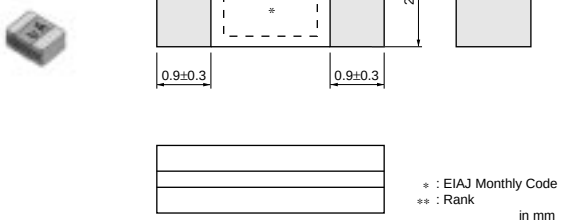
Ceramic Filters (CERAFIL®) for FM Receivers

Discriminators Chip Type CDACV Series

CDACV10M7 series forms a resonator on a piezoelectric ceramic substrate. In combination with ICs, this type obtains stable demodulation characteristics in wide bandwidths.



■ Features

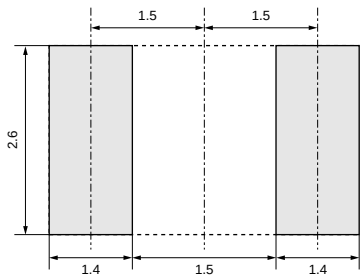
1. Compact and excellent mechanical strength.
2. Can be combined with various ICs. The IC is determined by the last number in the part number.
3. Stable demodulation characteristics can be obtained without adjustment.
4. The MG type for wide bandwidths and the MC type for narrow bandwidths are available.
5. Stable temperature characteristics.
6. We recommend kits : ceramic discriminator CDACV10M7 series and "CERAFIL" SFECV10M7 of the same frequency rank.

Part Number	Center Frequency (fo) (MHz)	Recovered Audio 3dB BW (kHz)	Recovered Audio Output (mV)	Distortion (%)	IC	Detection Method
CDACV10M7GA001-R0	10.700 ±30kHz	fo±150 min.	55 min.	1.0 max.	CX20029	Quadrature
CDACV10M7GA016-R0	10.700 ±30kHz	300 min.	within60 to 90mV	0.9 max.	TA8122F	Quadrature
CDACV10M7GA046-R0	10.700 ±30kHz	330 min.	280 min.	1.5 max.	LA1832	Quadrature
CDACV10M7GA069-R0	10.700 ±30kHz	330 min.	80 min.	1.0 max.	CXA1538N	Quadrature
CDACV10M7CA001-R0	10.700 ±30kHz	fo±150 min.	55 min.	1.0 max.	CX20091	Quadrature

■ Center Frequency Rank Code

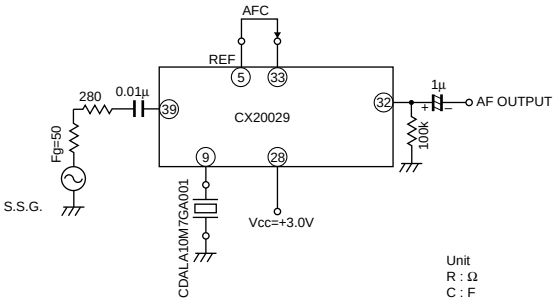
CODE	30kHz Step	25kHz Step
D	10.64MHz±30kHz	10.650MHz±25kHz
B	10.67MHz±30kHz	10.675MHz±25kHz
A	10.70MHz±30kHz	10.700MHz±25kHz
C	10.73MHz±30kHz	10.725MHz±25kHz
E	10.76MHz±30kHz	10.750MHz±25kHz
Z	Combination A,B,C,D,E	
M	Combination A,B,C	

■ Standard Land Pattern Dimensions



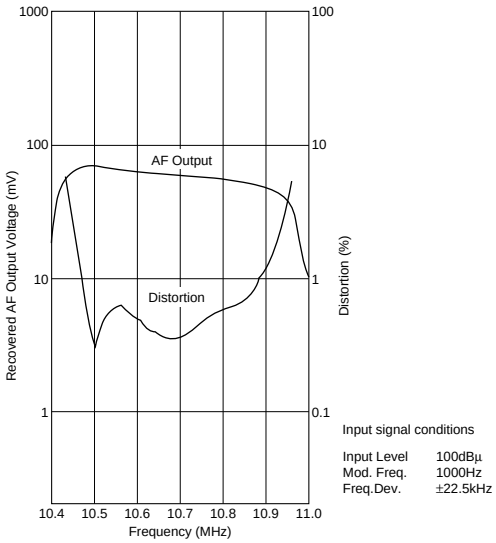
■ CDACV10M7GA001-R0

Test Circuit



Unit
R : Ω
C : F

Frequency Characteristics

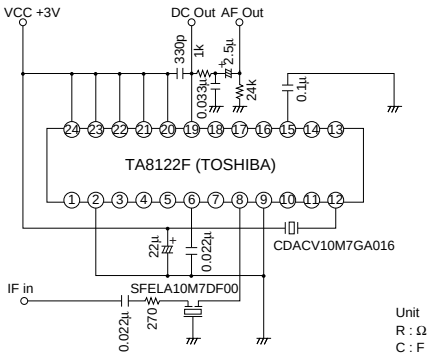


Input signal conditions

Input Level	100dBµ
Mod. Freq.	1000Hz
Freq.Dev.	±22.5kHz

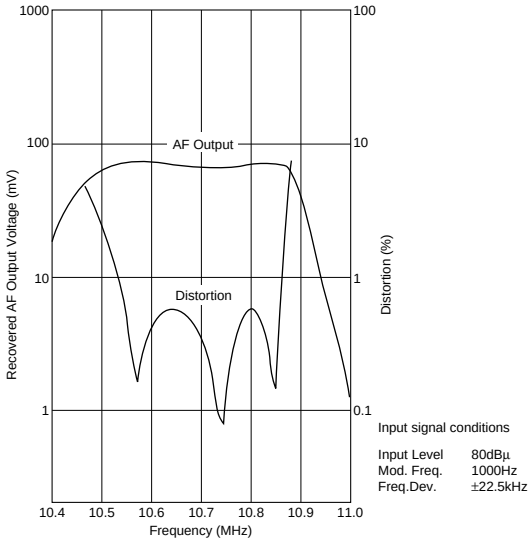
■ CDACV10M7GA016-R0

Test Circuit



Unit
R : Ω
C : F

Frequency Characteristics



Input signal conditions

Input Level	80dBµ
Mod. Freq.	1000Hz
Freq.Dev.	±22.5kHz

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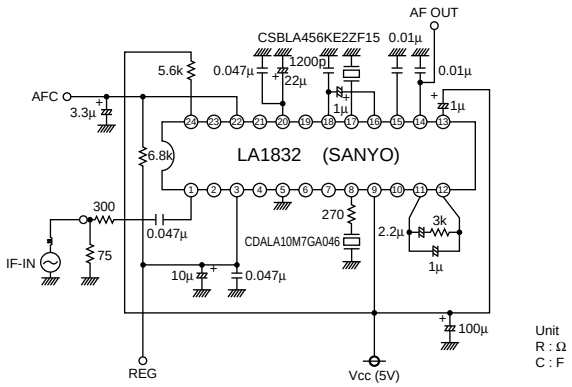
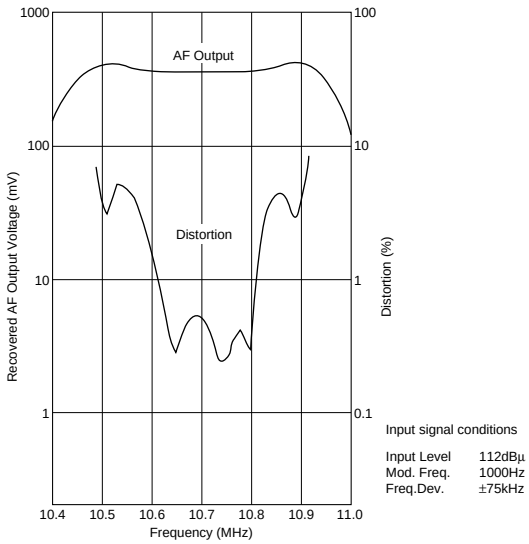
■ CDACV10M7GA046-R0

Test Circuit



Unit
R : Ω
C : F

Frequency Characteristics



Input signal conditions

Input Level	112dBµ
Mod. Freq.	1000Hz
Freq.Dev.	±75kHz

Continued on the following page.

