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## User's Guide

# **C-20-0503F**

# **VFD**

(Vacuum Fluorescent Character Display Module)

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# Vacuum Fluorescent Display Specification

**PART NUMBER:** C20-0503F

**FEATURES:** 7 Digits, 7-Seg, with fixed segments – Audio

**APPLICATION:** DVD

**RATINGS:** Below

<b>Outer Dimensions</b>	Panel Length	P.L.	75.0	mm	
	Panel Height	P.H.	20.5	mm	
	Panel Thickness	P.T.	6.5	mm	
<b>Leads</b>	Lead Pitch	L.P.	2.0	mm	
	Lead Out	-	SIL		
<b>Character Size</b>	Character Height	C.H.	5.8	mm	
	Character Width	C.W.	2.9	mm	
<b>Item</b>	<b>Symbol</b>	<b>Min.</b>	<b>Recommended</b>	<b>Max.</b>	<b>Unit</b>
<b>Filament Voltage</b>	Ef	2.34	2.60	2.86	Vac
<b>Peak Grid Voltage</b>	ec	-	21.0	25.0	Vp-p
<b>Peak Anode Voltage</b>	eb	-	21.0	25.0	Vp-p
<b>Cut-off Bias</b>	Ek	-	-	-	-
<b>Duty Cycle</b>	Du	-	1/6	-	-
<b>Pulse Width</b>	tp	-	100	-	uS
<b>Operating Temperature</b>	Topr	-40	-	+ 80	C
<b>Storage Temperature</b>	Tstg	-55	-	+ 85	C
<b>Color of Illumination</b>	Green, Red, Yellow				

