

CERAMIC RESONATOR

Ceramic Resonator **CSU/CST Series**

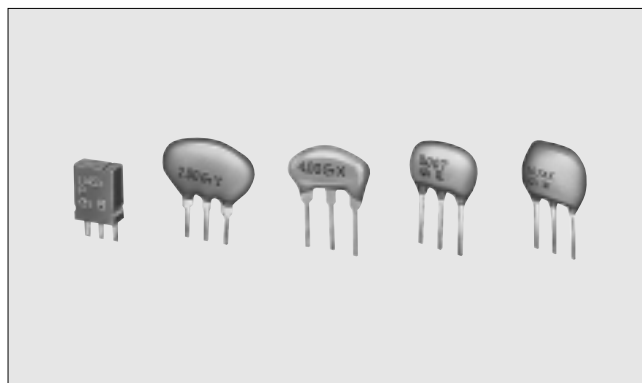
muRata

CERALOCK® with built in loading capacitors.

MURATA's ceramic resonator, CERALOCK®, has been widely applied as the most suitable component for clock oscillators in a broad range of microprocessors. The CSU series (kHz band) and CST series (MHz band) can be used in the design of oscillation circuits not requiring external load capacitors, enabling both high-density mounting and cost reduction.

FEATURES

1. Oscillation circuits do not require external load capacitors.
2. The series is stable over a wide temperature range.
3. The resonators are compact, light weight and exhibit superior shock resistance performance.
4. They enable the design of oscillator circuits requiring no adjustment.
5. The series is inexpensive and available in stable supply.
6. There are some variation of built-in capacitance value to apply various of IC.



APPLICATIONS

1. DTMF generators • Remote control units
2. Clock oscillators for microcomputers
3. Automated office equipment
 - Automotive electronics (Suffixed "-A" ex. CST□MGWA)

SPECIFICATIONS

Item \ Type	CSU Series	CST Series			
		CST□MG	CST□MGW	CST□MTW	CST□MXW040
Frequency Range	450—500kHz	1.80—2.44MHz	2.45—6.30MHz	6.31—13.00MHz	13.01—60.00MHz
Oscillation Frequency Initial Tolerance	±2kHz	±0.5%	±0.5%	±0.5%	±0.5%
Oscillation Frequency Temperature Stability*1	±0.3%	±0.3%	±0.3%	±0.4%	±0.3%
Aging*2	±0.5%	±0.3%	±0.3%	±0.3%	±0.3%
Oscillation Frequency Test Circuit	IC :1/6CD4069UBEX2 V_{DD} :5V X :CERALOCK®	IC :1/6CD4069UBEX2*3 V_{DD} :5V (MTW series:12V) X :CERALOCK®			

*1 At -20 to +80°C (Temperature Condition)

*2 For 10years at room temperature .

*3 TC74HCU04 is used as the standard circuit for the MXW040 series.

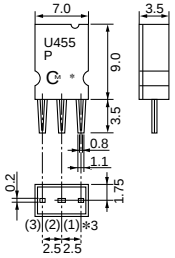
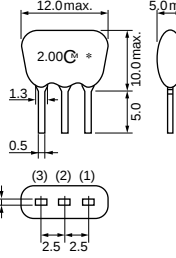
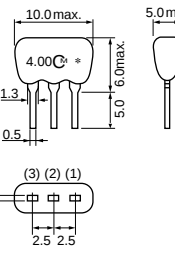
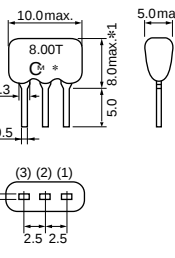
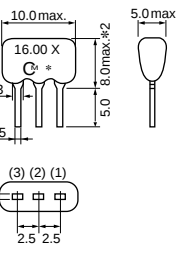
*4 Input terminal (1) should be connected to the input of an inverter.

*5 If connected with incorrect orientation, the above specification may not be guaranteed.