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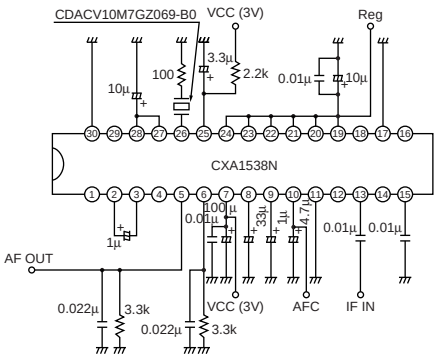
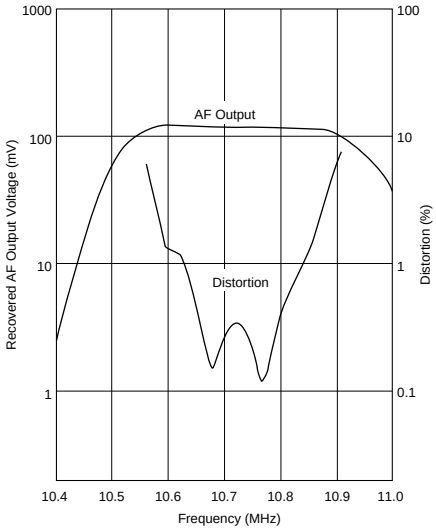
■ CDACV10M7GA069-R0

Test Circuit



Unit
R : Ω
C : F

Frequency Characteristics

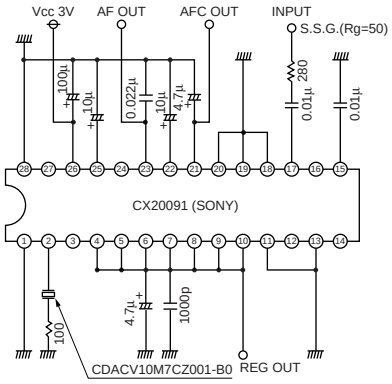


Input signal conditions

Input Level	100dBμ
Mod.Freq.	1000Hz
Freq.Dev.	±75kHz

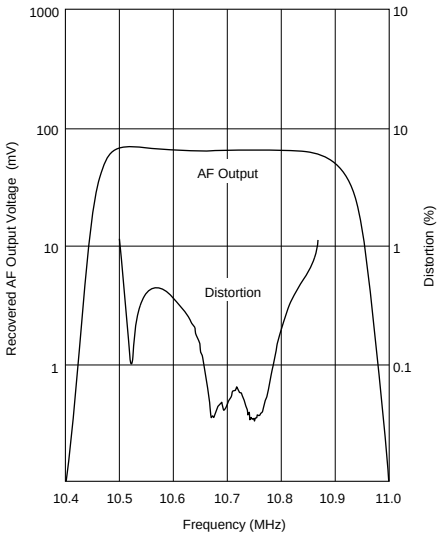
■ CDACV10M7CA001-R0

Test Circuit



Unit
R : Ω
C : F

Frequency Characteristics



Input signal conditions

Input Level	100dBμ
Mod.Freq.	1000Hz
Freq.Dev.	±22.5kHz

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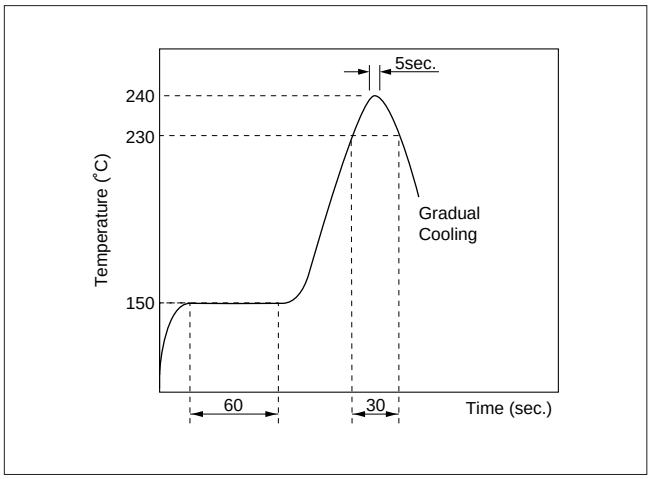
Chip Type Discriminators CDACV Series Notice

■ Notice (soldering and mounting)

1. Standard Reflow Soldering Condition

(1) Reflow



(2) Soldering Iron

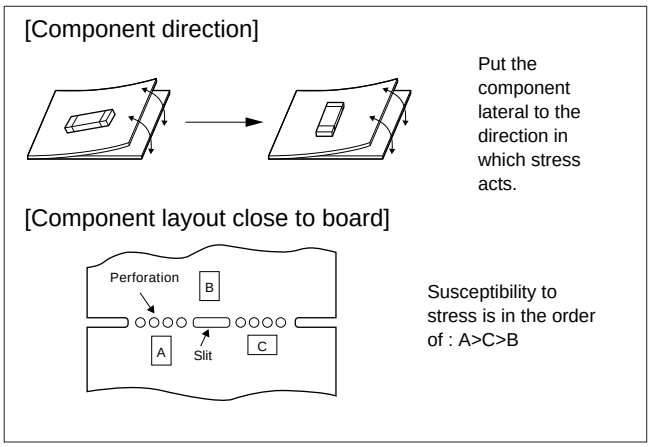
Lead terminal is directly contacted with the tip of soldering iron of 280±5°C for 3.0±0.5 seconds.

2. Wash

The component cannot be withstand washing.

■ Notice (handling)

1. The component may be damaged if excess mechanical stress is applied to it mounted on the printed circuit board.
2. Design layout of components on the PC board to minimize the stress imposed on the warp or flexure of the board.
3. After installing chips, if solder is excessively applied to the circuit board, mechanical stress will cause destruction resistance characteristics to lower. To prevent this, be extremely careful in determining shape and dimension before designing the circuit board diagram.
4. When the positioning claws and pick up nozzle are worn, the load is applied to the chip while positioning is concentrated to one positioning accuracy, etc. Careful checking and maintenance are necessary to prevent unexpected trouble.
5. When correcting chips with a soldering iron, the tip of the soldering iron should not directly touch the chip component. Depending on the soldering conditions, the effective area of terminations may be reduced. the use of solder containing Ag should be done to prevent the electrode erosion.
6. Do not clean or wash the component as it is not hermetically sealed.
7. In case of covering discriminator with over coat, conditions such as material of resin, cure temperature, and so on should be evaluated well.
8. Accurate test circuit values are required to measure electrical characteristics.
   It may be a cause of mis-correlation if there is any deviation, especially stray capacitance, from the test circuit in the specification.



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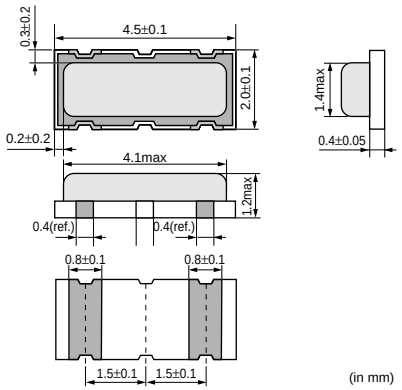
Ceramic Filters (CERAFIL®) for FM Receivers

Discriminators Chip Low-profile Type CDSCA Series

CDSCA10M7 series forms a resonator on a piezo electric ceramic sabstrate. In combination with ICs, this type obtains stable demoduration characteristics in wide bandwidth.



(in mm)

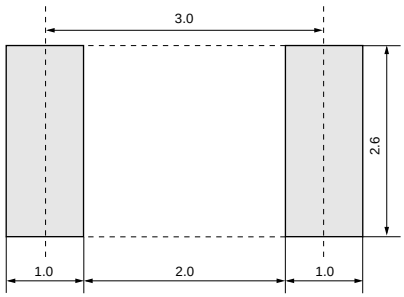
■ Features

1. Compact and high reliability and recommended for automotive applications.
2. Can be combined with various ICs. The IC is determined by the last number in the part number.
3. Stable demoduration characteristics can be obtained without adjustment.
4. Stable temperature characteristics.
5. Recommended for Pb free soldering.

