



PROFESSIONAL
by **HARMAN**

Service Manual

MTS12

12" Full Range Loudspeaker System



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Professional Series

Key Features:

- ▶ 12" custom LF driver featuring high-power handling and extended low frequency response
- ▶ JBL patent compression HF driver for warm vocal reproduction in great detail
- ▶ Enclosure constructed of 15 mm MDF with durable painting
- ▶ 70° × 100° coverage pattern with smooth response on and off axis
- ▶ 18-gauge steel front grille for protection of internal components
- ▶ 35 mm pole-mount socket



Applications:

- ▶ Karaoke sound reinforcement
- ▶ For use with a sub-woofer

MTS12 is a professional-grade 12" (304.8 mm) two-way speaker system designed for karaoke rooms. The two-way speaker combines a custom-made 12" woofer with a patent JBL 2414H-C compression driver, and stands itself out for high power handling, large dynamic, warm vocal ranges and extended low bands. Its 70° × 100° coverage pattern provides smooth and even coverage whether installed in vertical or horizontal orientation.

MTS12 is designed in a low profile and can easily blend into any karaoke rooms. The rugged enclosure is constructed of 15 mm high quality MDF and finished in a durable coating. The front grille is made from 18-gauge steel and backed with acoustic fabrics for protection of drivers and components inside. A Neutrik® Speakon® NL4MP connector is provided for reliable connection with a professional amplifier. To meet different installation requirements, three (3) pairs of M10 threaded suspension points and a 35 mm pole-mount socket are made available.

Specifications:

System:

System Type:	12", 2-way, bass-reflex
Frequency Range (-10 dB) ¹ :	47 Hz - 20 kHz
Frequency Response (±3 dB) ¹ :	80 Hz - 18 kHz
Sensitivity (1w@1m) ¹ :	95 dB
Nominal Impedance:	8 Ohms
Maximum SPL ² :	121 dB (127 dB peak)
Power Rating ³ : (Continuous/Program/Peak)	400 W/800 W/1600 W
Coverage Pattern:	70° × 100° (H × V)

Physical:

Dimensions (H × W × D):	599 mm × 347 mm × 370 mm 23.6 inch × 13.7 inch × 14.6 inch
Net Weight:	18.6 Kg (41.0 lbs)
LF Driver:	1 × 12" (304.8 mm) woofer
HF Driver:	1 × JBL 2414H-C
Input Connectors:	1 × Neutrik® Speakon® NL4MP
Enclosure Construction:	Trapezoid, 15 mm, MDF

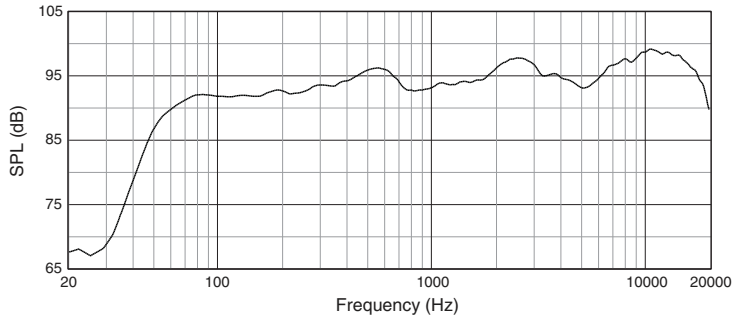
¹ Full space (4π) conditions

² Calculated maximum SPL based on rated power handling

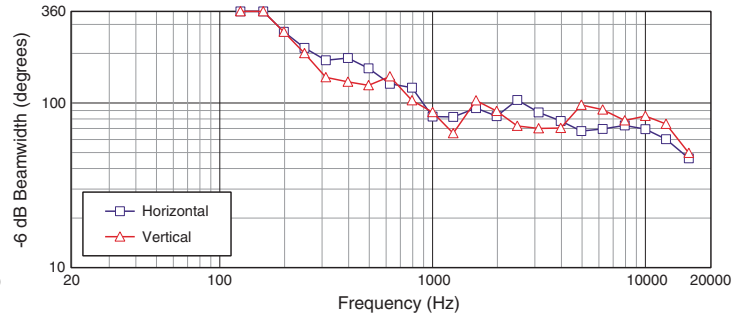
³ IEC standard, pink noise with 6 dB crest factor for 2 hours

