

TENTATIVE TOSHIBA BIPOLAR LINEAR INTEGRATED CIRCUIT SILICON MONOLITHIC

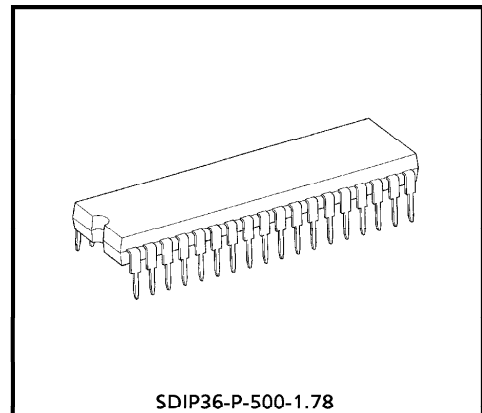
TA8750AN

SECAM CHROMA PROCESSOR

The TA8750AN is a SECAM chroma processor packaged in a 36 lead, shrink type, dual in line plastic package.

The TA8750AN includes all of the functions required to realize a PAL/SECAM CTV in conjunction with a PAL single chip IC TA8691N or a PAL/NTSC single chip IC TA8690AN.

The TA8750AN is also able to be used with the TA7698AP (PAL/NTSC V/C/D).



SDIP36-P-500-1.78

Weight : 2.98g (Typ.)