Part Number	Center Frequency (fo) (MHz)	Recovered Audio 3dB BW (kHz)	Recovered Audio Output (mV)	Distortion (%)	IC	Detection Method
CDSCA10M7GF107-R0	10.700 (fn)	fn±80 min.	52 min.	3.0 max.	TA31272F	Quadrature

(fn) means nominal center frequency.

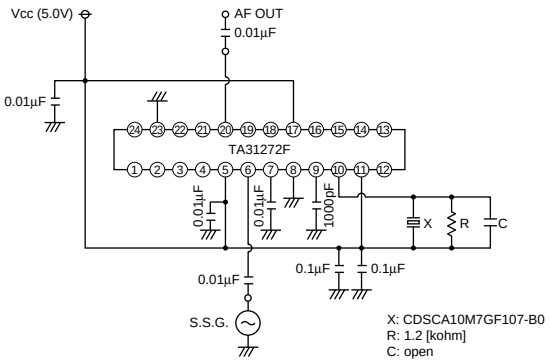
■ Standard Land Pattern Dimensions



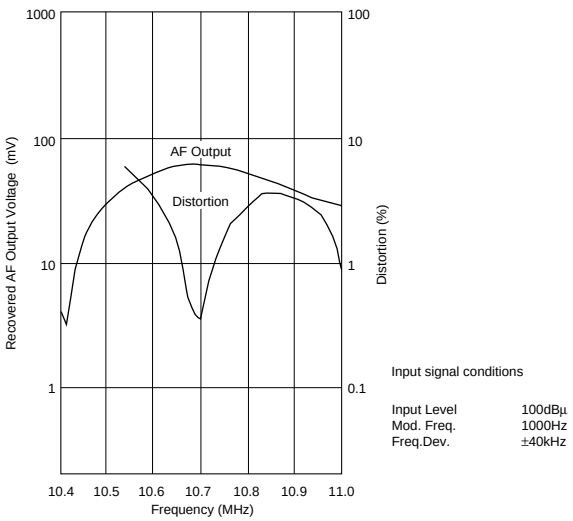
(in mm)

12

■ Test Circuit



■ Frequency Characteristics



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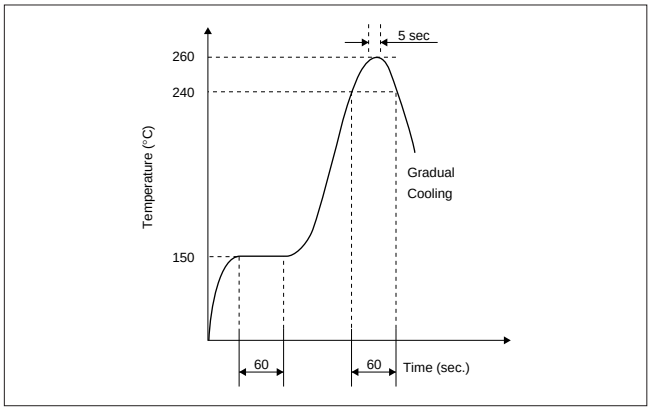
Chip Type Discriminators CDSCA Series Notice

■ Notice (Soldering and Mounting)

1. Standard Reflow Soldering Condition

(1) Reflow



(2) Soldering Iron

Lead terminal is directly contacted with the tip of soldering iron of +280±5°C for 3.0 seconds±0.5 seconds.

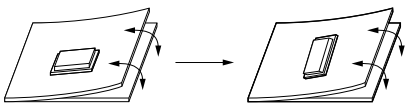
2. Wash

The component cannot be withstand washing.

■ Notice (Handling)

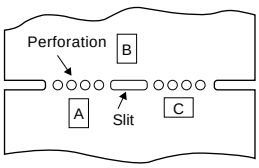
1. The component mounted on the PCB may be damaged if excess mechanical stress is applied.
2. Layout the components on the PCB to minimize the stress imposed by the warp or flexure of the board.
3. After installing components, if solder is excessively applied to the circuit board, mechanical stress will cause destruction resistance characteristics to be lower. To prevent this, be extremely careful in determining shape and dimension before designing the circuit board diagram.
4. When the positioning claw or pick up nozzle are worn, the excess load is applied to the components while positioning or placing are performed. Careful checking and maintenance are necessary to prevent unexpected trouble.
5. When correcting component's position with a soldering iron, the tip of the soldering iron should not directly touch the chip component. Depending on the soldering conditions, the effective area of terminations may be reduced. The use of solder containing Ag should be considerd to prevent the electrode erosion.
6. Do not clean or wash the component as it is not hermetically sealed.
7. In case of overcoating the part, coating conditions such as material, curing temperature, and so on must be evaluated deeply.
8. Accurate test circuit values are required to measure electrical characteristics.
   It may be a cause of mis-correlation if there is any deviation, especially stray capacitance, from the test circuit in the specification.

[Component direction]



Put the component laterally to the direction in which stress acts.

[Component layout close to board]



Susceptibility to stress is in the order of : A>C>B

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Ceramic Filters (CERAFIL®) for FM Receivers

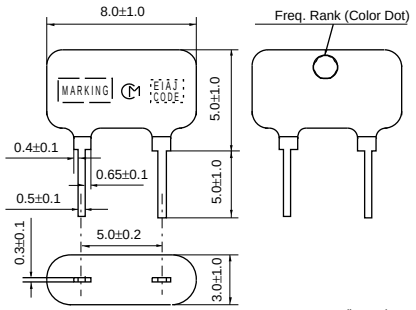
Discriminators CDALA Series

CDALA10M7 series forms a resonator on a piezoelectric ceramic substrate. In combination with ICs, this type obtains stable demodulation characteristics in wide bandwidths.

■ Features

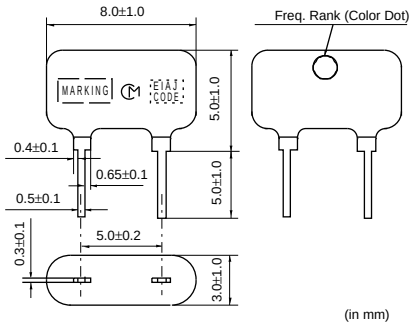
1. Compact and excellent mechanical strength.
2. Can be combined with various ICs. The IC is determined by the last number in the part number.
3. Stable demodulation characteristics can be obtained without adjustment.
4. The MG type for wide bandwidths and the MC type for narrow bandwidths are available.
5. Stable temperature characteristics.
6. We recommend combination : ceramic discriminator CDALA10M7 series and "CERAFIL" SFELA10M7 of the same frequency rank.

CDALA10M7G_ Series



(in mm)

CDALA10M7C_ Series



(in mm)

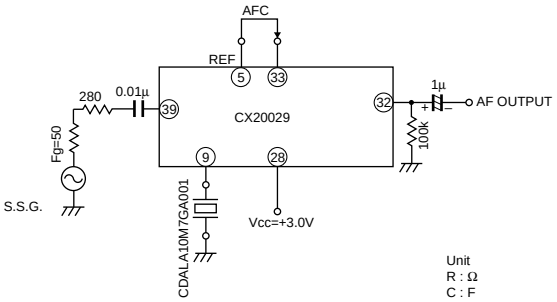
Part Number	Center Frequency (fo) (MHz)	Recovered Audio 3dB BW (kHz)	Recovered Audio Output (mV)	Distortion (%)	IC	Detection Method
CDALA10M7GA001-B0	10.700 ±30kHz	345 min.	25 min.	0.6 max.	CX20029	Quadrature
CDALA10M7GA016-B0	10.700 ±30kHz	300 min.	within60 to 90mV	0.9 max.	TA8122F	Quadrature
CDALA10M7GA018-B0	10.700 ±30kHz	300 min.	60 min.	0.9 max.	TA8132N	Quadrature
CDALA10M7GA046-B0	10.700 ±30kHz	330 min.	280 min.	1.0 max.	LA1832	Quadrature
CDALA10M7GA048-B0	10.700 ±30kHz	400 min.	700 min.	1.0 max.	LA1835	Quadrature
CDALA10M7GA092-B0	10.700 ±30kHz	300 min.	60 min.	1.0 max.	TA2132P	Quadrature
CDALA10M7CA001-B0	10.700 ±30kHz	242 min.	35 min.	-	CX20091	Quadrature
CDALA10M7CA005A-B0	10.700 ±30kHz	100 min.	600 min.	6.0 max.	LA7770	Quadrature
CDALA10M7CA040-B0	10.700 ±30kHz	130 min.	40 min.	0.7 max.	TEA5710	Quadrature

