Service Manual Handsfree Car Kit

GSM.

Specification

EB-HFD30Z EB-HFD70Z

EB-HFD90Z

Input voltage	13.8 V ± 1.0 V
Over voltage protection	20.2 V +0.8 V / -1.2 V
Current consumption	
Operational: Idle Mode: Standby:	2.0A max. (normal sound) 150 mA max. (no sound) 1 mA max.(logic power off)
Ignition signal	H Level: ON L Level: OFF
Speaker Output Power	1.5 W
Speaker impedance	8 Ω
Antenna (H/F mode)	External
Operating temperature	-20 to +60 °C
Storage temperature	-40 to +80 °C
Charging temperature	-5 to +35 °C



WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service manual by anyone else could result in serious injury or death.



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Issue 1 Revision 0

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WARNINGS AND CAUTIONS

WARNING

The equipment described in this manual contains polarized capacitors utilising liquid electrolyte. These devices are entirely safe provided that neither a short-circuit nor a reverse polarity connection is made across the capacitor terminals. FAILURE TO OBSERVE THIS WARNING COULD RESULT IN DAMAGE TO THE EQUIPMENT OR, AT WORST, POSSIBLE INJURY TO PERSONNEL RESULTING FROM ELECTRIC SHOCK OR THE AFFECTED CAPACITOR EXPLODING. EXTREME CARE MUST BE EXERCISED AT ALL TIMES WHEN HANDLING THESE DEVICES.

Caution

The equipment described in this manual contains electrostatic devices (ESDs). Damage can occur to these devices if the appropriate handling procedure is not adhered to.

ESD Handling Precautions

A working area where ESDs may be safely handled without undue risk of damage from electrostatic discharge, must be available. The area must be equipped as follows:

Working Surfaces: - All working surfaces must have a dissipative bench mat, SAFE for use with live equipment, connected via a 1 M Ω resistor (usually built into the lead) to a common ground point.

Wrist Strap - A quick release skin contact device with a flexible cord, which has a built in safety resistor of approximately 1 $M\Omega$ shall be used. The flexible cord must be attached to a dissapative earth point.

Containers - All containers and storage must be of the conductive type.

Batteries

This equipment may contain an internal battery in addition to the external battery packs. These batteries are recyclable and should be disposed of inaccordance with local legislation. They must not be incinerated, or disposed of as ordinary rubbish.

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1 INTRODUCTION

1.1. Purpose of this Manual

This Service Manual contains the information and procedures required for installing, operating and servicing the Panasonic GSM Personal Cellular Mobile Telephone system operating on the GSM Digital Cellular Network.

The manual is structured to provide service engineering personnel with the following information and procedures:

- 1. General and technical information provides a basic understanding of the equipment, kits and options, together with detailed information for each of the major component parts.
- 2. Installation and operating information provides instructions for unpacking, installing and operating the equipment.
- 3. Servicing information provides complete instructions for the testing, disassembly, repair and reassembly of each major component part. Step-by-step troubleshooting information is given to enable the isolation and identification of a malfunction, and thus determine what corrective action should be taken. The test information enables verification of the integrity of the equipment after any remedial action has been carried out.
- 4. Illustrated parts list provided to enable the identification of all equipment components, for the ordering of spare / replacement parts.

The procedures described in this manual must be performed by qualified service engineering personnel, at an authorised service centre.

The service engineering personnel are responsible for fault diagnosis and repair of all equipment described in this manual.

1.2. Handsfree Car Mount Kit

The Handsfree Car Mount Kit enables the handportable to be mounted in a vehicle, and to operate in handsfree mode.

Either the Cigar Lighter Cable or the Power Supply Cable can be used with the Handsfree unit. The Cigar Lighter Cable can be used for easy and quick fitting, or the power supply cable can be used for a more permanent fitting.

The telephone can be operated in handheld mode by removing it from the Holder.

The handsfree unit also provides external power for the handheld internal charger.



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Figure 1.1: Handsfree Car Mount Kit

ITEM	DESCRIPTION	PART No.		
	DESCRIPTION	GD30 / GD50	GD70	GD90
1	Holder with RF Cable	EB-KAD31	EB-KAD71	EB-KAD91
2	Handsfree Unit	EB-HFD30	EB-HFD70	EB-HFD90
3	Handsfree Microphone	EBM1177		
4	Adjustable Angle Brackets, set of 2	EBN0001		
5	Power Supply Cable	WP76001A		
6	Cigar Lighter Cable (Optional)	WC70135		

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1.3. Second Handset

A second handset may be used with the Handsfree Car Mount Kit.

ITEM	DESCRIPTION	PART No.
1	Handset	ТВА
2	Cradle	ТВА

2 OPERATING INSTRUCTIONS

2.1. Controls and Connectors



Figure 2.1: Controls and Connectors

2.2. Handsfree Operation

When the telephone is inserted into the Holder, the antenna connection is made to the vehicle installed antenna. Connecting the Handsfree connector into the telephone will divert the internal microphone and loudspeaker connections to the handsfree loudspeaker and microphone units. Control of the loudspeaker volume will be maintained from the Handsfree unit.

The Handsfree unit will be activated when the vehicle ignition is ON.

The telephone can be used without having to remove it from the Holder, by speaking into the microphone and listening to the speaker. If the mute option is connected, the car radio will be automatically muted during a call.

2.3. Telephone Operation

Operation of the telephone when installed in the Car Mount Kit is very similar to normal handheld operation but with the following differences:

- Operation of the internal speaker and microphone of the telephone will be overridden by those of the Car Mount Kit.
- The Keep Alive timer will delay the switching off of the telephone when the vehicle ignition is turned off. Any calls in progress when the ignition is switched off will be allowed to continue. The timer will not start until after the call is finished.
- When the Automatic Answer function is switched on, the call will be connected without pressing any keys.
- The ring volume cannot be turned off.

Adjusting the Speaker volume

Adjust the speaker volume by using the volume adjust the thumbwheel on the side of the Handsfree Unit.

2.4. Charging

Make sure that the vehicle ignition is switched on, the Battery Pack is attached to the telephone and that the Handsfree cable is connected. Charging will commence immediately.

3 TECHNICAL DESCRIPTION

3.1. Introduction

The handsfree unit provides a handsfree function for car use and provides charging power for the phone and consists of the following:

- 5. Microphone pre-amplifier.
- 6. Loudspeaker pre-amplifier.
- 7. Internal Loudspeaker.
- 8. Data adaptor socket for a Data Adaptor (PCMCIA) card, SMS Cable, RS232C Direct Cable or Second Handset.
- 9. Facility to connect an optional audio only second handset to provide an 'Off Hook' function. (This is necessary as the phone RF and the interface connectors do not allow the use of a coiled cable for 'Off Hook' operation.)
- 10. Designed for vehicles with 12 V nominal, negative ground supplies only.
- 11. Volume control.
- 12. Option of two plug-in power cables. One with Ignition sense and Radio mute for permanent installation and one with a Cigar Lighter Plug for consumer installation.

Connection to the external (vehicle) antenna is provided within the Holder

The unit does not have an echo cancellation or acoustic path cancellation features, as these are incorporated within the telehone.



Figure 3.1: Handsfree Block Diagram

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3.2. Tx Audio

The external microphone connects to SKT2. The voice signal from the microphone is filtered through FL118 to eliminate TDMA noise. R100 and R102 are for biasing Vcc, which is 5 V. C106 eliminates any noise produced from the power supply. U101 is an inverting amplifier with a gain of approximately 20.

U100 is a two pole switch that provides an On path during a call and Off when there is no call, therefore effectively muting the microphone. U102 is for amplification bias, before the signal is passed through a differential amplifier (U103), which rejects any noise created between the handset ground and the handsfree unit ground.

The TX_AUDIO signal is then passed to the telephone, which performs echo and noise cancellation functions.

3.3. Rx Audio

The signal is received on A8 and PL1, after having already been processed in the handset. U115 is a differential amplifier. U114 and U116 are two pole switches enabling the path to be either On or Off. If U116 is on then U117 drives the optional second handset.

If U114 is on, then the handsfree unit is on. R136 is a variable resistor which controls the volume, via a thumbwheel on the side of the handsfree case. Further amplification is provided by U112, before the output is fed to the loudspeaker.

3.4. Audio Control

Audio control is a basic logic section, which is used to control the switches U100, U104, U114 and U116. This ensures that the second handset is activated if being used. It also de-activates the echo-cancellation process if the 2nd handset is used, as this is no longer required.

3.5. Power Control and Supply

U201 is the main control element for the charging and main power supplies. U200 and TR200 provide current limitation control.

U202 is a voltage regulator that provides a 5 V supply (VCC) for the handsfree unit. D205 provides protection for the supply by switching the power off to the unit should the battery voltage rise above 18 V.

The IGNITION signal from the power connector swithes on the charging and is controlled by U201. Two external LEDs are visible on the case of the handsfree unit, which are powered on as the ignition line becomes active. Their function is to provide On/Off indication for the handsfree unit.

4 INTERFACES AND TEST POINTS

4.1. Interfaces

The handsfree unit provides a handsfree function for car use and provides charging power for the phone and consists of the following:

4.1.1. Power Connector

No.	Signal Name	H/F <=> Car	Function
1	Battery +	<==	Positive car battery connection
2	Ignition	<==	Car ignition switch position sense
3	NC	-	Not connected
4	GND	<==	Negative car battery connection
5	NC	-	Not connected
6	nRadio Mute	==>	Handsfree output to mute Car radio

4.1.2. Phone Connector, Handheld I/F

No.	Signal Names	Telephone <=> H/F	Function
A1	GND	-	Power supply and digital ground
A2	PA_ON	-	Not connected
A3	n.LOGIC_PWR	==>	Handheld accessory power control
A4	IGNITION	<==	Handheld car ignition state sense
A5	VBAT	==>	Handheld battery output for accessories
A6	nHF_SENSE	<==	Handheld sense input to detect Handsfree
A7	nRADIO_MUTE	==>	Handheld radio mute output
A8	RX_AUDIO	==>	Handsfree audio input
A9	-	-	Spare
B1	EXT_PWR	<==	Handheld charge input
B2	nON_HOOK	<==	Handsfree 'On Hook' output
B3	SERIAL_OUT	==>	Handheld serial data output
B4	SERIAL_IN	<==	Handheld serial data input
B5	nADP_SENSE	<==	Handheld accessory sense
B6	nHF_ON	==>	Handsfree audio control input
B7	AGND	-	Handsfree audio input and output ground
B8	TX_AUDIO	<==	Handsfree audio output
B9	GND	-	Power supply and digital ground

4.1.3. Microphone Connector

	Signal Name	Telephone<=>H/F	Function
Тір	Mic In	<==	Microphone bias and Handsfree audio input
Screen	GND	-	Ground

