

LC7561



3057

T-74-05-01

CMOS LSI

Graphic Equalizer's Spectrum Analyzing Display LCD Driver

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Use

- Graphic equalizer's spectrum analyzing display LCD driver

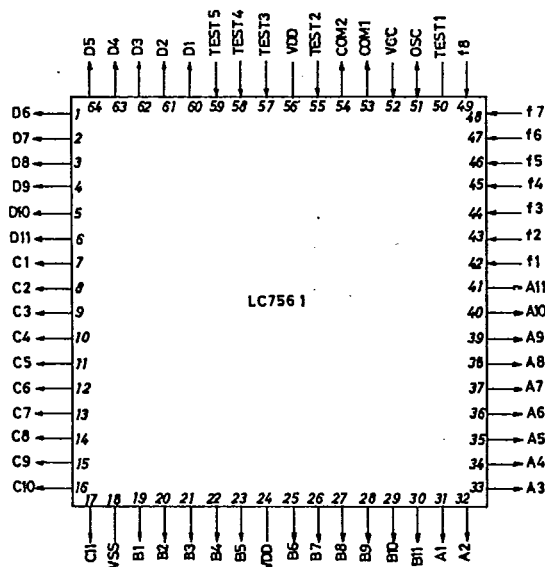
Features

- 8-band display: 11 x 8 segments
(Display of bandpass signal strength → Spectrum analyzing display: 8 bands 2dB/step, 11-dot display)
- The signal strength display input is the L/R mixing input.
(The mixing circuit is connected externally.)
- Display unit: Dynamic drive of LCD. 1/2duty, 1/2bias (5V rating)
- Bandpass filter for display: External equivalent filter

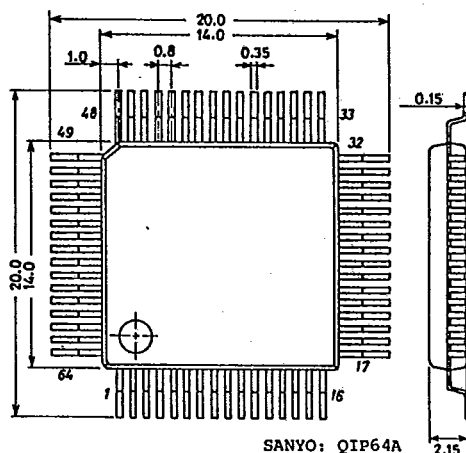
Absolute Maximum Ratings at $T_a=25^{\circ}\text{C}$, $V_{SS}=0\text{V}$

				unit
Maximum Supply Voltage	V_{DDmax}	V_{DD}	$V_{SS} \text{ to } V_{SS}+15$	V
	V_{CCmax}	V_{CC}	$V_{SS} \text{ to } V_{SS}+7$	V
Maximum Input Voltage	V_{I1max}	TEST2, TEST3	$V_{SS}-0.3 \text{ to } V_{CC}+0.3$	V
	V_{I2max}	f1to f8, TEST1, TEST4, TEST5	$V_{SS}-0.3 \text{ to } V_{DD}+0.3$	V
Maximum Output Voltage	V_{Omax}	A1toA11, B1toB11, COM1	$V_{SS}-0.3 \text{ to } V_{CC}+0.3$	V
		C1toC11, D1toD11, COM2		
Allowable Power Dissipation	P_{dmax}	$T_a \leq 75^{\circ}\text{C}$	200	mW
Operating Temperature	Topg		-30 to +75	$^{\circ}\text{C}$
Storage Temperature	Tstg		-40 to +125	$^{\circ}\text{C}$

Pin Assignment



Case Outline 3057-Q64AIC (unit:mm)



