NEWHAVEN DISPLAY INTERNATIONAL

User's Guide

C-20-1301

VFD

(Vacuum Fluorescent Character Display Module)

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October 31, 2006

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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)

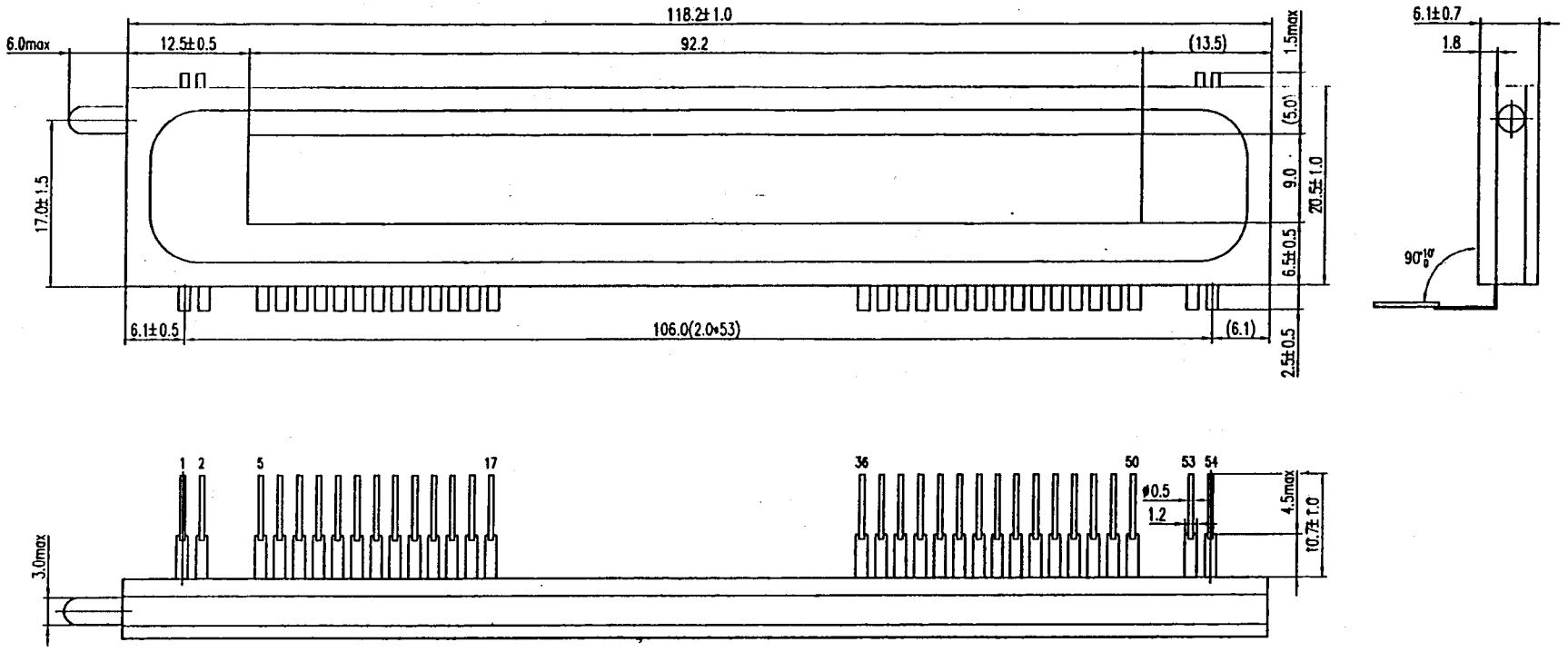
RATINGS: Below

Outer Dimensions	Panel Length	P.L.	118.2	mm
	Panel Height	P.H.	20.5	mm
	Panel Thickness	P.T.	6.1	mm
Leads	Lead Pitch	L.P.	2.0	Mm
	Lead Out	-	SIL	
Character Size	Character Height	C.H.	7.0	mm
	Character Width	C.W.	3.7	mm

Item	Symbol	Min.	Recommended	Max.	Unit
Filament Voltage	Ef	3.08	4.2	4.62	Vac
Peak Grid Voltage	Ec	-	31.0	37.0	Vp-p
Peak Anode Voltage	Eb	-	31.0	37.0	Vp-p
Cut-off Bias	Ek	-	-	-	-
Duty Cycle	Du	-	1/14	-	-
Pulse Width	Tp	-	100	-	uS
Operating Temperature	Topr	-20	-	+ 70	C
Storage Temperature	Tstg	-55	-	+ 80	C
Color of Illumination	Green / Red				