4.1.4. Data Adaptor

	Signal Name	Telephone<=>H/F	Function
1	GND2	-	Power supply and digital ground
2	PA_ON2	-	Not used
3	nLOGIC_PWR2	==>	Handheld accessory power control
4	IGNITION2	-	Not used
5	VBAT2	==>	Handheld power supply output for accessories
6	nHF_SENSE2	<==	Second Handset connected detect
7	nRADIO_MUTE2	-	Not used
8	RX_AUDIO2	==>	Second Handset Audio
9	-	-	Spare
10	EXT_PWR2	-	Not used
11	nON_HOOK2	<==	Second handset 'On Hook' output
12	SERIAL_OUT2	==>	Handheld serial data output
13	SERIAL_IN2	<==	Handheld serial data input
14	nADP_SENSE2	<==	Handheld accessory sense
15	nHF_ON2	-	Not used
16	AGND2	-	Audio Ground
17	TX_AUDIO2	<==	Second Handset Audio
18	GND2	-	Power supply and digital ground

4.2. Test Points

TP No.	Description	Location
TP1	AUDIO CONTROL	TR102 Pin 3
TP2	BATTERY+	SK1 Pin 1
TP3	nLOGIC_PWR	FL206, R221
TP4	Vcc	U202 Pin 1
TP5	EXT_PWR	C203, FL200
TP6	GROUND	
TP7	MICROPHONE AUDIO	FL100, C109
TP8	MICROPHONE INPUT	SKT2 Pin 5
TP9	Tx AUDIO2 (FILTER)	FL103, FL119
TP10	nHF_ON	FL105, R122
TP11	Rx AUDIO	FL111, R138
TP12	AGND	FL112, R144
TP13	Tx AUDIO	R109, FL101
TP14	LOUDSPEAKER	PL2 Pin 2
TP15	GROUND	PL2 Pin 1
TP16	Rx_AUDIO2	PL3 Pin 8
TP17		U107 Pin 10

5 INSTALLATION GUIDE

5.1. General

This section describes the procedure used to install the GSM handportable unit into a negative-grounded vehicle.

Caution

Do not attempt to install this equipment into a positive-grounded vehicle. Do not attempt to supply power to the equipment from a positive-grounded vehicle.

5.2. Handsfree Car Mount Kit



Figure 5.1: Handsfree Car Mount Kit

5.2.1. Preparation

The following points should be considered when choosing a location for the handsfree unit:

- 1. Ensure that the location does not obstruct normal operation/functioning of the vehicle.
- 2. Ensure that the location does not affect passenger accommodation, or is subject to excessive shocks.
- 3. Ensure that the location will allow easy operation of the unit.
- 4. Ensure that the location provides a secure fixing for the unit.
- 5. Avoid direct exposure to the sun's rays, or to rain.
- 6. Ensure that the location takes due consideration of cable routing requirements.
- 7. Considering the points listed above, the recommended locations for mounting the handsfree unit are the Dashboard, Armrest storage compartment or the Centre Console.

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Figure 5.2: Handsfree Cradle Unit Locations

5.2.2. Mounting the Holder and Handsfree Unit

The Holder and Handsfree Unit can be mounted together using one Adjustable Angle Bracket as shown below: Note that one half of the Bracket must be secured to the base of the Handsfree Unit and the other half to the mounting location before the bracket is assembled.



Figure 5.3: Mounting the Holder and Handsfree Unit

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Note that the second Adjustable Angle Bracket may be used to mount the Holder at an alternative location to the Handsfree Unit, if required:



Figure 5.4: Mounting the Holder Unit

5.2.3. Installing the Handsfree Microphone

The following points should be considered when installing the handsfree microphone:

- 1. That it does not obstruct the operation of the vehicle.
- 2. That it does not affect the normal passenger accommodation.
- 3. That the microphone should face the driver's mouth, at a distance of approximately 30cm.



Figure 5.5: Microphone Installation

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Mounting the Microphone to the Sun Visor

- 1. Insert the projection on the microphone clip into the hole of the microphone base.
- 2. Mount the microphone on to the sun visor as shown in the diagram.
- 3. Connect the microphone lead to the connector on the Handsfree Unit.

Mounting the Microphone to the Dashboard

- 1. Attach the adhesive pad to the dashboard clip.
- 2. Drill a 1 mm hole at the mounting location and mount the clip using a M2.5 self-tapping screw.
- 3. Insert the projection of the clip into the microphone base, ensuring that it points towards the driver's mouth.
- 4. Connect the handsfree microphone to the Handsfree Unit.

5.2.4. Antenna

For best reception, mount the antenna on the vehicle roof.



Figure 5.6: Vehicle Antenna Connection

5.2.5. Wiring

Caution

Do not shorten or remove any item from the DC Power Cable. Removal of fuse holders or any part of the cable could result in damage to the vehicle's electrical systems and invalidate any warranty provided by the manufacturer. Any excess cable should be wound neatly and secured by tie-wraps.

Caution

The Music Mute lead has an open-collector connection. This lead MUST be connected to the standard Mute connector of ICE equipment only. It is not suitable for powering car radios directly..

Use the supplied Power Supply Cable to permanently connect the Car Mount Kit into the vehicle wiring as shown in the diagram below.

Wiring Guide

Colour	Connection	Fuse
Black	Ground	-
Blue	Ignition	ЗA
Red	Battery (+)	ЗA
Yellow	Radio Mute	-



Figure 5.7: Power Cable Connections

Alternatively, connect the EasyFit Cable between the Holder and the vehicle cigarette lighter socket. Note that this cable does not cater for Radio Mute and will draw power whenever there is power to the cigarette lighter. It is recommended that the EasyFit cable is removed from the cigarette lighter when the vehicle is not running.



Figure 5.8: Cigarette Lighter Cable Connector

6 DISASSEMBLY / REASSEMBLY INSTRUCTIONS

6.1. General

This section provides disassembly and reassembly procedures for the Handsfree Car Kit.

WARNING

The equipment described in this manual contains polarised capacitors utilising liquid electrolyte. These devices are entirely safe provided that neither a short-circuit nor a reverse polarity connection is made across the capacitor terminals. FAILURE TO OBSERVE THIS WARNING COULD RESULT IN DAMAGE TO THE EQUIPMENT OR, AT WORST, POSSIBLE INJURY TO PERSONNEL RESULTING FROM ELECTRIC SHOCK OR THE AFFECTED CAPACITOR EXPLODING. EXTREME CARE MUST BE EXERCISED AT ALL TIMES WHEN HANDLING THESE DEVICES.

Caution

The equipment described in this manual contains electrostatic sensitive devices (ESDs). Damage can occur to these devices if the appropriate handling procedure is not adhered to.

ESD Handling Precautions

A working area where ESDs may be safely handled without undue risk of damage from electrostatic discharge, must be available. The area must be equipped as follows:

Working Surfaces: - All working surfaces must have a dissipative bench mat, SAFE for use with live equipment, connected via a 1 M Ω resistor (usually built into the lead) to a common ground point.

Wrist Strap - A quick release skin contact device with a flexible cord, which has a built in safety resistor of approximately 1 $M\Omega$ shall be used. The flexible cord must be attached to a dissapative earth point.

Containers - All containers and storage must be of the conductive type.

6.2. Disassembly

1. Remove the holder from the unit (2 screws).



Figure 6.1: Holder Removal

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DISASSEMBLY / REASSEMBLY INSTRUCTIONS

2. Remove the back cover from the unit by removing the cover securing screw.



Figure 6.2: Removal of Cover

3. Pull back the PCB retaining clip and lift out the PCB. Disconnect the phone interface cable and speaker cable from the PCB.





6.3. Reassembly

1. Position the cables into the case moulding, ensuring that the interface cable grommet is seated securely in the case moulding and the microphone socket is also located in the case moulding.



Figure 6.4: Reassembly: Cable Positioning

2. Replace the back cover of the unit and tighten the cover securing screw.



Figure 6.5: Replacement of Cover

7 REPLACEMENT PARTS LIST

7.1. Sub-Assemblies

7.1.1. Handsfree Unit







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Figure 6.1: Handsfree Unit

Ref	Part Number	Description
M0201	1NA510A	GD70 HANDSFREE COVER
M0202	1PA516A	CASE
M0203	2QA538A	HANDSFREE LED LENS
M0204	2QA538A	HANDSFREE LED LENS
M0206	XTB2.6+6GFXK	SCREW M2.6 x 6mm
M0207	XTB2.6+6GFXK	SCREW M2.6 x 6mm
M0209	1B70106A	SPEAKER BRACKET
M0210	6V10031A	SPEAKER NET
M0211	5FJ5129AB	VOLUME KNOB
M0212	4EA525A	BRACKET
M0213	4JA534A	SHIELD CASE

Ref	Part Number	Description
M0215	XTB2.6+12GFXK	SCREW M2.6 x 12mm
M0216	XTB2.6+12GFXK	SCREW M2.6 x 12mm
M0219	XTB2.6+6GFXK	SCREW M2.6 x 6mm
M0230	XTB2.6+10GFX	SCREW M2.6 x 10mm
M0231	XTB2.6+10GFX	SCREW M2.6 x 10mm
PCB	HFGD70AS02	HANDSFREE PCB COMPLETE
LS0501	VS45U0208	SPEAKER 8R 1.5W
W0502	WC70152A	SPEAKER CABLE (75mm)
W0202	WC76016A	INTERFACE CABLE

7.1.2. Holder Unit



Figure 6.2: Holder Unit

Ref	GD30 / GD50r	GD70	GD90	Description
M101	1PA533A	1PA517A	1PA527A	CAR HOLDER MOULDING
M102	4HA530A	4HA520A	4HA525A	HOOK SPRING
M103	2RA518A	2RA540A	2RA518A	ноок
M104	5U70049B	5U70049B	5U70049B	CUSHION FOR HOLDER G4 HANDSFREE
M106	4EA516A	4EA516A	4EA516A	G520 CABLE BRACKET
M107	6RA516A	6RA516A	6RA516A	CAP (GD70 CAR HOLDER)
M530	XTB2.6+6GFXK	XTB2.6+6GFXK	XTB2.6+6GFXK	SCREW M2.6 x 6mm
M531	"	"	"	
M532	"	"	"	
M533	"	"	"	
M534	u .	ű	"	
W520	WC76017A	WC76017A	WC76017A	RF CABLE
	1	1	1	

7.2. Handsfree Car Kits Complete

7.2.1. EB-HFD30Z (GD30 / GD50)

Model EB	-HFD30Z	Name: GD30 / GD50 Handsfree Car Kit				
Ref	Part Number	Description	Notes			
BRKT1	EB-N0002C	ADJUSTABLE ANGLE BRACKET 2				
BRKT2	EB-N0002C	ADJUSTABLE ANGLE BRACKET 2				
CABLE1	WC70187B	G600 BASIC HANDSFREE POWER SUP				
CABLE2	WC76013A	G520 H/F POWER SUPPLY CABLE				
HOLDR	EB-KAD31	HOLDER WITH RF CABLE GD31				
MIC	EB-M76600N	CAR MICROPHONE KIT GD70				
OI001	7LA834D	GD30 / GD50 HANDSFREE OPERATING INSTR.				