LC7561

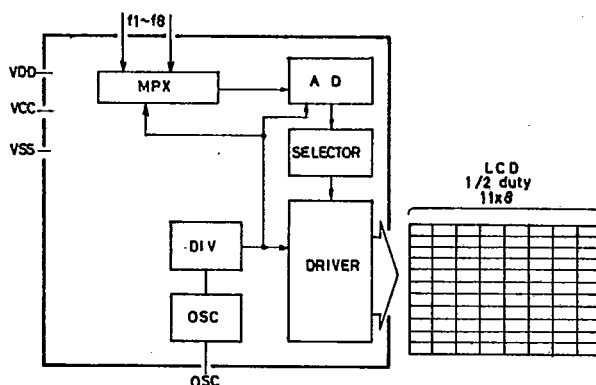
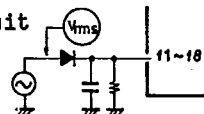
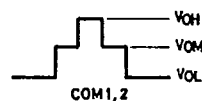
T-74-05-01

Allowable Operating Conditions at $T_a=25^{\circ}\text{C}$, $V_{SS}=0\text{V}$

			min	typ	max	unit
Supply Voltage	V_{DD}	V_{DD}	7.5	13.0	14.0	V
C of 0.1 μF or greater must be connected.						
External CR	V_{CC}	V_{CC}	4.0	5.0	5.5	V
	R_{osc}	OSC		75		kohm
	C_{osc}	OSC	0.0033			μF

Electrical Characteristics at $T_a=25^{\circ}\text{C}$, $V_{SS}=0\text{V}$

			min	typ	max	unit
Input Sensitivity	V_{in}	f1to8: $V_{DD}=13\text{V}$, 0dB, lighted, Test Circuit #1		1.6		V
A/D Conversion Error	ΔB	f1to8: $V_{DD}=13\text{V}$, to 2dB step, Test Circuit #1	-1		1	dB
Current Dissipation	I_{DD}	V_{DD}			7	mA
	I_{CC}	V_{CC}			1	mA
Input OFF-State Leak Current	I_{off}	f1to8			10	μA
Output 'H'-Level Voltage	V_{OH}	A1to11, B1to11, COM1, C1to11, D1to11, COM2	$0.8V_{CC}$		V_{CC}	V
Output 'L'-Level Voltage	V_{OL}	A1to11, B1to11, COM1, C1to11, D1to11, COM2	V_{SS}	$0.2V_{CC}$		V
Output 'M'-Level Voltage	V_{OM}	COM1, 2 #2	$1/2V_{CC}$			V
Output Impedance	Z_O	A1to11, B1to11, COM1, C1to11, D1to11, COM2		10		kohm

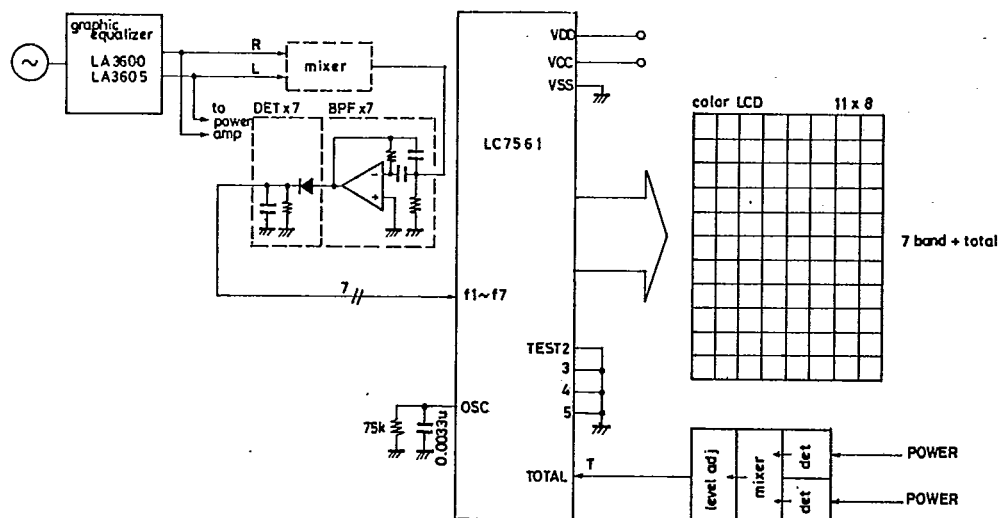
Equivalent Circuit Block Diagram**#1 Test Circuit****#2**

