



LIGITEK

LIGITEK ELECTRONICS CO.,LTD.
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DOT MATRIX DIGIT LED DISPLAY (1.9Inch)



Lead-Free Parts

LMD8811/2CEGR-XX-PF

DATA SHEET

DOC. NO : QW0905-LMD8811/2CEGR-XX-PF

REV. : A

DATE : 10 - Sep. - 2006



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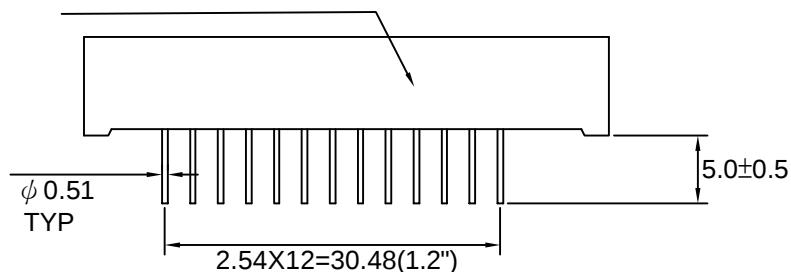
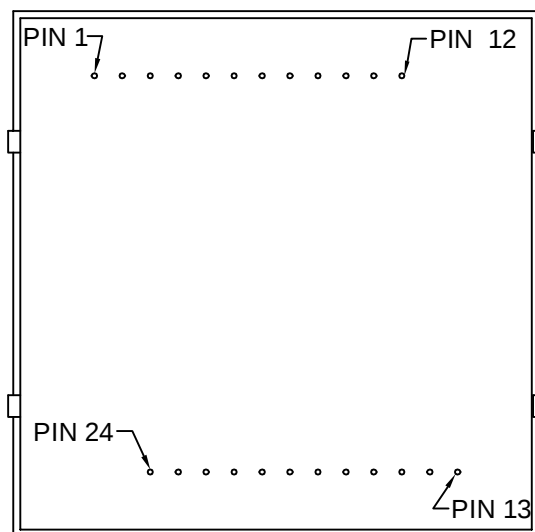
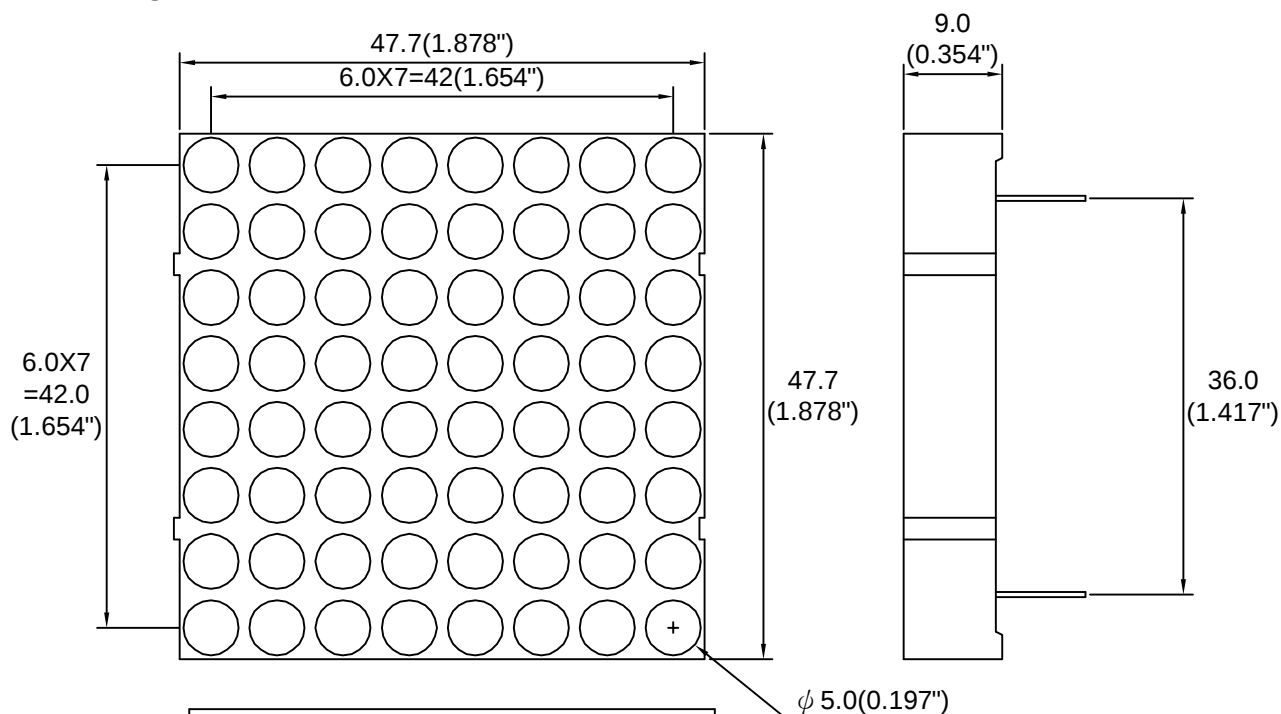
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PART NO. LMD8811/2CEGR-XX-PF