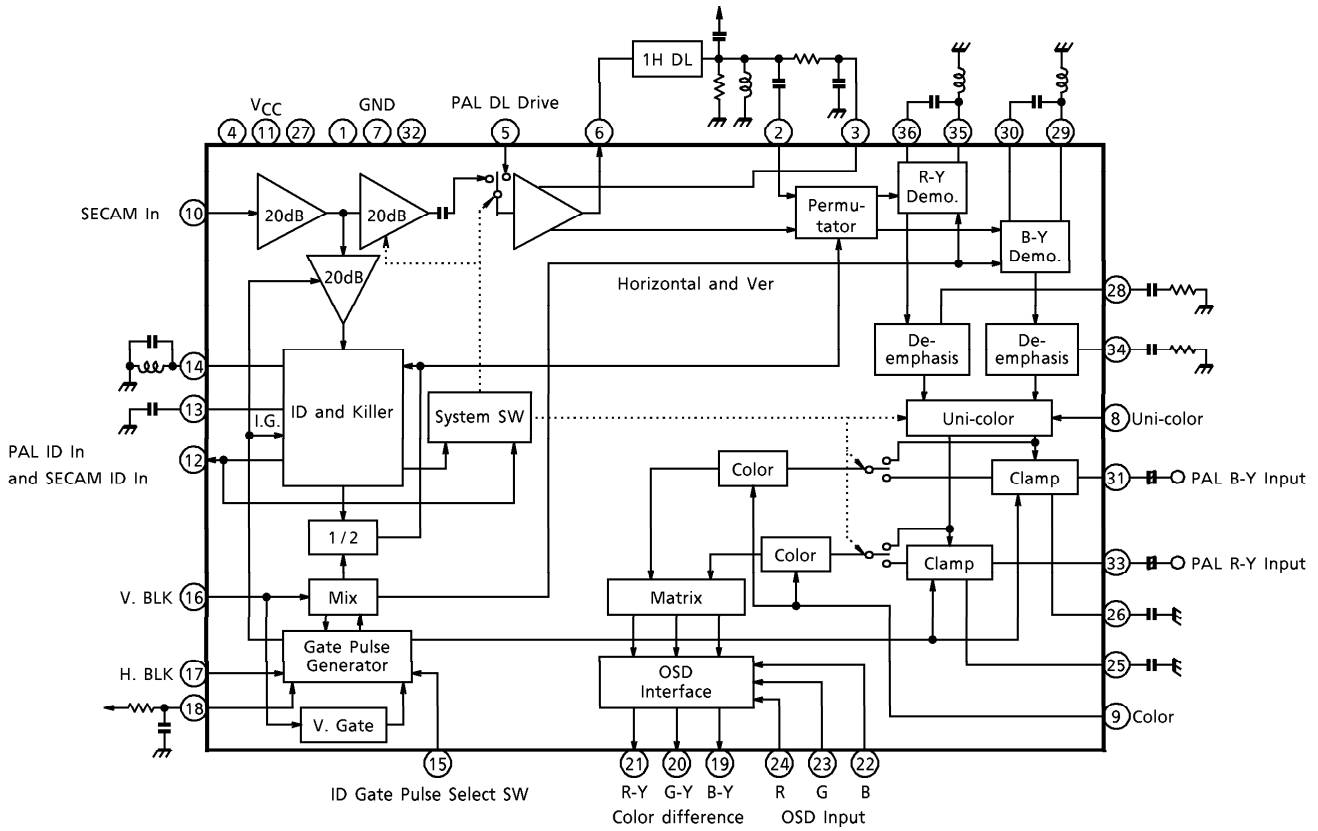
FEATURES

- SECAM limiter
- PAL/SECAM switch for 1H DL drive circuit
- SECAM demodulator
- De-emphasis
- Color control
- Uni-color control
- Clamp circuits for PAL color-difference signals
- PAL/SECAM SW
- G-Y matrix
- Gate pulse generator (H ID/V ID)
- OSD interface

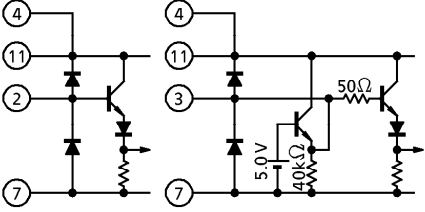
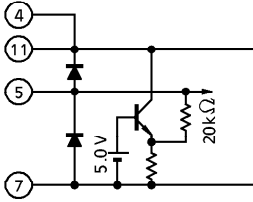
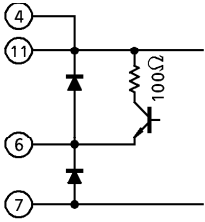
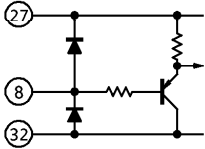
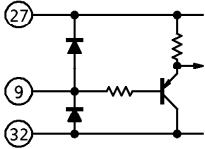
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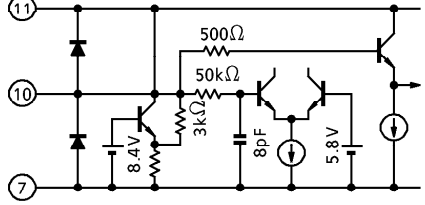
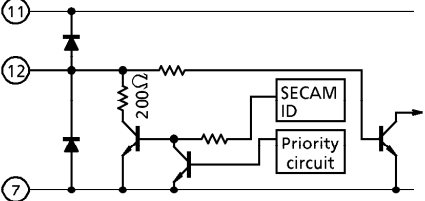
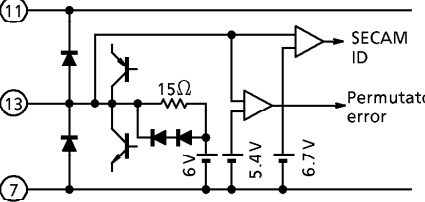
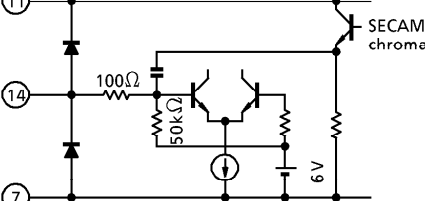
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BLOCK DIAGRAM



