

**Parts List for Leader LSG-231 FM Stereo Signal Generator, New Versior**

Reference	Description	Value	Vendor	Type	Substitute
C	Capacitor	88MHz:68pF 100MHz:47pF T-552 boarc			
C001	Capacitor, electrolytic	220μF 50V 85°C 16x25 radial	Nippon Chemi-Con	SL	
C002	Capacitor, electrolytic	33μF 50V 85°C 10x16 radial	Nippon Chemi-Con	SL	
C003	Capacitor, ceramic disc	0.01μF Z5U			
C004	Capacitor, ceramic disc	0.01μF Z5U			
C101	Capacitor, mica	820pF			
C102	Capacitor, polyester film	0.01μF 10%			
C103	Capacitor, polyester film	0.01μF 10%			
C104	Capacitor, ceramic disc	0.01μF Z5U			
C105	Capacitor, electrolytic	10μF 25V 85°C 6.3x11 radial	Nippon Chemi-Con	SL	
C201	Capacitor, ceramic disc	0.01μF Z5U			
C202	Capacitor, electrolytic	100μF 10V 85°C 8x11.5 radial	Nippon Chemi-Con	SL	
C203	Capacitor, ceramic disc	0.01μF Z5U			
C204	Capacitor, polyester film	0.01μF 10%			
C205	Capacitor, polystyrene	330pF 10%			
C206	Capacitor, polystyrene	470pF 10%			
C207	Capacitor, ceramic disc	0.01μF Z5U			
C208	Capacitor	100pF			
C209	Capacitor, polyester film	0.1μF 10%			
C210	Capacitor, polystyrene	2200pF			
C211	Capacitor, polystyrene	330pF			
C212	Capacitor, polystyrene	3300pF			
C213	Capacitor, polystyrene	2200pF			
C214	Capacitor, polystyrene	1200pF			
C215	Capacitor, polyester film	0.1μF 10%			
C216	Capacitor, polyester film	0.1μF 10%			
C217	Capacitor, polyester film	0.01μF 10%			
C218	Capacitor, polyester film	0.1μF 10%			
C219	Capacitor, polystyrene	470pF			
C220	Capacitor, polyester film	1500pF 10%			
C221	Capacitor, polyester film	0.1μF 10%			
C222	Capacitor, ceramic disc	0.01μF Z5U			

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Reference	Description	Value	Vendor	Type	Substitute
C301	Capacitor, silver mica	10,000pF 50V 0.5%	Soshin	QS30	
C302	Capacitor, electrolytic	100μF 16V 85°C 10x12.5 radial	Nippon Chemi-Con	SL	
C303	Capacitor, silver mica	10,000pF 50V 0.5%	Soshin	QS30	
C304	Capacitor, electrolytic	1μF 25V 85°C 5x11 radial	Nippon Chemi-Con	SL	
C305	Capacitor, electrolytic	1μF 25V 85°C 5x11 radial	Nippon Chemi-Con	SL	
C306	Capacitor, electrolytic	1μF 25V 85°C 5x11 radial	Nippon Chemi-Con	SL	
C307	Capacitor, electrolytic	1μF 25V 85°C 5x11 radial	Nippon Chemi-Con	SL	
C308	Capacitor, electrolytic	1μF 25V 85°C 5x11 radial	Nippon Chemi-Con	SL	
C309	Capacitor, electrolytic	1μF 25V 85°C 5x11 radial	Nippon Chemi-Con	SL	
C401	Capacitor, mica	220pF 10%	Soshin		
C402	Capacitor, electrolytic	10μF 25V 85°C 6.3x11 radial	Nippon Chemi-Con	SL	
C403	Capacitor, electrolytic	10μF 25V 85°C 6.3x11 radial	Nippon Chemi-Con	SL	
C404	Capacitor, mica	220pF 10%	Soshin		
C405	Capacitor, polyester film	0.47μF 10% 100V	Towa	1MFT-D	
C406	Capacitor, polyester film	0.47μF 10% 100V	Towa	1MFT-D	
C407	Capacitor, polystyrene	680pF			
C408	Capacitor, polystyrene	2200pF			
C409	Capacitor, polystyrene	820pF			
C410	Capacitor, polyester film	0.001μF 10%			
C411	Capacitor, electrolytic	100μF 10V 85°C 8x11.5 radial	Nippon Chemi-Con	SL	
C412	Capacitor, electrolytic	470μF 10V 85°C 12.5x20 radial	Nippon Chemi-Con	SL	
C413	Capacitor, polystyrene	470pF 10%			
C414	Capacitor	22pF			
C415	Capacitor, electrolytic	220μF 10V 85°C 10x16 radial	Nippon Chemi-Con	SL	
C416	Capacitor, polystyrene	68pF			
C417	Capacitor, polystyrene	220pF			
C418	Capacitor, polystyrene	150pF			
C501	Capacitor	510pF			
C502	Capacitor	750pF			
C503	Capacitor	510pF			
C504	Capacitor	750pF			
C505	Capacitor, polyester film	0.1μF 10%			