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Package Dimensions



Note : 1.All dimension are in millimeters and (Inch) tolerance is $\pm 0.25\text{mm}$ unless otherwise noted.
2.Specifications are subject to change without notice.



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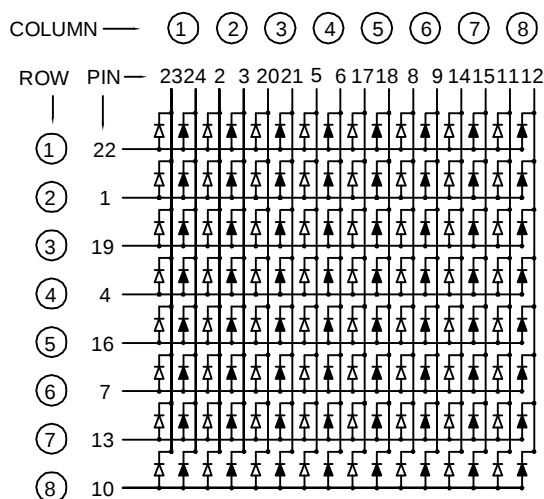
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PART NO. LMD8811/2CEGR-XX-PF

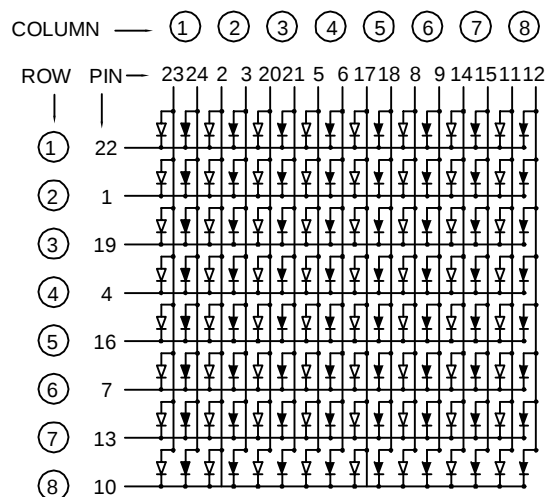
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Internal Circuit Diagram

LMD8811CEGR-XX-PF



LMD8812CEGR-XX-PF



 GREEN  RED



Electrical Connection

PIN NO.	LMD8811CEGR-XX-PF	PIN NO.	LMD8811CEGR-XX-PF
1	Anode Row 2	13	Anode Row 7
2	Cathode Column 2 (Green)	14	Cathode Column 7 (Green)
3	Cathode Column 2 (Red)	15	Cathode Column 7 (Red)
4	Anode Row 4	16	Anode Row 5
5	Cathode Column 4 (Green)	17	Cathode Column 5 (Green)
6	Cathode Column 4 (Red)	18	Cathode Column 5 (Red)
7	Anode Row 6	19	Anode Row 3
8	Cathode Column 6 (Green)	20	Cathode Column 3 (Green)
9	Cathode Column 6 (Red)	21	Cathode Column 3 (Red)
10	Anode Row 8	22	Anode Row 1
11	Cathode Column 8 (Green)	23	Cathode Column 1 (Green)
12	Cathode Column 8 (Red)	24	Cathode Column 1 (Red)