LC7561

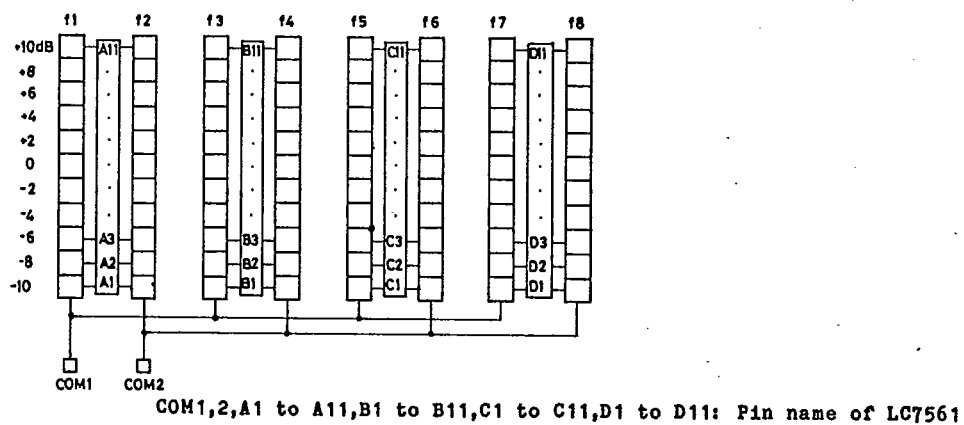
T-74-05-01

Sample Application Circuit

7-band mixing display + total display



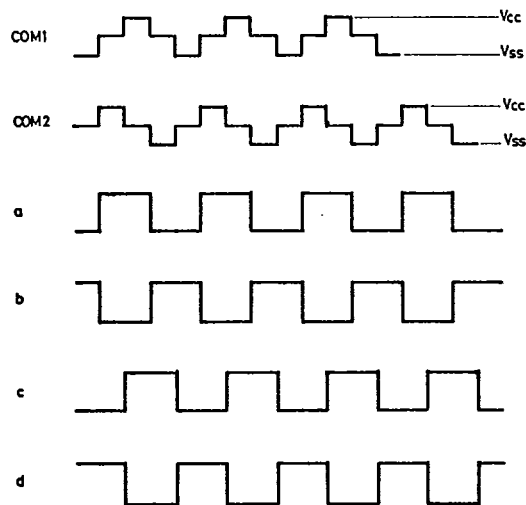
Segment Assignment



LC7561

T-74-05-01

The waveforms at COM1, COM2 are as shown below. One of the four modes of a to d is selected by the selector inside the LC7561 according to the lighting state and is delivered at the segments.



	COM1	COM2
a	X	X
b	O	O
c	X	O
d	O	X

O : Lighted
X : Unlighted

Pin Description

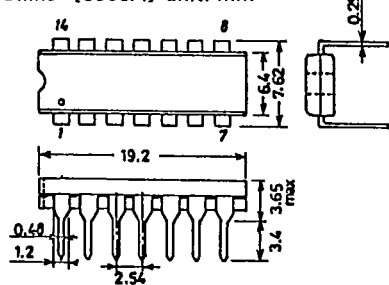
Pin Name	Pin No.	Pin Configuration	Description
V _{DD}	25,56		. Power supply pin, +13V typ., power supply for A/D conversion.
V _{CC}	52		. Power supply pin, +5V, power supply for logic drive.
V _{SS}	18		. Power supply pin, 0V.
COM1 COM2	53 54		. Output pins to LCD common.
A1 to 11	31 to 41		. Output pins to LCD segments. . For bands f1, f2
B1 to 11	19 to 23 25 to 30		. Output pins to LCD segments. . For bands f3, f4
C1 to 11	7 to 17		. Output pins to LCD segments. . For bands f5, f6
D1 to 11	60 to 64 1 to 6		. Output pins to LCD segments. . Band f7, total display or accessory display.
f1 to 8	42 to 49		. Used to input detection output of audio signal.
OSC	51		. Open drain type output buffer. . Used to connect external CR for OSC.
TEST4	58		. IC test pin. . Connected to V _{DD} or V _{SS} in normal use.
TEST5	59		. IC test pin. . Connected to V _{CC} or V _{SS} in normal use.
TEST2	55		. IC test pin. . Open in normal use.
TEST3	57		. IC test pin.
TEST1	50		. Open in normal use.