TERMINAL FUNCTION

PIN No.	PIN NAME	FUNCTION	INTERFACE CIRCUIT
1	GND1	This is the ground for R-Y demodulator, R-Y de-emphasis and R-Y clamp circuits.	—
2 3	DL Input Bias	The input terminal of 1H delayed chroma signal for the SECAM Permutator.	
4	VCC1	This is the power supply for the DL circuit. Recommended supply voltage is 9V.	—
5	PAL DL Input	A PAL chroma signal is led from the TA8690AN, TA8691N. An internal system switch selects this PAL signal or SECAM signal according to the system ID signal, and delivers to a DL drive circuit.	
6	DL Drive	The PAL/SECAM chroma signal output (switched by internal system switch) for a 1H delay line. Connect a load resistor of 2kΩ to GND.	
7	GND2	This is the ground for DL input, permutator, system switch, gate pulse generator and chroma amplitude circuits.	—
8	Uni-color	Color saturation of SECAM signal increases when the terminal voltage of pin 7 increases.	
9	Color	Color saturation (both SECAM and PAL) increases when the terminal voltage of pin 6 increases.	

PIN No.	PIN NAME	FUNCTION	INTERFACE CIRCUIT
10	SECAM Input	SECAM chroma signal is led to this terminal through a bell filter circuit.	
11	VCC2	This is the power supply for the DL, permutator, system switch, gate pulse generator and chroma amplitude circuits. Recommended supply voltage is 9V.	—
12	PAL ID In and SECAM ID In	An input terminal of a PAL ID signal. In case the DC voltage of more than 2V is applied to this terminal, the system switched to the PAL mode. When the SECAM ID circuit detects the SECAM signal, the terminal pin 10 goes to low. So, in case that this terminal is connected to the PAL color control terminal, then the system ID priority is set to SECAM.	
13	ID Filter	Hold capacitance for SECAM idification is connected.	
14	ID Coil	A 4.328MHz tuned tank circuit for SECAM idification is connected. Adjust tank coil so that the recovered DC voltage at the terminal 20 is maximum value for 4.328MHz.	

PIN No.	NAME	FUNCTION	INTERFACE CIRCUIT								
15	Gate Switch	Swith of SECAM identification detection. <table border="1" style="margin: 10px auto;"> <thead> <tr> <th>PIN VOLTAGE</th> <th>DETECTED ID</th> </tr> </thead> <tbody> <tr> <td>4.0V -</td> <td>Only V ID.</td> </tr> <tr> <td>4.5V</td> <td>Only H ID.</td> </tr> <tr> <td>5.0V +</td> <td>Both of V and H ID.</td> </tr> </tbody> </table>	PIN VOLTAGE	DETECTED ID	4.0V -	Only V ID.	4.5V	Only H ID.	5.0V +	Both of V and H ID.	
PIN VOLTAGE	DETECTED ID										
4.0V -	Only V ID.										
4.5V	Only H ID.										
5.0V +	Both of V and H ID.										
16	V. BLK Input	An input terminal of V. BLK pulse.									
17	H. BLK Input	An input terminal of flyback pulse for H. BLK, internal flip flop driving, and gate pulse generator. During gate pulse period, the pin 22 voltage becomes 4.2V (Typ.)									
18	Gate Pulse Filter	Time constant for gate pulse generator is connected.									
19 20 21	B-Y Output G-Y Output R-Y Output	Color-difference signal output.									
22 23 24	OSD B Input OSD G Input OSD R Input	Input for OSD. OSD turn ON by 300mA + current drawn out of these pins.									

PIN No.	NAME	FUNCTION	INTERFACE CIRCUIT
25 26	R-Y Clamp B-Y Clamp	Clamp capacitance for the color-difference signal path is connected.	
27	VCC3	The pin for VCC. Supply 9V.	—
28 34	De-emphasis (B-Y) De-emphasis (R-Y)	SECAM de-emphasis. Connect a resistor and capacitor to GND for SECAM de-emphasis.	
29 35	B-Y Demo. R-Y Demo.	SECAM B-Y detector. A 4.250MHz tuned tank circuit for SECAM B-Y demodulator is connected.	
30 36	B-Y Limiter Output R-Y Limiter Output	SECAM R-Y detector. A 4.406MHz tuned tank circuit for SECAM R-Y demodulator is connected.	
32	GND3	The pin for GND.	—
31 33	PAL B-Y Input PAL R-Y Input	An input terminal of a PAL color-difference signal. An input clamp circuit coincides the input bias voltage with a corresponding SECAM bias voltage. An internal system SW selects a PAL color difference signal or a SECAM color difference signal according to the system ID signal.	