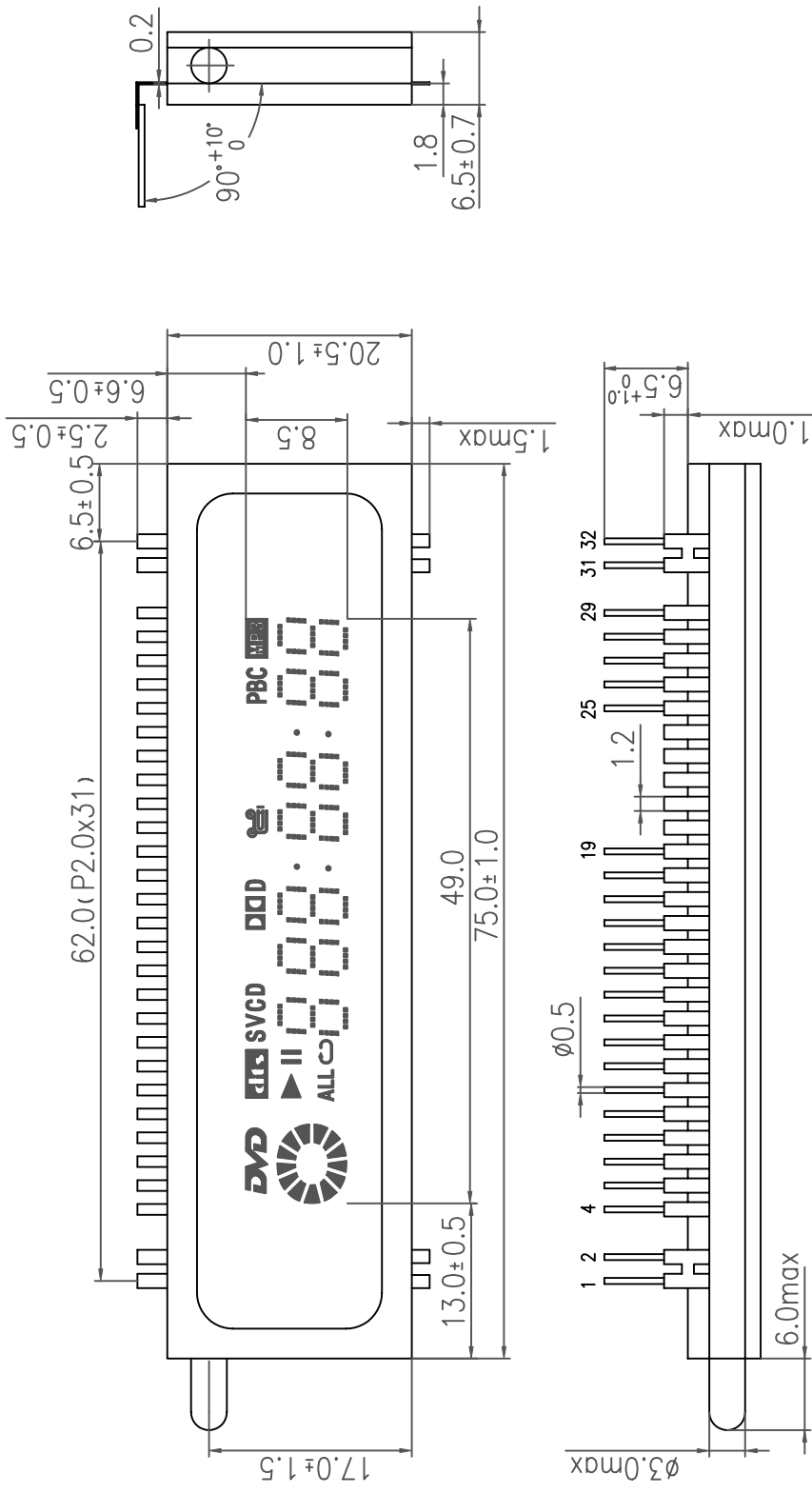
**Electrical Characteristics**

Item	Symbol	Test Condition	Min.	Typical	Max.	Unit
<b>Filament Current</b>	If -	Ef = 2.6 Vac eb = ec = 0	100.8 -	112.0 -	123.2 -	mAac -
<b>Anode Current</b>	ib/1G, 3G, 4G ib/2G, 5G - - -	Ef = 2.6 Vac eb = 21.0 Vp-p ec = 21.0 Vp-p Du = 1/6 tp = 100 uS	- - - - -	4.5 5.0 - - -	9.0 10.0 - - -	mA <sub>p-p</sub> mA <sub>p-p</sub> mA <sub>p-p</sub> mA <sub>p-p</sub> mA <sub>p-p</sub>
<b>Grid Current</b>	ic/1G, 5G ic/2G, 3G, 4G - - -		- - - - -	4.5 5.0 - - -	9.0 11.0 - - -	mA <sub>p-p</sub> mA <sub>p-p</sub> mA <sub>p-p</sub> mA <sub>p-p</sub> mA <sub>p-p</sub>
<b>Luminance</b>	L(G) L(R) L(Y)		350 (102) 35 (10) 60 (17)	700 (204) 70 (20) 120 (34)	- - - -	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 = 2.6 Vac Eb = 21.0 Vdc	-4.0	-	-	Vdc
<b>Anode Cut-off Voltage</b>	Ebco	Ef = 2.6 Vac ec = 21.0 Vp-p Du = 1/6 tp = 100 uS	-4.0	-	-	Vdc