CERAMIC RESONATOR

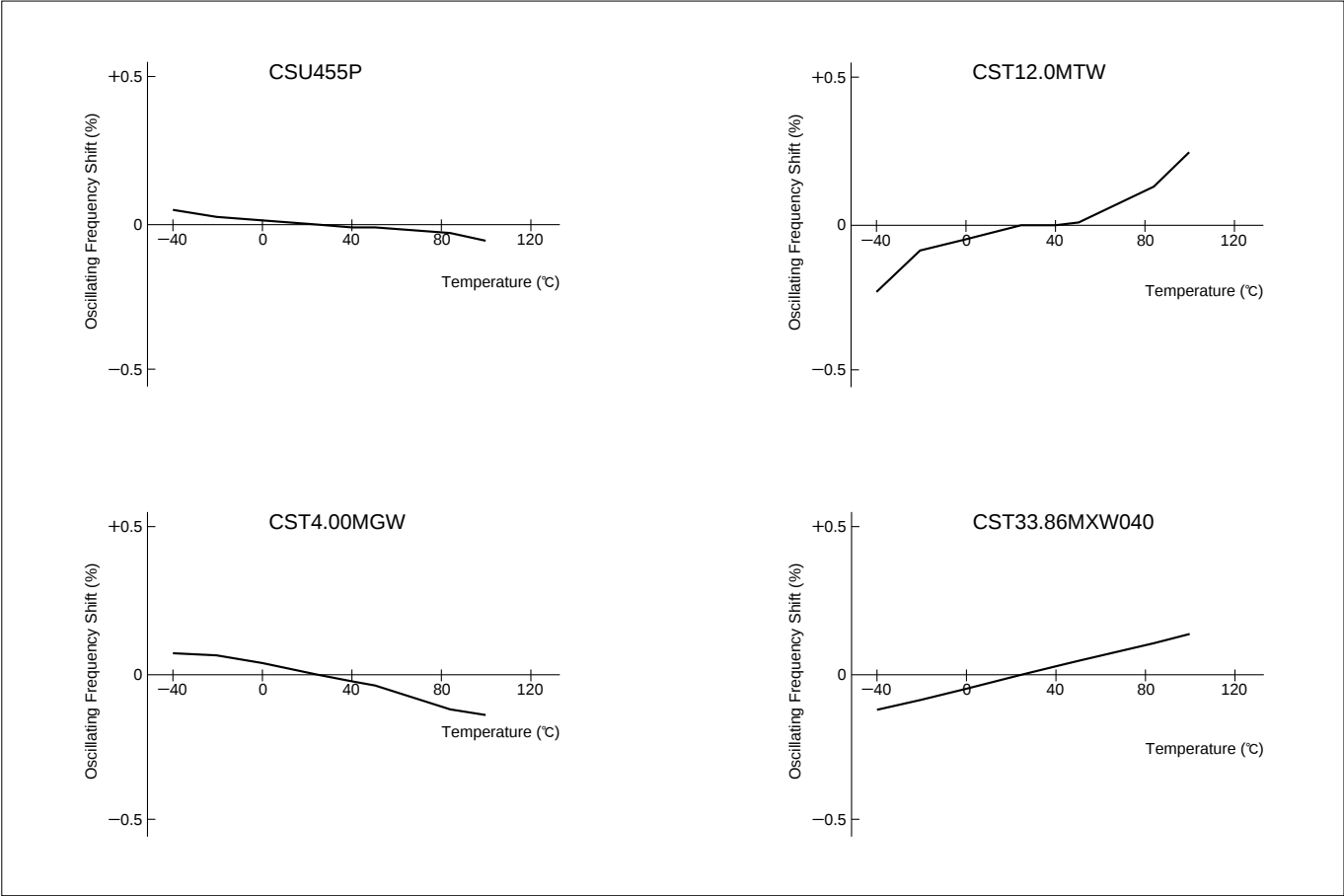
Ceramic Resonator **CSU/CST** Series

■DIMENSIONS

Frequency	450—500kHz	1.80—2.44MHz	2.45—6.30MHz	6.31—13.00MHz	13.01—60.00MHz
Part Number	CSU□P*4	CST□MG	CST□MGW	CST□MTW	CST□MXW
Dimensions (in mm)					

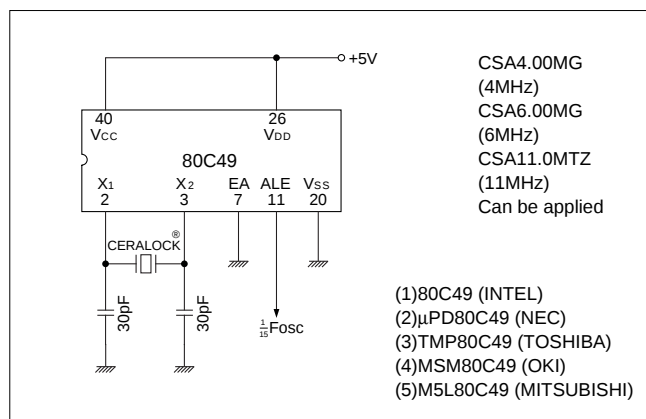
*1 6.31—7.99MHz: 9.0mm max.
*2 13.01—14.99MHz: 9.0mm max., 33.00—60.00MHz:7.0mm max.
*3 Terminals have directionality : (1) Input (2) Ground (3) Output
*4 The CSU□P is not washable.

