

## User's Guide

# C-33-1305

# VFD

(Vacuum Fluorescent Character Display Module)

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## Vacuum Fluorescent Display Specification

**PART NUMBER:** C-33-1305

**FEATURES:** 7 Digits, Alphanumeric, with Icons – AUDIO

**APPLICATION:** Character Display (*Alphanumeric*)

**RATINGS:** Below

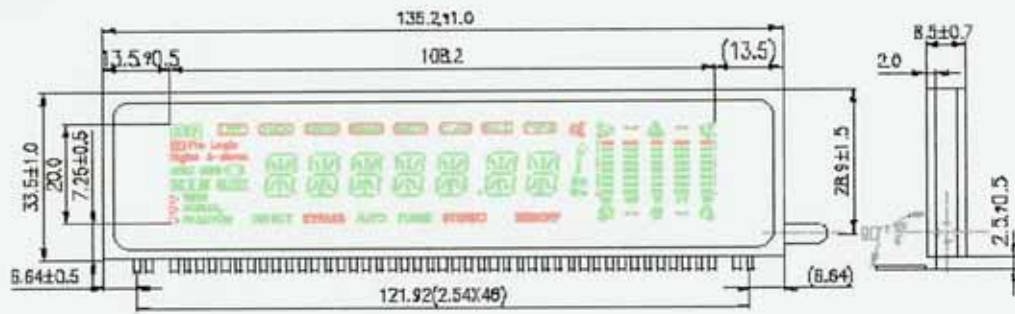
<b>Outer Dimensions</b>	Panel Length	P.L.	135.2	mm	
	Panel Height	P.H.	28.9	mm	
	Panel Thickness	P.T.	8.5	mm	
<b>Leads</b>	Lead Pitch	L.P.	2.5	mm	
	Lead Out	-	SIL		
<b>Character Size</b>	Character Height	C.H.	8.8	mm	
	Character Width	C.W.	5.5	mm	
<b>Item</b>	<b>Symbol</b>	<b>Min.</b>	<b>Recommended</b>	<b>Max.</b>	<b>Unit</b>
<b>Filament Voltage</b>	Ef	4.5	5.0	5.5	Vac
<b>Peak Grid Voltage</b>	ec	-	29.0	34.0	Vp-p
<b>Peak Anode Voltage</b>	eb	-	29.0	34.0	Vp-p
<b>Cut-off Bias</b>	Ek	-	-	-	-
<b>Duty Cycle</b>	Du	-	1/ 14	-	-
<b>Pulse Width</b>	tp	-	100	-	uS
<b>Operating Temperature</b>	Topr	-20	-	+ 70	C
<b>Storage Temperature</b>	Tstg	-55	-	+ 80	C
<b>Color of Illumination</b>	Green / Red				