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Reference	Description	Value	Vendor	Type	Substitute
C506	Capacitor, electrolytic	10 $\mu$ F 25V 85°C 6.3x11 radial	Nippon Chemi-Con	SL	
C507	Capacitor, polyester film	0.1 $\mu$ F 10%			
C508	Capacitor, electrolytic	10 $\mu$ F 25V 85°C 6.3x11 radial	Nippon Chemi-Con	SL	
C509	Capacitor, ceramic disc	0.01 $\mu$ F Z5U			
C510	Capacitor, electrolytic	100 $\mu$ F 25V 85°C 10x16 radial	Nippon Chemi-Con	SL	
C601	Capacitor, ceramic disc	0.01 $\mu$ F Z5U			
C602	Capacitor, ceramic disc	0.01 $\mu$ F Z5U			
C603	Capacitor, polyester film	0.01 $\mu$ F 10%			
C604	Capacitor, electrolytic	1000 $\mu$ F 25V 85°C 16x31.5 radial	Nippon Chemi-Con	SL	
C605	Capacitor, electrolytic	100 $\mu$ F 10V 85°C 8x11.5 radial	Nippon Chemi-Con	SL	
C606	Capacitor, electrolytic	100 $\mu$ F 10V 85°C 8x11.5 radial	Nippon Chemi-Con	SL	
C607	Capacitor, mica	68pF 10%	Soshin		
C701	Capacitor	10pF			
C702	Capacitor	10pF			
C703	Capacitor	0.01 $\mu$ F			
C704	Capacitor	22pF			
C705	Capacitor	0.01 $\mu$ F			
C706	Capacitor	47pF			
C707	Capacitor	0.01 $\mu$ F			
C708	Capacitor	22pF			
C709	Capacitor	22pF			
C710	Capacitor	0.01 $\mu$ F			
C711	Capacitor, feedthrough	0.001 $\mu$ F			
D001	Diode, silicon	200V 1A	Toshiba	1DZ61	
D002	Diode, silicon	200V 1A	Toshiba	1DZ61	
D003	Diode, silicon	200V 1A	Toshiba	1DZ61	
D004	Diode, silicon	200V 1A	Toshiba	1DZ61	
D005	Diode, zener	6.32V - 6.97V, 500mW, DO-35	NEC	RD6.8EB	
D301	Diode, silicon	30V 120mA trr=4ns DO-35	Toshiba	1S1588	
D302	Diode, silicon	30V 120mA trr=4ns DO-35	Toshiba	1S1588	
D303	Diode, silicon	30V 120mA trr=4ns DO-35	Toshiba	1S1588	
D401	Diode, silicon	30V 120mA trr=4ns DO-35	Toshiba	1S1588	