7.2.2. EB-HFD70Z (GD70)

Section – 21 –

Model EB	-HFD70Z	Name: GD70 Handsfree Car Kit				
Ref	Part Number	lumber Description				
BRKT1	EB-N0002C	ADJUSTABLE ANGLE BRACKET 2				
BRKT2	EB-N0002C	ADJUSTABLE ANGLE BRACKET 2				
CABLE1	WC70187B	G600 BASIC HANDSFREE POWER SUP				
CABLE2	WC76013A	G520 H/F POWER SUPPLY CABLE				
H/FUNIT	EB-HFD70	GD70 HANDSFREE UNIT				
HOLDR	EB-KAD71	HOLDER WITH RF CABLE GD31				
MIC	EB-M76600N	CAR MICROPHONE KIT GD70				
OI001	7LA834B	GD70 HANDSFREE OPERATING INSTRUCTIONS				

7.2.3. EB-HFD90Z (GD90)

Model EB-HFD90Z		Name: GD90 Handsfree Car Kit	
Ref	Part Number	Description	Notes
BRKT1	EB-N0002C	ADJUSTABLE ANGLE BRACKET 2	
BRKT2	EB-N0002C	ADJUSTABLE ANGLE BRACKET 2	
CABLE1	WC70187B	G600 BASIC HANDSFREE POWER SUP	
CABLE2	WC76013A	G520 H/F POWER SUPPLY CABLE	
H/FUNIT	EB-HFD70	GD70 HANDSFREE UNIT	
HOLDR	EB-KAD91	HOLDER WITH RF CABLE GD91	
MIC	EB-M76600N	CAR MICROPHONE KIT GD70	

7.3. Microphone Kit

Model EB-HFDxx		Name: Handsfree Unit			
Ref	Part Number	Description	Notes		
M0101	4G31674B	MICROPHONE HOLDER			
M0102	4G32105	MICROPHONE HOLDER			
M0103	4R13358	MICROPHONE CUSHION			
M0107	XTB2510AFN	SCREW (XTB2.5+10AFN)			
MK0101	HM76600N	MICROPHONE FOR CAR KIT C/W 1nF			

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7.4. Handsfree PCB Assembly

Re	7.4.	Handsfree PCB Assembly				HFGD70AS02	Name: Handsfree PCB Assembly	
sue ' evisi					Ref	Part Number	Description	
on 0	Model: F		Name: Handsfree PCR Assembly		7 C129	E1H1C104A043	CAP CER 100nE 10% 16V X5R SMD	
-	Rof	Dort Number		Crid	C130	F1H1H101A230	CAP CER 100pE 5% 50V NP0 SMD 1	
	Rei		Description	Gilu		F1H1H220A230	CAP CER 22pE 5% 50V NP0 SMD 16	
	C100	E1H1C104A043	CAB CEB 100pE 10% 16V/ X5B SMD		C132	F1H1H101A230	CAP CER 100pE 5% 50V NP0 SMD 1	
	C100	E1H1C104A043	CAP CER 100m 10% 10V X5R SMD		C133	F1H1H101A230	CAP CER 100pF 5% 50V NP0 SMD 1	
	C107		CAP CER 100m 10% 10V XSR SMD			1 11111017230		
	C102	F1H1C104A043	CAP CER 100HF 10% 16V XSR SMD		C134	F1H1H101A230	CAP CER 100pE 5% 50V NP0 SMD 1	
	C103	F1H1C104A043	CAP CER 100HF 10% 16V XSR SMD		C135	ECEV1EA221P	CAP ALLIM 2200F 20% 25V SMD 10	
		FINIC 104A043	CAP CER TOUTHE TO% TOV ASR SIMD		C136	E1H1C104A043	CAP CER 100nE 10% 16V X5R SMD	
	0105	E41141100000000			C137	ECEVICA221P	CAP ALLIM 220UE 20% 16V SMD 10	
	0105	F1H1H220A230	CAP CER 22pr 5% 50V NPU SMD 18		C138	E1H1H220A230	CAP CER 22pE 5% 50V NP0 SMD 16	
	0105	F3G0J3360001		AS		1 11112207230		
	0107	F1H1H220A230	CAP CER 22pF 5% 50V NP0 SMD 16	F1	C139	F1H1H220A230	CAP CER 22pE 5% 50V NP0 SMD 16	
	C108	F1H1H220A230	CAP CER 22pF 5% 50V NP0 SMD 16	F2	C140	F1H1H101A230	CAP CER 100pE 5% 50V/ NP0 SMD 1	
	C109	F0F1H2240001	CAP FILM 2200F 20% 50V SMD 505	A4	C142	F1H1H101A230	CAP CER 100pE 5% 50V/ NP0 SMD 1	
	0110	E4114110000.0000			C143	EC 11/B1H472K	CAP CER 4 7nE 10% 50V X7R SMD	
		F1H1H220A230	CAP CER 22pF 5% 50V NPU SMD 16	A4	C144	E1H1H220A230	CAP CER 22pE 5% 50V NP0 SMD 16	
I Se		F1H1C104A043	CAP CER 1000F 10% 16V X5R SMD	A4		1 11112207230		
22 tic	0112	F1H1C104A043	CAP CER 100nF 10% 16V X5R SMD	A4	C145	F1.11H104A425	CAP CER 100pE -20+80% 50V Y5V	
I N	C113	F1H1H101A230	CAP CER 100pF 5% 50V NP0 SMD 1	A3	C146	ECEV0 IS220WB	CAP ALLIM 22/JE 20% 6 31/ SMD 5.4	
	C114	F1H1H220A230	CAP CER 22pF 5% 50V NP0 SMD 16	F2	C147	E1H1H220A230	CAP CER 22nE 5% 50V NP0 SMD 16	
	0115			50	C148	F1H1H103A219	CAP CER 10nE 10% 50V X7R SMD 1	
	0115	F1J1C4/4A045	CAP CER 4700F 10% 16V X7R SMD		C140	F1H1H220A230	CAP CER 22pE 5% 50V NP0 SMD 16	
	0116	F1H1H220A230	CAP CER 22pF 5% 50V NPU SMD 16			1 11112207230		
		F1J1C474A045	CAP CER 4700F 10% 16V X7R SMD	E2	C150	F1H1C104A043	CAP CER 100nE 10% 16V X5R SMD	
	0118	F1H1H220A230	CAP CER 22pF 5% 50V NP0 SMD 16		C151	F1H1H103A219	CAP CER 10nE 10% 50V X7R SMD 1	
	0119	F1H1H220A230	CAP CER 22pF 5% 50V NPU SMD 16	F2	C152	F1H1C104A043	CAP CER 100nE 10% 16V X5R SMD	
	C120	F1H1H101A230	CAP CER 100pF 5% 50V NP0 SMD 1	C4	C153	F1H1H220A230	CAP CER 22pE 5% 50V NP0 SMD 16	
	0121	E1U1U220A220		F 2	C154	F1H1H101A230	CAP CER 100pE 5% 50V NP0 SMD 1	
	0121	F1H1H220A230	CAP CER 22pr 5% 50V NPU SMD 18					
	0122	F3G0J3360001			C155	F1H1H101A230	CAP CER 100pE 5% 50V NP0 SMD 1	
	0123	F1H1H220A230	CAP CER 22pF 5% 50V NP0 SMD 16		C156	F1H1C104A043	CAP CER 100pE 10% 16V X5R SMD	
	0124	F1H1H220A230	CAP CER 22pF 5% 50V NPU SMD 16		C157	ECEV0.IS220WR	CAP ALUM 22/ F 20% 6 3V SMD 5 4	
z	C125	F3G0J3360001	CAP TANT 330F 20% 6.3V SMD CAS	A3	C158	F1H1H220A230	CAP CER 22pE 5% 50V NP0 SMD 16	
Se	C126			EO	C159	FCEV0JS220WR	CAP ALUM 22µF 20% 6 3V SMD 5 4	
Ni K	C120	E0E1U2240004						
э ЮО	C120				C160	F1H1H220A230	CAP CER 22pF 5% 50V NP0 SMD 16	
201 //an		r in in220A230	CAF CER 22PF 3% SUV NPU SMD 10					