Electrical Connection

PIN NO.	LMD8812CEGR-XX-PF	PIN NO.	LMD8812CEGR-XX-PF
1	Cathode Row 2	13	Cathode Row 7
2	Anode Column 2 (Green)	14	Anode Column 7 (Green)
3	Anode Column 2 (Red)	15	Anode Column 7 (Red)
4	Cathode Row 4	16	Cathode Row 5
5	Anode Column 4 (Green)	17	Anode Column 5 (Green)
6	Anode Column 4(Red)	18	Anode Column 5 (Red)
7	Cathode Row 6	19	Cathode Row 3
8	Anode Column 6 (Green)	20	Anode Column 3 (Green)
9	Anode Column 6 (Red)	21	Anode Column 3 (Red)
10	Cathode Row 8	22	Cathode Row 1
11	Anode Column 8 (Green)	23	Anode Column 1 (Green)
12	Anode Column 8 (Red)	24	Anode Column 1 (Red)



Absolute Maximum Ratings at Ta=25 °C

Parameter	Symbol	Ratings		UNIT
		E	G	
Forward Current Per Chip	IF	30	30	mA
Peak Forward Current Per Chip (Duty 1/10,0.1ms Pulse Width)	IFP	120	120	mA
Power Dissipation Per Chip	PD	100	100	mW
Reverse Current Per Any Chip	Ir	10		μA
Operating Temperature	Topr	-25 ~ +85		℃
Storage Temperature	Tstg	-25 ~ +85		℃
Solder Temperature 1/16 Inch Below Seating Plane For 3 Seconds At 260 ℃				

Part Selection And Application Information(Ratings at 25°C)

PART NO	CHIP		common cathode or anode	λ P (nm)	$\Delta \lambda$ (nm)	Electrical					IV-M
	Material	Emitted				Vf(v)			Iv(mcd)		
						Min.	Typ.	Max.	Min.	Typ.	
LMD8811CEGR-XX-PF	GaAsP/GaP	Orange	Common Cathode	640	45	1.7	2.1	2.6	1.75	3.05	2:1
	GaP	Green		565	30	1.7	2.1	2.6	2.35	4.0	
LMD8812CEGR-XX-PF	GaAsP/GaP	Orange	Common Anode	640	45	1.7	2.1	2.6	1.75	3.05	
	GaP	Green		565	30	1.7	2.1	2.6	2.35	4.0	

Note : 1.The forward voltage data did not including ±0.1V testing tolerance.
2. The luminous intensity data did not including ±15% testing tolerance.

**Test Condition For Each Parameter**

Parameter	Symbol	Unit	Test Condition
Forward Voltage Per Chip	V _f	volt	I _f =20mA
Luminous Intensity Per Chip	I _v	mcd	I _f =10mA
Peak Wavelength	λ_p	nm	I _f =20mA
Spectral Line Half-Width	$\Delta \lambda$	nm	I _f =20mA
Reverse Current Any Chip	I _r	μA	V _r =5V
Luminous Intensity Matching Ratio	IV-M		



