TABLE

	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
00																
10																
20		!	"	#	\$	%	&	'	(	)	*	+	,	-	.	/
30	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
40	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	
50	p	r	s	t	u	v	w	x	y	z	[	\	]	^	_	
60	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
70	p	r	s	t	u	v	w	x	y	z	{		}	~	*	
80	€	°	¶	¦	¸	¸	¸	¸	¸	¸	¸	¸	¸	¸	¸	¸
90	¸	¸	¸	¸	¸	¸	¸	¸	¸	¸	¸	¸	¸	¸	¸	¸
A0	"	!	0	3	¶	¶	¶	¶	¶	¶	¶	¶	¶	¶	¶	¶
B0	#	1	2	3	4	5	6	7	8	9	*	*	*	*	*	*
C0	À	Á	Â	Ã	Ä	Å	Æ	Ç	È	É	Ê	Ë	Ì	Í	Î	Ï
D0	Ð	Ñ	Ò	Ó	Ô	Õ	Ö	×	Ø	Ù	Ú	Û	Ü	Ý	Þ	
E0	à	á	â	ã	ä	å	æ	ç	è	é	ê	ë	ì	í	î	ï
F0	ð	ñ	ò	ó	ô	õ	ö	÷	ø	ù	ú	û	ü	ý	þ	ÿ

## RESET TIMING

The module is reset when a low-level signal is applied to the RESET line which is pulled high with a 10K resistor.



Detailed specification, software commands and interface timing are available on request. Subject to change without notice. IUK Doc. No. 45562 Iss.1 13 May 09

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