■ Center Frequency Rank Code

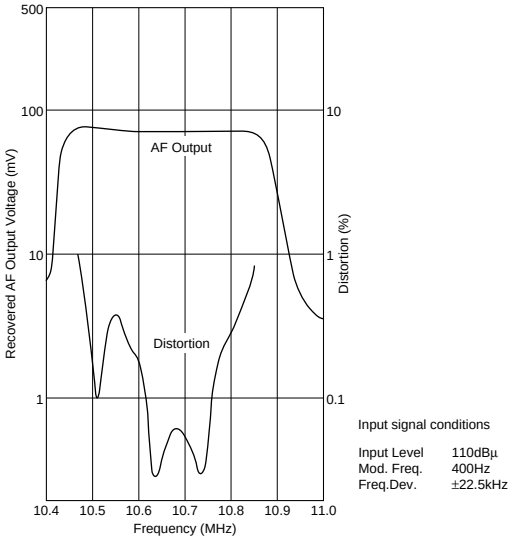
CODE	30kHz Step	25kHz Step
D	10.64MHz±30kHz	10.650MHz±25kHz
B	10.67MHz±30kHz	10.675MHz±25kHz
A	10.70MHz±30kHz	10.700MHz±25kHz
C	10.73MHz±30kHz	10.725MHz±25kHz
E	10.76MHz±30kHz	10.750MHz±25kHz
Z	Combination A,B,C,D,E	
M	Combination A,B,C	

■ CDALA10M7GA001-B0

Test Circuit

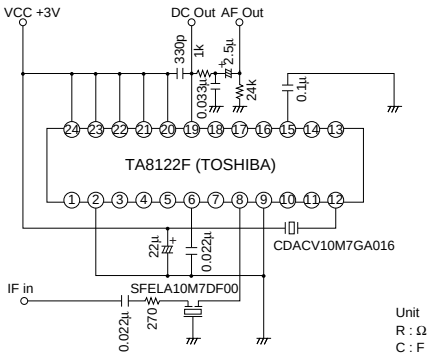


Frequency Characteristics

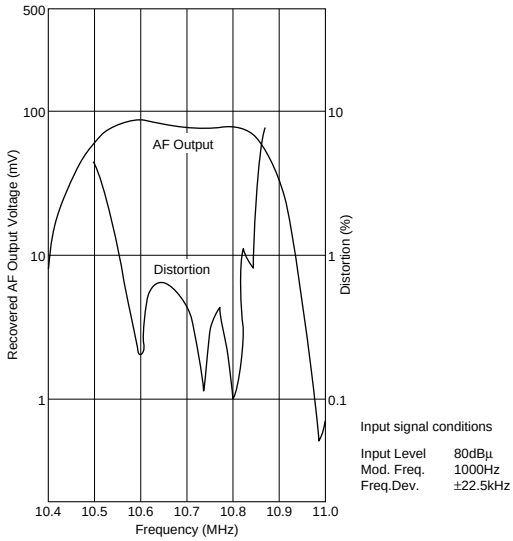


■ CDALA10M7GA016-B0

Test Circuit

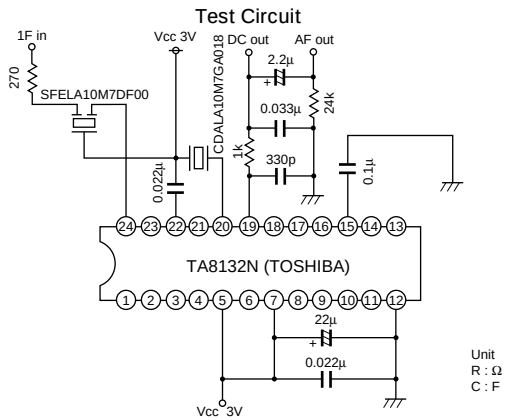


Frequency Characteristics

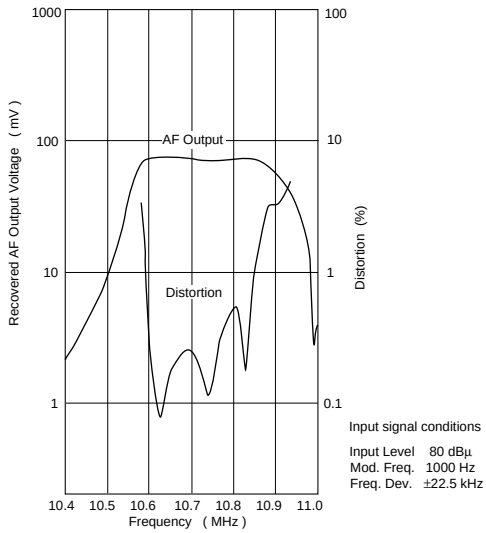


■ CDALA10M7GA018-B0

Test Circuit



Frequency Characteristics



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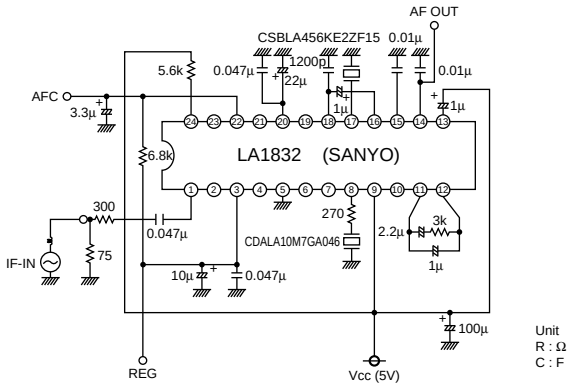
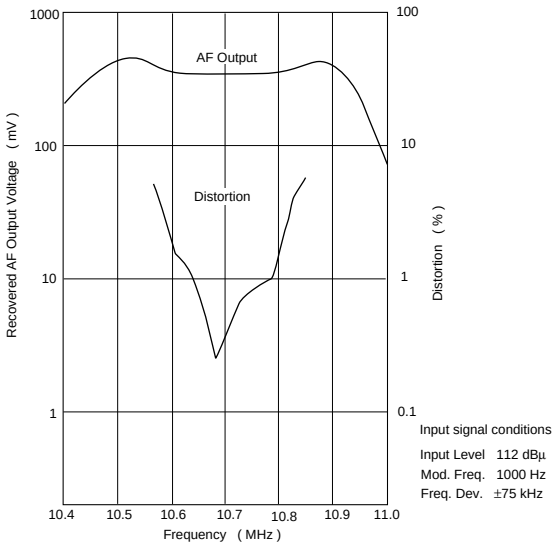
■ CDALA10M7GA046-B0

Test Circuit



Frequency Characteristics

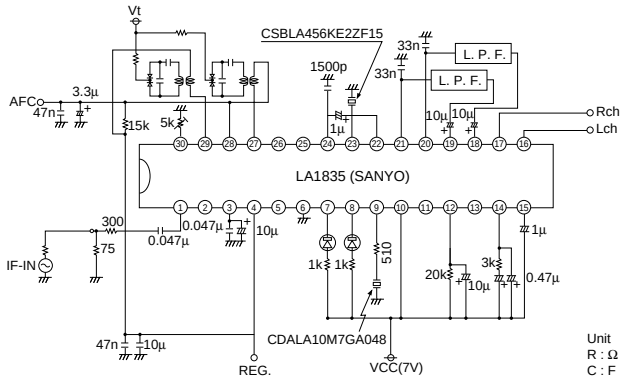


Input signal conditions

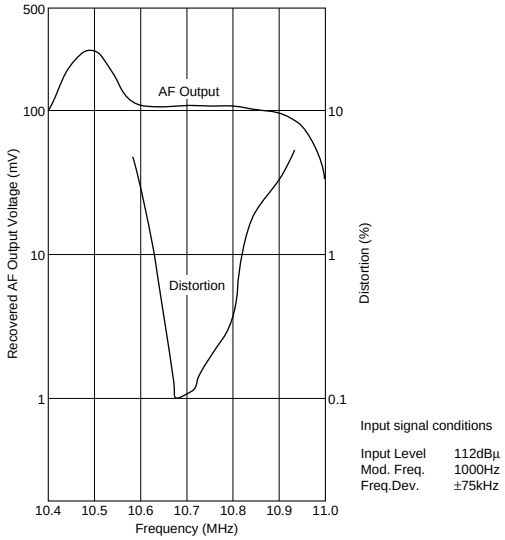
Input Level	112 dBµ
Mod. Freq.	1000 Hz
Freq. Dev.	±75 kHz