T-90-20

AUDIO-USE MOS IC CASE OUTLINES

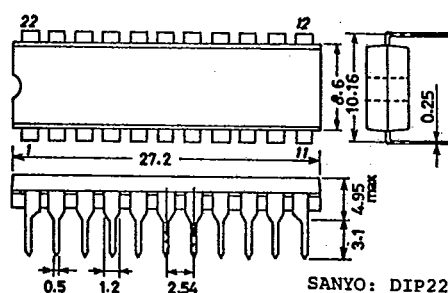
- All of Sanyo audio-use MOS IC case outlines are illustrated below.
- All dimensions are in mm, and dimensions which are not followed by min. or max. are represented by typical values.
- No marking is indicated.

Case Outline—[3003A] unit: mm



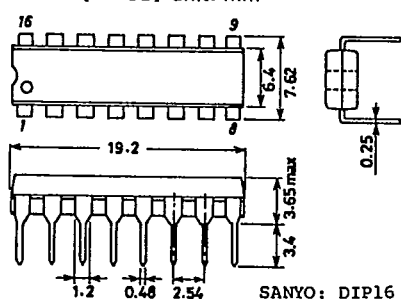
SANYO: DIP14

Case Outline—[3010A] unit: mm



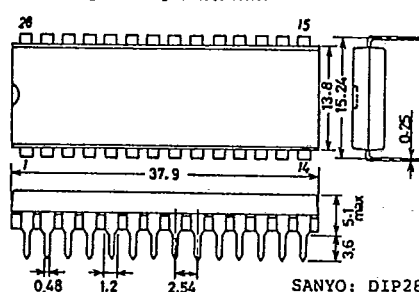
SANYO: DIP22

Case Outline—[3006B] unit: mm



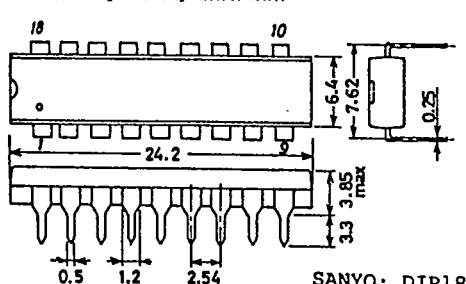
SANYO: DIP16

Case Outline—[3012A] unit: mm



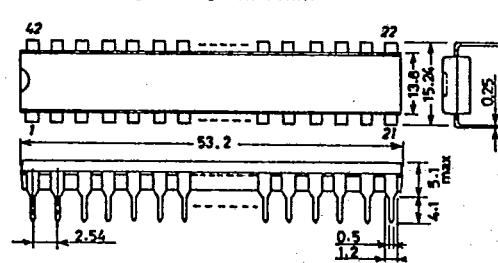
SANYO: DIP28

Case Outline—[3007A] unit: mm



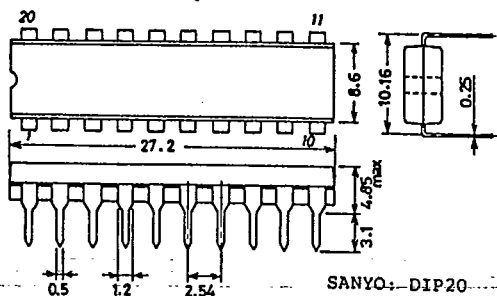
SANYO: DIP18

Case Outline—[3014A] unit: mm



