

# aMTP777 + aXLV11H dual set Solution

## ■ FEATURES

- 150 minutes long time solution in 12KHz playback sample rate.
- 3.0V ~ 3.3V single power supply.
- 10uA low standby current.
- 6 KHz ~ 20 KHz playback sample rate.
- 8-bit resolution DAC/PWM voice output.
- Up to 1024 voice section.
- 6-wires series command or keys control.
- 6 levels volume control in PWM mode.

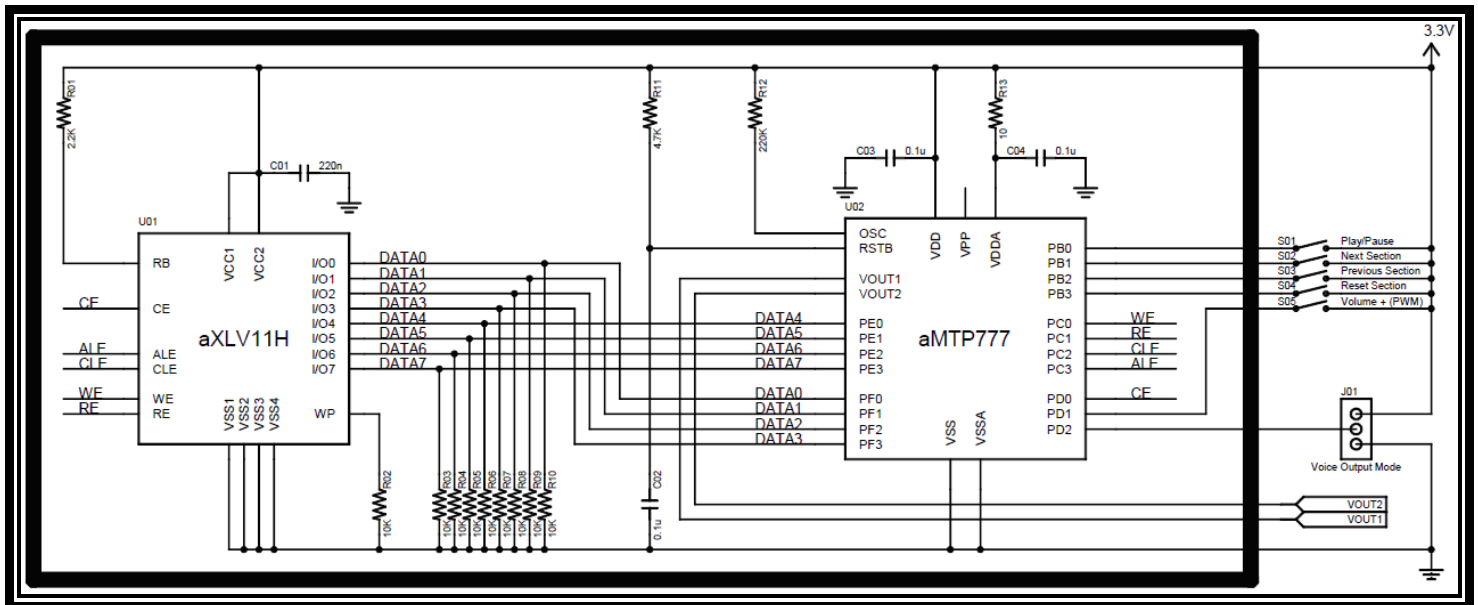
## ■ DESCRIPTION

aMTP777 is a MCU based voice controller IC. It can accomplish 150 minutes with aXLV11H external memory in 12KHz sample rate.

User can control by 6-wires series command or keys, and playback by 6 KHz to 20 KHz sample rate, 8-bit resolution and PWM or DAC voice output mode.