■ CDALA10M7GA048-B0

Test Circuit



Frequency Characteristics

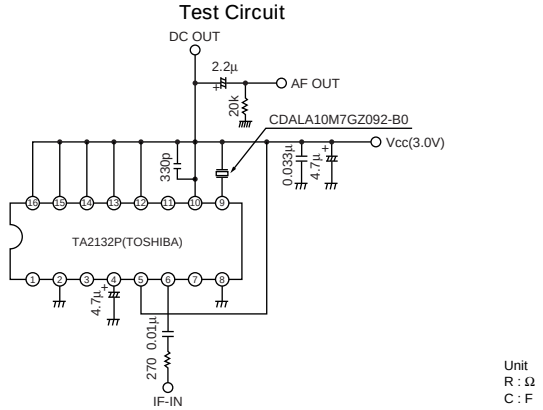


Input signal conditions

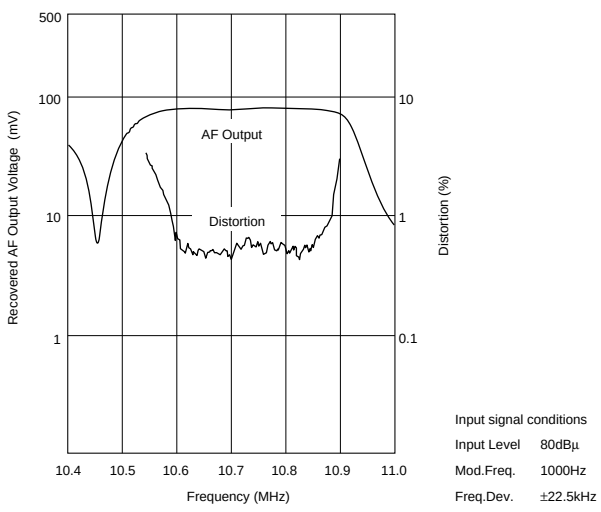
Input Level	112dBµ
Mod. Freq.	1000Hz
Freq.Dev.	±75kHz

■ CDALA10M7GA092-B0

Test Circuit



Frequency Characteristics



Input signal conditions

Input Level	80dBµ
Mod.Freq.	1000Hz
Freq.Dev.	±22.5kHz

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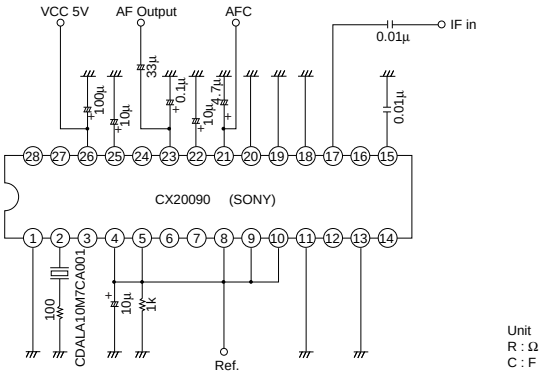
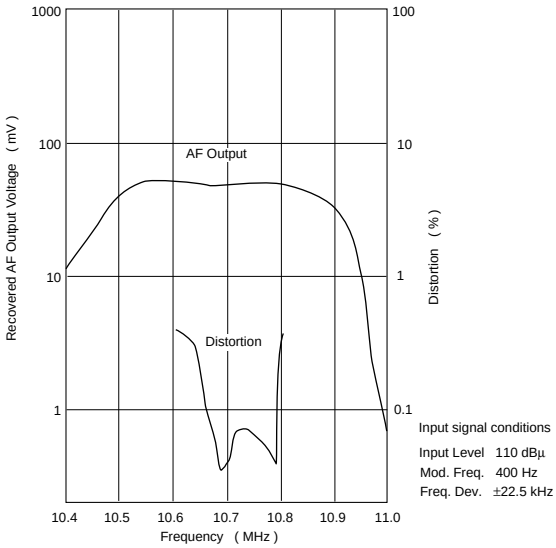
■ CDALA10M7CA001-B0

Test Circuit



Unit
R : Ω
C : F

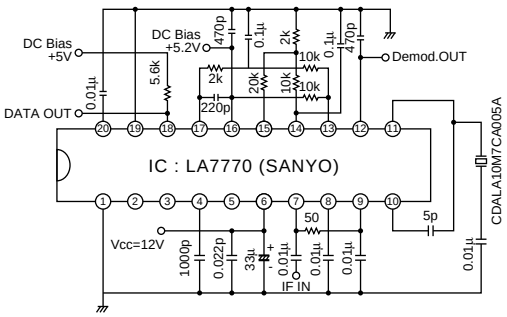
Frequency Characteristics



Input signal conditions
Input Level 110 dBµ
Mod. Freq. 400 Hz
Freq. Dev. ±22.5 kHz

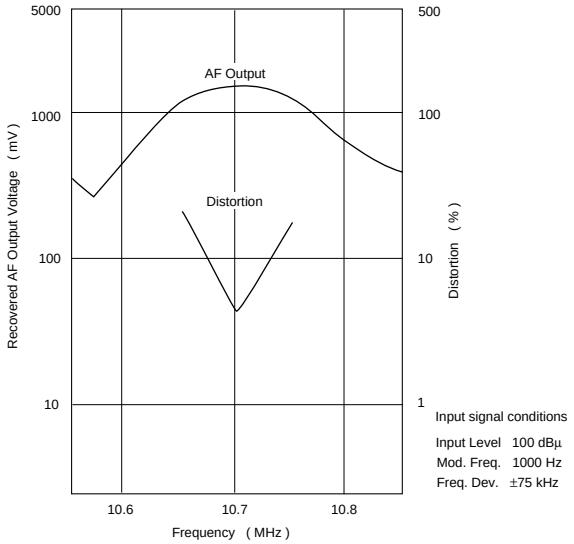
■ CDALA10M7CA005A-B0

Test Circuit



Unit
R : Ω
C : F

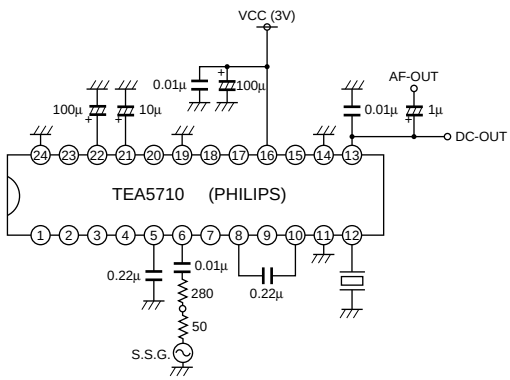
Frequency Characteristics



Input signal conditions
Input Level 100 dBµ
Mod. Freq. 1000 Hz
Freq. Dev. ±75 kHz

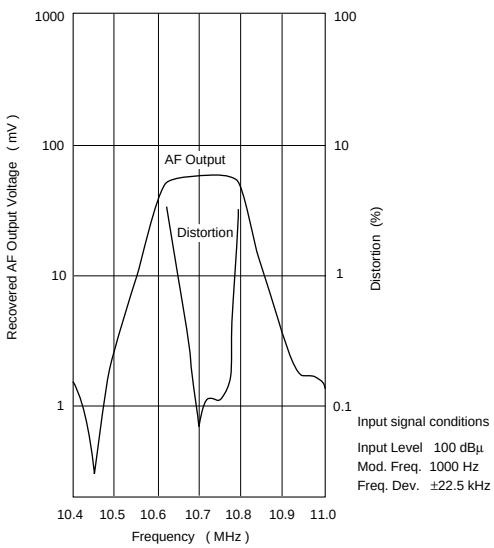
■ CDALA10M7CA040-B0

Test Circuit



Unit
R : Ω
C : F

Frequency Characteristics



Input signal conditions
Input Level 100 dBµ
Mod. Freq. 1000 Hz
Freq. Dev. ±22.5 kHz

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Lead Type Discriminators Notice

■ Notice (Soldering and Mounting)

The component cannot be withstand washing.