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Power Supply Voltage	V _{CC}	13	V
Power Dissipation	P _{Dmax}	1600 (Note)	mW
Input Signal Voltage	e _{in}	5	V _{p-p}
Operating Temperature	T _{opr}	- 20~65	°C
Storage Temperature	T _{stg}	- 55~150	°C

(Note) When using the device at above Ta = 25°C, decrease the power dissipation by 12.8mW for each increase of 1°C.

ELECTRICAL CHARACTERISTICS

DC VOLTAGE CHARACTERISTICS (Unless otherwise specified, V_{CC} = 9V, Ta = 25°C)

PIN No.	CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
1	GND1	GND1	—	—	—	—	V
2	DL Input	V ₂	—	—	—	—	V
3	Bias	V ₃	—	3.9	4.3	4.7	V
4	V _{CC1}	V _{CC1}	—	—	—	—	V
5	PAL DL Input	V ₅	—	3.9	4.3	4.7	V
6	DL Drive	V ₆	—	4.9	5.6	6.2	V
7	GND2	GND2	—	—	—	—	V
8	Uni-color	V ₈	—	—	—	—	V
9	Color	V ₉	—	—	—	—	V
10	SECAM Input	V ₁₀	—	7.3	7.7	8.0	V
11	V _{CC2}	V _{CC2}	—	—	—	—	V
12	PAL ID and SECAM ID Output	V ₁₂	—	—	—	—	V
13	ID Filter	V ₁₃	—	5.6	6.0	6.4	V
14	ID Coil	V ₁₄	—	3.5	3.9	4.3	V
15	Gate Switch	V ₁₅	—	4.3	4.5	4.7	V
16	V. BLK Input	V ₁₆	—	—	—	—	V
17	H. BLK Input	V ₁₇	—	0.4	1.4	1.8	V

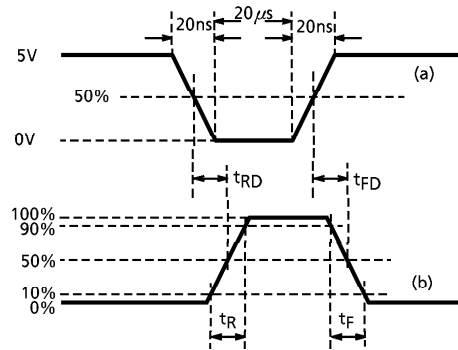
PIN No.	CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
18	Gate Pulse Filter	V ₁₈	—	—	—	—	V
19	B-Y Output	V ₁₉	—	5.0	5.5	6.0	V
20	G-Y Output	V ₂₀	—	5.0	5.5	6.0	V
21	R-Y Output	V ₂₁	—	5.0	5.5	6.0	V
22	OSD B Input	V ₂₂	—	1.4	1.7	2.1	V
23	OSD G Input	V ₂₃	—	1.4	1.7	2.1	V
24	OSD R Input	V ₂₄	—	1.4	1.7	2.1	V
25	R-Y Clamp	V ₂₅	—	—	—	—	V
26	B-Y Clamp	V ₂₆	—	—	—	—	V
27	V _{CC3}	V _{CC3}	—	—	—	—	V
28	B-Y De-emphasis	V ₂₈	—	3.6	4.5	5.3	V
29	B-Y Demo.	V ₂₉	—	2.7	3.0	3.3	V
30	B-Y Limiter Output	V ₃₀	—	6.1	6.8	7.5	V
31	PAL B-Y Input	V ₃₁	—	—	—	—	V
32	GND3	GND3	—	—	—	—	V
33	PAL R-Y Input	V ₃₃	—	—	—	—	V
34	R-Y De-emphasis	V ₃₄	—	3.6	4.5	5.3	V
35	R-Y Demo.	V ₃₅	—	2.7	3.0	3.3	V
36	R-Y Limiter Output	V ₃₆	—	6.1	6.8	7.5	V