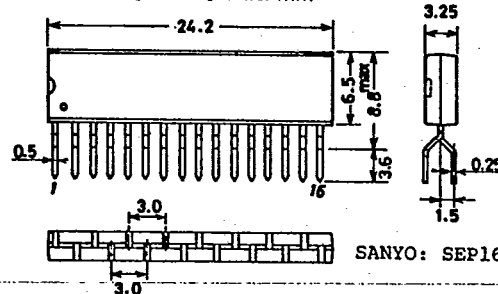
SANYO: DIP42

Case Outline—[3008A] unit: mm



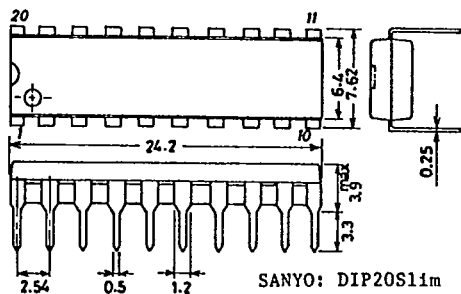
SANYO: DIP20

Case Outline—[3020A] unit: mm

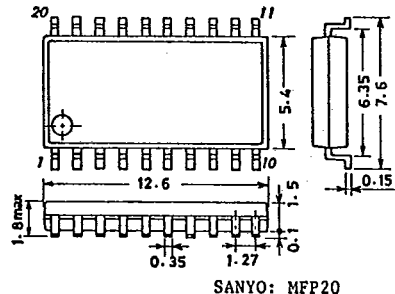


SANYO: SEP16

Case Outline—[3021B] unit: mm

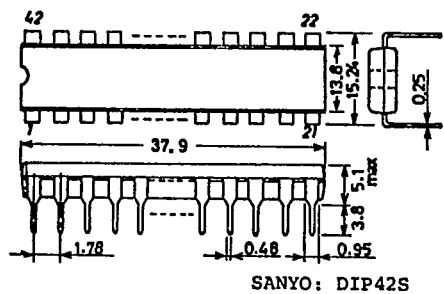


Case Outline—[3036B] unit: mm

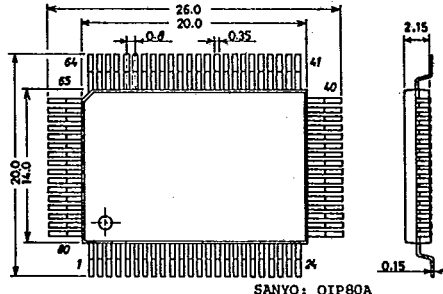


T-90-20

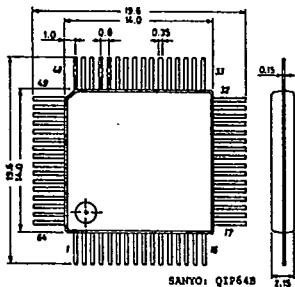
Case Outline—[3025B] unit: mm



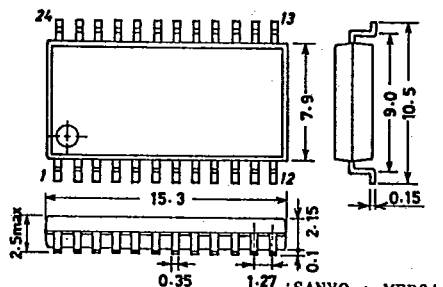
Case Outline—[3044B] unit: mm



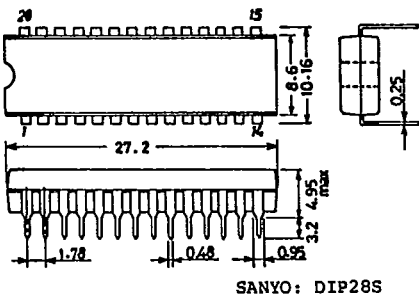
Case Outline—[3026B] unit: mm



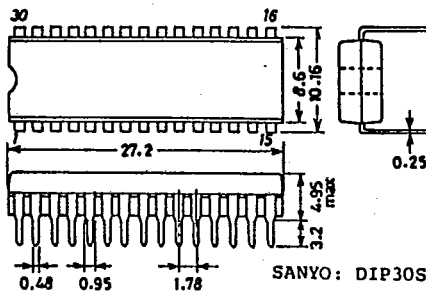
Case Outline—[3045B] unit: mm



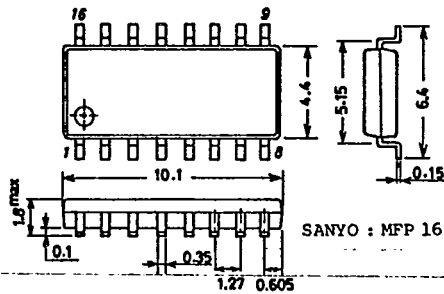
Case Outline—[3029A] unit: mm