Electrical Characteristics

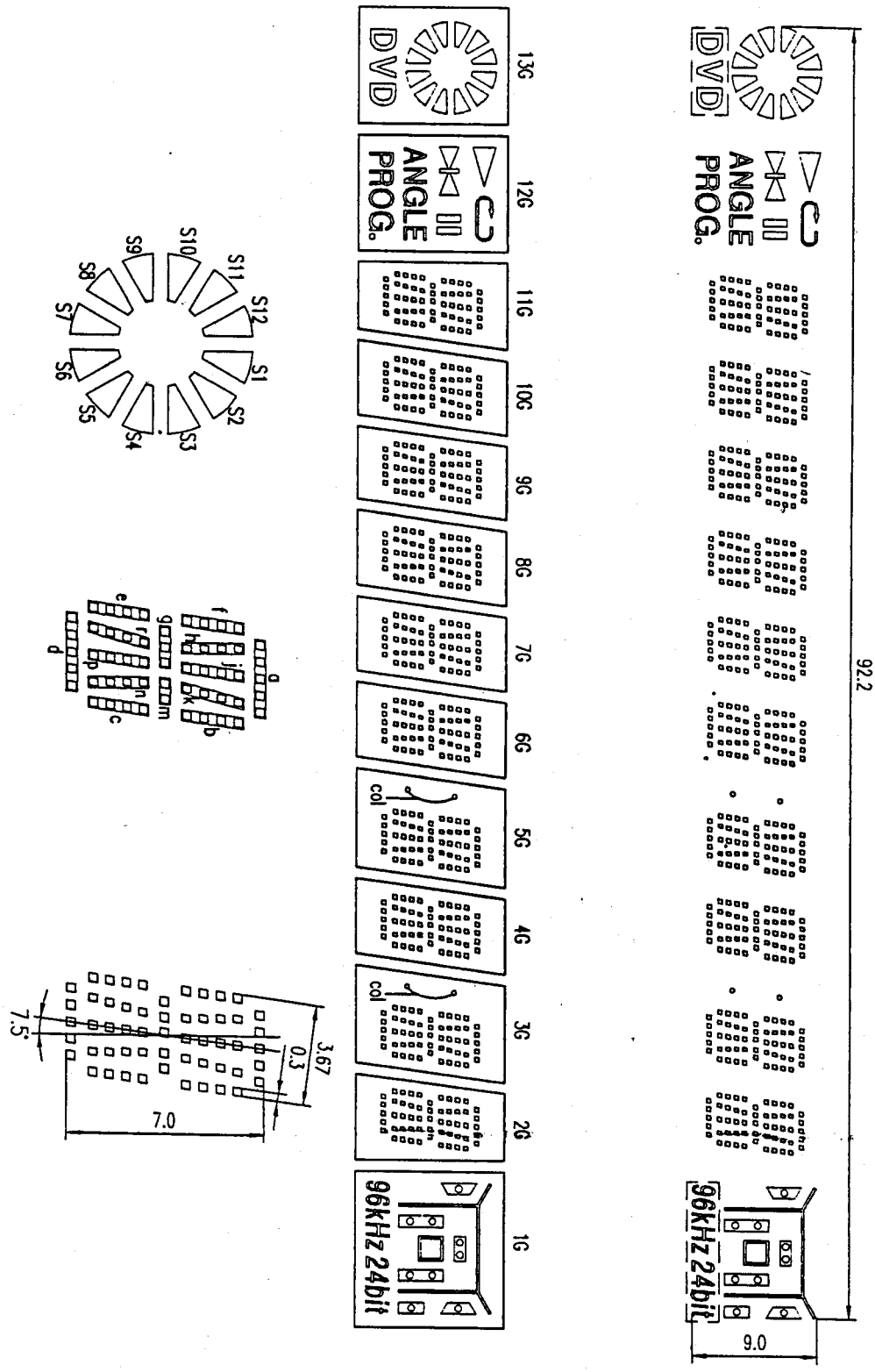
Item	Symbol	Test Condition	Min.	Typical	Max.	Unit
Filament Current	If	Ef = 4.2 Vac	90.0	100.0	110.0	mAac
	-	eb = ec = 0	-	-	-	-
Anode Current	ib/1G	Ef = 4.2 Vac	-	13.0	26.0	mAp-p
	ib/2~11G	eb = 31.0 Vp-p	-	5.0	10.0	mAp-p
	ib/12,13G	ec = 31.0 Vp-p	-	9.0	18.0	mAp-p
	-	Du = 1/14	-	-	-	mAp-p
	-	tp = 100 uS	-	-	-	mAp-p
Grid Current	ic/1G		-	13.0	26.0	mAp-p
	ic/2~11G		-	6.0	12.0	mAp-p
	ic/12,13G		-	9.0	18.0	mAp-p
	-		-	-	-	mAp-p
	-		-	-	-	mAp-p
Luminance	L(G)		500 (146)	1000 (292)	-	cd/m^2 (fL)
	L(R)		55 (16)	110 (32)		cd/m^2 (fL)
						cd/m^2 (fL)
Luminance Ratio	Lmin/Lmax		50	-	-	%
Grid Cut-off Voltage	Ecco	Ef = 4.2 Vac Eb = 31.0 Vdc	-3.5	-	-	Vdc
Anode Cut-off Voltage	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	NP
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
DVD
CD
ANGLE
PROG.
96kHz 24bit
92.2
9.0
S1
S2
S3
S4
S5
S6
S7
S8
S9
S10
S11
S12
3.67
0.3
7.0
7.5

	13G	12G	11G	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G
P1	S12	▷	a	a	a	a	a	a	a	a	a	a	⊓
P2	S1	⊂⊃	h	h	h	h	h	h	h	h	h	h	▯
P3	S2	⋈	j	j	j	j	j	j	j	j	j	j	▯ (左)
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	▯ (右)
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		