► MTS12 12-Inch Full Range Loudspeaker System

Frequency Response:

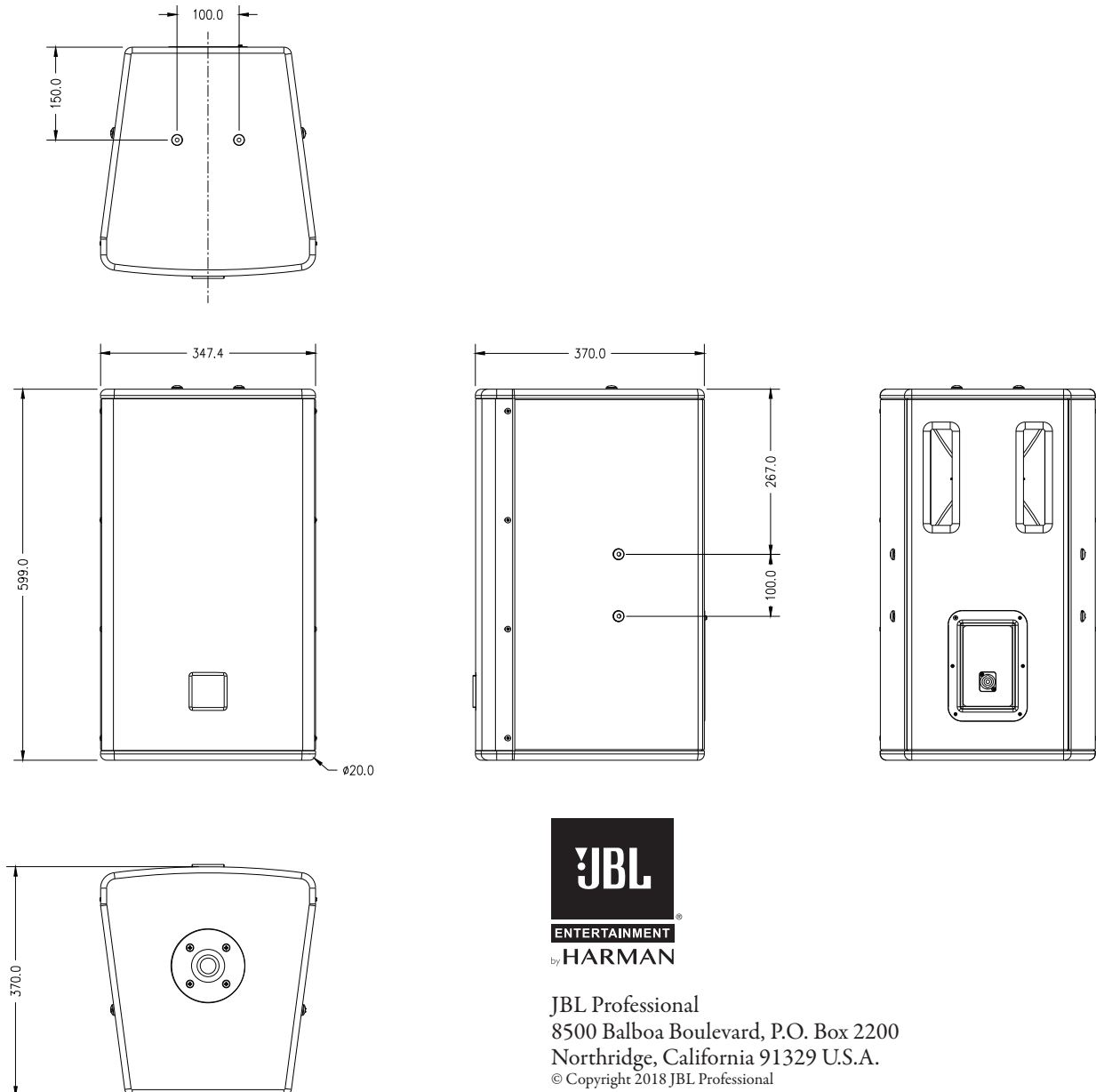


Beamwidth:



Dimensions:

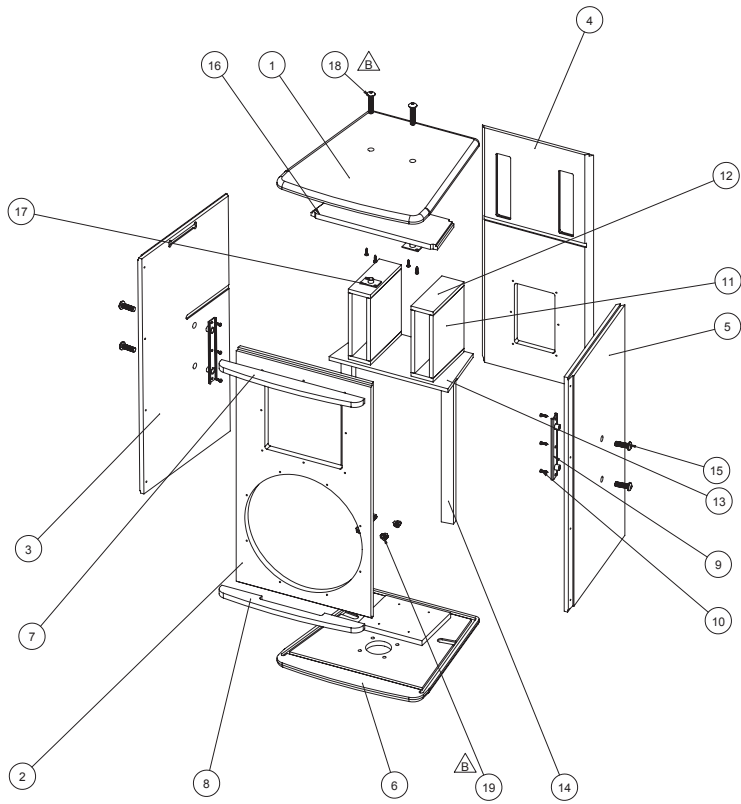
Dimensions in mm



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SSMTS12
SZ
07/02/18

REVISION HISTORY					
DATE	REV.	PREPARED PART NO.	DESCRIPTION	ZONE	BY
02/20/11	A2		CHANGE DESIGN CHANGE MATERIAL		COOP
02/20/11	B		ADD PARTS: CHANGE TOP HANGING SCREWS		SLY

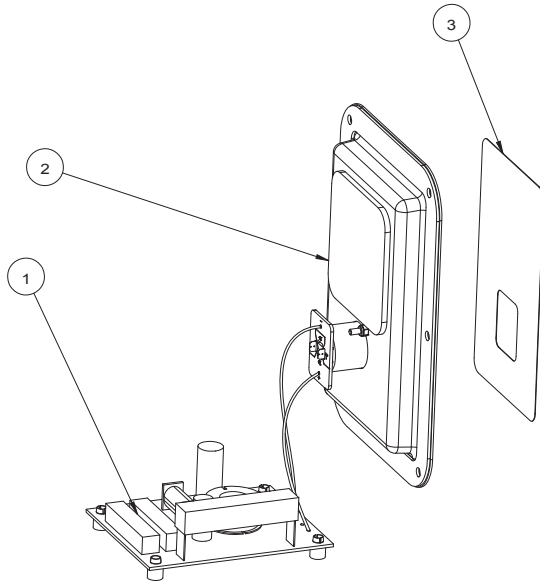


ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
19	5041458	FSTNR,NUT,T-NUT,M6,HOOK PRONG	4
18	5090496-00	FSTNR,MSCR,TRUSS,HEX,M10x45,DACRO	2
17	445956-001	HDWR,BRKT,SINGLE POINT ASY,KP600	2
16	5090683-00	TOP STIFFENER MTS12	1
15	5061435	SCR,M10x30,TRUSS,HEX,DACROMET	4
14	5093357-00	ENCL_STIF_SIDE,MTS2	2
13	5093373-00	ENCL_PNL_CENTER,MTS2	1
12	5093371-00	ENCL_PNL_PORT.SHORT,MTS2	4
11	5093372-00	ENCL_PNL_PORT.LONG,MTS2	4
10	882-41410-15	SCR,ST4x15 PH,PAN, BLK ZINC	10
9	445228-001	100mm Bracket	2
8	5093361-00	ENCL_STSNDOFF_BOT,MTS2	1
7	5093369-00	ENCL_STSNDOFF_TOP,MTS2	1
6	5093374-00	ENCL_PNL_BOTTOM,MTS2	1
5	5093360-00	ENCL_PNL_SIDE.RIGHT,MTS2	1
4	5093366-00	ENCL_PNL_REAR,MTS2	1
3	5093370-00	ENCL_PNL_SIDE.LEFT,MTS2	1
2	5093365-00	ENCL_PNL_BAFFLE,MTS2	1
1	5093367-00	ENCL_PNL_TOP,MTS2	1