Grid

F1 F1

F1

C4

C4

F1

E4

E4

D3

B2

B2

E1 E4

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E4

E4

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D1

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Ber Part Number Description Grid 1:11 FirtH-120A230 CAP CER 120F 5% 60V NP0 SMD 16 C4 C1:16 FirtH-120A230 CAP CER 120F 5% 60V NP0 SMD 16 C4 C1:16 FirtH-120A230 CAP CER 120F 5% 60V NP0 SMD 16 D3 C1:16 FirtH-120A230 CAP CER 120F 5% 50V NP0 SMD 16 D3 C1:16 FirtH-120A230 CAP CER 120F 5% 50V NP0 SMD 16 D3 C1:16 FirtH-110A230 CAP CER 120F 5% 50V NP0 SMD 16 D4 C1:16 FirtH-110A230 CAP CER 120F 5% 50V NP0 SMD 16 C4 C2:18 ECC/IGAAAA3 CAP CER 100F 5% 50V NP0 SMD 1 C4 C1:16 FirtH-110A230 CAP CER 100F 5% 50V NP0 SMD 1 A3 C2:22 FirtH-110A230 CAP CER 100F 5% 50V NP0 SMD 1 C4 C1:17 FirtH-110A230 CAP CER 100F 5% 50V NP0 SMD 1 A3 C2:23 FirtH-110A230 CAP CER 100F 5% 50V NP0 SMD 1 E1 C1:17 FirtH-110A230 CAP CER 100F 5% 50V NP0 SMD 1 E1 C2:23 FirtH-110A230 CAP CER 100F 5% 50V NP0 SMD 1 E1 C1:17	Se∡	Model: HFGD70AS02		02 Name: Handsfree PCB Assembly		Model: H	IFGD70AS02	Name: Handsfree PCB Assembly	
Program Cite F1H1H220A230 CAP CER 22pF 5% 50V NP0 SMD 16 Cite F1H1H20A230 CAP CER 22pF 5% 50V NP0 SMD 16 D3 C162 F1H1H20A230 CAP CER 22pF 5% 50V NP0 SMD 16 D3 C218 EUCVTEA21P CAP CER 100pF 5% 50V NP0 SMD 16 D3 C164 F1H1H20A230 CAP CER 22pF 5% 50V NP0 SMD 16 E4 C218 EUCVTEA21P CAP CER 100pF 5% 50V NP0 SMD 16 C3 C165 F1H1H10A230 CAP CER 22pF 5% 50V NP0 SMD 16 E4 C220 F1H1H10A425 CAP CER 100pF 5% 50V NP0 SMD 1 C4 C166 F1H1H20A230 CAP CER 100pF 5% 50V NP0 SMD 16 F2 C221 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 C4 C166 F1H1H10A230 CAP CER 100pF 5% 50V NP0 SMD 1 A3 C223 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 C4 C170 F1H1H10A230 CAP CER 100pF 5% 50V NP0 SMD 1 F1 C225 F1J1H10A425 CAP CER 100pF 5% 50V NP0 SMD 1 E1 C171 F1H1H10A230 CAP CER 100pF 5% 50V NP0 SMD 1 E1 C227 F1H1H10A230 CAP CER 100pF 5% 50V NP0 SMD 1 <	ši ⊂	Ref	Part Number	Description	Grid	Ref	Part Number	Description	Grid
Mag 00 Construct Construction Construct									
P O O Cites FirthEgazaga CAP CER 226 F % 50 V NPO SMD 16 E1 Cate Cat	⊻02	C161	F1H1H220A230	CAP CER 22pF 5% 50V NP0 SMD 16	C4	C217	F1H1H101A230	CAP CER 100pF 5% 50V NP0 SMD 1	D3
B CH3 FHH H220A230 CAP CER 22pF 5%, S0V NP0 SMD 16 D3 C218 ECVTEA21P CAP ALLM 220JF 20% 25V SMD 10. D4 C164 F1HH1220A230 CAP CER 22pF 5%, S0V NP0 SMD 11 E4 C219 F1HH10A425 CAP CER 100pF 10% 16V XSR SMD C3 C165 F1HH110A230 CAP CER 100pF 5% 50V NP0 SMD 11 E4 C222 F1HH110A230 CAP CER 100pF 5% 50V NP0 SMD 1 C4 C166 F1HH110A230 CAP CER 100pF 5% 50V NP0 SMD 1 A4 C422 F1HH110A230 CAP CER 100pF 5% 50V NP0 SMD 1 C4 C168 F1HH110A230 CAP CER 100pF 5% 50V NP0 SMD 1 A3 C224 F1H110A425 CAP CER 100pF 5% 50V NP0 SMD 1 F1 C170 F1HH110A230 CAP CER 100pF 5% 50V NP0 SMD 1 F1 C222 F1H110A425 CAP CER 100pF 5% 50V NP0 SMD 1 E1 C171 F1H1H10A230 CAP CER 100pF 5% 50V NP0 SMD 1 F1 C228 F1H1H10A230 CAP CER 100pF 5% 50V NP0 SMD 1 E1 C171 F1H1H10A230 CAP CER 100pF 5% 50V NP0 SMD 1 F1 C228 F1H1H120A230 CAP CER 100pF 5% 50V NP0 SMD 1	010 nua	C162	F1H1H220A230	CAP CER 22pF 5% 50V NP0 SMD 16	E1				
Solution Crist F11H1220A230 F11H110A230 CAP CER 100pF 3% 50V NP0 SMD 1 E4 C220 C221 F11H110A2405 F11H110A230 CAP CER 100pF 3% 50V NP0 SMD 1 C3 C3 C166 F11H120A230 CAP CER 20pF 3% 50V NP0 SMD 1 F11 C221 F11H110A230 CAP CER 100pF 3% 50V NP0 SMD 1 C4 C168 F11H1101A230 CAP CER 100pF 3% 50V NP0 SMD 1 A3 C222 F11H110A231 CAP CER 100pF 3% 50V NP0 SMD 1 F1 C168 F11H1101A230 CAP CER 100pF 3% 50V NP0 SMD 1 A3 C224 F11H110A232 CAP CER 100pF 3% 50V NP0 SMD 1 F1 C170 F11H1101A230 CAP CER 100pF 3% 50V NP0 SMD 1 F1 C224 F11H110A230 CAP CER 100pF 3% 50V NP0 SMD 1 E1 C171 F11H1101A230 CAP CER 100pF 3% 50V NP0 SMD 1 F1 C225 F11H1101A230 CAP CER 100pF 3% 50V NP0 SMD 1 E1 C171 F11H1101A230 CAP CER 100pF 3% 50V NP0 SMD 1 E1 C227 F11H1101A230 CAP CER 100pF 3% 50V NP0 SMD 1 E1 C172 F11H1101A230 CAP CER 100pF 10% 50V XP3 SMD 1 C4 C228 F11H1101A230<	= C8	C163	F1H1H220A230	CAP CER 22pF 5% 50V NP0 SMD 16	D3	C218	ECEV1EA221P	CAP ALUM 220uF 20% 25V SMD 10.	D4
C165 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 E4 C220 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 C4 C168 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 A4 C221 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 C4 C167 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 A3 C222 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 F1 C168 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 A3 C224 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 F1 C170 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 F1 C225 F1/H1H104A25 CAP CER 100pF 5% 50V NP0 SMD 1 E1 C171 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 F1 C226 F1/H1H104A25 CAP CER 100pF 5% 50V NP0 SMD 1 E1 C171 F1/H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 F1 C226 F1/H1H104A25 CAP CER 100pF 5% 50V NP0 SMD 1 E1 C171 F1/H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 F1 C228 F1/H1H10A230 CAP CER 100pF 5% 50V NP0 SMD 1E		C164	F1H1H220A230	CAP CER 22pF 5% 50V NP0 SMD 16	E4	C219	F1J1H104A425	CAP CER 100nF -20+80% 50V Y5V	C3
Composition Care CER 12pF 5% 50V NPD SMD 1 Care CER 10pF 5% 50V NPD SMD 1 F1 C166 F1H1H101A230 CAP CER 10pF 5% 50V NPD SMD 1 A3 C223 F1H1H101A230 CAP CER 10pF 5% 50V NPD SMD 1 F1 C170 F1H1H101A230 CAP CER 10pF 5% 50V NPD SMD 1 A3 C223 F1JH1H01A25 CAP CER 10pF 5% 50V NPD SMD 1 E1 C170 F1H1H101A230 CAP CER 10pF 5% 50V NPD SMD 1 E1 C222 F1H1H101A230 CAP CER 10pF 5% 50V NPD SMD 1 E1 C171 F1H1H101A230 CAP CER 10pF 5% 50V NPD SMD 1 E1 C222 F1H1H101A230 CAP CER 10pF 5% 50V NPD SMD 1 E1 C171 F1H1H101A230 CAP CER 10pF 5% 50V NPD SMD 1 F1 C228 F1H1H101A230 CAP CER 10pF 5% 50V NPD SMD 1 E1 C172 F1H1H103A219 CAP CER 10pF 10% 50V X7R SMD 1 C1 C228 F1H1H101A230 CAP CER 10pF 5% 50V NPD SMD 1 E1 C172 F1H1H10		C165	F1H1H101A230	CAP CER 100pF 5% 50V NP0 SMD 1	E4	C220	F1H1C104A043	CAP CER 100nF 10% 16V X5R SMD	C3
PSO C166 F1H1H1220A230 CAP CER 22pF 5% 50V NP0 SMD 16 F2 C222 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 A3 C168 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 A3 C223 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 F1 C169 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 F1 C2224 F1J1H104A425 CAP CER 100pF 5% 50V NP0 SMD 1 E1 C170 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 E1 C225 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 E1 C171 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 E1 C227 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 E1 C171 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 F1 C228 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 E1 C172 F1H1H101A230 CAP CER 10pF 10% 50V X7R SMD 1 C4 C228 F1H1H101A230 CAP CER 100P 5% 50V NP0 SMD 1 E1 C174 F1H1H101A230 CAP CER 10pF 10% 50V X7R SMD 1 C4 C230 F1H1H1H102230 CAP CER 100P 5%						C221	F1H1H101A230	CAP CER 100pF 5% 50V NP0 SMD 1	C4
C167 F1H1H1014230 CAP CER 100pF 5% 50V NP0 SMD 1 A4 A3 C223 F1H1H1014230 CAP CER 100pF 5% 50V NP0 SMD 1 A3 C168 F1H1H1014230 CAP CER 100pF 5% 50V NP0 SMD 1 A3 C223 F1H1H1014245 CAP CER 100pF 5% 50V NP0 SMD 1 B1 C170 F1H1H1014230 CAP CER 100pF 5% 50V NP0 SMD 1 F1 C225 F1J1H104A425 CAP CER 100pF 5% 50V NP0 SMD 1 E1 C171 F1H1H1014230 CAP CER 100pF 5% 50V NP0 SMD 1 F1 C225 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 E1 C173 F1J1H104A425 CAP CER 100pF 5% 50V NP0 SMD 1 F1 C228 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 16 E1 C173 F1J1H104A25 CAP CER 10nF 10% 50V X7R SMD 1 C4 C228 F1H1H101A230 CAP CER 100P 5% 50V NP0 SMD 16 E1 C174 F1H1H103A219 CAP CER 10nF 10% 50V X7R SMD 1 A1 C232 F1H1H102A320 CAP CER 100P 5% 50V NP0 SMD 16 E1 C201 F1H1H103A219 CAP CER 10nF 10% 16V X5R SMD B1 C232 F1H1H1102A230 CAP CER 10nF 10% 16		C166	F1H1H220A230	CAP CER 22pF 5% 50V NP0 SMD 16	F2	C222	F1H1H101A230	CAP CER 100pF 5% 50V NP0 SMD 1	C4
C18B F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 A3 C223 F1H1H101A219 CAP CER 100nF 20% 50V X7R SMD 1 F1 C160 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 F1 C224 F11H1101A230 CAP CER 100pF 5% 50V NP0 SMD 1 E1 C170 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 E1 C226 F11H1101A230 CAP CER 100pF 5% 50V NP0 SMD 1 E1 C172 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 F1 C226 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 E1 C172 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 F1 C228 F1H1H101A230 CAP CER 22pF 5% 50V NP0 SMD 16 E1 C173 F1H1H101A230 CAP CER 100pF 10% 50V X7R SMD 1 C4 C228 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 16 E1 C200 F1H1H101A230 CAP CER 100pF 10% 50V X7R SMD 1 C4 C230 F1H1H101A230 CAP CER 100pF 9% 50V NP0 SMD 16 E1 C201 F1H1H101A230 CAP CER 100pF 10% 50V X7R SMD 1 C4 C233 F1H1H101A230 CAP CER 100P 5% 50V NP0 SMD 1 <td></td> <td>C167</td> <td>F1H1H101A230</td> <td>CAP CER 100pF 5% 50V NP0 SMD 1</td> <td>A4</td> <td></td> <td></td> <td></td> <td></td>		C167	F1H1H101A230	CAP CER 100pF 5% 50V NP0 SMD 1	A4				
Solution Crisp Fill HIH101A230 CAP CER 100pF 5% 50V NP0 SMD 1 A3 C 2224 Fill HIH104A25 CAP CER 100pF 20+80% 50V Y9V D4 C170 Fill HIH101A230 CAP CER 100pF 5% 50V NP0 SMD 1 F1 C 225 Fill HIH101A230 CAP CER 100pF 5% 50V NP0 SMD 1 E1 C171 Fill HIH101A230 CAP CER 100pF 5% 50V NP0 SMD 1 F1 C 227 FILH1101A230 CAP CER 100pF 5% 50V NP0 SMD 1 E1 C173 Fill HIH101A230 CAP CER 100pF 5% 50V NP0 SMD 1 F1 C 227 FILH1101A230 CAP CER 100pF 5% 50V NP0 SMD 16 E1 C173 Fill HIH103A219 CAP CER 100pF 10% 50V X7R SMD 1 C4 C 228 FILH1101A230 CAP CER 100pF 5% 50V NP0 SMD 16 E1 C174 FILH1103A219 CAP CER 100pF 10% 50V X7R SMD 1 C4 C 230 FILH1101A230 CAP CER 100pF 5% 50V NP0 SMD 16 E1 C201 FILH1103A219 CAP CER 100pF 5% 50V X7R SMD 54 E3 C 231 FILH1101A230 CAP CER 100pF 5% 50V NP0 SMD 16 E1 C202 FILH1103A219 CAP CER 100pF 5% 50V NP0 SMD 16 E1 C 231 FILH11		C168	F1H1H101A230	CAP CER 100pF 5% 50V NP0 SMD 1	A3	C223	F1H1H103A219	CAP CER 10nF 10% 50V X7R SMD 1	F1