■ Notice (Handling)

1. Do not use this product with bend. The component may be damaged if excess mechanical stress is applied to it mounted on the printed circuit board.
2. The component may be damaged when an excess stress will be applied.
3. All kinds of re-flow soldering must not be applied on the component.
4. Do not clean or wash the component as it is not hermetically sealed.
5. Do not use strong acidity flux, more than 0.2wt% chlorine content, in flow soldering.
6. In case of covering discriminator with over coat, conditions such as material of resin, cure temperature, and so on should be evaluated well.
7. Accurate test circuit values are required to measure electrical characteristics. It may be a cause of mis-correlation if there is any deviation, especially stray capacitance, from the test circuit in the specification.

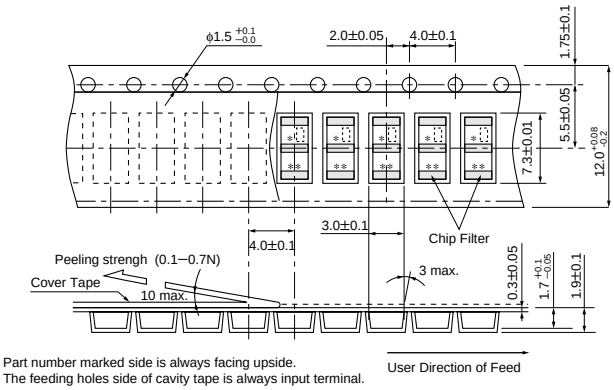
Packaging

■ Minimum Quantity

Part Number	Taping ø180mm	Ammo Pack	Bulk
SFECV	2,000		
SFECS	2,000		
SFELA		1,500	500
SFELB		1,500	500
SFVLA		1,000	500
SFKLA		1,500	500
SFTLA			500
CDACV / CDSCA	2,000		
CDALA		1,500	500

■ Chip Type CERAFIL®

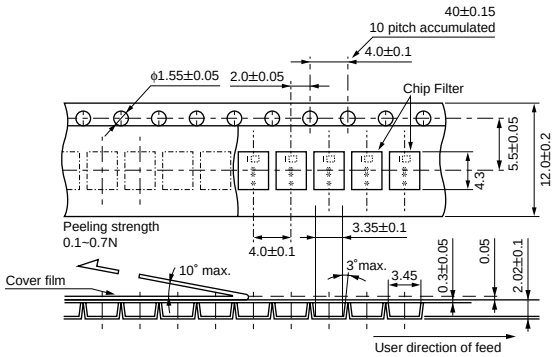
SFECV Series



Part number marked side is always facing upside.
The feeding holes side of cavity tape is always input terminal.

■ Small Chip Type CERAFIL®

SFECS Series

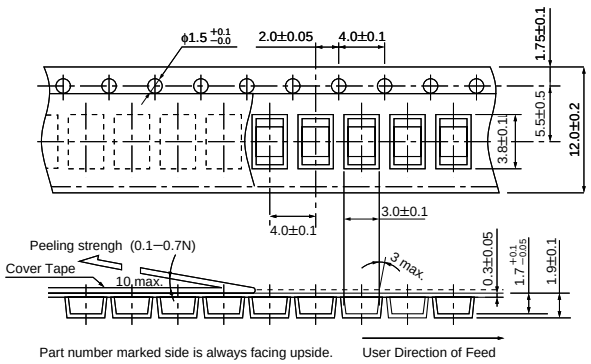


· Part Number marked side is always facing upside.
· The feeding holes side of cavity tape is always input terminal.

(in mm)

■ Chip Type Discriminator

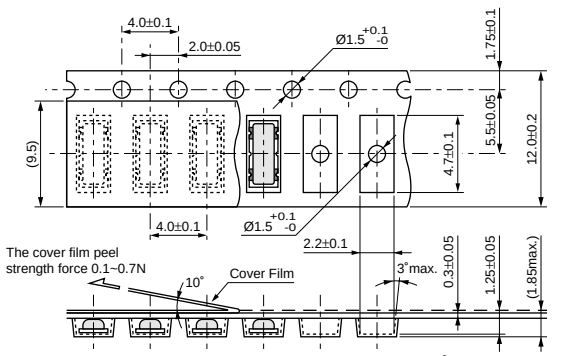
CDACV Series



Part number marked side is always facing upside. User Direction of Feed

■ Chip Type Low-Profile Type Discriminator

CDSCA Series



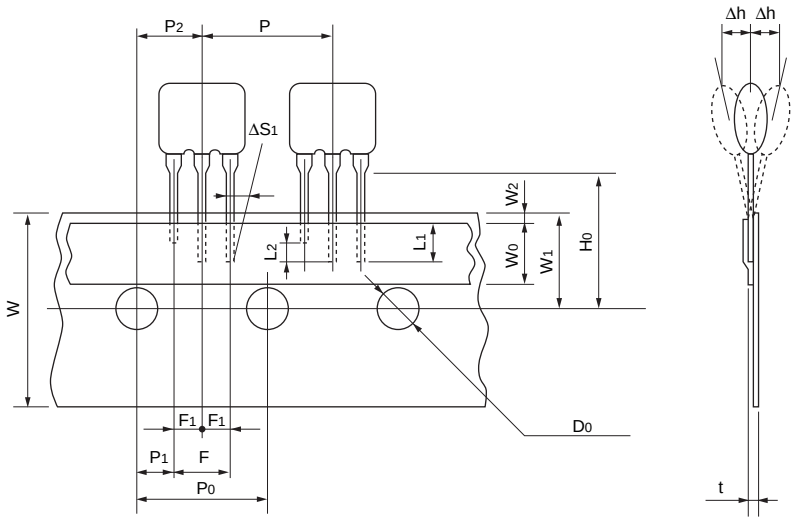
Part Number marked side is always facing upside Direction of Feed (in mm)

Continued on the following page.

Packaging

Continued from the preceding page.

■ Lead Type CERAFIL® SF_LA Series



Item	Code	Dimensions	Tolerance	Remarks
Lead Length under the Hold Down Tape	L_1	3.0 min.		
Length of Cat off	L_2	2.0 max.		To distinguish the direction
Pitch of Components	P	12.7	±0.5	
Pitch of Sprocket Hole (1)	P_0	12.7	±0.2	
Length from Hole Center to Lead	P_1	3.85	±0.5	
Length from Hole Center to Component Center	P_2	6.35	±0.5	
Pitch of the Terminal (1)	F	5.0	$^{+0.5}_{-0.2}$	
Pitch of the Terminal (2)	F_1	2.5	±0.2	
Slant to the Forward or Backward	Δh	0	±1.0	
Slant to the Left or Right	ΔS_1	0	±1.0	
Width of Carrier Tape	W	18.0	±0.5	
Width of Hold Down Tape	W_0	6.0 min.		Must not protrude to the carrier tape
Position of Sprocket Hole	W_1	9.0	±0.5	
Gap of Hold Down Tape and Carrier Tape	W_2	0	$^{+0.5}_{-0}$	
Distance Between the Center of Sprocket Hole and Lead Stpper	H_0	18.0	±0.5	
Diameter of Sprocket Hole	D_0	ø4.0	±0.2	
Total Tape Thickness	t	0.6	±0.2	
Pitch of Sprocket Hole (2)	$P_0$20	254.0	±1.5	The pitch of 20 sprocket holes

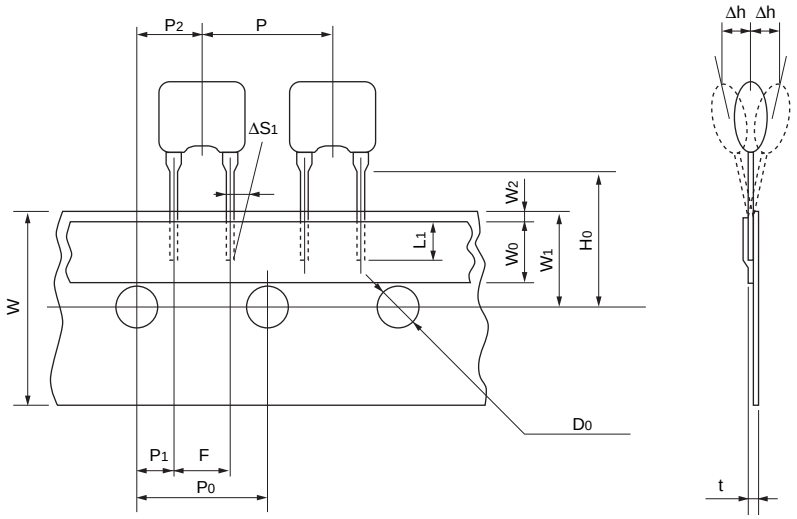
(in mm)

Continued on the following page.