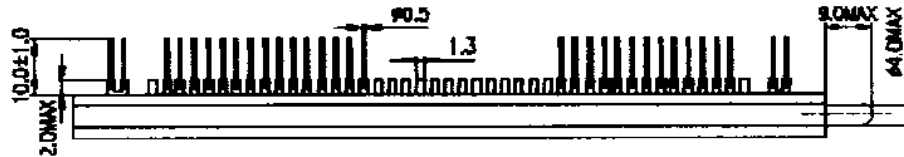
\* Life = 10,000hrs to half brightness

**Electrical Characteristics**

Item	Symbol	Test Condition	Min.	Typical	Max.	Unit
<b>Filament Current</b>	If -	Ef = 5.0 Vac eb = ec = 0	202.5 -	225.0 -	247.5 -	mAac -
<b>Anode Current</b>	ib/1,2,3,5,7G ib/6,8~12G ib/4G ib/13G -	Ef = 5.0 Vac eb = 29.0 Vp-p ec = 29.0 Vp-p Du = 1/14 tp = 100 uS	- - - - -	7.0 9.0 12.0 21.0 -	14.0 18.0 24.0 42.0 -	mAp-p mAp-p mAp-p mAp-p mAp-p
<b>Grid Current</b>	Ic/1,3,5G Ic/2,6~12G Ic/4G Ic/13G -		- - - - -	7.0 12.0 16.0 23.0 -	14.0 24.0 32.0 46.0 -	mAp-p mAp-p mAp-p mAp-p mAp-p
<b>Luminance</b>	L(G) L(R) -		350 (102) 35 (10) -	700 (204) 70 (20) -	- - - -	cd/m <sup>2</sup> (fL) cd/m <sup>2</sup> (fL) cd/m <sup>2</sup> (fL)
<b>Luminance Ratio</b>	Lmin/Lmax		50	-	-	%
<b>Grid Cut-off Voltage</b>	Ecco	Ef = 5.0 Vac Eb = 29.0 Vdc	-6.5	-	-	Vdc
<b>Anode Cut-off Voltage</b>	Ebco	Ef = 5.0 Vac Ec = 29.0 Vp-p Du = 1/14 tp = 100 uS	-6.5	-	-	Vdc

**Drive Mode: Dynamic state**

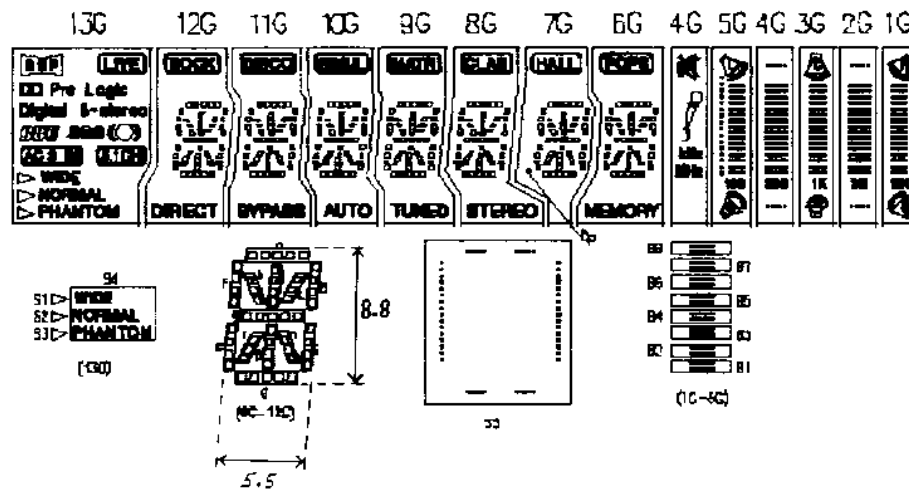




**PINOUT CONNECTIONS**

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Conn.	F	F	NP	NC	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15
Pin No.	20-32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	
Conn.	NC	13G	12G	11G	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G	NC	NP	F	F	

F: Filament    G: Grid    P: Anode    NC: No Connect    NP: No Pin



	13G	12G	11G	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G
P1		a	a	a	a	a	a	a	B8	B8	B8	B8	B8
P2		h	h	h	h	h	h	h	B7	B7	B7	B7	B7
P3	Pre Light	i	i	i	i	i	i	i	B6	B6	B6	B6	B6
P4	Digital	k	k	k	k	k	k	k	B5	B5	B5	B5	B5
P5		f	f	f	f	f	f	f	B4	B4	B4	B4	B4
P6		b	b	b	b	b	b	b	B3	B3	B3	B3	B3
P7		g	g	g	g	g	g	g	B2	B2	B2	B2	B2
P8		e	e	e	e	e	e	e	B1	B1	B1	B1	B1
P9		c	c	c	c	c	c	c					
P10	S3	r	r	r	r	r	r	r	S5	S5	/	S5	S5
P11	S2	p	p	p	p	p	p	p				/	
P12	S1	n	n	n	n	n	n	n				/	
P13	S4	d	d	d	d	d	d	d	/	/	/	/	/
P14	/	DIRECT	SYSTEM	AUTO	TUNED	STEREO	Dp	MEMORY	/	/	/	/	/
P15										/	/	/	/