

## User's Guide

# C-20-1301

# VFD

(Vacuum Fluorescent Character Display Module)

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# Vacuum Fluorescent Display Specification

**PART NUMBER:** C-20-1301

**FEATURES:** 10 Digits, Custom Alphanumeric, with Icons – DVD

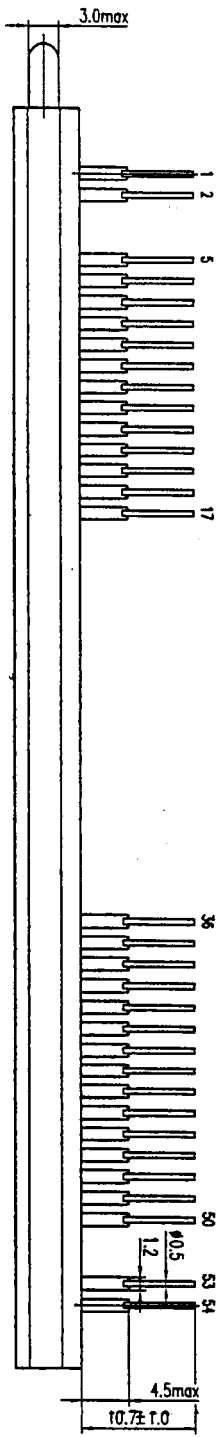
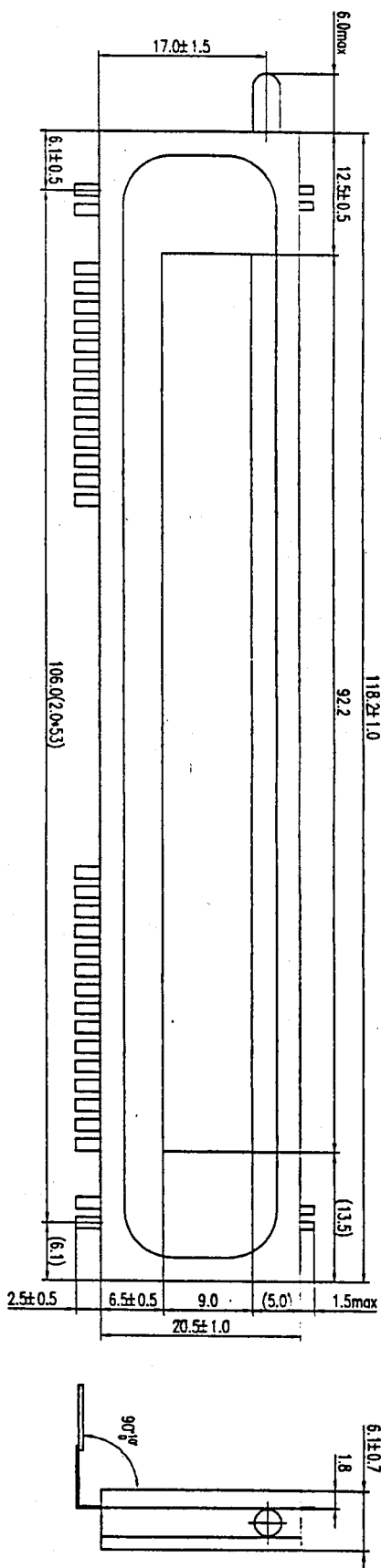
**APPLICATION:** Character Display (Custom Alpha)

**RATINGS:** Below

<b>Outer Dimensions</b>	Panel Length	P.L.	118.2	mm	
	Panel Height	P.H.	20.5	mm	
	Panel Thickness	P.T.	6.1	mm	
<b>Leads</b>	Lead Pitch	L.P.	2.0	Mm	
	Lead Out	-	SIL		
<b>Character Size</b>	Character Height	C.H.	7.0	mm	
	Character Width	C.W.	3.7	mm	
<b>Item</b>	<b>Symbol</b>	<b>Min.</b>	<b>Recommended</b>	<b>Max.</b>	<b>Unit</b>
<b>Filament Voltage</b>	Ef	3.08	4.2	4.62	Vac
<b>Peak Grid Voltage</b>	Ec	-	31.0	37.0	Vp-p
<b>Peak Anode Voltage</b>	Eb	-	31.0	37.0	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				