AC CHARACTERISTICS (Unless otherwise specified, V_{CC} = 9V, Ta = 25°C)

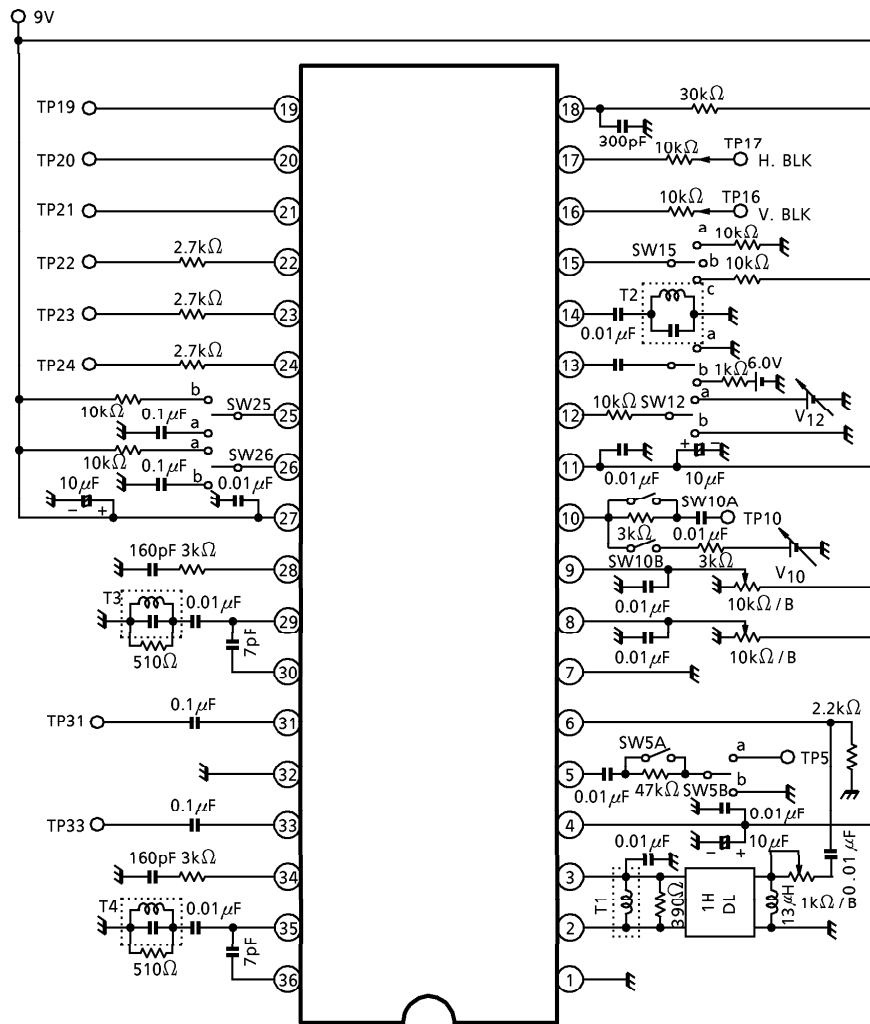
CHARACTERISTIC	SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
SECAM Input Impedance	Z ₁₀	—	(Note 1)	2.1	3.0	3.9	k Ω
SECAM Priority Switch Voltage	V _{SWSCM}	—	(Note 2)	5.0	5.8	—	V
SECAM Limiter Gain	G _{LIM}	—	(Note 3)	30	40	—	dB
SECAM ID Voltage	V _{IDSCM}	—		6.3	6.6	—	V
SECAM Acknowledge Voltage	V _{ACSCM}	—	(Note 4)	—	0.0	0.3	V
SECAM ID Sensitivity	S _{IDSCM}	—		0.5	1.0	2.0	mV _{p-p}
PAL ID Input Detection Voltage	V _{PAL}	—	(Note 5)	1.0	1.4	—	V
PAL Drive Input Impedance	Z ₅	—	(Note 6)	28	40	52	k Ω
DL Amp. Gain	G _{DL}	—	(Note 7)	-1.0	2.0	4.0	dB
PAL Drive Input Dynamic Range	D ₅			1.6	2.0	2.4	V _{p-p}
SECAM Detector Band Width	BW _{DEMO}	—	(Note 8)	\pm 500	—	—	kHz
SECAM Detector AMR Characteristics	AMR	—	(Note 9)	30	40	—	dB
R-Y Output Amplitude	v ₂₈	—	(Note 10)	0.6	1.0	1.5	V _{p-p}
B-Y Output Amplitude	v ₃₄			0.45	0.71	1.05	
R-Y Relative Gain	R-Y/B-Y	—	(Note 11)	0.43	0.58	0.70	
G-Y Relative Gain	G-Y/B-Y			0.27	0.37	0.46	