C170 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 F1 C225 F1J1H104A25 CAP CER 100pF 5% 50V NP0 SMD 1 E1 C171 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 E1 C226 F1J1H104A25 CAP CER 100pF 5% 50V NP0 SMD 1 E1 C172 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 E1 C227 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 16 E1 C172 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 E1 C228 F1H1H20A230 CAP CER 100pF 5% 50V NP0 SMD 16 E1 C174 F1H1H101A230 CAP CER 100pF 10% 50V X7R SMD 1 C4 C229 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 16 E1 C201 F1H1C04A043 CAP CER 100pF 10% 50V X7R SMD 1 C4 C233 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 E1 C202 ECVSU3520WR CAP CER 100pF 10% 50V X7R SMD 54 E3 C4 C233 F1H1H101A230 CAP CER 10nF 10% 50V X7R SMD 1 C4 C203 F1H1H101A230 CAP CER 100pF 10% 50V X7R SMD 54 E3 D100 MAZ812000L DIODE		C169	F1H1H101A230	CAP CER 100pF 5% 50V NP0 SMD 1	A3	C224	F1J1H104A425	CAP CER 100nF -20+80% 50V Y5V	B1
Composition Composition <thcomposition< th=""> <thcomposition< th=""></thcomposition<></thcomposition<>		C170	F1H1H101A230	CAP CER 100pF 5% 50V NP0 SMD 1	F1	C225	F1J1H104A425	CAP CER 100nF -20+80% 50V Y5V	D4
C171 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 E1 C227 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 E1 C172 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 F1 F1 CAP CER 100pF 5% 50V NP0 SMD 16 E1 C173 F1H1H104A25 CAP CER 100pF 5% 50V NP0 SMD 1 CAP CER 100pF 5% 50V NP0 SMD 16 E1 C174 F1H1H104A25 CAP CER 100pF 10% 50V X7R SMD 1 CA C230 F1H1H120A230 CAP CER 100pF 5% 50V NP0 SMD 16 E1 C200 F1H1H104A25 CAP CER 100pF 10% 50V X7R SMD 1 C4 C231 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 E1 C201 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 5.4 E3 CAP CER 10nF 10% 50V X7R SMD 1 C4 C203 F1H1H101A230 CAP CER 10nF 10% 16V X5R SMD B1 C323 F1H1H101A219 CAP CER 10nF 10% 50V X7R SMD 1 C4 C204 EVEYC1A151P CAP LUM 150uF 20% 10V SMD 6.2 E4 C100 MAZ812000L DIODE E2 C205 F1H1C104A043 CAP CER 100nF 10% 16V X5R SMD E1 D104						C226	F1H1H101A230	CAP CER 100pF 5% 50V NP0 SMD 1	E1
C172 F1HH1101A230 CAP CER 1000F 5% 50V NP0 SMD 1 F1 C173 F1H1H120A230 CAP CER 22pF 5% 50V NP0 SMD 16 E1 C173 F1H1H120A219 CAP CER 10nF 10% 50V X7R SMD 1 C4 C220 F1H1H120A230 CAP CER 10nF 5% 50V NP0 SMD 16 E1 C200 F1H1H120A219 CAP CER 10nF 10% 50V X7R SMD 1 A1 C230 F1H1H120A230 CAP CER 10nF 5% 50V NP0 SMD 1 E1 C201 F1H1H120A219 CAP CER 10nF 10% 16V X5R SMD B1 C232 F1H1H120A219 CAP CER 10nF 10% 50V X7R SMD 1 C4 C202 ECEV0JS220WR CAP CER 10nF 10% 16V X5R SMD B1 C232 F1H1H102A219 CAP CER 10nF 10% 50V X7R SMD 16 C4 C203 F1H1H10A230 CAP CER 10nF 10% 16V X5R SMD E4 F1	- 0	C171	F1H1H101A230	CAP CER 100pF 5% 50V NP0 SMD 1	E1	C227	F1H1H101A230	CAP CER 100pF 5% 50V NP0 SMD 1	D4
No. C173 F1H1H20A225 C200 C173 F1H1H20A229 F1H1H20A219 CAP CER 100nF 10% 50V X7R SMD 1 CAP CER 10nF 10% 50V X7R SMD 1 C4 C200 CAP CER 10nF 10% 50V X7R SMD 1 C4 C200 C200 C220 F1H1H20A230 F1H1H20A230 CAP CER 100pF 5% 50V NP0 SMD 16 E1 E1 E1 E1 C231 C200 F1H1H20A219 CAP CER 10nF 10% 50V X7R SMD 1 A1 C230 C231 F1H1H20A230 CAP CER 100pF 5% 50V NP0 SMD 1 E1 C201 C201 F1H1H101A230 CAP CER 100nF 10% 50V X7R SMD 5.4 C3 CAP CER 10nF 10% 50V X7R SMD 16 C4 C203 C204 EEVEC1A151P CAP CER 100nF 10% 16V X5R SMD B1 C233 F1H1H102A219 CAP CER 10nF 10% 50V X7R SMD 1 C4 C204 EEVEC1A151P CAP CER 100nF 10% 16V X5R SMD B1 D101 MAZ812000L DIODE E2 C205 F1H1H20A230 CAP CER 100nF 10% 16V X5R SMD C4 D102 MAZ812000L DIODE E2 C206 F1H1H20A230 CAP CER 100nF 10% 16V X5R SMD E4 D102 MAZ812000L DIODE E2 C207 EEVEC1A151P CAP CER 100nF 10% 16V X5R SMD 16 B1 D104 MAZ812000L DIODE E1 <		C172	F1H1H101A230	CAP CER 100pF 5% 50V NP0 SMD 1	F1				
N MOD C174 F1H1H103A219 CAP CER 10nF 10% 50V X7R SMD 1 C4 C29 F1H1H102A020 CAP CER 100pF 5% 50V NP0 SMD 16 E1 C200 F1H1H103A219 CAP CER 10nF 10% 50V X7R SMD 1 A1 C230 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 E1 C201 F1H1H101A230 CAP CER 100nF 5% 50V NP0 SMD 1 E1 C231 F1H1H101A230 CAP CER 100nF 5% 50V NP0 SMD 1 E1 C202 ECEVUSS220VR CAP CER 100nF 10% 16V X5R SMD B1 C232 F1H1H101A230 CAP CER 10nF 10% 50V X7R SMD 1 C4 C204 EEVFC1A151P CAP CER 100nF 10% 16V X5R SMD E3 F1 D100 MAZ812000L DIODE E2 C205 F1H1C104A043 CAP CER 100nF 10% 16V X5R SMD C4 D101 MAZ812000L DIODE E2 C206 F1H1C104A043 CAP CER 100nF 10% 16V X5R SMD C4 D102 MAZ812000L DIODE E1 C207 EEVFC1A151P CAP ALUM 150uF 20% 10V SMD 6.2 F4 D103 MAZ812000L DIODE E1 C208		C173	F1J1H104A425	CAP CER 100nF -20+80% 50V Y5V	E4	C228	F1H1H220A230	CAP CER 22pF 5% 50V NP0 SMD 16	E1
C200 F1H1H103A219 CAP CER 10nF 10% 50V X7R SMD 1 A1 C230 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 E1 C201 F1H11H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 E1 C231 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 E1 C202 ECEV0JS220WR CAP CER 100pF 5% 50V NP0 SMD 1 CA E3 C323 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 C4 C203 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 C4 C233 F1H1H102A219 CAP CER 10nF 10% 50V X7R SMD 1 C4 C204 EEVFC1A151P CAP CER 100nF 10% 10V SMD 6.2 E4 C33 F1H1H103A219 CAP CER 10nF 10% 50V X7R SMD 1 C4 C205 F1H1C104A043 CAP CER 100nF 10% 16V X5R SMD E4 D100 MAZ812000L DIODE E2 C206 F1H11H102A219 CAP CER 100nF 10% 16V X5R SMD C4 D103 MAZ812000L DIODE E1 C207 E1H11H102A230 CAP CER 100nF 5% 50V NP0 SMD 16 E1 D103 MAZ812000L DIODE E1 C208		C174	F1H1H103A219	CAP CER 10nF 10% 50V X7R SMD 1	C4	C229	F1H1H220A230	CAP CER 22pF 5% 50V NP0 SMD 16	E1
No. B C201 F1H1C104A043 CAP CER 100nF 10% 16V X5R SMD E1 C201 ECEV0.JS220WR CAP CER 100nF 10% 16V X5R SMD E3 C203 F1H11101A230 CAP CER 100nF 10% 16V X5R SMD E3 C203 F1H11101A230 CAP CER 100nF 10% 16V X5R SMD E3 C203 F1H11101A230 CAP CER 100nF 10% 16V X5R SMD E4 C204 EEVFC14151P CAP CER 100nF 10% 16V X5R SMD E4 C205 F1H1C104A043 CAP CER 100nF 10% 16V X5R SMD E4 C206 F1H1C104A043 CAP CER 100nF 10% 16V X5R SMD E4 C207 EEVFC14151P CAP CER 100nF 10% 16V X5R SMD E4 C208 F1H1C104A043 CAP CER 100nF 10% 16V X5R SMD E4 C207 EEVFC14151P CAP CER 100nF 10% 16V X5R SMD 5.4 E1 C208 F1H1H102A219 CAP CER 100nF 10% 16V X5R SMD 5.4 E1 C207 EEVFC14351P CAP CER 100nF 10% 16V X5R SMD 5.4 E1 C208 F1H1H102A219 CAP CER 100nF 10% 16V X5R SMD 5.4 E1 C209 F1H1H102A219 CAP		C200	F1H1H103A219	CAP CER 10nF 10% 50V X7R SMD 1	A1	C230	F1H1H101A230	CAP CER 100pF 5% 50V NP0 SMD 1	E1
P S C201 F1H1C104A03 CAP CER 100nF 10% 16V X5R SMD B1 C232 F1H1H102A219 CAP CER 1nF 10% 50V X7R SMD 16 C4 C202 ECEV0JS220WR CAP ALUM 22UF 20% 6.3V SMD 5.4 E3 C33 F1H1H103A219 CAP CER 10nF 10% 50V X7R SMD 16 C4 C204 EEVFC1A151P CAP CER 100nF 5% 50V NPO SMD 6.2 E4 D100 MAZ812000L DIODE E2 C205 F1H1C104A043 CAP CER 100nF 10% 16V X5R SMD E4 D100 MAZ812000L DIODE E2 C206 F1H1C104A043 CAP CER 100nF 10% 16V X5R SMD C4 D102 MAZ812000L DIODE E2 C207 EEVFC1A151P CAP CER 10nF 10% 16V X5R SMD C4 D103 MAZ812000L DIODE E1 C208 F1H1H102A219 CAP CER 10nF 10% 16V X5R SMD 16 B1 D104 MAZ812000L DIODE E1 C209 F1H1H102A219 CAP CER 10nF 5% 50V NPO SMD 16 B1 D106 MAZ81200L DIODE DIODE E1 C210 F1H1H20A230 CAP CER 100pF 5% 50V NPO SMD 11 C4 D200 B0JCMCC000003 DIODE 40V 1.5A E3	- ect					C231	F1H1H101A230	CAP CER 100pF 5% 50V NP0 SMD 1	E1
C202 ECEVOJS220WR CAP ALUM 22U F 20% 6.3V SMD 5.4 E3 C233 F1H1H103A219 CAP CER 10nF 10% 50V X7R SMD 1 C4 C203 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 C4 C233 F1H1H103A219 CAP CER 10nF 10% 50V X7R SMD 1 C4 C204 EEVFC1A151P CAP CER 100nF 10% 16V X5R SMD E4 D100 MAZ812000L DIODE E2 C206 F1H1C104A043 CAP CER 100nF 10% 16V X5R SMD C4 D102 MAZ812000L DIODE E2 C207 EEVFC1A151P CAP ALUM 150UF 20% 10V SMD 6.2 F4 D103 MAZ812000L DIODE E1 C208 F1H1H102A219 CAP CER 100nF 10% 16V X5R SMD C4 D103 MAZ812000L DIODE E1 C209 E1H1H102A219 CAP CER 100 F 5% 50V NP0 SMD 16 B1 D104 MAZ812000L DIODE E1 C210 F1H1H102A230 CAP CER 100 F 5% 50V NP0 SMD 16 E1 D105 MAZ812000L DIODE DIODE D11 C211 F1H1H101A230 CAP CER 100 F 5% 50V NP0 SMD 1	i on	C201	F1H1C104A043	CAP CER 100nF 10% 16V X5R SMD	B1	C232	F1H1H102A219	CAP CER 1nF 10% 50V X7R SMD 16	C4
C203 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 C4 C233 F1H1H103A219 CAP CER 10nF 10% 50V X7R SMD 1 C4 C204 EEVFC1A151P CAP ALUM 150UF 20% 10V SMD 6.2 E4 D100 MAZ812000L DIODE E2 C206 F1H1C104A043 CAP CER 100nF 10% 16V X5R SMD C4 D100 MAZ812000L DIODE E2 C207 EEVFC1A151P CAP ALUM 150UF 20% 10V SMD 6.2 F4 D103 MAZ81200L DIODE E1 C208 F1H1H102A219 CAP CER 100nF 10% 16V X5R SMD C4 D103 MAZ81200L DIODE E1 C209 F1H1H102A219 CAP CER 100 F 50% 50V NPS MD 16 B1 D104 MAZ81200L DIODE E1 C210 F1H1H20A230 CAP CER 100P F 5% 50V NPO SMD 16 B1 D106 MAZ81200L DIODE D10E D1 C211 F1H1H101A230 CAP CER 100P F 5% 50V NP0 SMD 1 C4 D200 B0JCMC000033 DIODE 40V 1.5A E3 C213 EEVFC1H470P CAP CER 100P F 5% 50V NP0 SMD 10.2 E3		C202	ECEV0JS220WR	CAP ALUM 22uF 20% 6.3V SMD 5.4	E3				