■THE STABILITY OF OSCILLATION FREQUENCY WITH TEMPERATURE VARIATION

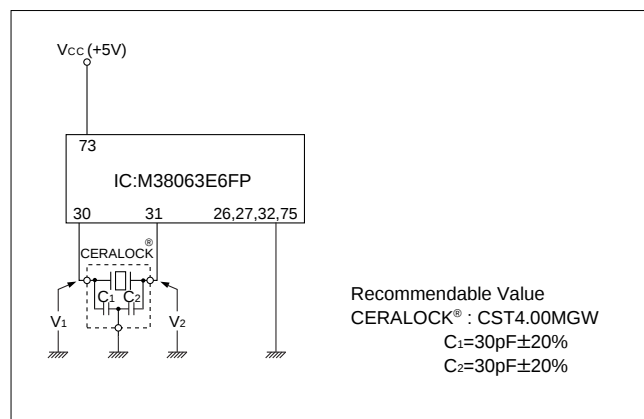


■APPLICATION CIRCUITS UTILIZING THE CERALOCK®

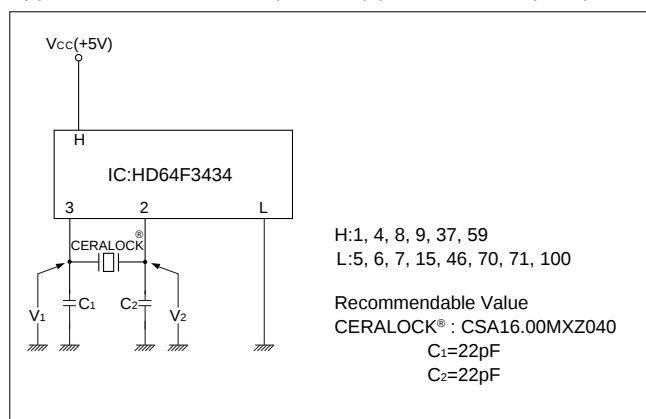
Application to 80C49 (8-bit Microcomputer)



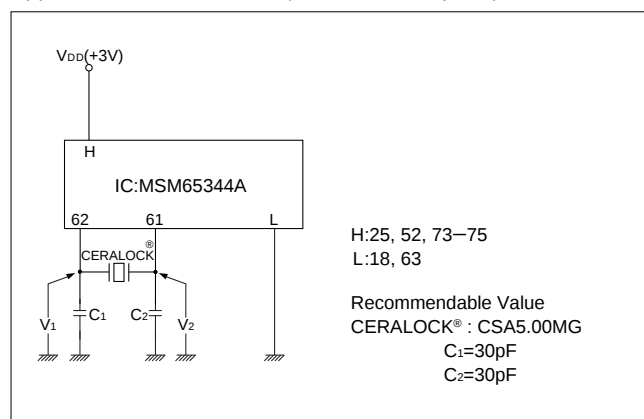
Application to M38063E6FP (MITSUBISHI) (8-bit Microcomputer)



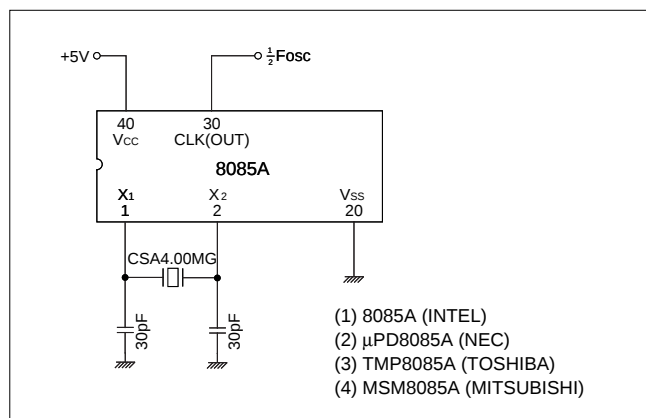
Application to HD64F3434 (HITACHI) (8-bit Microcomputer)