## Electrical Characteristics

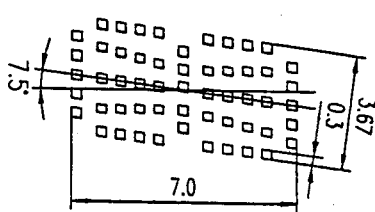
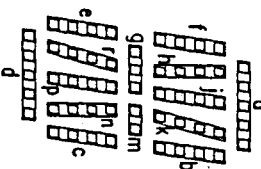
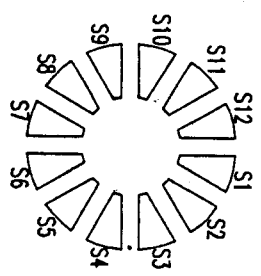
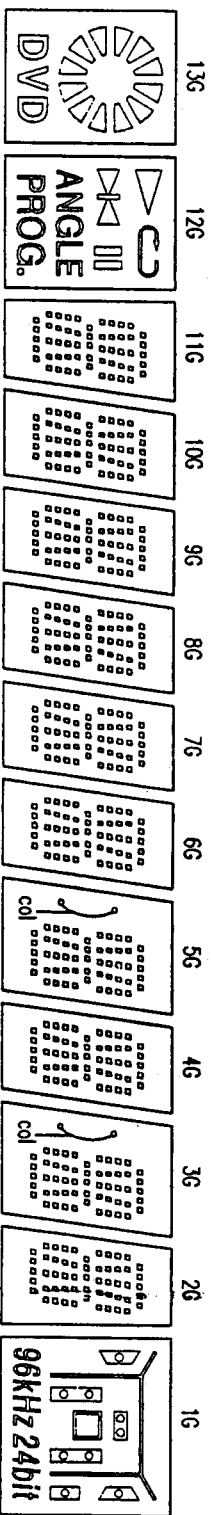
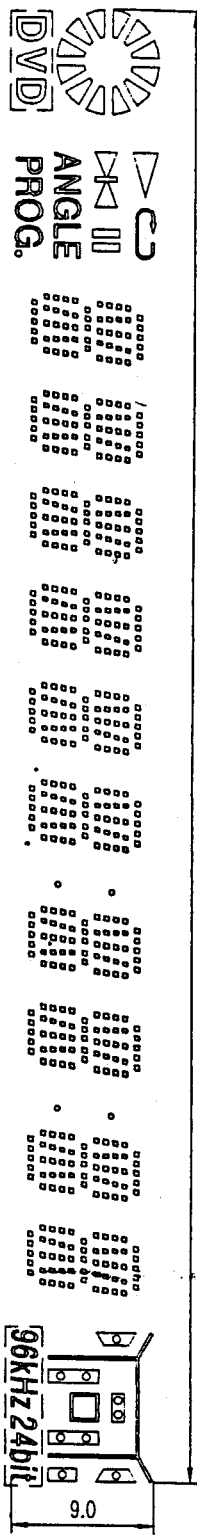
Item	Symbol	Test Condition	Min.	Typical	Max.	Unit
<b>Filament Current</b>	If -	Ef = 4.2 Vac eb = ec = 0	90.0 -	100.0 -	110.0 -	mAac -
<b>Anode Current</b>	ib/1G ib/2~11G ib/12,13G - -	Ef = 4.2 Vac eb = 31.0 Vp-p ec = 31.0 Vp-p Du = 1/14 tp = 100 uS	- - - - -	13.0 5.0 9.0 - -	26.0 10.0 18.0 - -	mAp-p mAp-p mAp-p mAp-p mAp-p
<b>Grid Current</b>	ic/1G ic/2~11G ic/12,13G - -		- - - - -	13.0 6.0 9.0 - -	26.0 12.0 18.0 - -	mAp-p mAp-p mAp-p mAp-p mAp-p
<b>Luminance</b>	L(G) L(R)		500 (146) 55 (16)	1000 (292) 110 (32)	-	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 = 4.2 Vac Eb = 31.0 Vdc	-3.5	-	-	Vdc
<b>Anode Cut-off Voltage</b>	Ebco	Ef = 4.2 Vac ec = 31.0 Vp-p Du = 1/14 tp = 100 uS	-3.5	-	-	Vdc



Pinout Connections

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	
Connect	F	F	NP	NP	G13	G12	G11	G10	G9	G8	G7	G6	G5	G4	G3	G2	G1	NP	NP	NP	NP	NP	NP	NP	NP	NP	F	F
Pin No.	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	
Connect	NP	NP	NP	NP	NP	NP	NP	NP	P15	P14	P13	P12	P11	P10	P9	P8	P7	P6	P5	P4	P3	P2	P1	NP	NP	F	F	

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



	13G	12G	11G	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G
P1	S12		d	d	d	d	d	d	d	d	d	d	
P2	S1		h	h	h	h	h	h	h	h	h	h	
P3	S2		j	j	j	j	j	j	j	j	j	j	 
P4	S3		k	k	k	k	k	k	k	k	k	k	
P5	S4		b	b	b	b	b	b	b	b	b	b	
P6	S5		f	f	f	f	f	f	f	f	f	f	 
P7	S6		m	m	m	m	m	m	m	m	m	m	
P8	S7	ANGLE	g	g	g	g	g	g	g	g	g	g	
P9	S8		c	c	c	c	c	c	c	c	c	c	24bit
P10	S9		e	e	e	e	e	e	e	e	e	e	96KHz
P11	S10		r	r	r	r	r	r	r	r	r	r	
P12	S11		p	p	p	p	p	p	p	p	p	p	
P13	DVD		n	n	n	n	n	n	n	n	n	n	
P14		PROG.	d	d	d	d	d	d	d	d	d	d	
P15									col		col		