HARMAN <small>COMMUNICATIONS COMPANY</small> <small>1500 WEST 17TH AVENUE</small> <small>IRVING, TEXAS 75039-2299</small>		HARMAN <small>COMMUNICATIONS COMPANY</small> <small>1500 WEST 17TH AVENUE</small> <small>IRVING, TEXAS 75039-2299</small>	
ROHS <small>RESTRICTED SUBSTANCE LISTING</small> <small>REVISION 1.0</small>	REVISION 1.0 <small>DATE 02/20/11</small>	ENCLASY,KPS12 5093363-00	B
<small>© 2011 HARMAN INTERNATIONAL COMPANY. ALL RIGHTS RESERVED.</small>		1.00	1 2

0 1 2 3 4 5 6 7 8 9

REVISION HISTORY				ZONE	BY
DATE	REV.	PREV. PART	DESCRIPTION		
1/17/2018	A		INITIAL DESIGN RELEASE		H.S
02/26/2018	B		VERSION REVISE, DRAWING NO CHANGE		H.Y

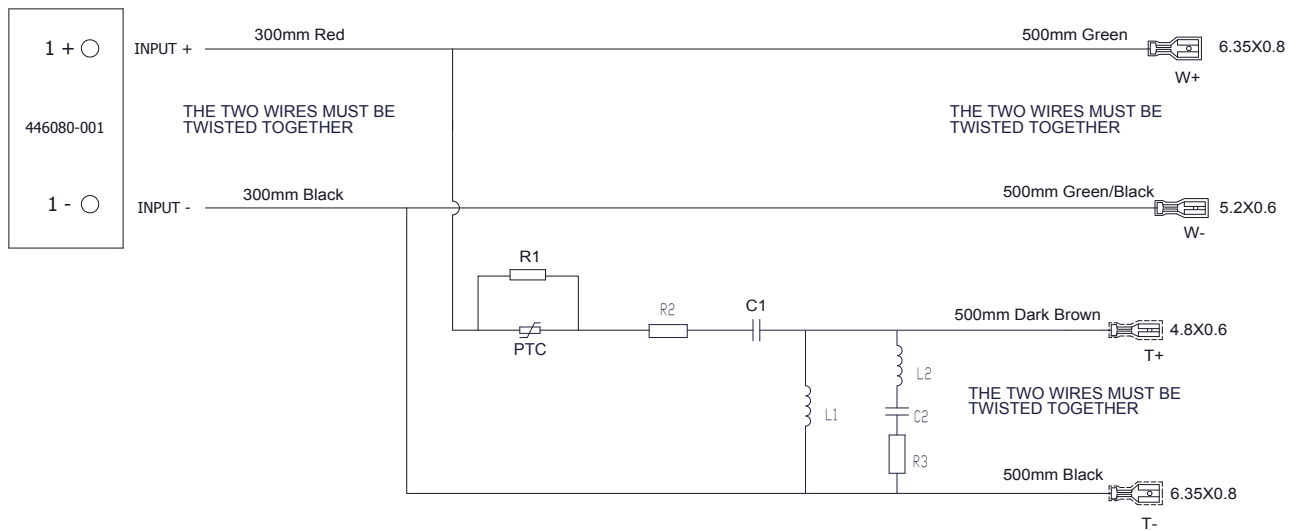


3	5093368-00	LBL,PRNT,PRODUCT,KP2010	1
2	5013005	TERMINAL CUP,ASY,D0536Z,ONE CONNECTOR	1
1	5093375-00	SPKSYS.NETWORK ASY,MTS12	1
ITEM NO.	P/N	PART NUMBER	QTY.