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Reference	Description	Value	Vendor	Type	Substitute
D402	Diode, silicon	30V 120mA trr=4ns DO-35	Toshiba	1S1588	
D403	Diode, silicon	30V 120mA trr=4ns DO-35	Toshiba	1S1588	
D404	Diode, silicon	30V 120mA trr=4ns DO-35	Toshiba	1S1588	
D405	Diode, silicon	30V 120mA trr=4ns DO-35	Toshiba	1S1588	
D406	Diode, silicon	30V 120mA trr=4ns DO-35	Toshiba	1S1588	
D407	Diode, silicon	30V 120mA trr=4ns DO-35	Toshiba	1S1588	
D408	Diode, silicon	30V 120mA trr=4ns DO-35	Toshiba	1S1588	
D701	Diode, variable capacitance	30V 20mA	ITT	BB121	
IC201	Integrated Circuit	Dual J-K Flip-Flop	Texas Instruments	SN7473N	
IC202	Integrated Circuit	Dual J-K Flip-Flop	Texas Instruments	SN7473N	
IC301	Integrated Circuit	Dual Op Amp	NEC	μPC1458C	
IC401	Integrated Circuit	Op Amp	National	LM709CH	
L101	Inductor	7mH (SCA Frequency Adjustment)			
L201	Inductor	22mH (57kHz trap)			
L202	Inductor	7mH (38kHz trap)			
L401	Inductor	11mH (Separation Adjustment)			
L402	Inductor	8mH (Separation Adjustment)			
L701	Inductor	2.2mH			
L702	Inductor	4T (RF Frequency Adjustment)			
L703	Inductor	10μH			
L704	Inductor	10μH			
L705	Inductor	3T			
L706	Inductor	5T			
PL201	Lamp	5V 50mA			
PL202	Lamp	5V 50mA			
Q001	Transistor, NPN	60V 4A h <sub>FE</sub> >40 TO-66	Sanyo	2SD315	NTE175
Q002	Transistor, NPN	50V 100mA h <sub>FE</sub> 200-400 TO-92	Toshiba	2SC1000-GR	NTE199
Q003	Transistor, NPN	50V 100mA h <sub>FE</sub> 200-400 TO-92	Toshiba	2SC1000-GR	NTE199
Q101	Transistor, FET	50V 10mA I <sub>DSS</sub> 0.3mA-0.8mA TO-92	Mitsubishi	2SK34A	NTE312
Q201	Transistor, NPN	60V 3A h <sub>FE</sub> 150-300 TO-220	Toshiba	2SD880-GR	NTE152
Q202	Transistor, FET	50V 10mA I <sub>DSS</sub> 0.3mA-0.8mA TO-92	Mitsubishi	2SK34A	NTE312
Q203	Transistor, NPN	30V 100mA h <sub>FE</sub> 70-140 TO-92	Toshiba	2SC372-O	NTE85 KSC1845

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Reference	Description	Value	Vendor	Type	Substitute
Q204	Transistor, NPN	30V 100mA hFE 70-140 TO-92	Toshiba	2SC372-O	NTE85 KSC1845
Q205	Transistor, NPN	30V 100mA hFE 70-140 TO-92	Toshiba	2SC372-O	NTE85 KSC1845
Q206	Transistor, NPN	30V 100mA hFE 70-140 TO-92	Toshiba	2SC372-O	NTE85 KSC1845
Q207	Transistor, NPN	30V 100mA hFE 70-140 TO-92	Toshiba	2SC372-O	NTE85 KSC1845
Q208	Transistor, NPN	30V 100mA hFE 70-140 TO-92	Toshiba	2SC372-O	NTE85 KSC1845
Q209	Transistor, NPN	30V 100mA hFE 70-140 TO-92	Toshiba	2SC372-O	NTE85 KSC1845
Q301	Transistor, FET	50V 10mA Idss 2.6mA-6.5mA TO-92	Toshiba	2SK30AGR	NTE458
Q302	Transistor, NPN	30V 100mA hFE 70-140 TO-92	Toshiba	2SC372-O	NTE85 KSC1845
Q303	Transistor, NPN	25V 50mA TO-92	Mitsubishi	2SC711	NTE85 KSC1845
Q304	Transistor, PNP	25V 100mA TO-92	Mitsubishi	2SA628	NTE234
Q401	Transistor, NPN	30V 100mA hFE 70-140 TO-92	Toshiba	2SC372-O	NTE85 KSC1845
Q402	Transistor, NPN	30V 100mA hFE 70-140 TO-92	Toshiba	2SC372-O	NTE85 KSC1845
Q403	Transistor, NPN	30V 100mA hFE 70-140 TO-92	Toshiba	2SC372-O	NTE85 KSC1845
Q404	Transistor, NPN	30V 100mA hFE 70-140 TO-92	Toshiba	2SC372-O	NTE85 KSC1845
Q405	Transistor, NPN	30V 100mA hFE 70-140 TO-92	Toshiba	2SC372-O	NTE85 KSC1845
Q406	Transistor, NPN	30V 100mA hFE 70-140 TO-92	Toshiba	2SC372-O	NTE85 KSC1845
Q501	Transistor, NPN	50V 100mA hFE 200-400 TO-92	Toshiba	2SC1000-GR	NTE199
Q502	Transistor, NPN	50V 100mA hFE 200-400 TO-92	Toshiba	2SC1000-GR	NTE199
Q701	Transistor, FET	20V 10mA Idss 5mA-12mA TO-92	Mitsubishi	2SK33E	NTE312
Q702	Transistor, NPN	15V 50mA TO-92	Toshiba	2SC387A	NTE316
R001	Resistor	10Ω 2W			
R002	Resistor	15KΩ			
R003	Resistor	15KΩ			
R004	Resistor	2.7KΩ			
R005	Resistor	1.8KΩ			
R006	Resistor	1.2KΩ			
R101	Resistor	100KΩ			
R102	Resistor	1KΩ			
R201	Resistor	220Ω			
R202	Resistor	5.6KΩ			
R203	Resistor	2.2KΩ			
R204	Resistor	82Ω 1/2W			