C204 EEVFC1A151P CAP ALUM 150uF 20% 10V SMD 6.2 E4 N MAZ812000L DIODE E2 C205 F1H1C104A043 CAP CER 100nF 10% 16V X5R SMD B1 D100 MAZ812000L DIODE E2 C206 F1H1C104A043 CAP CER 100nF 10% 16V X5R SMD C4 D102 MAZ812000L DIODE E2 C207 EEVFC1A151P CAP ALUM 150uF 20% 10V SMD 6.2 F4 D103 MAZ812000L DIODE E1 C208 F1H1H102A219 CAP CER 1nF 10% 50V X7R SMD 16 B1 D104 MAZ812000L DIODE E1 C209 F1H1H22A230 CAP CER 22pF 5% 50V NP0 SMD 16 B1 D104 MAZ812000L DIODE DIODE E1 C210 F1H1H20A230 CAP CER 100pF 5% 50V NP0 SMD 1 C4 D105 MAZ812000L DIODE DIODE D1 C211 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 C4 D202 B0JCMC000003 DIODE 40V 1.5A E3 C212 F1H1H101A230 CAP CER 100pF 5% 50V SMD 6.2x E3		C203	F1H1H101A230	CAP CER 100pF 5% 50V NP0 SMD 1	C4	C233	F1H1H103A219	CAP CER 10nF 10% 50V X7R SMD 1	C4
C205 F1H1C104A043 CAP CER 100nF 10% 16V X5R SMD B1 D100 MAZ812000L DIODE E2 C206 F1H1C104A043 CAP CER 100nF 10% 16V X5R SMD C4 D102 MAZ812000L DIODE E1 E2 C207 EEVFC1A151P CAP CER 1100nF 10% 16V X5R SMD C4 D103 MAZ812000L DIODE DIODE E1 C208 F1H1H102A219 CAP CER 1nF 10% 50V X7R SMD 16 B1 D104 MAZ812000L DIODE DIODE E1 C209 F1H1H20A230 CAP CER 22pF 5% 50V NP0 SMD 16 B1 D104 MAZ812000L DIODE E1 C210 F1H1H20A230 CAP CER 100pF 5% 50V NP0 SMD 16 E4 D106 MAZ812000L DIODE DIODE E1 C211 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 C4 D200 B0JCMC000033 DIODE 40V 1.5A E3 C212 F1H1H101A230 CAP CER 100pF 5% 50V SMD 6.2x E3 D203 B0ECMM00001 DIODE 40V 1.5A F3 C213 EEVFC1H470P CAP ALUM 47		C204	EEVFC1A151P	CAP ALUM 150uF 20% 10V SMD 6.2	E4				
C206 F1H1C104A043 CAP CER 100nF 10% 16V X5R SMD C4 D101 MAZ812000L DIODE E2 C207 EEVFC1A151P CAP ALUM 150uF 20% 10V SMD 6.2 F4 D103 MAZ812000L DIODE E1 E1 C208 F1H1H102A219 CAP CER 1nF 10% 50V X7R SMD 16 B1 D103 MAZ812000L DIODE E1 C209 F1H1H220A230 CAP CER 22pF 5% 50V NP0 SMD 16 B1 D104 MAZ812000L DIODE E1 C210 F1H1H220A230 CAP CER 22pF 5% 50V NP0 SMD 16 B1 D106 MAZ812000L DIODE E1 C211 F1H1H20A230 CAP CER 22pF 5% 50V NP0 SMD 1 C4 D106 MAZ812000L DIODE D10E D1 C212 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 C4 D202 B0JCMC000003 DIODE 40V 1.5A E3 C213 EEVFC1H470P CAP ALUM 47uF 20% 50V SMD 6.2x E3 D203 B0ECMM000001 DIODE 53D 200V 3A SMD D0214AB C4 C214 EEVFC1H470P CAP ALUM 47uF 20% 50V SMD 10.2		C205	F1H1C104A043	CAP CER 100nF 10% 16V X5R SMD	B1	D100	MAZ812000L	DIODE	E2
C206 F1H1C104A043 CAP CER 100nF 10% 16V X5R SMD C4 D102 MAZ812000L DIODE E1 C207 EEVFC1A151P CAP ALUM 150uF 20% 10V SMD 6.2 F4 D103 MAZ812000L DIODE E1 C208 F1H1H102A219 CAP CER 1nF 10% 50V X7R SMD 16 B1 D104 MAZ812000L DIODE E1 C209 F1H1H20A230 CAP CER 22pF 5% 50V NP0 SMD 16 B1 D105 MAZ812000L DIODE E1 C210 F1H1H20A230 CAP CER 100pF 5% 50V NP0 SMD 16 B1 D106 MAZ812000L DIODE E1 C211 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 C4 D200 B0JCMC000033 DIODE 40V 1.5A E3 C212 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 C4 D202 B0JCMC000033 DIODE 40V 1.5A F3 C213 EVFC1H470P CAP ALUM 22uF 20% 50V SMD 6.2x E3 D203 B0ECMM00001 DIODE 53D 200V 3A SMD D0214AB C4 C214 EVFC1H470P CAP ALUM 47uF 20% 50V SMD 10.2 E3 D203 <td></td> <td></td> <td></td> <td></td> <td></td> <td>D101</td> <td>MAZ812000L</td> <td>DIODE</td> <td>E2</td>						D101	MAZ812000L	DIODE	E2
C207 EEVFC1A151P CAP ALUM 150uF 20% 10V SMD 6.2 F4 D103 MAZ812000L DIODE E1 C208 F1H1H102A219 CAP CER 1nF 10% 50V X7R SMD 16 B1 D104 MAZ812000L DIODE E1 E1 C209 F1H1H220A230 CAP CER 22pF 5% 50V NP0 SMD 16 B1 D105 MAZ812000L DIODE E1 E1 C210 F1H1H220A230 CAP CER 22pF 5% 50V NP0 SMD 16 C4 D105 MAZ812000L DIODE DIODE E1 C211 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 C4 D200 B0JCMC00003 DIODE 40V 1.5A E3 C212 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 C4 D202 B0JCMC00003 DIODE 40V 1.5A F3 C213 EEVFC1H470P CAP ALUM 22uF 20% 50V SMD 6.2x E3 D203 B0ECMM00001 DIODE 53D 200V 3A SMD D0214AB F3 C214 EEVFC1H470P CAP ALUM 47uF 20% 50V SMD 10.2 E3 D204 MAZ81400L DIODE PLANAR S MINI MOLD 2 PIN E2 C216 F1H1H101A230 <td></td> <td>C206</td> <td>F1H1C104A043</td> <td>CAP CER 100nF 10% 16V X5R SMD</td> <td>C4</td> <td>D102</td> <td>MAZ812000L</td> <td>DIODE</td> <td>E1</td>		C206	F1H1C104A043	CAP CER 100nF 10% 16V X5R SMD	C4	D102	MAZ812000L	DIODE	E1
C208 F1H1H102A219 CAP CER 1nF 10% 50V X7R SMD 16 B1 D104 MAZ812000L DIODE E1 C209 F1H1H20A230 CAP CER 22pF 5% 50V NP0 SMD 16 B1 D105 MAZ812000L DIODE E1 D104 D105 MAZ81200L DIODE E1 D104 D105 MAZ81200L DIODE E1 D104 D105 MAZ81200L DIODE D105 MAZ81200L </td <td></td> <td>C207</td> <td>EEVFC1A151P</td> <td>CAP ALUM 150uF 20% 10V SMD 6.2</td> <td>F4</td> <td>D103</td> <td>MAZ812000L</td> <td>DIODE</td> <td>E1</td>		C207	EEVFC1A151P	CAP ALUM 150uF 20% 10V SMD 6.2	F4	D103	MAZ812000L	DIODE	E1
C209 C210 F1H1H220A230 F1H1H220A230 CAP CER 22pF 5% 50V NP0 SMD 16 CAP CER 22pF 5% 50V NP0 SMD 16 B1 D105 MAZ812000L DIODE DIODE D10 C211 F1H1H20A230 CAP CER 100pF 5% 50V NP0 SMD 1 C4 D106 MAZ812000L DIODE 40V 1.5A E3 C212 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 C4 D202 B0JCMC000033 DIODE 40V 1.5A E3 C213 EEVFC1H220P CAP ALUM 22uF 20% 50V SMD 6.2x E3 D203 B0ECMM00001 DIODE S3D 200V 3A SMD D0214AB C4 C215 EEVFC1H470P CAP ALUM 47uF 20% 50V SMD 10.2 E3 D204 MAZ824000L DIODE PLANAR S MINI MOLD 2 PIN E2 C216 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 D4 D206 MA3S132E0L DIODE PLANAR S0INI MOLD 2 PIN E2		C208	F1H1H102A219	CAP CER 1nF 10% 50V X7R SMD 16	B1	D104	MAZ812000L	DIODE	E1
C210 F1H1H220A230 CAP CER 22pF 5% 50V NP0 SMD 16 C4 D105 MAZ812000L DIODE DIODE D10B D10B C211 F1H1H01A230 CAP CER 100pF 5% 50V NP0 SMD 1 C4 D106 MAZ812000L DIODE 40V 1.5A E3 C212 F1H1H01A230 CAP CER 100pF 5% 50V NP0 SMD 1 C4 D200 B0JCMC000003 DIODE 40V 1.5A E3 C213 EEVFC1H420P CAP ALUM 22uF 20% 50V SMD 6.2x E3 D203 B0ECMM00001 DIODE S3D 200V 3A SMD DO214AB C4 C214 EEVFC1H470P CAP ALUM 47uF 20% 50V SMD 10.2 E3 D204 MAZ824000L DIODE PLANAR S MINI MOLD 2 PIN E2 C215 EEVFC1H470P CAP CER 100pF 5% 50V NP0 SMD 10.2 F3 D204 MAZ824000L DIODE PLANAR S MINI MOLD 2 PIN E2 C216 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 D4 D206 MA3S132E0L DIODE 100MA 80V C4		C209	F1H1H220A230	CAP CER 22pF 5% 50V NP0 SMD 16	B1				
C211 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 C4 D106 MAZ812000L DIODE DIODE 40V 1.5A E3 C212 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 C4 D200 B0JCMC000033 DIODE 40V 1.5A F3 C213 EEVFC1H20P CAP ALUM 22uF 20% 50V SMD 6.2x E3 D203 B0ECMM00001 DIODE S3D 200V 3A SMD D0214AB C4 C214 EEVFC1H470P CAP ALUM 47uF 20% 50V SMD 10.2 E3 D204 MAZ824000L DIODE PLANAR S MINI MOLD 2 PIN E2 C216 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 D4 D206 MAZ82400L DIODE PLANAR S MINI MOLD 2 PIN E2 Visione C216 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 D4 D206 MAZ82400L DIODE PLANAR S MINI MOLD 2 PIN E2 D205 MA8160TX DIODE 16V E2 D206 MA3S132E0L DIODE 100MA 80V C4		C210	F1H1H220A230	CAP CER 22pF 5% 50V NP0 SMD 16	C4	D105	MAZ812000L	DIODE	E1
C211 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 C4 D200 B0JCMC000003 DIODE 40V 1.5A E3 C212 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 C4 D202 B0JCMC000003 DIODE 40V 1.5A F3 C213 EEVFC1H220P CAP ALUM 22uF 20% 50V SMD 6.2x E3 D203 B0ECMM00001 DIODE S3D 200V 3A SMD D0214AB C4 C214 EEVFC1H470P CAP ALUM 47uF 20% 50V SMD 10.2 E3 D204 MAZ824000L DIODE PLANAR S MINI MOLD 2 PIN E2 C215 EEVFC1H470P CAP ALUM 47uF 20% 50V SMD 10.2 F3 D204 MAZ824000L DIODE PLANAR S MINI MOLD 2 PIN E2 C216 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 D4 D206 MA3S132E0L DIODE 100MA 80V C4						D106	MAZ812000L	DIODE	D1
C212 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 C4 D202 B0JCMC000003 DIODE 40V 1.5A F3 C213 EEVFC1H220P CAP ALUM 22uF 20% 50V SMD 6.2x E3 D203 B0ECMM000001 DIODE S3D 200V 3A SMD D0214AB C4 C214 EEVFC1H470P CAP ALUM 47uF 20% 50V SMD 10.2 E3 D204 MAZ824000L DIODE PLANAR S MINI MOLD 2 PIN E2 C215 EEVFC1H470P CAP ALUM 47uF 20% 50V SMD 10.2 F3 D204 MAZ824000L DIODE PLANAR S MINI MOLD 2 PIN E2 C216 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 D4 D206 MA3S132E0L DIODE 100MA 80V C4		C211	F1H1H101A230	CAP CER 100pF 5% 50V NP0 SMD 1	C4	D200	B0JCMC000003	DIODE 40V 1.5A	E3
C213 EEVFC1H220P CAP ALUM 22uF 20% 50V SMD 6.2x E3 D203 B0ECMM000001 DIODE S3D 200V 3A SMD D0214AB C4 C214 EEVFC1H470P CAP ALUM 47uF 20% 50V SMD 10.2 E3 E3 D203 B0ECMM000001 DIODE S3D 200V 3A SMD D0214AB C4 C215 EEVFC1H470P CAP ALUM 47uF 20% 50V SMD 10.2 F3 D204 MAZ824000L DIODE PLANAR S MINI MOLD 2 PIN E2 C216 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 D4 D206 MA3S132E0L DIODE 100MA 80V C4		C212	F1H1H101A230	CAP CER 100pF 5% 50V NP0 SMD 1	C4	D202	B0JCMC000003	DIODE 40V 1.5A	F3
C214EEVFC1H470PCAP ALUM 47uF 20% 50V SMD 10.2E3D204MAZ824000LDIODE PLANAR S MINI MOLD 2 PINE2C215EEVFC1H470PCAP ALUM 47uF 20% 50V SMD 10.2F3D204MAZ824000LDIODE PLANAR S MINI MOLD 2 PINE2Si s s c r rC216F1H1H101A230CAP CER 100pF 5% 50V NP0 SMD 1D4D4D206MA3S132E0LDIODE 16VE2D206MA3S132E0LDIODE 100MA 80VC4		C213	EEVFC1H220P	CAP ALUM 22uF 20% 50V SMD 6.2x	E3	D203	B0ECMM000001	DIODE S3D 200V 3A SMD DO214AB	C4
C215 EEVFC1H470P CAP ALUM 47uF 20% 50V SMD 10.2 F3 D204 MAZ824000L DIODE PLANAR S MINI MOLD 2 PIN E2 C216 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 D4 D206 MA3S132E0L DIODE 16V E2		C214	EEVFC1H470P	CAP ALUM 47uF 20% 50V SMD 10.2	E3				
R C216 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 D4 D205 MA8160TX DIODE 16V E2 D		C215	EEVFC1H470P	CAP ALUM 47uF 20% 50V SMD 10.2	F3	D204	MAZ824000L	DIODE PLANAR S MINI MOLD 2 PIN	E2
S S C216 F1H1H101A230 CAP CER 100pF 5% 50V NP0 SMD 1 D4 D206 MA3S132E0L DIODE 100MA 80V C4	Re					D205	MA8160TX	DIODE 16V	E2
	lss visi	C216	F1H1H101A230	CAP CER 100pF 5% 50V NP0 SMD 1	D4	D206	MA3S132E0L	DIODE 100MA 80V	C4
	ue								