<small>PROPRIETARY AND CONFIDENTIAL PROPERTY OF HARMAN. DO NOT DISCLOSE, REPRODUCE, OR PUBLISH WITHOUT WRITTEN HARMAN APPROVAL.</small> ROHS/REACH <small>RESTRICTION OF HAZARDOUS SUBSTANCES, RESTRICTION OF FLUOROCARBON, MERCURY, AND RESTRICTION OF CHEMICALS</small> <small>ALL MATERIALS USED IN THIS PART MUST BE ROHS/REACH COMPLIANT</small> <small>SUPPLIER SHALL PROVIDE A CERTIFICATE OF ROHS COMPLIANCE AND A REACH DECLARATION OF SUBSTANCE WITH THE PART ARTICLE.</small>		THIRD ANGLE PROJECTION 	HARMAN TITLE NETWORK,ASY,MTS12	
DRAWN BY H.S DESIGNED BY H.S PROJECT MANAGER/ENGINEER ?	DATE 2018/11/17 DATE 2017/10/17	NO 5093359-00 SCALE 1:5 DO NOT SCALE DRAWING	REV B SHEET 1 OF 1	

0 1 2 3 4 5 6 7 8 9

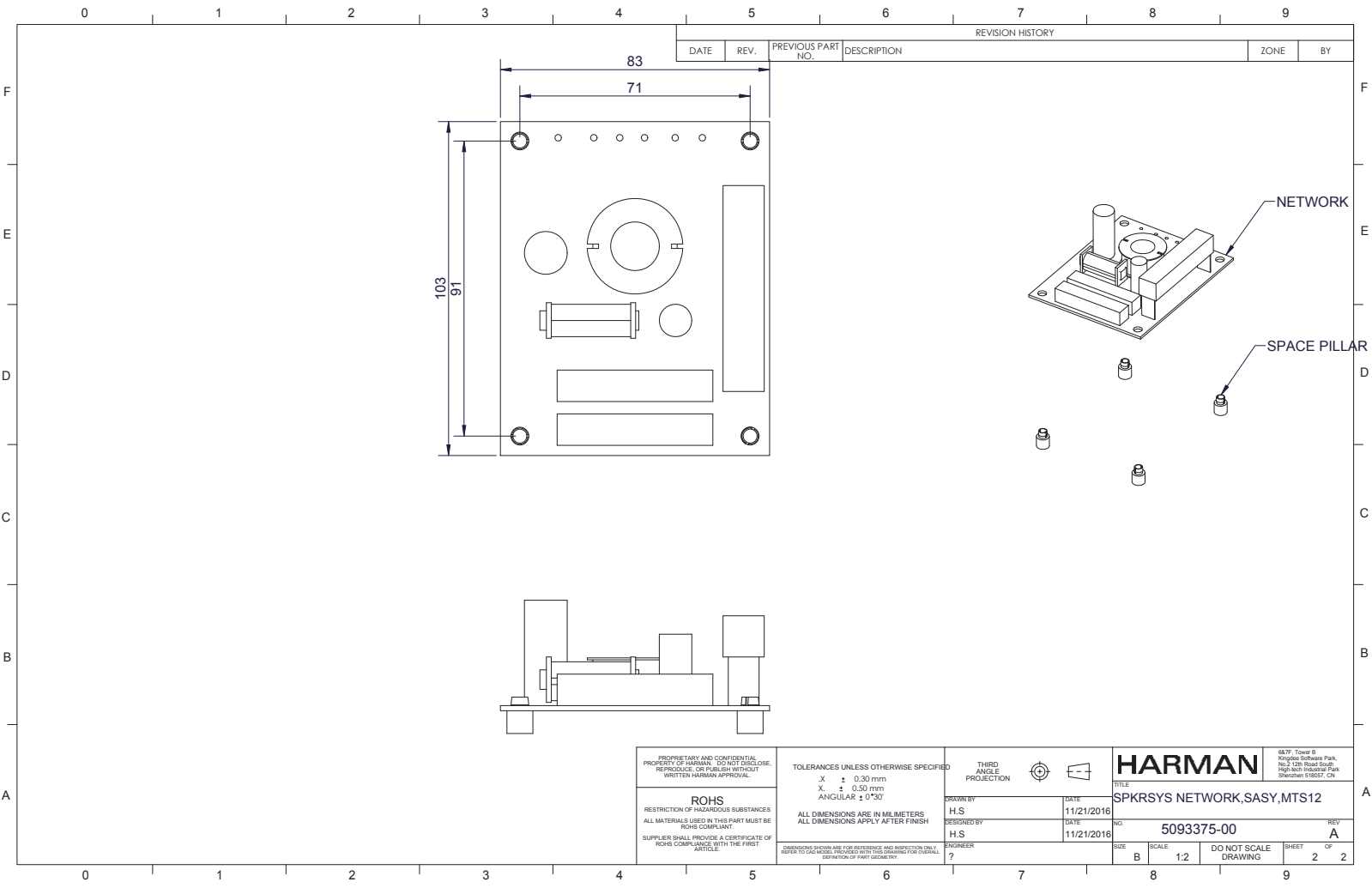
REVISION HISTORY					
DATE	REV.	PREVIOUS PART NO.	DESCRIPTION	ZONE	BY
03/17/2017	A		INITIAL DESIGN RELEASE		H.S