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Reference	Description	Value	Vendor	Type	Substitute
R205	Resistor	270Ω 1/2W			
R206	Resistor	82Ω 1/2W			
R207	Resistor	100KΩ			
R208	Resistor	1KΩ			
R209	Resistor	22KΩ			
R210	Resistor	100KΩ			
R211	Resistor	1KΩ			
R212	Resistor	100Ω			
R213	Resistor	1KΩ			
R214	Resistor	3.9KΩ			
R215	Resistor	4.7KΩ			
R216	Resistor	82KΩ			
R217	Resistor	10KΩ			
R218	Resistor	1.5KΩ			
R219	Resistor	22KΩ			
R220	Resistor	10KΩ			
R221	Resistor	1KΩ			
R222	Resistor	1KΩ			
R223	Resistor	47KΩ			
R224	Resistor	47KΩ			
R225	Resistor	10KΩ			
R226	Resistor	15KΩ			
R227	Resistor	4.7KΩ			
R228	Resistor	2.2KΩ			
R229	Resistor	2.2KΩ			
R230	Resistor	5.6KΩ			
R231	Resistor	4.7KΩ			
R301	Resistor	100KΩ			
R302	Resistor	100KΩ			
R303	Resistor	10KΩ			
R304	Resistor	6.8KΩ			
R305	Resistor	15KΩ			

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Reference	Description	Value	Vendor	Type	Substitute
R306	Resistor	15.9K $\Omega$			
R307	Resistor	15.9K $\Omega$			
R308	Resistor	10K $\Omega$			
R309	Resistor	47K $\Omega$			
R310	Resistor	5.6K $\Omega$			
R311	Resistor	22K $\Omega$			
R312	Resistor	5.0K $\Omega$			
R313	Resistor	22K $\Omega$			
R314	Resistor	100 $\Omega$			
R315	Resistor	100 $\Omega$			
R316	Resistor	22K $\Omega$			
R318	Resistor	100 $\Omega$			
R319	Resistor	10K $\Omega$			
R320	Resistor	22K $\Omega$			
R321	Resistor	8.2K $\Omega$			
R322	Resistor	560K $\Omega$			
R323	Resistor	10K $\Omega$			
R324	Resistor	1K $\Omega$			
R325	Resistor	22K $\Omega$			
R326	Resistor	1K $\Omega$			
R401	Resistor	39K $\Omega$			
R402	Resistor	3.3K $\Omega$			
R403	Resistor	10K $\Omega$			
R404	Resistor	1K $\Omega$			
R405	Resistor	10K $\Omega$			
R406	Resistor	10K $\Omega$			
R407	Resistor	1K $\Omega$			
R408	Resistor	10K $\Omega$			
R409	Resistor	3.3K $\Omega$			
R410	Resistor	39K $\Omega$			
R411	Resistor	100K $\Omega$			
R412	Resistor	100K $\Omega$			

