

Bill Of Materials (Aleph J UMS PCB) Revision D						
Part			Manufacturer		Supplier	
Designation	Description	Value	Name	Part Number	Mouser	Digi-Key
Capacitors						
C1	MKP Type Polypropylene Film Capacitor	1uF	WIMA	MKP4-1.0/250/10	505-MKP41.0/250/10	
C2, C3	35V Electrolytic Capacitor (See Note 1)	220uF	Elna	RFS-35V221MI6#5	555-RFS35V221MI6#5	604-1066-ND
				RFS-50V221MJ6#5	555-RFS50V221MJ6#5	604-1123-ND
			Nichicon	UFG1H221MHM	647-UFG1H221MHM	
				UKA1H221MPD1TD	647-UKA1H221MPD1TD	93-4657-3-ND
				UKZ1H221MHM	647-UKZ1H221MHM	
			Panasonic	EEU-FM1V221	667-EEU-FM1V221	P12411-ND
C4	35V Electrolytic Capacitor (See Note 2)	10uF	Elna	RFS-35V100ME3#5	555-RFS35V100ME3#5	604-1061-ND
				RFS-50V100MG3#5	555-RFS50V100MG3#5	604-1119-ND
			Nichicon	UKZ2A100MPM	647-UKZ2A100MPM	
				UKT1H100MDD	647-UKT1H100MDD	
C5	Silver Mica or Polystyrene Capacitor	5pF	Cornell Dubilier	CD15CD050DO3F	598-CD15CD050DO3F	338-2606-ND
C6, C7	MKP Type Polypropylene Film Capacitor	100nF to 1uF	WIMA	MKP2D031001F00JSSD	505-MKP20.1/100/5	
Diodes						
D1	Zener Diode	9V1	Vishay	BZX85B9V1-TR	78-BZX85B9V1	

Jumpers						
J1, J2	Jumper or 0.25W Resistor (See Note 3)	OR to 220R				
LEDs						
LED2, LED3	3mm or 5mm Light Emitting Diode	Blue	Cree	C566C-BFN-CS0W0352	941-C566C-BFN-CS0W0352	
Transistors						
Q1A, Q1B	Small Signal P-Channel JFET (See Note 4)	2SJ74	Toshiba	2SJ74-BL		
Q2	Small Signal PNP BJT	ZTX550	Zetex	ZTX550	522-ZTX550	
		BC560C	Fairchild	BC560CTA	512-BC560CTA	
Q3, Q4	Small Signal NPN BJT	ZTX450	Zetex	ZTX450	522-ZTX450	
		BC550C	Fairchild	BC550CTA	512-BC550CTA	
Q5, Q6, Q7, Q8	N-Channel MOSFET	IRFP240	Vishay	IRFP240PBF	844-IRFP240PBF	IRFP240PBF-ND
Resistors						
R1, R3	0.25W Resistor	22K1	Vishay Dale	RN60D2212FB14	71-RN60D-F-22.1K	1135-1588-MIL
				CMF5522K100FHEK	71-CMF5522K100FHEK	CMF22.1KHA-ND
R2, R4	0.25W Resistor	221K	Vishay Dale	RN60D2213FB14	71-RN60D-F-221K	1135-1589-MIL
				CMF55221K00FHEK	71-CMF55221K00FHEK	CMF55221K00FHEK-ND
R5	0.25W Resistor	4K75	Vishay Dale	RN60D4751FB14	71-RN60D-F-4.75K	1135-1611-MIL
				CMF554K7500FHEK	71-CMF554K7500FHEK	CMF4.75KHA-ND
R6	0.25W Resistor or Jumper	562R	Vishay Dale	RN60D5620FB14	71-RN60D-F-562	1135-1623-MIL
				CMF55562R00FHEK	71-CMF55562R00FHEK	CMF562HA-ND
R7, R8	Multi-Trimmer Potentiometer (See Note 5)	2K	Bourns	3386K-1-202LF	652-3386K-1-202LF	3386K-1-202LF-ND
				3296W-1-202LF	652-3296W-1-202LF	3296W-202LF-ND