- PTC POLYSWITCH, RXE065/72V
L1 0.45mH, AIR CORE, ±5%, 0.7mm. DCR: CORE SIZE Ø30X16mm
L2 0.12mH, FERRITE CORE, ±5%, 0.5mm. DCR: CORE SIZE Ø10X24.5mm
C1 3.0µF 250V, METALIZED POLYESTER FILM, DF MAX 1%, AXIAL, ±5%, 16x31mm
C2 4.7µF 100V, N.P. ELECTROLYLIC, DF MAX 4%, RADIAL, ±5%, 10x20mm
R1 30 OHMS, 20W, ±5%, WIREWOUND CERAMIC, SQP, 12.5x12.5x63mm
R2 1.0 OHMS, 10W, ±5%, WIREWOUND CERAMIC, SQP, 10x10x48mm
R3 4.7 OHMS, 10W, ±5%, WIREWOUND CERAMIC, SQP, 10x10x48mm
WIRES 16AWG, PAIRED WIRE, UL-1015
PCB MATERIAL: CEM-1
COPPER: 1 oz
THICK: 1.6mm
PCB SIZE: 103X83MM

- NEED TO APPLY HEAT SHRINKAGE TUBE TO ALL SPADE PLUGS FOR PREVENTING SHORT CIRCUIT.
- INPUT END 5.0±1.0MM STRIPPED AND TINNED, THEN SOLDER ONTO NEUTRIK CONNECTOR.
- ALL COMPONENTS NEED TO BE FIXED WITH ADHESIVE.
- APPLY RTV SILICONE BETWEEN B1 & B2 BOTH ENDS ONLY.
- ALL COMPONENTS TO BE TESTED @ 1 KHZ.

PROPRIETARY AND CONFIDENTIAL PROPERTY OF HARMAN. DO NOT DISCLOSE, REPRODUCE, OR FUSE/SUB WITHOUT WRITTEN HARMAN APPROVAL. ROHS RESTRICTION OF HAZARDOUS SUBSTANCES ALL MATERIALS USED IN THIS PART MUST BE ROHS COMPLIANT. SUPPLIER SHALL PROVIDE A CERTIFICATE OF ROHS COMPLIANCE WITH THE FIRST ARTICLE.	THIRD ANGLE PROJECTION 	HARMAN <small>6877, Tower B Kinglake Software Park, No.2 12th Road South Shenzhen 518057, CN</small>	
		TITLE SPKRSYS NETWORKS ASY.MTS12	
DRAWN BY H.S	DATE 11/21/2016	NO. 5093375-00	
DESIGNED BY H.S	DATE	REV A	
ENGINEER H.S	SIZE B	SCALE 2:1	DO NOT SCALE DRAWING
DIMENSIONAL SHOWN ARE FOR REFERENCE AND INSPECTION ONLY. REFER TO CAD MODEL PROVIDED WITH THIS DRAWING FOR OVERALL DEFINITION OF PART GEOMETRY.		SHEET 1	OF 2