## ■ Key Trigger Mode

### ➤ Typical Circuit



### ➤ Pin Descriptions

In “Key Trigger Mode”, User control voice playback by 5 buttons, and select voice output mode by 1 option:

**Play/Pause (PB0) :** Play/Pause key to play or pause the voice playing.

**Next Section (PB1) :** To play next voice..

**Previous Section (PB2) :** To play previous voice.

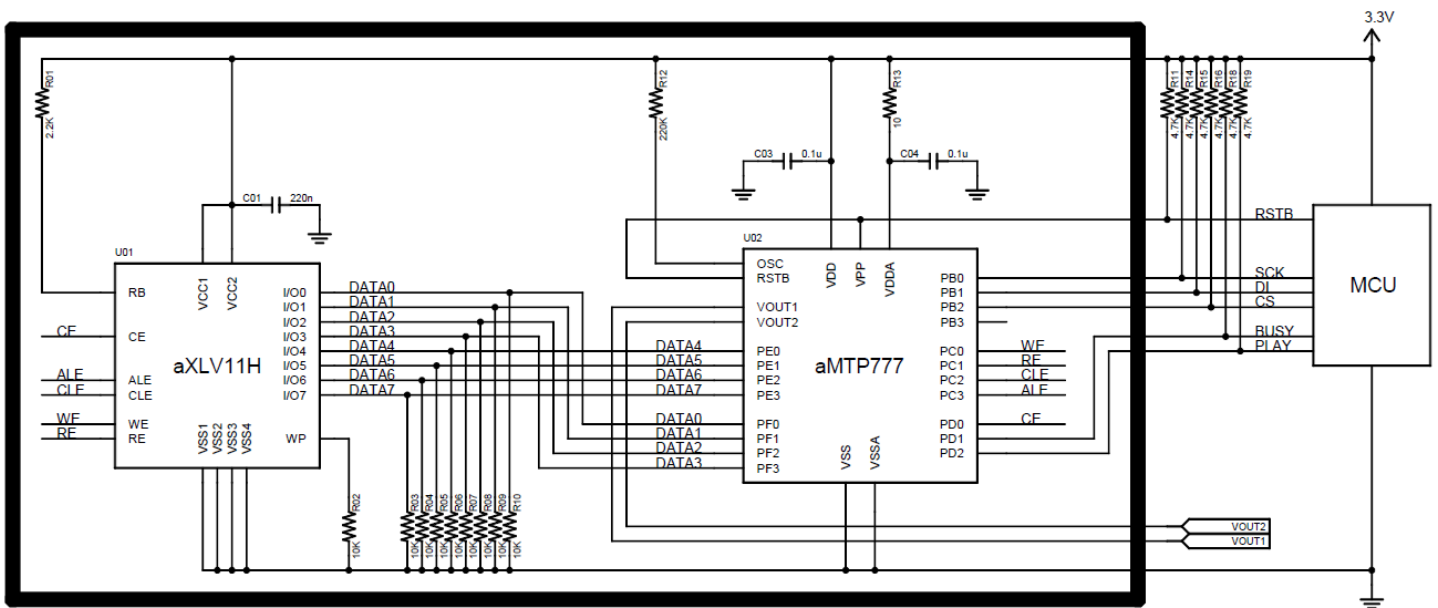
**Reset Section (PB3) :** Reset key.

**Volume+ (PD1) :** Volume control key to offer 6 volume levels. This function only active in PWM mode.

**Voice Output Mode (PD2) :** When power on, aMTP777 will detect PD2 status. If PD2 connect to VDD, then will be DAC output. If no connecting, it will be PWM output.