Typical Electro-Optical Characteristics Curve

E CHIP

Fig.1 Forward current vs. Forward Voltage

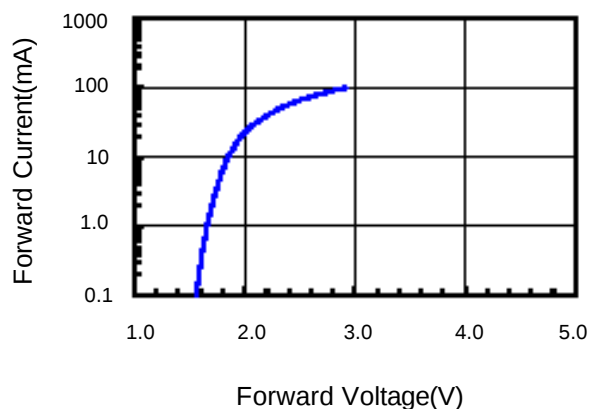


Fig.2 Relative Intensity vs. Forward Current

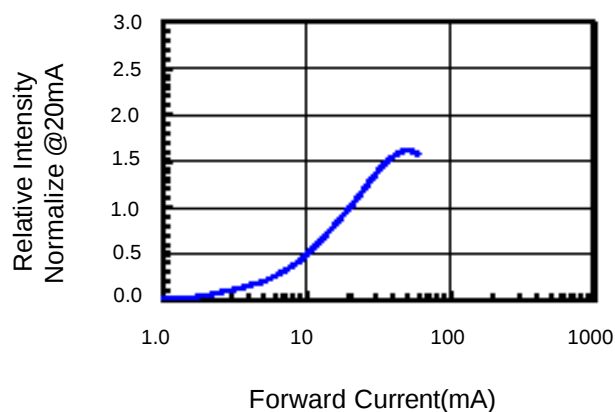


Fig.3 Forward Voltage vs. Temperature

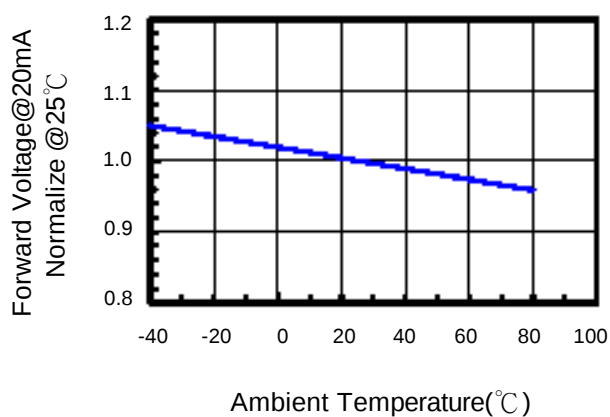


Fig.4 Relative Intensity vs. Temperature

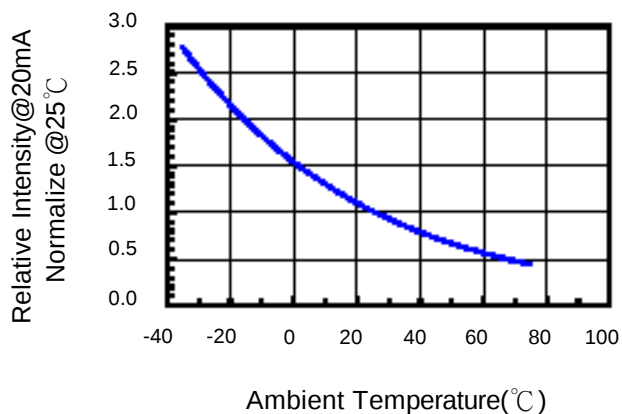
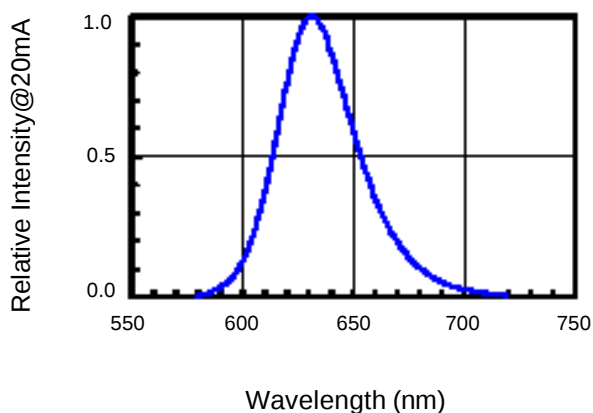


