



# User's Guide

## D0120SD-20-2004F

# VFD- **RoHS Compliant**

(Vacuum Fluorescent Display Module)

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For product support, contact

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# Vacuum Fluorescent Display Specification

**PART NUMBER:** **D0120SD-20-2004F**

**FEATURES:** 1 Row x 20 Digits, 5x7 Dot Matrix

**APPLICATION:** Character Display (*DotMatrix*)

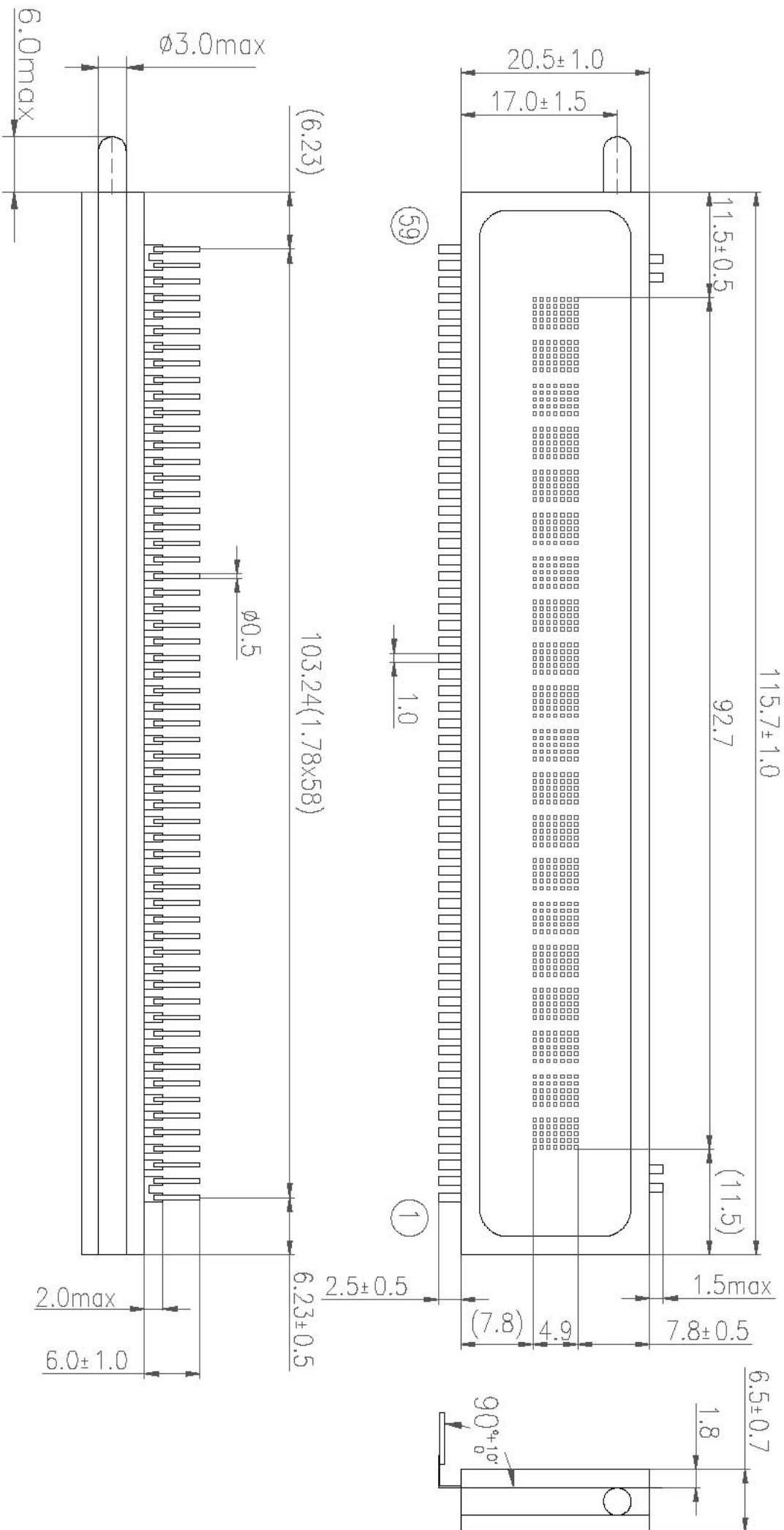
**RATINGS:** Below

<b>Outer Dimensions</b>	Panel Length	P.L.	115.7	mm	
	Panel Height	P.H.	20.5	mm	
	Panel Thickness	P.T.	6.5	mm	
<b>Leads</b>	Lead Pitch	L.P.	1.78	mm	
	Lead Out	-	SIL		
<b>Character Size</b>	Character Height	C.H.	4.9	mm	
	Character Width	C.W.	3.4	mm	
<b>Item</b>	<b>Symbol</b>	<b>Min.</b>	<b>Recommended</b>	<b>Max.</b>	<b>Unit</b>
<b>Filament Voltage</b>	Ef	4.1	4.5	5.0	Vac
<b>Peak Grid Voltage</b>	ec	-	36.0	40.0	Vp-p
<b>Peak Anode Voltage</b>	eb	-	36.0	40.0	Vp-p
-	-	-	-	-	-
<b>Duty Cycle</b>	Du	-	1/23	-	-
<b>Pulse Width</b>	tp	-	100	-	uS
<b>Operating Temperature</b>	Topr	-40	-	+ 85	C
<b>Storage Temperature</b>	Tstg	-55	-	+ 85	C
<b>Color of Illumination</b>	Green				