REVISION HISTORY				ZONE	BY
DATE	REV.	PREVIOUS PART NO.	DESCRIPTION		

PROPRIETARY AND CONFIDENTIAL PROPERTY OF HARMAN. DO NOT DISCLOSE, REPRODUCE, OR FURNISH WITHOUT WRITTEN HARMAN APPROVAL. ROHS RESTRICTION OF HAZARDOUS SUBSTANCES ALL MATERIALS USED IN THIS PART MUST BE ROHS COMPLIANT. SUPPLIER SHALL PROVIDE A CERTIFICATE OF ROHS COMPLIANCE WITH THE FIRST ARTICLE.	TOLERANCES UNLESS OTHERWISE SPECIFIED X ± 0.30 mm Y ± 0.50 mm ANGULAR ± 0°30'	THIRD ANGLE PROJECTION 	HARMAN 6A7F, Tower B Kingke Software Park, No.2 12th Road South High-tech Industrial Park Shenzhen 518057, CN
	DIMENSIONS SHOWN ARE FOR REFERENCE AND INSPECTION ONLY. REFER TO OUR MODEL PROVIDED WITH THIS DRAWING FOR OVERALL DEFINITION OF PART GEOMETRY.	DRAWN BY: H.S. DATE: 11/21/2016 DESIGNED BY: H.S. DATE: 11/21/2016 ENGINEER: ?	TITLE: SPKRSYS NETWORK,SASY,MTS12 NO: 5093375-00 REV: A

P/N	Description	Qty.	Unit
MTS12	12" PASSIVE PROFESSIONAL KARAOKE SPEAKER		
49790P	MICROFOAM 1/32X18X20	2	each
5000169	M/I, 2414HC	1	each
352859-001	ADH, MOYEN 3087	0.001	Milliliter
361514-001	TERMINAL BOARD, .250, 2408H	1	each
361514-002	TERMINAL BOARD, .187, 2408H	1	each
362426-999	FINISHED, DIAPHRAGM , 2414	1	each
362426-001	DIAPHRAGM , 2414	1	each
361864-001	DUPONT TEIJIN FILM TOENEX	17	Square inch
362428-002	VOICE COIL ASSY, 2414	1	each
362429-001	GLUE RING, 2414	1	each
362430-002	INSULATOR RING, 2414	1	each
362434-001	PHASING PLUG, 2414	1	each
362890-001	SOLDER, MULTICORE 96SC (SAC 357)	1.2	gram
370-00000-00	SCREEN, 7/8 DIA, EXIT	1	each
5000836	BACKPLATE, 2414H-C	1	each
5000838	TOP PLATE, 2414HC	1	each
5000839	LABEL, 2414HC	1	each
5086939	ADHESIVE, LOCTITE E-120HP	0.079	Milliliter
5086940	ADHESIVE, RESIN E-120HP	1	gram
5086941	ADHESIVE, HARDENER E-120HP	0.5	gram
63627	ADH,C.A.,SICO-MET	0.284	gram
66344	MAG,1.280ID,3.375OD,.540T	1	each
69437	ADHES,LOCTITE 242	0.4	Milliliter
71666	ADH, SPEEDBONDER 3270	0.001	gram
71667	PRIMER,ADH,LOCTITE 7090	0.001	gram
73422	FERROFLUID,CS APG 311A	1.04	Cubic centi.
873-43014-04	SCR,8-32 X 1/4,BTN SCKTCAP,BLK ZINC,ALL	4	each
CONSUMABLES	ADHESIVES/PAINTS/CHEMICALS/LABELS/ETCALL	0.175	Piece
5007193	SHP MTL,CVR-BAG,BAG,KP612	1	each
5019069	BARCODE BLANK LABEL CHINA 4SN	2	each
5041677	SPKRSYS,HORN,KP4000	1	each
5042142	GASKET,EVA,HORN,KP4000	4	each
5042360	LBL,PRNT,JBL ANTI-FAKE	1	each
5050736	GASKET,STANDOFF,KP2000	2	each
5093358-00	MECHASY,GRL ASY,MTS12	1	each
5017886	HDWR, NMPLT-BDGE, PLASTIC, Ki100	1	each
5093329-00	SPKRSYS,GRL,MTS12	1	each
5093359-00	NETWORK,ASY,MTS12	1	each
5013005	TERMINAL CUP ASY,peen-Elcom D0536Z	1	each
445498-001	EVA, PEEN-ELCOM D0536Z	1	each
445919-001	TERMINAL CUP,PEEN-ELCOM D0536Z	1	each
446080-001	PCB,TERMINAL CUP KP600	1	each
446081-001	NBR PAD,PEEN-ELCOM D0536Z	1	each
5013010	FSTNR,NUT,M3	4	each
5013011	NL4MP	2	each
813-11110-12	HDWR,FSTNR,SCR M3X12	4	each
5093368-00	LBL,PRNT,PRODUCT,MTS12	1	each
5093375-00	SPKRSYS,NERWORKS ASY,MTS12	1	each
5093362-00	SHPMAT,INNER CARTON,MTS12	1	each