Fig.5 Relative Intensity vs. Wavelength





Typical Electro-Optical Characteristics Curve

G CHIP

Fig.1 Forward current vs. Forward Voltage

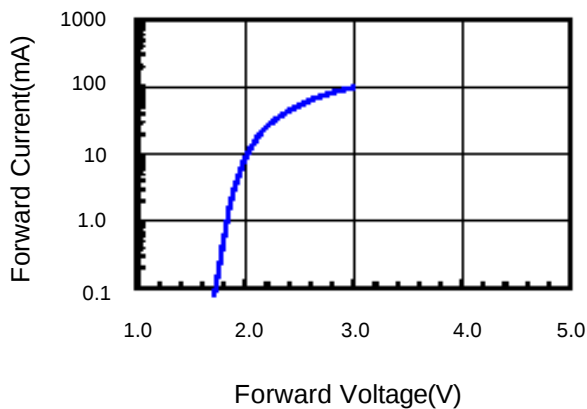


Fig.2 Relative Intensity vs. Forward Current

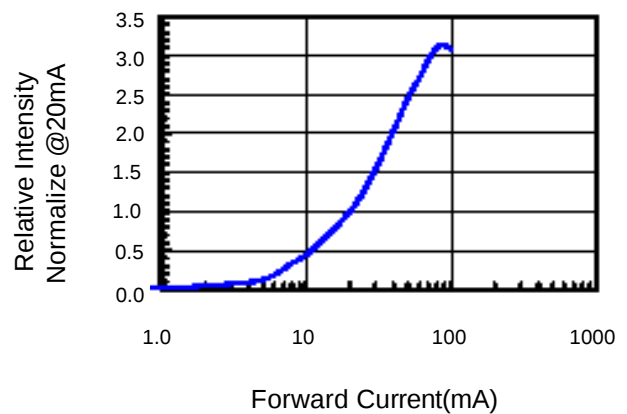


Fig.3 Forward Voltage vs. Temperature

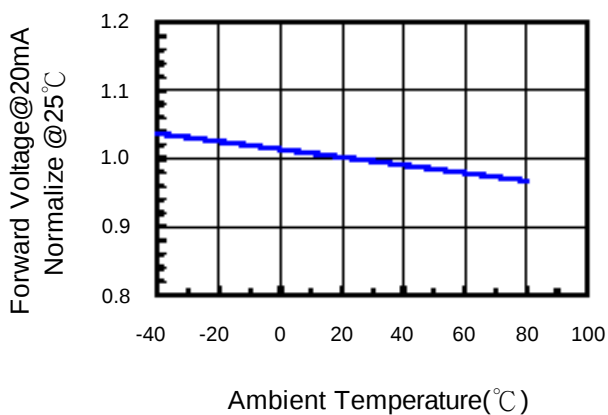


Fig.4 Relative Intensity vs. Temperature

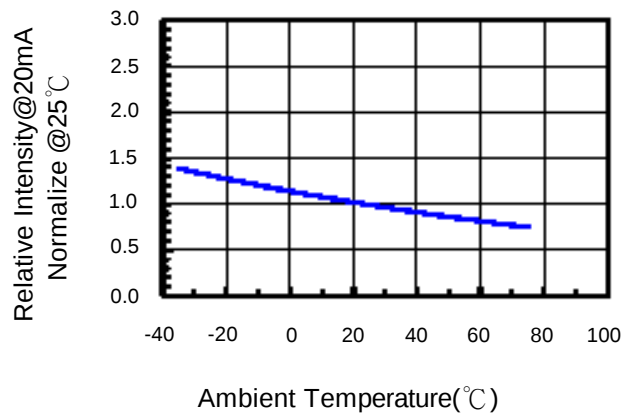
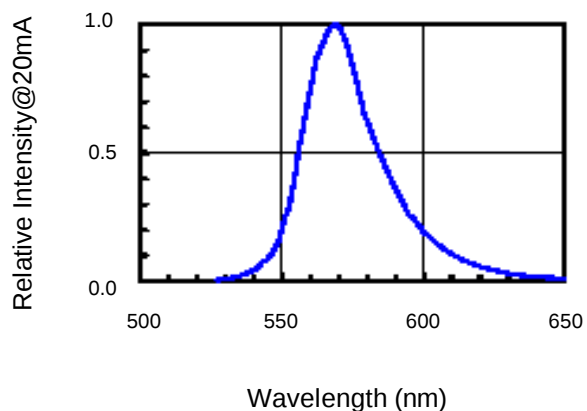


Fig.5 Relative Intensity vs. Wavelength



**Soldering Condition(Pb-Free)****1.Iron:**

Soldering Iron:30W Max

Temperature 350 °C Max

Soldering Time:3 Seconds Max(One time only)

Distance:Solder Temperature 1/16 Inch Below Seating
Plane For 3 Seconds At 260 °C