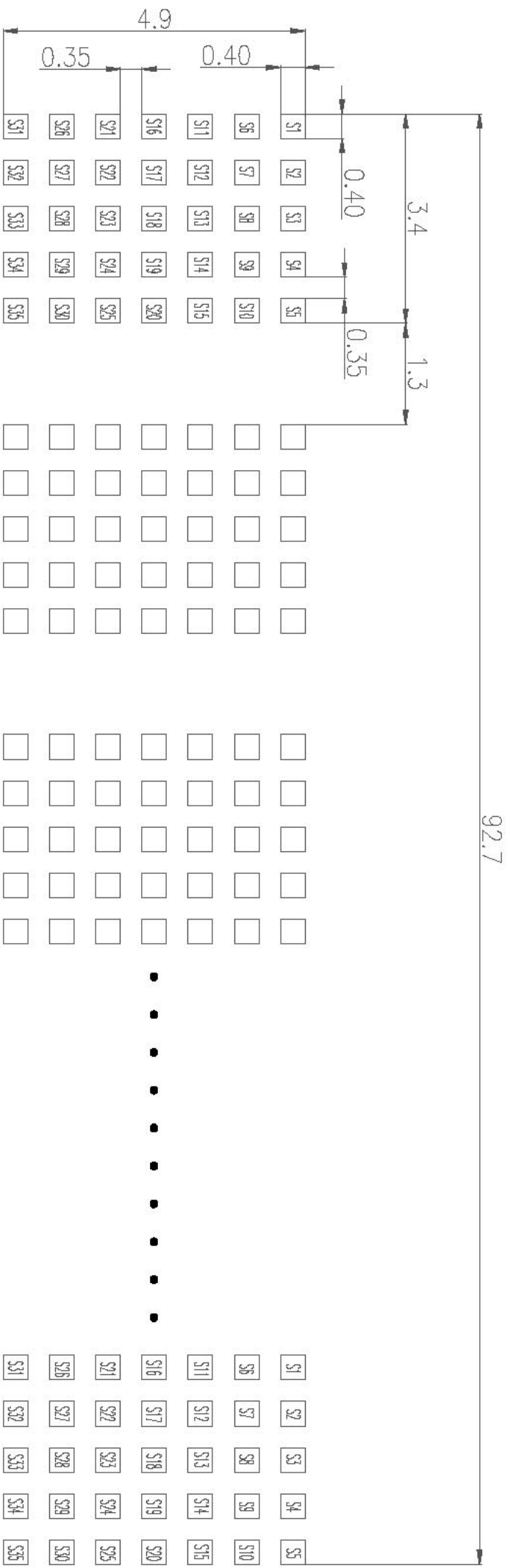
**Electrical  
Characteristics**

Item	Symbol	Test Condition	Min.	Typical	Max.	Unit
Filament Current	if	Ef = 4.5 Vac	74.0	82.0	90.0	mAac
	-	eb = ec = 0	-	-	-	-
Anode Current	ib/1G~20G	Ef = 4.5 Vac eb = 36.0 Vp-p ec = 36.0 Vp-p Du = 1/23 tp = 100 uS	-	3.5	7.0	mAp-p
	-		-	-	-	mAp-p
	-		-	-	-	mAp-p
	-		-	-	-	mAp-p
	-		-	-	-	mAp-p
Grid Current	ic/1G~20G		-	3.5	7.0	mAp-p
	-		-	-	-	mAp-p
	-		-	-	-	mAp-p
	-		-	-	-	mAp-p
	-		-	-	-	mAp-p
Luminance	L(G)		350	700	-	cd/m <sup>2</sup>
	-		(102)	(204)		fL
Luminance Ratio	Lmin/Lmax		50	-	-	%
Grid Cut-off Voltage	Ecco	Ef = 4.5 Vac Eb = 36.0 Vdc	-5.0	-	-	Vdc
Anode Cut-off Voltage	Ebco	Ef = 4.5 Vac ec = 36.0 Vp-p Du = 1/23 tp = 100 uS	-5.0	-	-	Vdc

**Drive mode: Dynamic  
State**

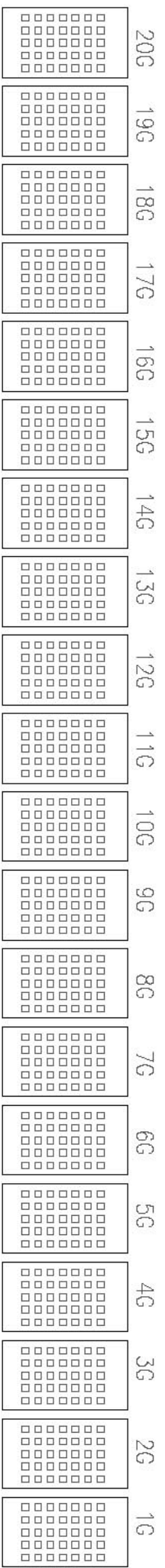


2: Display Pattern



Green: All (X=0.250, Y=0.440)

3: Anode Connection & Grid Assignment



PIN CONNECTIONS

<i>Pin Number</i>	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	28
<i>Connection</i>	F	F	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13	S14	S15	S16	S17	S18	S19	S20	S21	S22	S23	S24	S25	S26
<i>Pin Number</i>	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	55	56
<i>Connection</i>	S27	S28	S29	S30	S31	S32	S33	S34	S35	1G	2G	3G	4G	5G	6G	7G	8G	9G	10G	11G	12G	13G	14G	15G	16G	17G	18G	19G
<i>Pin Number</i>	57	58	59																									
<i>Connection</i>	20G	F	F																									

NOTE: F: Filament G: Grid NP: No Pin NC: No Connection