Packaging

Continued from the preceding page.

■ Lead Type Discriminator CDALA Series



Item	Code	Dimensions	Tolerance	Remarks
Lead length under the hole down tape	L_1	3.0 min.	———	
Pitch of component	P	12.7	±0.5	
Pitch of sprocket hole (1)	P_0	12.7	±0.2	
Length from hole center to lead	P_1	3.85	±0.5	
Length from hole center to component center	P_2	6.35	±0.5	
Lead spacing	F	5.0	+0.5 -0.2	
Slant to the forward or backward	Δh	0	±1.0	
Slant to the left or right	ΔS_1	0	±1.0	
Width of carrier tape	W	18.0	±0.5	
Width of hold down tape	W_0	6.0 min.	———	
Position of sprocket hole	W_1	9.0	±0.5	
Gap of hold down tape and Carrier tape	W_2	0	+0.5 -0.0	Hold down tape doesn't exceed the carrier tape
Distance between the center of sprocket hole and lead stopper	H_0	18.0	±0.5	
Diameter of sprocket hole	D_0	ø4.0	±0.2	
Total tape thickness	t	0.6	±0.2	
Pitch of sprocket hole (2)	Po20	254.0	±1.5	The pitch of 20 sprocket holes

(in mm)

Test Circuit of Ceramic Discriminator

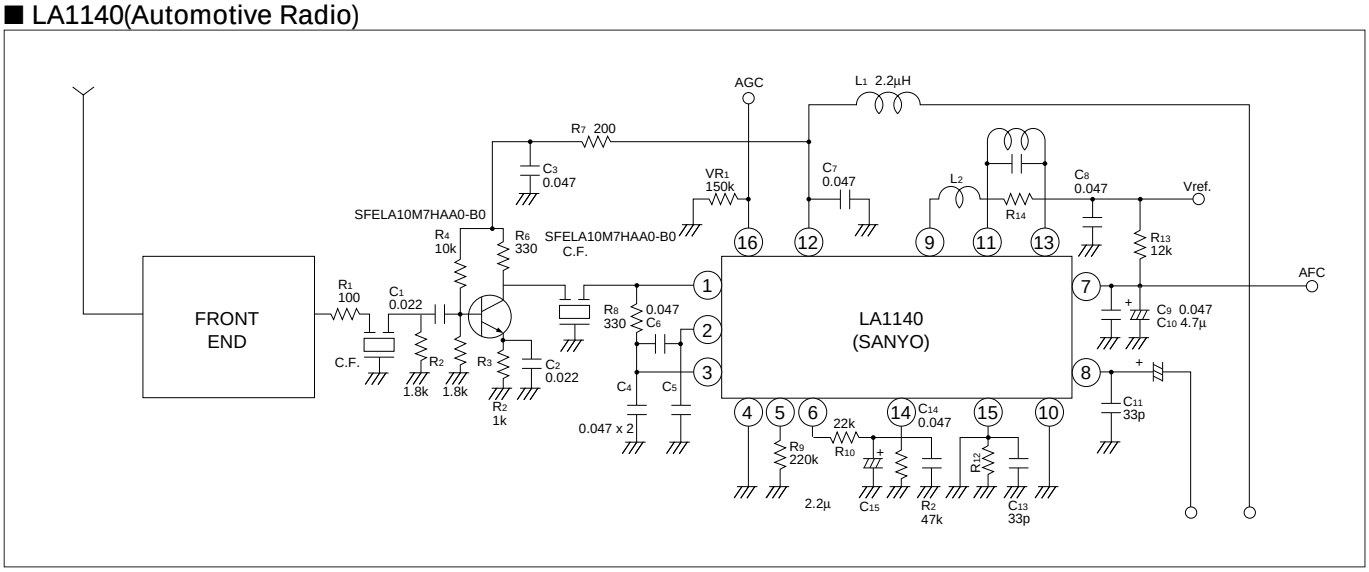
Part Number	IC Manufacturer	IC
CDALA10M7GA001	Sony	CX20029
CDALA10M7GA002	Sony	CX20076
CDALA10M7GA004	Rohm	BA4234L
CDALA10M7GA005	Rohm	BA4230AF
CDALA10M7GA006	Toshiba	TA7640AP
CDALA10M7GA007	Sanyo	LA1260
CDALA10M7GA008	Toshiba	TA7303P
CDALA10M7GA009	Toshiba	TA7130P
CDALA10M7GA011	Panasonic	AN7004
CDALA10M7GA012	Sony	CXA1030P
CDALA10M7GA013	Panasonic	AN7007SU
CDALA10M7GA014A	Panasonic	AN7006S
CDALA10M7GA015	Sanyo	LA1816
CDALA10M7GA016	Toshiba	TA8122AN/F
CDALA10M7GA017	Philips	TEA5591
CDALA10M7GA018	Toshiba	TA8132AN/AF
CDALA10M7GA019	Rohm	BA1440
CDALA10M7GA020	Philips	NE604
CDALA10M7GF021A	Philips	TBA229-2
CDALA10M7GA022	Sanyo	LA1810
CDALA10M7GA023	Sanyo	LA7770
CDALA10M7GF024	Philips	TDA2557
CDALA10M7GA025	Telefunken	U829B
CDALA10M7GA026	Sanyo	LA1805
CDALA10M7GA027	Sony	CXA1238
CDALA10M7GA027N	Sony	CXA1238N
CDALA10M7GA028	Telefunken	U2501B
CDALA10M7GA029	Philips	TBA120U
CDALA10M7GA030	Philips	TEA5592
CDALA10M7GA031	Toshiba	TA2003
CDALA10M7GA032	Sony	CXA1343M
CDALA10M7GA033	Toshiba	TA2007N
CDALA10M7GA034V	Telefunken	U4490B
CDALA10M7GA035	Philips	TEA5594
CDALA10M7GA036	Toshiba	TA2029
CDALA10M7GA037	Sanyo	LA1830
CDALA10M7GA038	Siemens	TDA6160X
CDALA10M7GA039	Toshiba	TA8186
CDALA10M7GA040	Philips	TEA5710
CDALA10M7GA041	Rohm	BA4220
CDALA10M7GA042	Philips	SA605
CDALA10M7GA043	Sanyo	LA1831
CDALA10M7GA044	Siemens	TDA6160-2X
CDALA10M7GA045	Toshiba	TA2008A/AN
CDALA10M7GA046	Sanyo	LA1832/M
CDALA10M7GA047	Philips	SA626
CDALA10M7GA048	Sanyo	LA1835/M
CDALA10M7GA049	Motorola	MC13156
CDALA10M7GA050	Toshiba	TA2022
CDALA10M7GA051	Siemens	TDA1576T
CDALA10M7GA052	Motorola	MC13173
CDALA10M7GA053	Panasonic	AN7232
CDALA10M7GA054	Sony	CXA1376AM
CDALA10M7GA055	Philips	TEA5712T
CDALA10M7GA056	NEC	µPC1391M
CDALA10M7GA057	Toshiba	TA2057
CDALA10M7GA058	Toshiba	TA2046
CDALA10M7GA059	Samsung	KA2244
CDALA10M7GA060	Rohm	BA1448
CDALA10M7GA061	Philips	TEA5762/5757