2.Wave Soldering Profile

Dip Soldering

Preheat: 120° C Max

Preheat time: 60seconds Max

Ramp-up

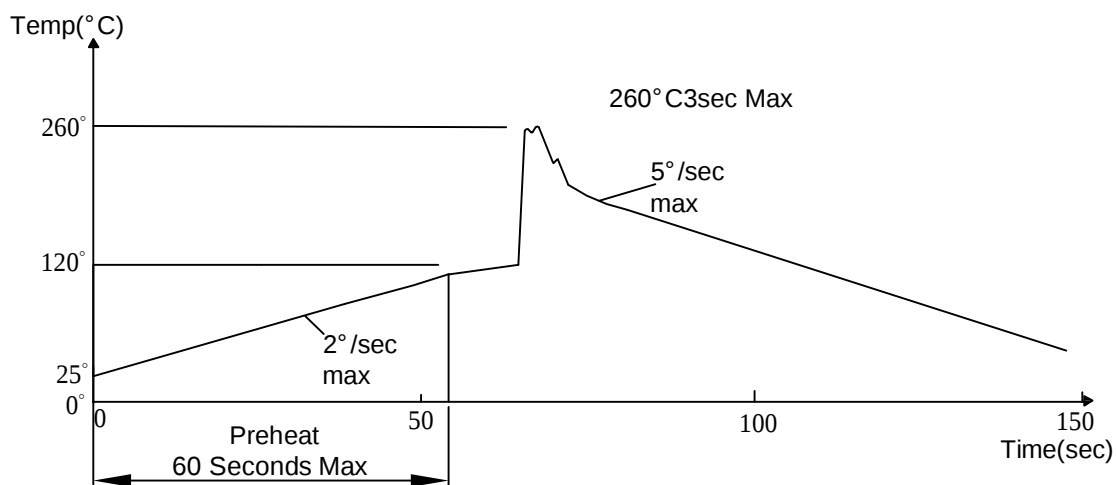
2° C/sec(max)

Ramp-Down:-5° C/sec(max)

Solder Bath:260° C Max

Dipping Time:3 seconds Max

Distance:Solder Temperature 1/16 Inch Below Seating
Plane For 3 Seconds At 260° C



Note: 1.Wave solder should not be made more than one time.
2.You can just only select one of the soldering conditions as above.

**Reliability Test:**

Test Item	Test Condition	Description	Reference Standard
Operating Life Test	1.Under Room Temperature 2.If=10mA 3.t=1000 hrs (-24hrs, +72hrs)	This test is conducted for the purpose of determining the resistance of a part in electrical and thermal stressed.	MIL-STD-750: 1026 MIL-STD-883: 1005 JIS C 7021: B-1
High Temperature Storage Test	1.Ta=105 °C ±5 °C 2.t=1000 hrs (-24hrs, +72hrs)	The purpose of this is the resistance of the device which is laid under condition of high temperature for hours.	MIL-STD-883:1008 JIS C 7021: B-10
Low Temperature Storage Test	1.Ta=-40 °C ±5 °C 2.t=1000 hrs (-24hrs, +72hrs)	The purpose of this is the resistance of the device which is laid under condition of low temperature for hours.	JIS C 7021: B-12
High Temperature High Humidity Test	1.Ta=65 °C ±5 °C 2.RH=90 %~95 % 3.t=240hrs ±2hrs	The purpose of this test is the resistance of the device under tropical for hours.	MIL-STD-202:103B JIS C 7021: B-11
Thermal Shock Test	1.Ta=105 °C ±5 °C & -40 °C ±5 °C (10min) (10min) 2.total 10 cycles	The purpose of this is the resistance of the device to sudden extreme changes in high and low temperature.	MIL-STD-202: 107D MIL-STD-750: 1051 MIL-STD-883: 1011
Solder Resistance Test	1.T.Sol=260 °C ±5 °C 2.Dwell time= 10 ±1sec.	This test intended to determine the thermal characteristic resistance of the device to sudden exposures at extreme changes in temperature when soldering the lead wire.	MIL-STD-202: 210A MIL-STD-750: 2031 JIS C 7021: A-1
Solderability Test	1.T.Sol=230 °C ±5 °C 2.Dwell time=5 ±1sec	This test intended to see soldering well performed or not.	MIL-STD-202: 208D MIL-STD-750: 2026 MIL-STD-883: 2003 JIS C 7021: A-2