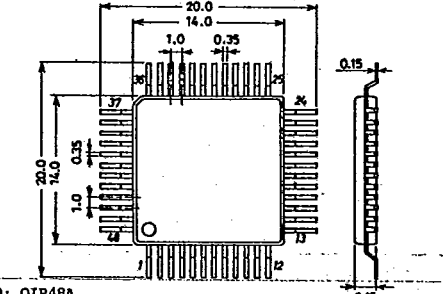
Case Outline—[3047A] unit: mm



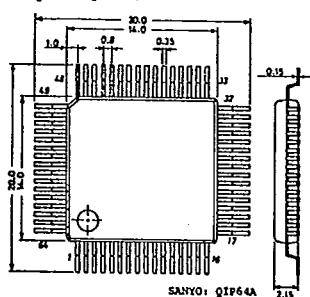
Case Outline—[3035A] unit: mm



Case Outline—[3052A] unit: mm



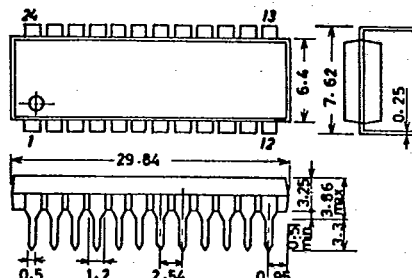
Case Outline—[3057] unit: mm



SANYO: OIP64A

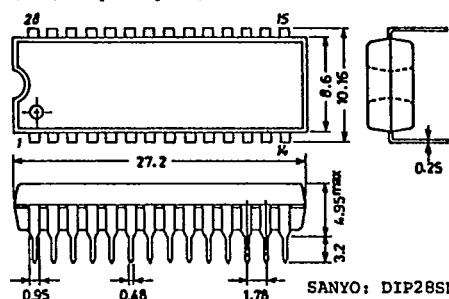
Case Outline—[3084] unit: mm

T-90-20



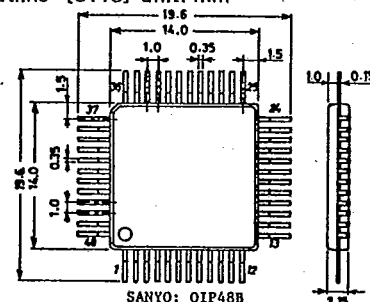
SANYO: DIP-24S11m

Case Outline—[3063] unit: mm



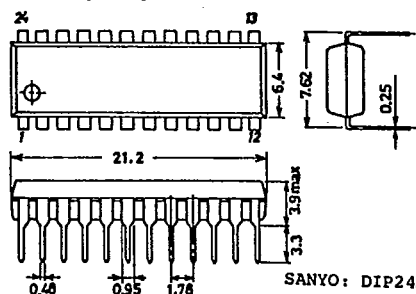
SANYO: DIP28SN

Case Outline-- [3118] unit: mm



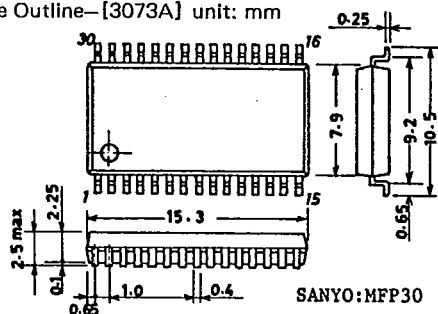
SANYO: OIP48B

Case Outline—[3067] unit: mm



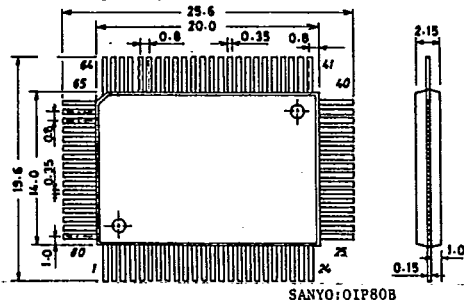
SANYO: DIP24S

Case Outline—[3073A] unit: mm



SANYO:MFP30

Case Outline—[3074] unit: mm



SANYO:OIP80B