## ■ 6-wires Command Mode

### ➤ Typical Circuit

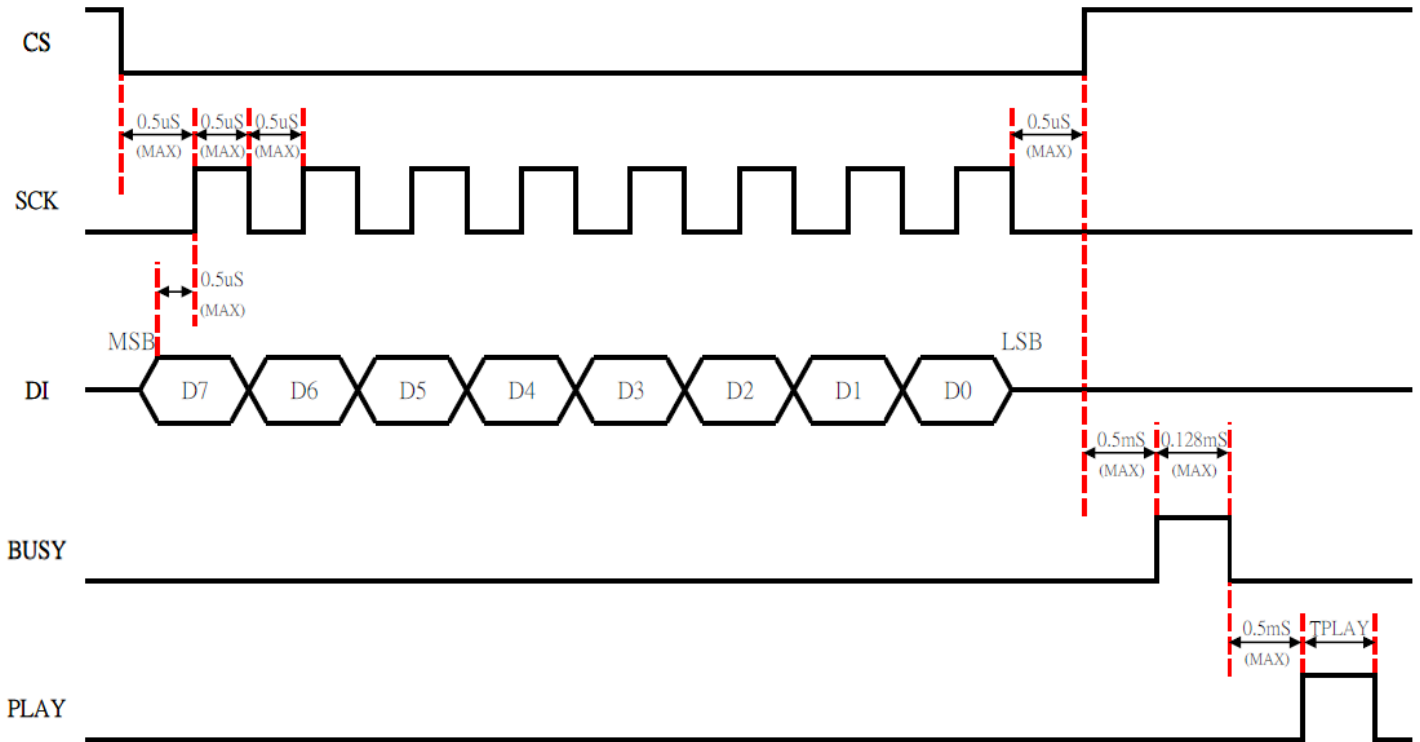


### ➤ Pin Descriptions

In the “6-wires Command Mode”, User control voice playback by an external microcontroller:

- **RSTB(RSTB) :** The aMTP777 will reset by drive this pin to vss.
- **SCK (PB0) :** Series clock input.
- **PDI(PB1) :** Series data input.
- **CS(PB2) :** Chip select -- command will receive when this pin drive to low voltage level.
- **BUSY(PD1) :** Chip busy -- drive to high voltage level when command latch.
- **PLAY(PD2) :** Voice playback -- drive to high voltage level when voice playing.

### ➤ Control Timing



TPLAY: The time of current playing voice.