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Reference	Description	Value	Vendor	Type	Substitute
R413	Resistor	100K $\Omega$			
R414	Resistor	100K $\Omega$			
R415	Resistor	22K $\Omega$			
R416	Resistor	100 $\Omega$			
R417	Resistor	22K $\Omega$			
R418	Resistor	4.7K $\Omega$			
R419	Resistor	22K $\Omega$			
R420	Resistor	100 $\Omega$			
R421	Resistor	22K $\Omega$			
R422	Resistor	4.7K $\Omega$			
R423	Resistor	1K $\Omega$			
R424	Resistor	100 $\Omega$			
R425	Resistor	10K $\Omega$			
R426	Resistor	2.2K $\Omega$			
R427	Resistor	4.7K $\Omega$			
R428	Resistor	4.7K $\Omega$			
R429	Resistor	10K $\Omega$			
R430	Resistor	3.3K $\Omega$			
R431	Resistor	3.3K $\Omega$			
R432	Resistor	1.5K $\Omega$			
R433	Resistor	10K $\Omega$			
R435	Resistor	100 $\Omega$			
R436	Resistor	10K $\Omega$			
R501	Resistor	100K $\Omega$			
R502	Resistor	10K $\Omega$			
R503	Resistor	10K $\Omega$			
R504	Resistor	100K $\Omega$			
R505	Resistor	10K $\Omega$			
R506	Resistor	10K $\Omega$			
R507	Resistor	1K $\Omega$			
R508	Resistor	10K $\Omega$			
R509	Resistor	100K $\Omega$			

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Reference	Description	Value	Vendor	Type	Substitute
R510	Resistor	10K $\Omega$			
R511	Resistor	2.2K $\Omega$			
R512	Resistor	1K $\Omega$			
R513	Resistor	10K $\Omega$			
R514	Resistor	100K $\Omega$			
R515	Resistor	10K $\Omega$			
R516	Resistor	2.2K $\Omega$			
R517	Resistor	100 $\Omega$			
R601	Resistor	100 $\Omega$			
R602	Resistor	100K $\Omega$			
R603	Resistor	6.8K $\Omega$			
R604	Resistor	15K $\Omega$ for 100MHz 10K $\Omega$ for 88MHz			
R605	Resistor	15K $\Omega$ for 100MHz 10K $\Omega$ for 88MHz			
R607	Resistor	6.8K $\Omega$			
R701	Resistor	22K $\Omega$			
R702	Resistor	100K $\Omega$			
R703	Resistor	1K $\Omega$			
R704	Resistor	10K $\Omega$			
R705	Resistor	1K $\Omega$			
R706	Resistor	100 $\Omega$			
R707	Resistor	82 $\Omega$			
R801	Resistor	560 $\Omega$			
R802	Resistor	820 $\Omega$			
R803	Resistor	82 $\Omega$			
R804	Resistor	82 $\Omega$			
R805	Resistor	470 $\Omega$			
R806	Resistor	100 $\Omega$			
S001A,B	Switch, power	DPDT			
S201A,B	Switch, pilot modulation	DPDT			
S401A,B	Switch, function	2 pole 6 position			
S501A,B,C,D	Switch, pre-emphasis	4 pole 3 position			
S601	Switch, RF on/off	SPST on composite level potentiometer			

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Reference	Description	Value	Vendor	Type	Substitute
S801	Switch, RF level	1 pole 3 position			
VR001	Potentiometer, trimmer	500Ω 18V Power Supply Adjustment	Alps		
VR101	Potentiometer	4.7KΩ SCA Output Level Adjustment			
VR201	Potentiometer, trimmer	1KΩ 5V Power Supply Adjustment	Alps		
VR202	Potentiometer, trimmer	4.7KΩ Pilot Level (rear panel)			
VR203	Potentiometer, trimmer	2.2KΩ Pilot Phase (rear panel)			
VR204	Potentiometer, trimmer	4.7KΩ Scope Phase (rear panel)			
VR301	Potentiometer, trimmer	4.7KΩ 1kHz Oscillator Gain Adjust			
VR302	Potentiometer, trimmer	2.2KΩ 1kHz Oscillator output	Alps		
VR401	Potentiometer, trimmer	47KΩ Carrier Suppression	Alps		
VR402	Potentiometer, trimmer	47KΩ Carrier Suppression	Alps		
VR404	Potentiometer, trimmer	4.7KΩ Separation	Alps		
VR405	Potentiometer	10KΩ Composite Level			
VR406	Potentiometer, trimmer	2.2KΩ FM Deviation	Alps		
VR407	Potentiometer, trimmer	10KΩ Composite output	Alps		
VR601	Potentiometer, trimmer	10KΩ Frequency set	Noble		
VR701	Potentiometer, trimmer	1KΩ RF Output Level	Alps		
X201	Crystal	228kHz HC-6U			
	Fuse	0.3A 5x20			
	Transformer	25VAC Secondary			

**Notes**

1. Resistors are 5% 1/4W unless otherwise marked