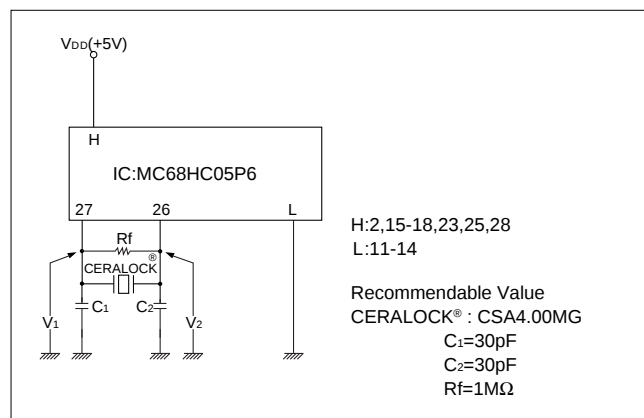
Application to MSM65344A (8-bit Microcomputer)



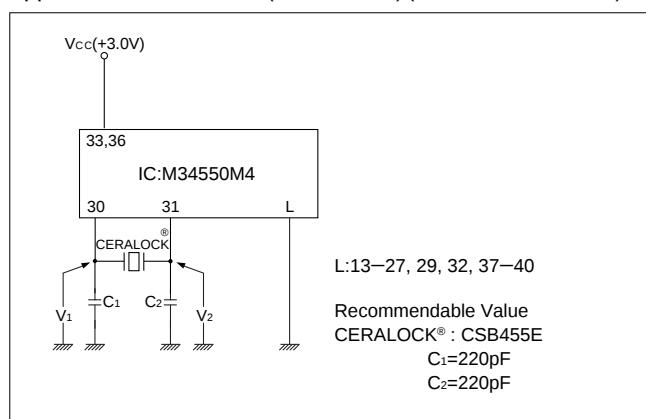
Application to 8085 (8-bit Microcomputer)



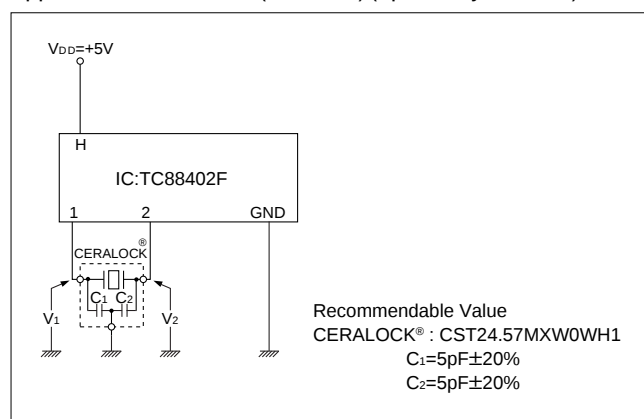
Application to MC68HC05P6 (MOTOROLA) (8-bit Microcomputer)

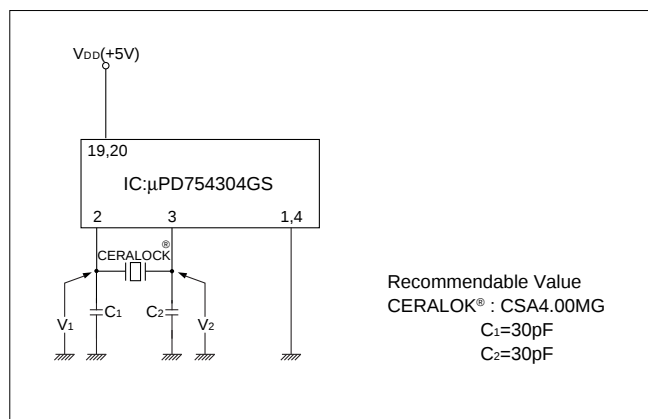


Application to M34550M4 (MITSUBISHI) (Remote Control Unit)