➤ **Control Command**

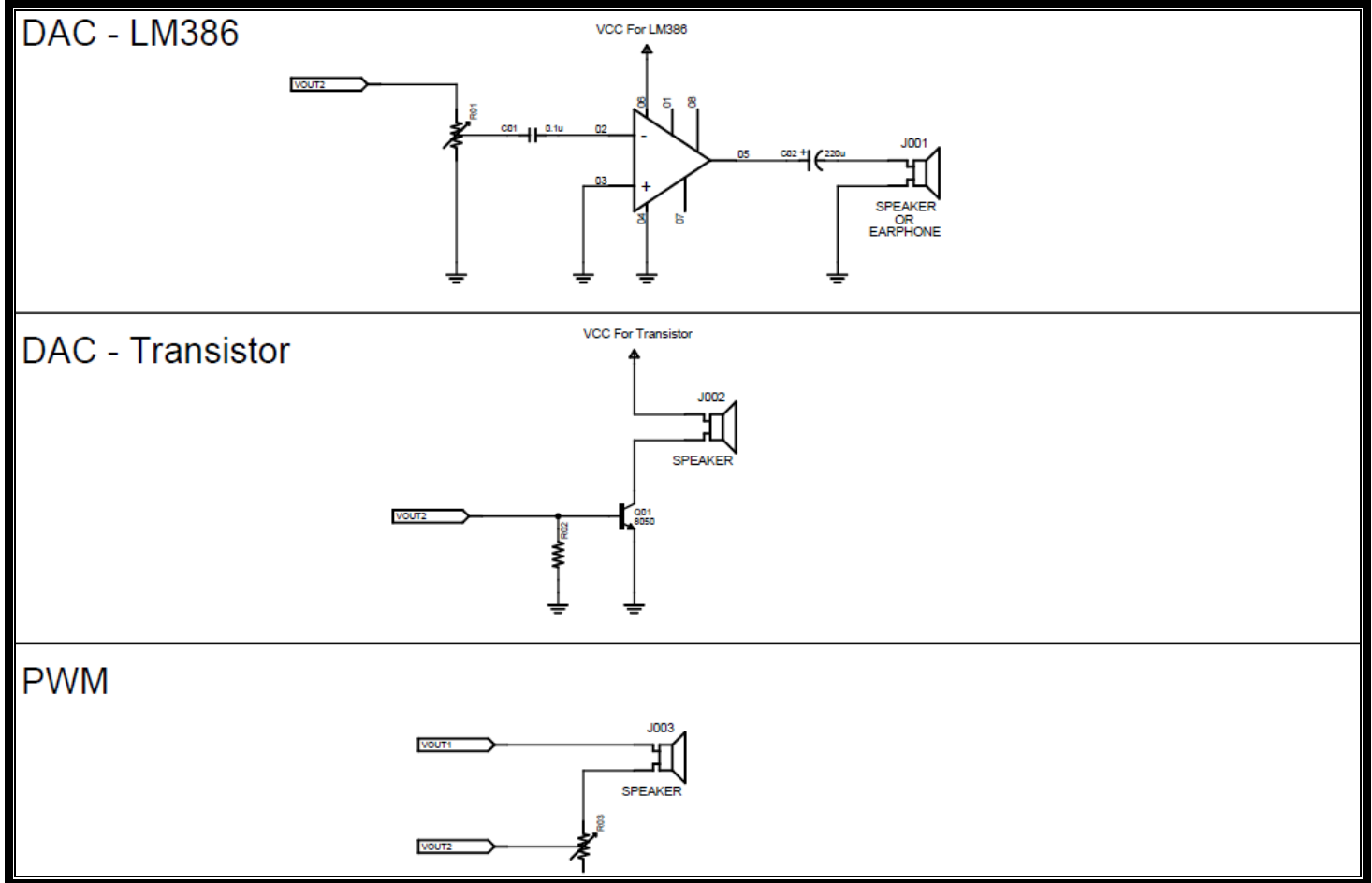
Command	D7	D6	D5	D4	D3	D2	D1	D0	Remark
Power-On For DAC	1	1	0	0	0	0	0	0	Using "Power-On" command to enter operate mode.
Power-On For PWM	1	1	0	0	0	0	0	1	This command effect in standby mode only.
Power-Down For DAC	1	0	1	0	0	0	0	0	Using "Power-Down" command to enter standby mode.
Power-Down For PWM	1	0	1	0	0	0	0	1	This command effect in operate mode only.
Set Section Lower Bits	0	0	S5	S4	S3	S2	S1	S0	Using "Set Section" command to assign section for "PLAY" command. S9~ S0 is the section number in binary, and the maximum section in this application is 1023.
Set Section Higher Bits	0	1	0	0	S9	S8	S7	S6	This command effect in operating mode only.
PLAY	1	0	0	0	1	0	0	0	Using "PLAY" command to start voice playing assigned by "Set Section" command. This command effect in operating mode only.
RESUME	1	0	0	1	0	0	0	0	Using "RESUME" command to resume voice playing which paused by "PAUSE" command. This command effect in operating mode only.
PAUSE	1	0	0	1	0	0	0	1	Using "PAUSE" command to pause the voice playing. This command effect in operating mode only.
Volume Level	1	1	1	1	1	V3	V2	V1	Using "Volume Level" command to set voice volume in the PWM mode. V3~ V1 is volume level in binary, and the maximum volume level in this application is 5. This command effect in operating mode only.