**Drive Mode: Dynamic state**

附图 1：外形图

Type NO.: VFD20-0503F

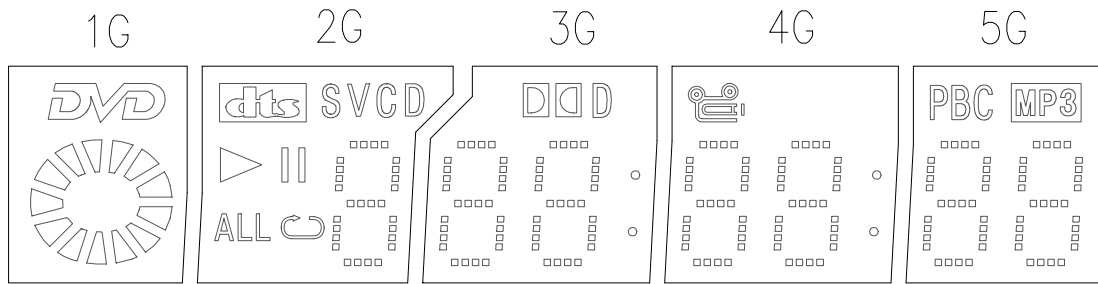


管脚连接

端子序号	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
连接	F	F	NP	P16	P15	P14	P13	P12	P11	P10	P9	P8	P7	P6	P5	P4
端子序号	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
连接	P3	P2	P1	NC	NC	NC	NC	NC	1G	2G	3G	4G	5G	NP	F	F

注： F：灯丝 NC：空脚 G：栅极 P：阳极 NP：无引出脚

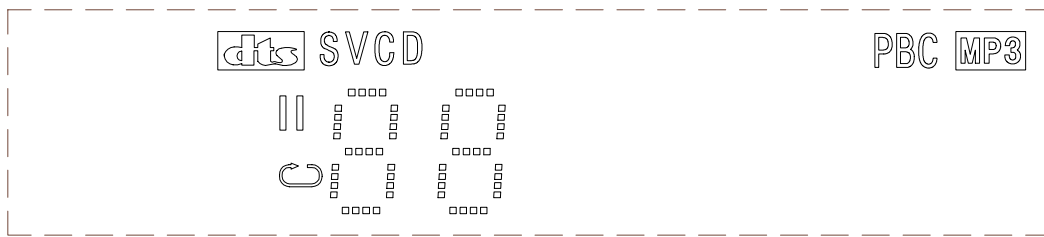
附图2: 显示内容 (Display Pattern)  
栅极分割 (Grid Assignment)



显示颜色 (color of illumination):

红色 (Red):

(x=0.627,y=0.371)



黄色 (Yellow):

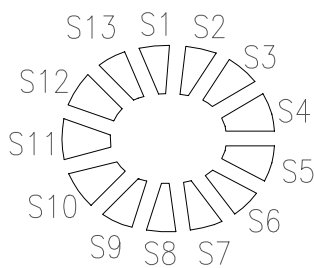
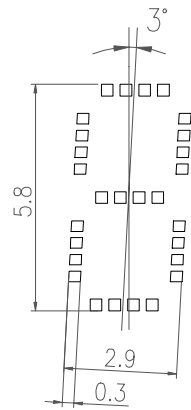


(x=0.463,y=0.520)

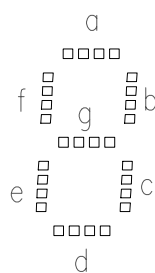
绿色 (Green): 其余 (Others)

(x=0.250,y=0.440)

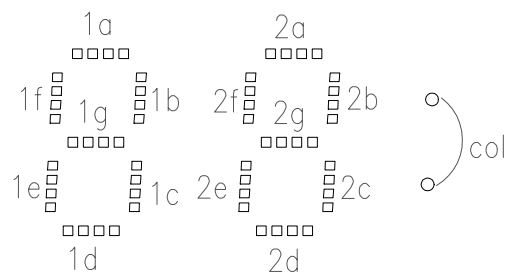
阴体字 (Negative Patterns):



1G



2G



3~5G

附图 4: 阳极连接 (Anode Connection)

	1G	2G	3G	4G	5G
P1					PBC
P2	S1	S	1a	1a	
P3	S2	V	1b	1b	1a
P4	S3	CD	1f	1f	1b
P5	S4		1g	1g	1f
P6	S5	II	1c	1c	1g
P7	S6	ALL	1e	1e	1c
P8	S7		1d	1d	1e
P9	S8	—	col	col	1d
P10	S9	a	2a	2a	2a
P11	S10	b	2b	2b	2b
P12	S11	f	2f	2f	2f
P13	S12	g	2g	2g	2g
P14	S13	c	2c	2c	2c
P15	—	e	2e	2e	2e
P16	—	d	2d	2d	2d