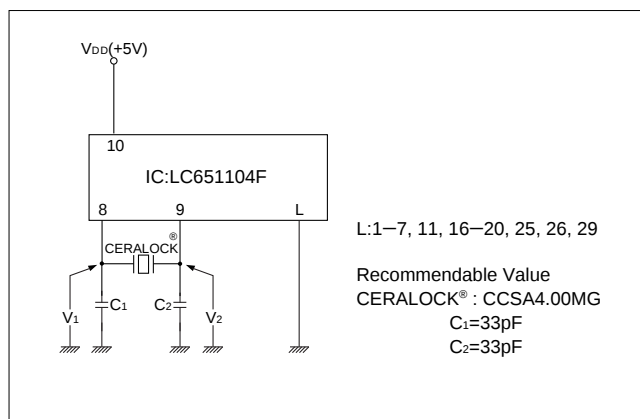


Application to TC88402F (TOSHIBA) (Speech Synthesizer)

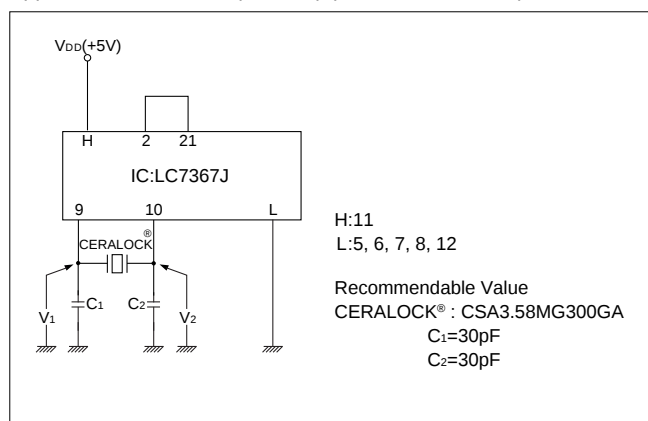


Application to μ PD754304GS (4-bit Microcomputer)

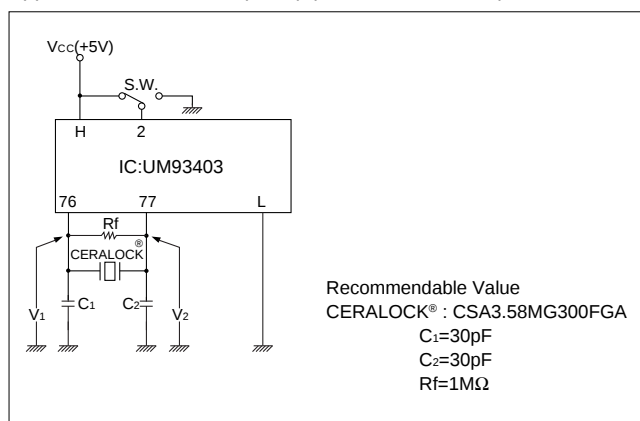
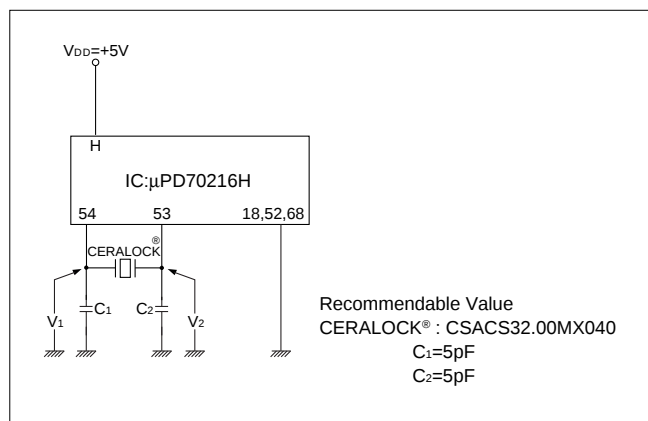
Application to 651104F (SANYO) (4-bit Microcomputer)



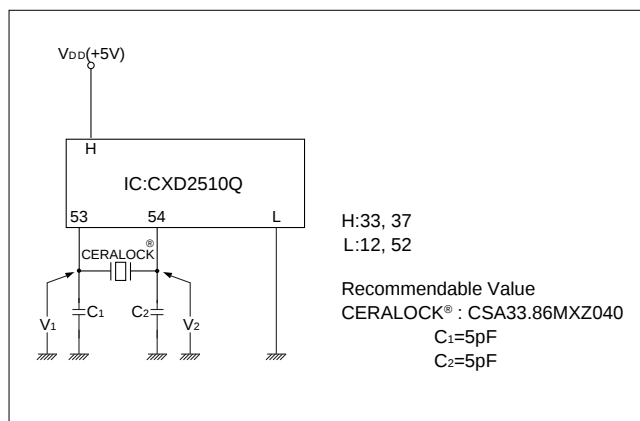
Application to LC7367J (SANYO) (Tone / Pulse Dialer)