■ **Voice Output Circuit**

➤ **Descriptions**

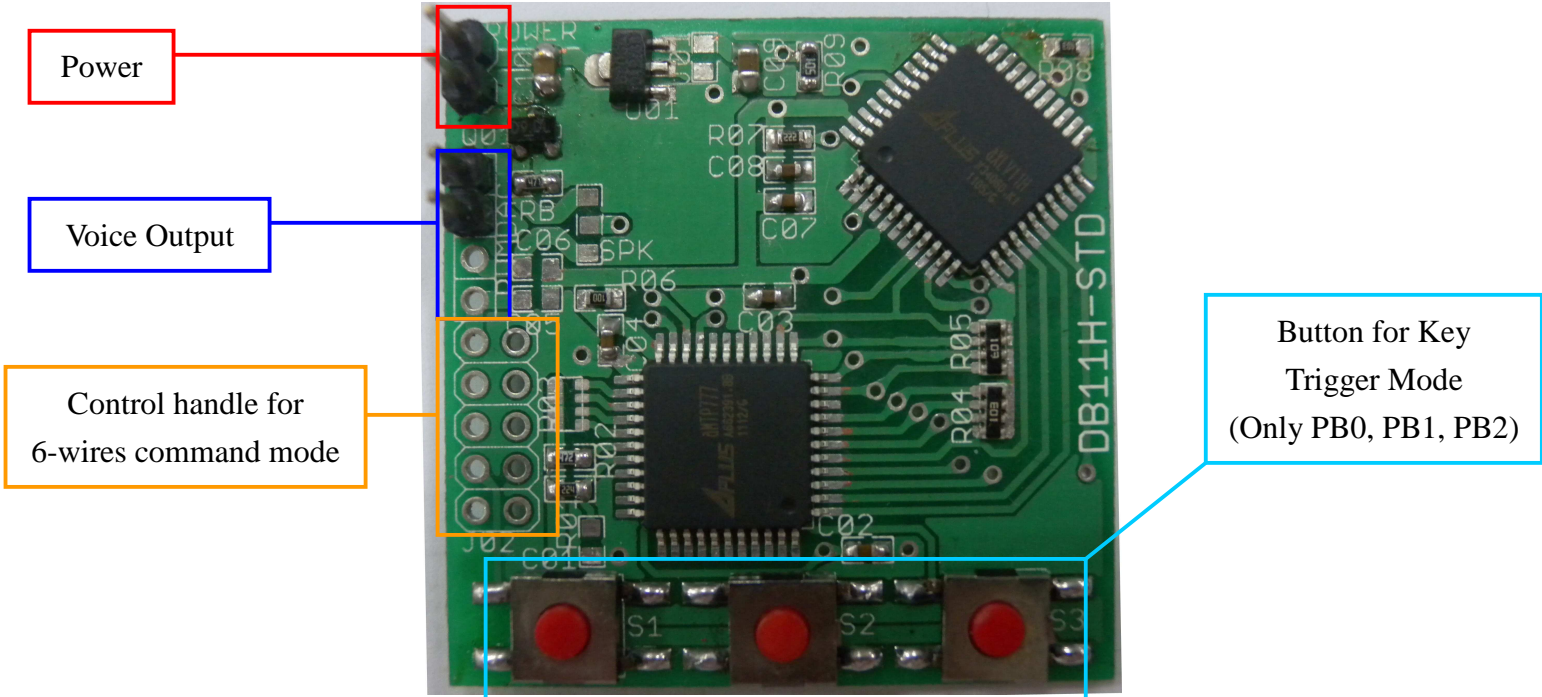
User can select voice output by DAC or PWM. PWM has the simplest circuit, and support digital volume control. DAC can get higher voice volume by external amplifier or transistor.