5093363-00	ENCL,ASY,MTS12	1	each
445228-001	445228-100mm Bracket	3	each
5002441	FSTNR,NUT,M5,T-NUT,Zn	16	each
5026185	FBRGL,500*500,TH1"	1	each
5041458	FSTNR,NUT,T-NUT,M6,HOOK PRONG,CLR ZINC	4	each
5061435	SCR,M10x30 TRUSS,HEX,EDB	4	each
5090496-00	FSTNR,MSCR,TRUSS,HEX,M10x45,DACRO	2	each
5090683-00	ENCL,STIF,TOP,MTS12	1	each
5093357-00	ENCL,STIF,SIDE,MTS12	2	each
5093360-00	ENCL,PNL,SIDE RIGHT ,MTS12	1	each
5093361-00	ENCL,STSNDOFF,BOT,MTS12	1	each
5093365-00	ENCL,PNL,BAFFLE,MTS12	1	each
5093366-00	ENCL,PNL,REAR,MTS12	1	each
5093367-00	ENCL,PNL,TOP,MTS12	1	each
5093369-00	ENCL,STSNDOFF,TOP,MTS12	1	each
5093370-00	ENCL,PNL,SIDE,LEFT,MTS12	1	each
5093371-00	ENCL,PNL,PORT,SHORT,MTS12	4	each
5093372-00	ENCL,PNL,PORT,LONG,MTS12	4	each
5093373-00	ENCL,PNL,CENTER,MTS12	1	each
5093374-00	ENCL,PNL,BOTTOM,MTS12	1	each
69437	ADHES,LOCTITE 242	1	gram
882-41410-15	HDWR,FASTNR,SCR,ST4x15 PH,PAN, BLK ZINC	9	each
5093376-00	SHPMAT,OUTER CARTON,MTS12	1	each
5093912-00	AUD,LS,ASY,MTS12 WOOF	1	each
5041773	XDCRMECH,TERMINAL POLE, MQ8 WF	1	PR Pair
5043883	XDCRMECH,LEAD,MQ82 WF	2	each
5093914-00	SPKSYS,PDNG,WADDING,MTS12	1	each
5096442-00	SHPNGMATL,FILR,FILLER MTS12	2	each
5096446-00	LIT,DS,DATASHEET-EN/CN,MTS12	1	each
5096450-00	LBL,PRNT,POP STICKER MTS12	1	each
5096965-00	HDW,POLE,PEEN-ELCOM M1551	1	each
5096966-00	MISC,GASKET,M1551 POLE	1	each
65012-01	TAPE,PKG,3"x165FT	3	Lineal Foot
69437	ADHES,LOCTITE 242	1.5	gram
816-11510-20	HDWR,FSTNR,SCR,M6x20 PH FLAT EDB	4	each
882-41410-21	HDWR,FSTNR,SCR,ST4x20 PH PAN EDB.	6	each
882-41410-30	SCR,PA4x30,PAN,PH,BLK ZINC	4	each
883-31410-20	HDWR,FSTNR,SCR,ST5x20 PH TRUSS EDB	24	each
CONSUMABLES	ADHESIVES/PAINTS/CHEMICALS/LABELS/ETCALL	1	each