				3296Y-1-202LF	652-3296Y-1-202LF	3296Y-202LF-ND
				3299W-1-202LF	652-3299W-1-202LF	3299W-202LF-ND
				3299Y-1-202LF	652-3299Y-1-202LF	3299Y-202LF-ND
				3296W-1-102LF	652-3296W-1-102LF	
				3296Y-1-102LF	652-3296Y-1-102LF	
				3299W-1-102LF	652-3299W-1-102LF	
				3299Y-1-102LF	652-3299Y-1-102LF	
R9, R10, R11, R12, R13	0.25W Resistor	221R	Vishay Dale	RN60D2210FB14	71-RN60D-F-221	1135-1586-MIL
				CMF55221R00FHEK	CMF55221R00FHEK	CMF221HA-ND
R14	0.25W Resistor	392R	Vishay Dale	RN60D3920FB14	71-RN60D-F-392	RN60D3920FB14-MIL
				CMF55392R00FHEK	71-CMF55392R00FHEK	CMF392HA-ND
R15	0.25W Resistor	1K	Vishay Dale	RN60D1001FB14	71-RN60D-F-1.0K	RN60D1001FB14-MIL
				CMF551K0000FHEK	71- CMF551K0000FHEK	CMF1.00KHA-ND
R16, R17, R18, R19, R20, R21, R22, R23	3W Resistor	0R47	Panasonic	ERX-3FJR47	667-ERX-3FJR47	
			Vishay Dale	CPF3R47000JNB14	71-CPF3.475%T00	
R24	0.25W Resistor	1K2	Vishay Dale	RN60D1201FB14	71-RN60D-F-1.2K	1135-1566-MIL
				CMF551K2000FKR6	71-CMF551K2000FKR6	CMF551K2000FKR6-ND
R25	0.25W Resistor	1K5	Vishay Dale	RN60D1501FB14	71-RN60D-F-1.5K	1135-1572-MIL
				CMF551K5000FHEK	71-CMF551K5000FHEK	CMF1.50KHA-ND
R26	0.25W Resistor	3K32	Vishay Dale	RN60D3321FB14	71-RN60D-F-3.32K	1135-1605-MIL
				CMF553K3200FHEK	71-CMF553K3200FHEK	CMF3.32KHA-ND
R27	Multi-Trimmer Potentiometer (See Note 5)	100K	Bourns	3386K-1-104LF	652-3386K-1-104LF	3386K-1-104LF-ND
				3296W-1-104LF	652-3296W-1-104LF	3296W-104LF-ND

				3296Y-1-104LF	652-3296Y-1-104LF	3296Y-104LF-ND
				3299W-1-104LF	652-3299W-1-104LF	3299W-104LF-ND
				3299Y-1-104LF	652-3299Y-1-104LF	3299Y-104LF-ND
R28, R29	0.25W Resistor (See Note 6)	3K to 5K	Vishay Dale			
R30	0.25W Resistor or Jumper	1R to 100R				

Note 1

The PCB caters for a lead pitch of 5mm for these capacitors. Note that some of the higher grade capacitors that I have specified here have a lead pitch of 7.5mm (Nichicon KZ and Elna Silmic 2 50V). The Elna Silmic 2 35V, Nichicon FG and KA that is specified have a lead pitch of 5mm and if you are not sure which to select, these will be good enough. Also note that in the case of the Elna Silmic 2s I have specified both the 35V and 50V variants. The 35V versions should be fine though but there are some who prefer the 50V versions.

Note 2

The PCB caters for a lead pitch of 2.5mm for this capacitor. Once again the capacitors that I have specified have a lead pitch from 2mm to 3.5mm. Since the differences is so small I am sure that any of them will fit the holes provided without undue stress to the capacitor.

Note 3

Add gate stopper resistors in the place of the jumpers if required to combat parasitic oscillations and improve stability.

Note 4

Please take care in selecting your source for these JFETs. These are not being manufactured by Toshiba anymore and the market is flooded by fakes. Do not trust any Ebay source unless it has been proven that the seller supplies the genuine article. I got mine from Spencer at [FET Audio](#). There are other members of DIYAudio that may also be able to provide matched FETs as a GB such as *bussforb*. Keep your ears to the ground for these as they won't be around forever and no-one knows when Linear Systems is ever going to put the LSJ74 into production.

Note 5

For the trimmer potentiometers I have specified both the 1 turn and the 25 turn types. The 1 turn variant is listed first and the 25 turn the rest. I would highly recommend the use of the 25 turn variant for the added adjustment resolution. The builder is also encouraged to replace the trimmer potentiometer with a fixed value resistor if possible and the PCB does provide the required holes for such a replacement.

Note 6

Select a suitable value resistor to match the LEDs (LED2, LED3) that you have selected for your build, as well as the brightness required during operation.