➤ **Reference Circuit**



■ **Demo Board**

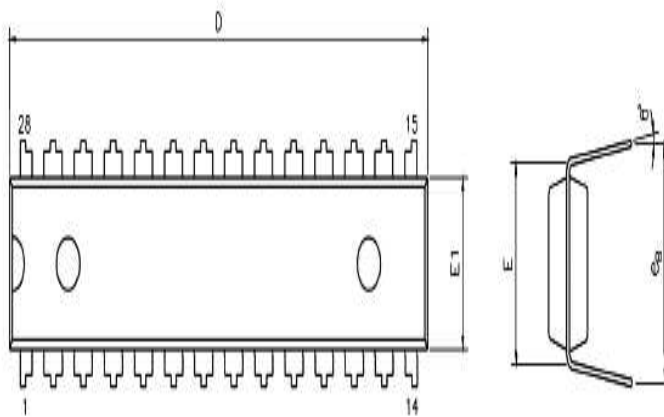
➤ **DB11H-STD**



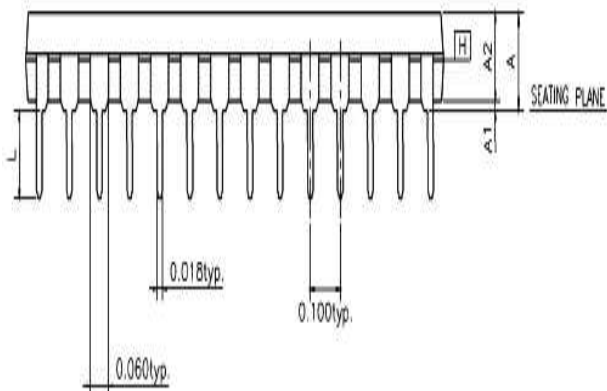
The DB11H-STD support PB0, PB1 and PB2 3 keys play demo board. And reserve 6-wire command mode port for use's application.

## ■ Package Information

➤ aMTP777 28-Pin DIP



PIN NO.	PIN CONFIGURATIONS
1	PF2
2	PF3
3	PE2
4	PE3
5	VSS
6	PD1
7	PD2
8	PD0
9	VDD
10	VOUT2
11	VOUT1
12	VDDA
13	VSSA
14	PB3
15	PB2
16	PB1
17	PB0
18	RSTB
19	O8C
20	VPP
21	PC0
22	PC1
23	PC2
24	PC3
25	PE0
26	PE1
27	PF0
28	PF1



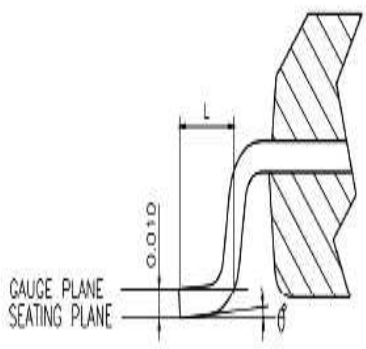
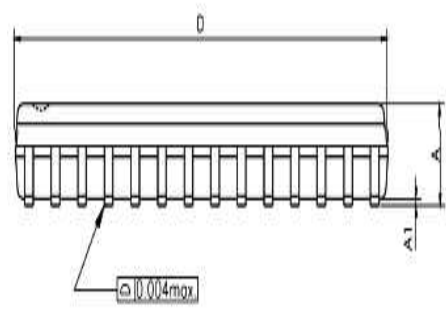
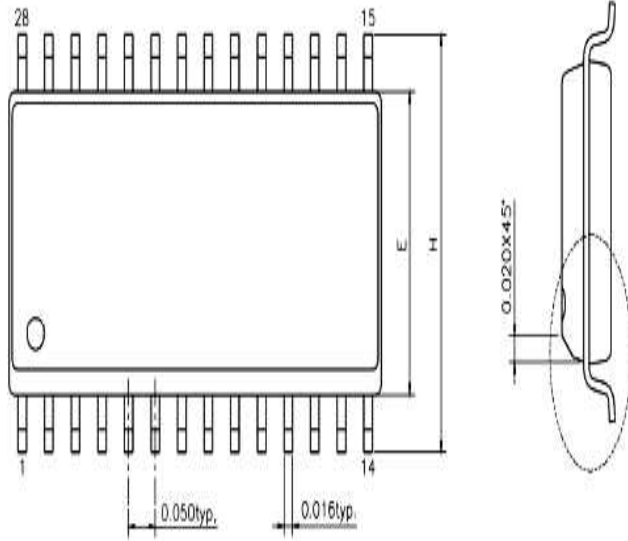
SYMBOLS	MIN.	NOR.	MAX.
$\Delta$ A	-	-	0.175
A1	0.015	-	-
A2	0.125	0.130	0.135
D	1.385	1.390	1.400
E	0.310 BSC		
E1	0.283	0.288	0.293
$\Delta$ L	0.120	0.130	0.140
e <sub>B</sub>	0.330	0.350	0.370
$\theta^\circ$	0	7	15