Part Number	IC Manufacturer	IC
CDALA10M7GF062	Toko	TK14581
CDALA10M7GA063	Samsung	KA2292
CDALA10M7GA064	Samsung	KA2295
CDALA10M7GA065	Samsung	KA2298
CDALA10M7GA066	Rohm	BA4110
CDALA10M7GA067	Rohm	BA4240L
CDALA10M7GA068	Sony	CXA1991N
CDALA10M7GA069	Sony	CXA1538M/N/S
CDALA10M7GA070	Sanyo	LA1150
CDALA10M7GA071	Toshiba	TA7765
CDALA10M7GF072	Toshiba	TA31161
CDALA10M7GA073	Motorola	MC13158
CDALA10M7GA075	Sony	CXA1611
CDALA10M7GA076	Sony	CXA3067M
CDALA10M7GA077	Toshiba	TA2111
CDALA10M7GA078	Sony	CX1691M
CDALA10M7GA079	Sanyo	LA1838/M
CDALA10M7GA080	Toshiba	TA2104AFN
CDALA10M7GA080A	Toshiba	TA2104F
CDALA10M7GA081	Telefunken	U4313B
CDALA10M7GA082	Toshiba	TA2099N
CDALA10M7GA083	Sanyo	LA1827
CDALA10M7GA084	Rohm	BH4126FV
CDALA10M7GA085	Philips	SA639
CDALA10M7GA086	Sanyo	LA1833
CDALA10M7GA087	Motorola	MC3363
CDALA10M7GA088	Toshiba	TA8721ASN
CDALA10M7GA089	Samsung	KA22425
CDALA10M7GA090	Samsung	KA22901
CDALA10M7GA091	Samsung	KA2297
CDALA10M7GA092	Toshiba	TA2132
CDALA10M7GA092D	Toshiba	TA2132BP
CDALA10M7GA093	Sony	CXA1111
CDALA10M7GA094	Sanyo	LA1822
CDALA10M7GA095	Temic	U2765B
CDALA10M7GA096	Philips	SA636DK
CDALA10M7GA097	Matsushita	AN6138SH
CDALA10M7GA098	Philips	CAA3220TS
CDALA10M7GA100	Toshiba	TA2149N
CDALA10M7GA100A	Toshiba	TA2149AN
CDALA10M7GA101	Sanyo	LA1823
CDALA10M7GA102	Toshiba	TA2142FN
CDALA10M7GA103	Samsung	KB22902
CDALA10M7GA104	Rfmd	RF2925
CDALA10M7GA105A	Philips	TEA5757HL
CDALA10M7GA106	Fujitsu	MB15G611
CDALA10M7GF107	Toshiba	TA31272FN
CDALA10M7GF108A	Sanyo	LA1225M
CDALA10M7GF109	Toko	TK14588
CDALA10M7GA110	Dspg	DS9RF21

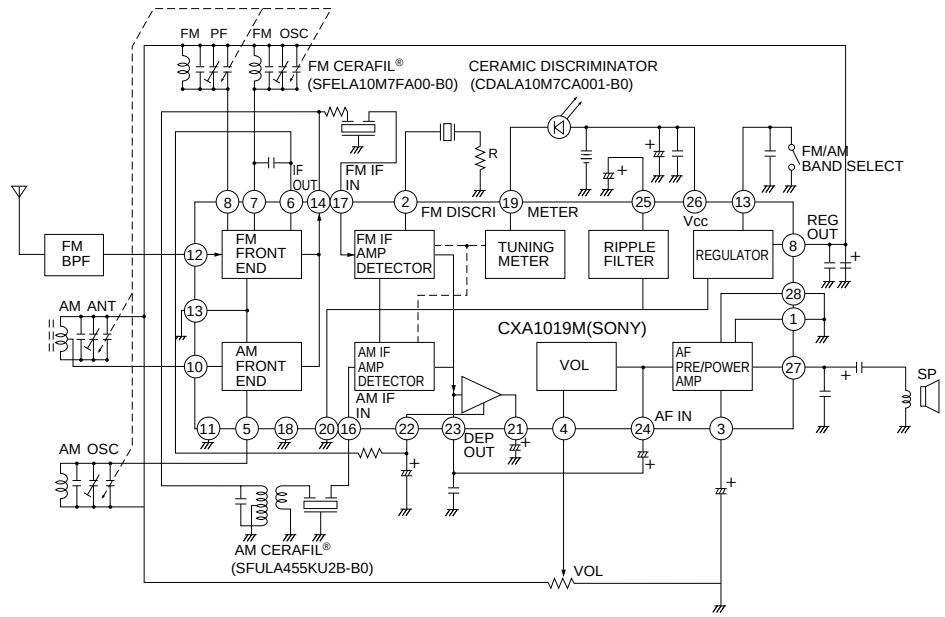
Part Number	IC Manufacturer	IC
CDALA10M7CA001	Sony	CX20091
CDALA10M7CA002	Toshiba	TA7687P/F
CDALA10M7CA004A	Motorola	MC3356P
CDALA10M7CA005A	Sanyo	LA7770
CDALA10M7CA006	Philips	TEA5591
CDALA10M7CA009	Toshiba	TA7640AP
CDALA10M7CA040	Philips	TEA5710

Example of Appllied Circuit

■ LA1140(Automotive Radio)



■ CXA1019M(Radio)



No adjustment is needed the FM detection stage due to use the ceramic discriminator.

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Example of Appllied Circuit

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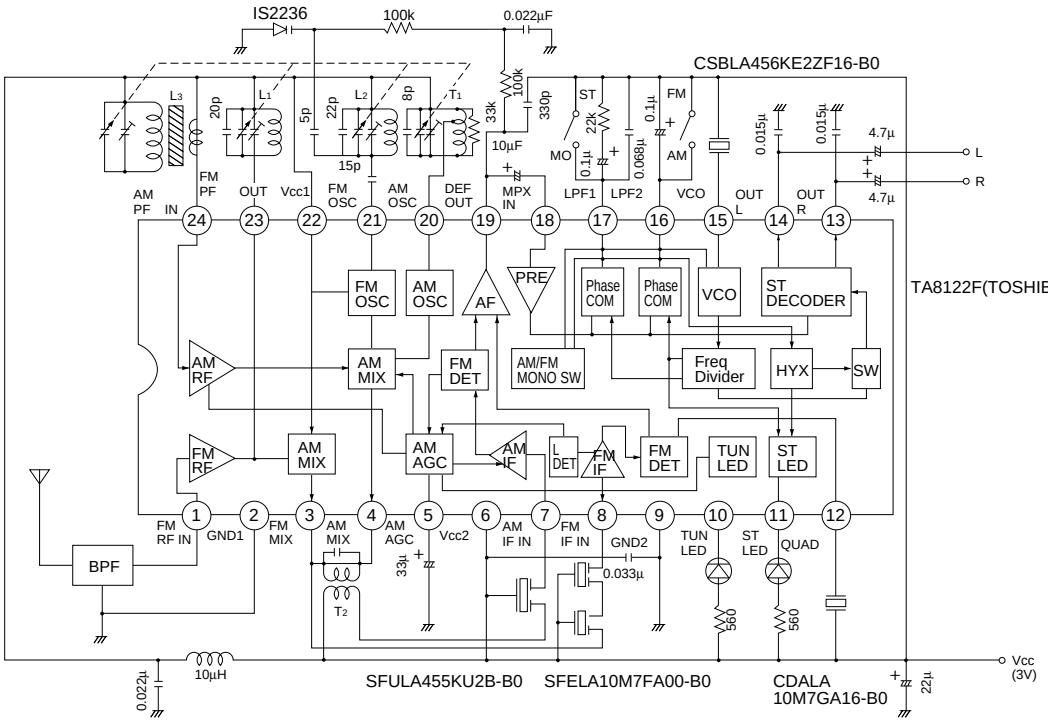
■ TA8122F(Radio)



Detection and MPX stage adjustment ceramic discriminator and ceramic resonator (CERALOCK®)

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   ⑦ Traffic signal equipment
   ⑧ Disaster prevention / crime prevention equipment
   ⑨ Data-processing equipment
   ⑩ Application of similar complexity and/or reliability requirements to the applications listed in the above
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