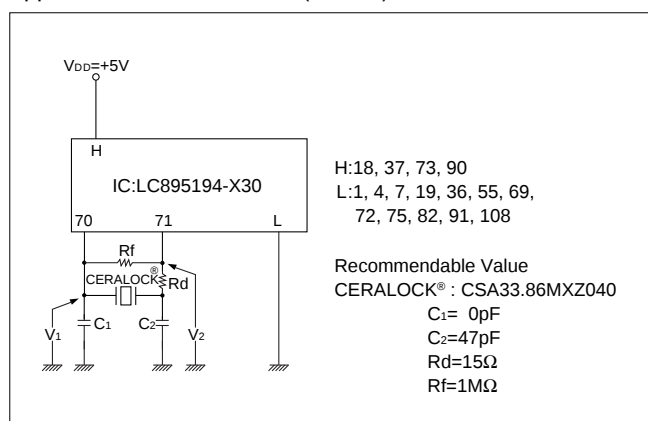
Application to UM93403 (UMC) (Tone / Pulse Dialer)

Application to μ PD70216H (NEC) (16-bit Microcomputer)

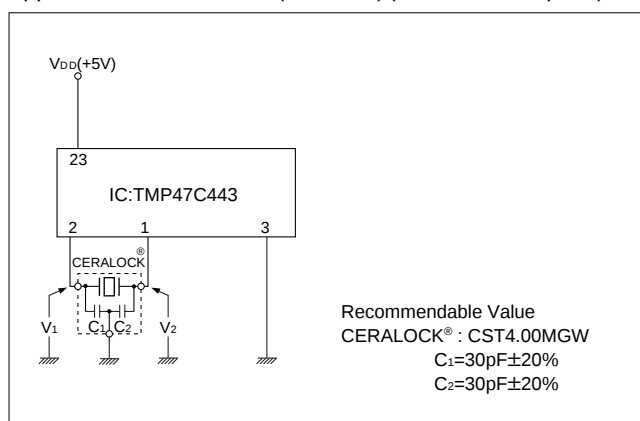
Application to CXD2510Q (SONY) (Digital Signal Processing IC for CD)



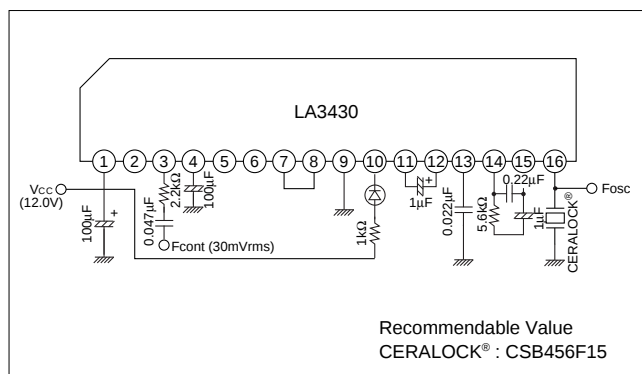
Application to LC895194-X30 (SANYO)



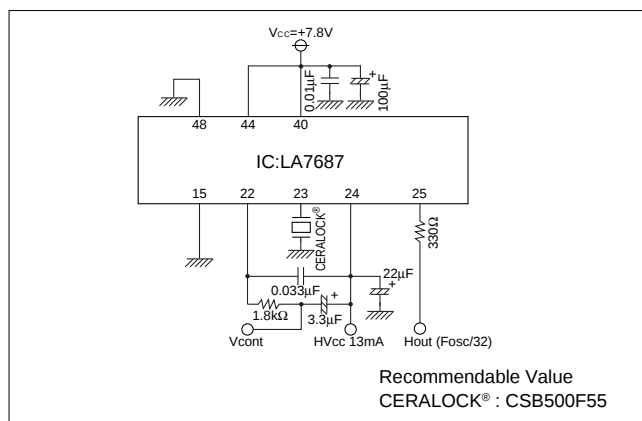
Application to TMP47C443 (TOSHIBA) (4-bit Microcomputer)



Application to LA3430 (SANYO) (FM Stereo MPX)



Application to LA7687 (SANYO)
(TV Horizontal Synthesizer Circuit)



Application to MC13022P (MOTOROLA) (AM Stereo Decoder)