UNIT : INCH

NOTE:

1. JEDEC OUTLINE : MS-015 AH

➤ aMTP777 28-Pin SOP



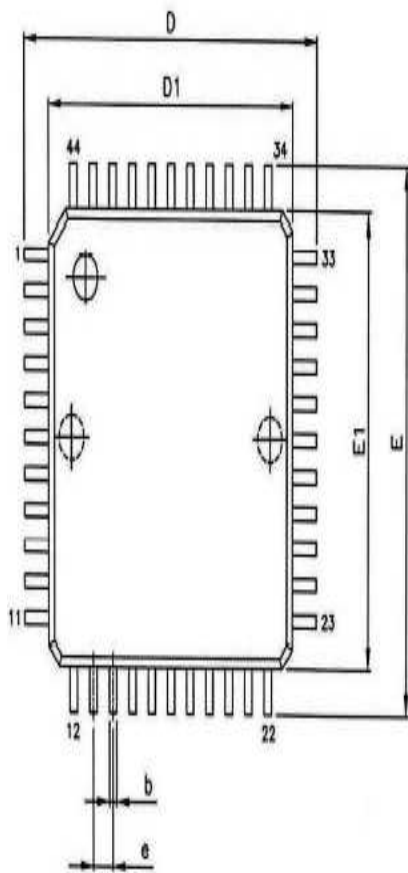
PIN NO.	PIN CONFIGURATIONS
1	PF2
2	PF3
3	PE2
4	PE3
5	VSS
6	PD1
7	PD2
8	PD0
9	VDD
10	VOUT2
11	VOUT1
12	VDDA
13	VSSA
14	PB3
15	PB2
16	PB1
17	PB0
18	RSTB
19	OSC
20	VPP
21	PC0
22	PC1
23	PC2
24	PC3
25	PE0
26	PE1
27	PF0
28	PF1

SYMBOLS	MIN.	NOM	MAX.
△ A	-	-	0.104
△ A1	0.004	-	-
△ D	0.697	0.718	0.724
E	0.291	0.295	0.299
H	0.394	0.406	0.419
L	0.016	0.035	0.050
△ θ°	0	4	8

UNIT : INCH

- NOTES:
- 1. JEDEC OUTLINE : MO-119 AB
  - △ 2. DIMENSIONS "D" DOES NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS. MOLD FLASH, PROTRUSIONS AND GATE BURRS SHALL NOT EXCEED .25mm (.010in) PER SIDE.
  - 3. DIMENSIONS "E" DOES NOT INCLUDE INTER-LEAD FLASH, OR PROTRUSIONS. INTER-LEAD FLASH AND PROTRUSIONS SHALL NOT EXCEED .25mm (.010in) PER SIDE.

➤ aMTP777 44-Pin LQFP

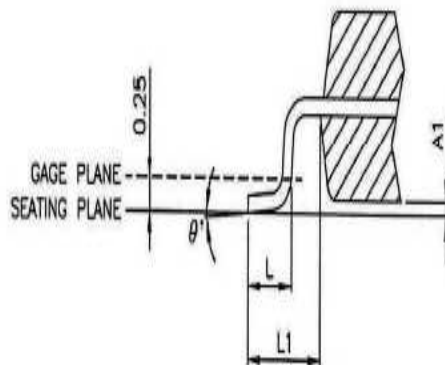
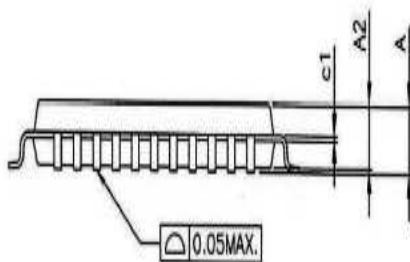


VARIATIONS (ALL DIMENSIONS SHOWN IN MM)