REPLACEMENT PARTS LIST

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Re	Model: HFGD70AS02		S02 Name: Handsfree PCB Assembly		Model: H	FGD70AS02	Name: Handsfree PCB Assembly	
sue	Ref	Part Number	Description	Grid	Ref	Part Number	Description	Grid
ion 🔺								
0	D207	MAZ80560LL	DIODE ZENER L RANK 5.3-5.58V S	C4	FL206	ACB1608M040T	FILTER	D2
	D208	B3ABB0000049	DIODE LED GREEN 10-56mcd 20mA	C3	FL207	ACB1608M040T	FILTER	C4
	D209	B3ABB0000049	DIODE LED GREEN 10-56mcd 20mA	C4	FL208	ACB1608M040T	FILTER	D3
					FS201	K5D402AZ0001	FILTER 4 A	D4
	FL100	ACB1608M040T	FILTER	A3				
	FL101	ACB1608M040T	FILTER	D1	PL002	K1KA02A00079	DF13C-2P-1.25V21 CONNECTOR	B4
	FL102	ACB1608M040T	FILTER	A4				
	FL103	ACB1608M040T	FILTER	E1	R100	ERJ3GEYJ392V	CHIP RESISTOR 3K9 OHM +/-5% 1/	A3
	FL104	ACB1608M040T	FILTER	E1	R101	ERJ3GEYJ104V	CHIP RESISTOR 100K OHM +/-5% 1	A4
					R102	ERJ3GEYJ821V	CHIP RESISTOR 820 OHM +/-5% 1/	A3
	FL105	ACB1608M040T	FILTER	D2	R103	ERJ3GEYJ224V	CHIP RESISTOR 220K OHM +/-5% 1	F1
	FL106	ACB1608M040T	FILTER	D2	R104	ERJ3GEYJ472V	CHIP RESISTOR 4K7 OHM +/-5% 1/	A4
	FL107	ACB1608M040T	FILTER	F1				
	FL108	ACB1608M040T	FILTER	E1	R105	ERA6YED104V	100k OHM 100mW RESISTOR	F2
	FL109	ACB1608M040T	FILTER	E4	R106	ERJ3GEYJ223V	CHIP RESISTOR 22K OHM +/-5% 1/	F2
					R107	ERA6YED473V	47k OHM 100mW RESISTOR	F2
ι O	FL110	J0JGC0000007	SUPPRESSOR EMI FERRITE 10 OHM	E4	R108	ERJ3GEYJ471V	CHIP RESISTOR 470 OHM +/-5% 1/	E2
- 22 ect	FL111	ACB1608M040T	FILTER	D2	R109	ERJ3GEYJ101V	CHIP RESISTOR 100 OHM +/-5% 1/	E2
i g	FL112	ACB1608M040T	FILTER	D2				
	FL113	ACB1608M040T	FILTER	E4	R110	ERJ3GEYJ105V	CHIP RESISTOR 1M OHM +/-5% 1/1	F2
	FL115	ACB1608M040T	FILTER	A3	R111	ERJ3GEYJ105V	CHIP RESISTOR 1M OHM +/-5% 1/1	A4
					R112	ERJ3GEYJ103V	CHIP RESISTOR 10K OHM +/- 5% 1	F2
	FL116	ACB1608M040T	FILTER	A4	R113	ERA6YED473V	47k OHM 100mW RESISTOR	F2
	FL117	ACB1608M040T	FILTER	A4	R114	ERJ3GEYJ224V	CHIP RESISTOR 220K OHM +/-5% 1	F2
	FL118	J0LB00000028	INDUCTOR FERRITE CHIP 10000HM	A3				
	FL119	ACB1608M040T	FILTER	F1	R115	ERJ3GEYJ103V	CHIP RESISTOR 10K OHM +/- 5% 1	F2
	FL120	ACB1608M040T	FILTER	F1	R116	ERJ3GEYJ392V	CHIP RESISTOR 3K9 OHM +/-5% 1/	F1
					R117	ERA6YED104V	100k OHM 100mW RESISTOR	F2
	FL121	ACB1608M040T	FILTER	F1	R118	ERJ3GEYJ104V	CHIP RESISTOR 100K OHM +/-5% 1	F1
	FL122	J0LB00000028	INDUCTOR FERRITE CHIP 10000HM	A3	R119	ERJ3GEYJ821V	CHIP RESISTOR 820 OHM +/-5% 1/	F1
	FL200	J0JGC0000007	SUPPRESSOR EMI FERRITE 10 OHM	D2				
	FL201	ACB1608M040T	FILTER	D2	R120	ERJ3GEYJ472V	CHIP RESISTOR 4K7 OHM +/-5% 1/	F1
7	FL202	ACB1608M040T	FILTER	D2	R121	ERJ3GEYJ105V	CHIP RESISTOR 1M OHM +/-5% 1/1	F1
လွ်ဂ					R122	ERJ3GEYJ102V	CHIP RESISTOR 1K OHM +/-5% 1/1	E2
ž. F	FL203	ACB1608M040T	FILTER	D2	R123	ERJ3GEYJ223V	CHIP RESISTOR 22K OHM +/-5% 1/	E2
Ce 00(FL204	ACB1608M040T	FILTER	D2	R124	ERJ3GEYJ221V	CHIP RESISTOR 220 OHM +/-5% 1/	E2
020 Ma	FL205	J0JHC0000003	SUPPRESSOR EMI FERRITE 150 OHM	D4				
nua								