SYMBOLS	MIN.	NOM.	MAX.
A	—	—	1.60
A1	0.05	—	0.15
A2	1.35	1.40	1.45
c1	0.09	—	0.16
D	12.00 BSC		
D1	10.00 BSC		
E	12.00 BSC		
E1	10.00 BSC		
e	0.80 BSC		
$\Delta$ b (w/o plating)	0.25	0.30	0.35
L	0.45	0.60	0.75
L1	1.00 REF		
$\theta^\circ$	0°	3.5°	7°

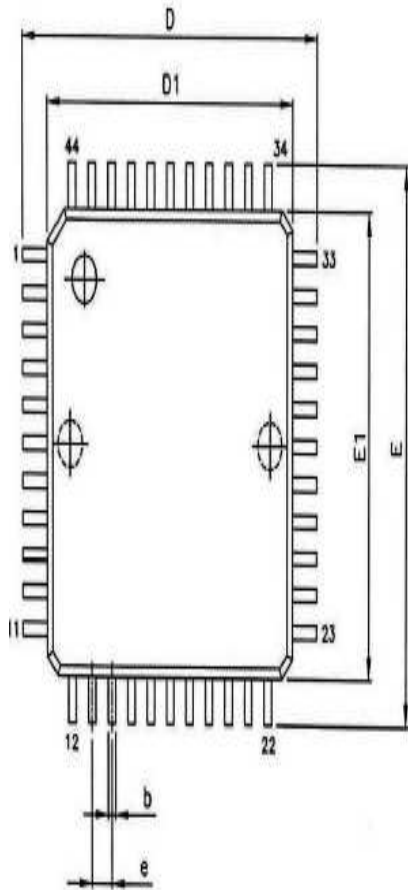
NOTES:

1. JEDEC OUTLINE: MS-026 BCB
2. DIMENSIONS D1 AND E1 DO NOT INCLUDE MOLD PROTRUSION. ALLOWABLE PROTRUSION IS 0.25mm PER SIDE. D1 AND E1 ARE MAXIMUM PLASTIC BODY SIZE DIMENSIONS INCLUDING MOLD MISMATCH.
3. DIMENSION b DOES NOT INCLUDE DAMBAR PROTRUSION. ALLOWABLE DAMBAR PROTRUSION SHALL NOT CAUSE THE LEAD WIDTH TO EXCEED THE MAXIMUM b DIMENSION BY MORE THAN 0.08mm.



PIN NO.	PIN CONFIGURATIONS
1	PC1
2	PC0
3	PC2
4	PC3
5	PE0
6	PE1
7	PF0
8	PF1
9	VPP
10	PF2
11	PF3
12	PE2
13	PE3
14	VDD
15	VSS
16	PD1
17	PD2
18	NC
19	PD0
20	VOUT2
21	VOUT1
22	VDDA
23	VSSA
24	PB3
25	PB2
26	PB1
27	PB0
28	RSTB
29	OSC
30	NC
31	NC
32	NC
33	NC
34	NC
35	NC
36	NC
37	NC
38	NC
39	NC
40	NC
41	NC
42	NC
43	NC
44	NC

➤ aXLV11H 44-Pin LQFP



VARIATIONS (ALL DIMENSIONS SHOWN IN MM)

SYMBOLS	MIN.	NOM.	MAX.
A	-	-	1.60
A1	0.05	-	0.15
A2	1.35	1.40	1.45
c1	0.09	-	0.16
D	12.00 BSC		
D1	10.00 BSC		
E	12.00 BSC		
E1	10.00 BSC		
e	0.80 BSC		
$\Delta$ b (w/o plating)	0.25	0.30	0.35
L	0.45	0.60	0.75
L1	1.00 REF		
$\theta^\circ$	0'	3.5'	7'

PIN NO.	PIN CONFIGURATIONS
1	VSS1
2	VSS2
3	I/O3
4	VSS3
5	VCC1
6	A1 F
7	I/O5
8	I/O6
9	I/O7
10	WP
11	RB
12	VSS4
13	NC
14	I/O4
15	WE
16	RE
17	CLE
18	NC
19	NC
20	NC
21	NC
22	NC
23	NC
24	NC
25	NC
26	NC
27	NC
28	NC
29	NC
30	NC
31	NC
32	NC
33	NC
34	NC
35	NC
36	NC
37	NC
38	NC
39	CE
40	I/O2
41	I/O1
42	I/O0
43	VCC2
44	NC

NOTES:

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