REPLACEMENT PARTS LIST

Se∡	Model: HFGD70AS02 Name: Handsfree PC		Name: Handsfree PCB Assembly	landsfree PCB Assembly		FGD70AS02	Name: Handsfree PCB Assembly	
ši ⊆	Ref	Part Number	Description	Grid	Ref	Part Number	Description	Grid
∐02	R125	ERJ3GEYJ223V	CHIP RESISTOR 22K OHM +/-5% 1/	E1	R203	ERA6YED473V	47k OHM 100mW RESISTOR	A1
	R126	ERJ3GEYJ102V	CHIP RESISTOR 1K OHM +/-5% 1/1	E1	R204	ERA6YED133V	RESISTOR 13K 1/10W SM 2012	B1
≝ C	R127	ERJ3GEYJ102V	CHIP RESISTOR 1K OHM +/-5% 1/1	E1	R205	ERA6YED103V	10k OHM 100mW RESISTOR	A2
	R128	ERJ3GEYJ223V	CHIP RESISTOR 22K OHM +/-5% 1/	E1	R206	ERJ3GEYJ472V	CHIP RESISTOR 4K7 OHM +/-5% 1/	A2
	R129	ERJ3GEYJ102V	CHIP RESISTOR 1K OHM +/-5% 1/1	E1	R207	ERJ3GEYJ101V	CHIP RESISTOR 100 OHM +/-5% 1/	A1
	R130	ERJ3GEYJ102V	CHIP RESISTOR 1K OHM +/-5% 1/1	E1	R209	ERJ12NF1000U	RESISTOR 100 OHM 1% 1/2W SMD 4	A1
	R131	ERJ3GEYJ104V	CHIP RESISTOR 100K OHM +/-5% 1	E4	R210	ERA6YED153V	15k OHM 100mW RESISTOR	B1
	R132	ERJ3GEYJ223V	CHIP RESISTOR 22K OHM +/-5% 1/	E1	R211	ERA6YED103V	10k OHM 100mW RESISTOR	A1
	R133	ERJ6GEYJ100V	CHIP RESISTOR 10 OHM +/-5% 1/1	E4	R212	ERA6YED183V	RESISTOR 18K 1/10W SM 2012	A1
	R134	ERJ3GEYJ273V	CHIP RESISTOR 27K OHM +/-5% 1/	E4	R213	ERA6YED272V	2k7 OHM 100mW RESISTOR	A1
	R135	ERA6YED104V	100k OHM 100mW RESISTOR	E1	R214	ERJ3GEYJ102V	CHIP RESISTOR 1K OHM +/-5% 1/1	B1
۱ Ñ	R137	ERJ6GEYJ471V	CHIP RESISTOR 470 OHM +/-5% 1/	E4	R215	ERJ3GEYJ153V	CHIP RESISTOR 15K OHM +/-5% 1/	B4
	R138	ERJ3GEYJ101V	CHIP RESISTOR 100 OHM +/-5% 1/	E2	R216	ERJ3GEYJ221V	CHIP RESISTOR 220 OHM +/-5% 1/	A1
	R139	ERA6YED104V	100k OHM 100mW RESISTOR	E1	R217	ERJ3GEYJ103V	CHIP RESISTOR 10K OHM +/- 5% 1	E2
	R140	ERJ3GEYJ105V	CHIP RESISTOR 1M OHM +/-5% 1/1	C3	R218	ERJ3GEYJ221V	CHIP RESISTOR 220 OHM +/-5% 1/	D4
èctio 25 -	R141	FRJ6GEYJ100V	CHIP RESISTOR 10 OHM +/-5% 1/1	F4	R219	ERJ3GEYJ473V	CHIP RESISTOR 47K OHM +/-5% 1/	E2
' ⊐	R142	ERJ3GEYJ563V	CHIP RESISTOR 56K OHM +/-5% 1/	C3	R220	ERJ3GEYJ103V	CHIP RESISTOR 10K OHM +/- 5% 1	 C4
	R143	ERJ3GEYJ682V	CHIP RESISTOR 6K8 OHM +/-5% 1/	03	R221	ERJ3GEYJ222V	CHIP RESISTOR 2K2 OHM +/-5% 1/	E2
	R144	ERJ3GEYJ101V	CHIP RESISTOR 100 OHM +/-5% 1/	E2	R222	ERJ3GEYJ103V	CHIP RESISTOR 10K OHM +/- 5% 1	C4
	R145	ERA6YED104V	100k OHM 100mW RESISTOR	D1	R223	ERJ3GEYJ104V	CHIP RESISTOR 100K OHM +/-5% 1	C4
	R146	FRI3GEY 473V	CHIP RESISTOR 47K OHM +/-5% 1/	03	R224	FRJ6GFYJ332V	RESISTOR 3 3K OHM 5% 1/10W SMD	D2
	R147		100k OHM 100mW/ RESISTOR		R225	FRJ3GFYJ103V	CHIP RESISTOR 10K OHM +/- 5% 1	B2
	R148	ERJ3GEY.I105V	CHIP RESISTOR 1M OHM +/-5% 1/1	C3	R226	ERJ3GEYJ103V	CHIP RESISTOR 10K OHM +/- 5% 1	B2
	R149	ER.114NF27R0U	RESISTOR 27 OHM 1% 1/4W SMD 32	C3	R227	ERJ3GEYJ471V	CHIP RESISTOR 470 OHM +/-5% 1/	C4
	R150	ERJ3GEYJ103V	CHIP RESISTOR 10K OHM +/- 5% 1	C3	R228	ERJ3GEYJ102V	CHIP RESISTOR 1K OHM +/-5% 1/1	E2
	R151	ER 13GEY 1273V	CHIP RESISTOR 27K OHM +/-5% 1/	C3	TR100	B1GDCENN0007	TRANSISTOR DTA144ELIA PNP WITH	F2
	R152	ER.I3GEY.I103V	CHIP RESISTOR 10K OHM +/- 5% 1	03	TR101	B1GBCENN0009	TRANSISTOR DTC144FUA NPN WITH	F2
	R153	ER I3GEY 1105V	CHIP RESISTOR 1M OHM +/-5% 1/1	03	TR102	B1GDCENN0007	TRANSISTOR DTA144EUA PNP WITH	F2
	R200	ER ISGEV IS34V		A1	TR200	2SD601AQSTX	TRANSISTOR 150MHZ 25V 200MW	A1
	R201		15k OHM 100mW/ RESISTOR	B1	TR203	B1GDCENN0007	TRANSISTOR DTA144EUA PNP WITH	F2
Re	11201							
lssu(visior	R202	ERJ3GEYJ473V	CHIP RESISTOR 47K OHM +/-5% 1/	B1	TR204	B1GDCFEM0002	TRANSISTOR DTA123JKA PNP WITH	E2
о 0								

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Issue 1 Revision Model: HFGD70AS02 Name: Handsfree PCB Assembly Ref Part Number Description 0 TR205 2SD17550PL TRANSISTOR 50MHZ 60V TR206 B1GDCFEM0002 TRANSISTOR DTA123JKA PNP WITH TR207 DTC114EUAT06 TRANSISTOR DTC114EUA NPN WITH TR208 DTC114EUAT06 TRANSISTOR DTC114EUA NPN WITH U100 C0JBAS000061 IC C2MOS BILATERAL SWITCH 200m U101 C0ABAB000015 IC NJM2107F SINGLE OP AMP SMD U102 C0ABAB000015 IC NJM2107F SINGLE OP AMP SMD U103 C0ABAB000015 IC NJM2107F SINGLE OP AMP SMD U104 C0JBAS000061 IC C2MOS BILATERAL SWITCH 200m U105 C0ABAB000015 IC NJM2107F SINGLE OP AMP SMD U106 IC TC74HC27AFN T 3I/P NOR GATE C0JBAD000091 U107 C0JBAD000092 IC TC74HC02AFN Q 2I/P NOR GATE U114 C0JBAS000061 IC C2MOS BILATERAL SWITCH 200m U115 C0ABAB000015 IC NJM2107F SINGLE OP AMP SMD Section - 26 -U116 C0JBAS000061 IC C2MOS BILATERAL SWITCH 200m U117 C0ABBA000054 IC NJM3414AM DUAL OP AMP SMD D U118 C0JBAC000109 IC TC7S00FU NAND GATE SMD SSOP U200 C0ABBA000027 INTEGRATED CIRCUIT DUAL CPE AM U201 C1CB00000531 5V 300KHz IC

REGULATOR 3 TERMINAL TYPE

Grid

D3

D2

D2

D2

A4

A4

F2 F1

E1

F1

E1

E2

C3

D1

C3

C3

E1

В2

A1

C3

U202

C0CBADC00011

8 CIRCUIT DIAGRAMS

8.1 Audio Circuits



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CIRCUIT DIAGRAMS

8.2 Power Supply and Charging Circuits



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LAYOUT DIAGRAMS