CHARACTERISTIC	SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Residual Carrier Level	v_{LEAK}	—	(Note 12)	—	—	100	mV _{p-p}
Color Difference Dynamic Range	D ₃₁ D ₃₃	—	(Note 13)	2.5	3.0	—	V _{p-p}
Uni-color Control Voltage	V _g	—	(Note 14)	4.0	4.5	5.0	V
Uni-color Control Voltage Range	ΔV_g			1	2	2	V
Uni-color Gain Control Range	ΔG_g			16	18	—	dB
Color Control Voltage	V _g	—	(Note 15)	4.0	4.5	5.0	V
Color Control Voltage Range	ΔV_g			1.5	2.0	2.5	V
Color Gain Control Range	ΔG_g			16	18	—	dB
Color Difference Output Blanking Voltage	V _{BLK}	—	(Note 16)	5.0	5.5	6.0	V
Color Difference Output Blanking Voltage Difference	ΔV_{BLK}			—	—	0.1	V
V. BLK Det Voltage	V _{thVBLK}	—	(Note 17)	2.0	2.2	2.5	V
H. BLK Det Voltage	V _{thVBLK}			1.1	1.4	1.7	V
H. Gate Pulse Phase	t _{Hphs}	—	(Note 18)	7.0	7.5	8.0	μ s
H. Gate Pulse Width	t _{Hwid}			3.0	3.5	4.0	μ s
H. Gate Pulse Output High Level	V _{HBHI}			3.9	4.2	4.8	V
H. Gate Pulse Output Low Level	V _{HBLO}			1.9	2.2	2.5	V
V. Gate Pulse Phase	t _{Vphs}	—	(Note 19)	7	8	9	H
V. Gate Pulse Width	t _{Vwid}			5	6	7	H
Gate Pulse Switching Level	V _{GSWH}	—	(Note 20)	—	4.8	5.1	V
	V _{GSWL}			3.9	4.2	—	V
OSD ON Current	I _{ON}	—	(Note 21)	0.2	0.3	0.4	mA
OSD OFF Current	I _{OFF}	—	(Note 22)	0.15	0.22	0.30	mA
OSD Output High Voltage	V _{OSDH}	—	(Note 23)	6.5	6.7	6.9	V
OSD Output Low Voltage	V _{OSDL}	—	(Note 24)	4.4	4.7	5.0	V
OSD Rise Time	t _R	—	(Note 25)	—	15	100	ns
OSD Dising Propagation Time	t _{RD}			—	40	100	ns
OSD Fall Time	t _R			—	25	100	ns
OSD Falling Propagation Time	t _{RD}			—	15	100	ns

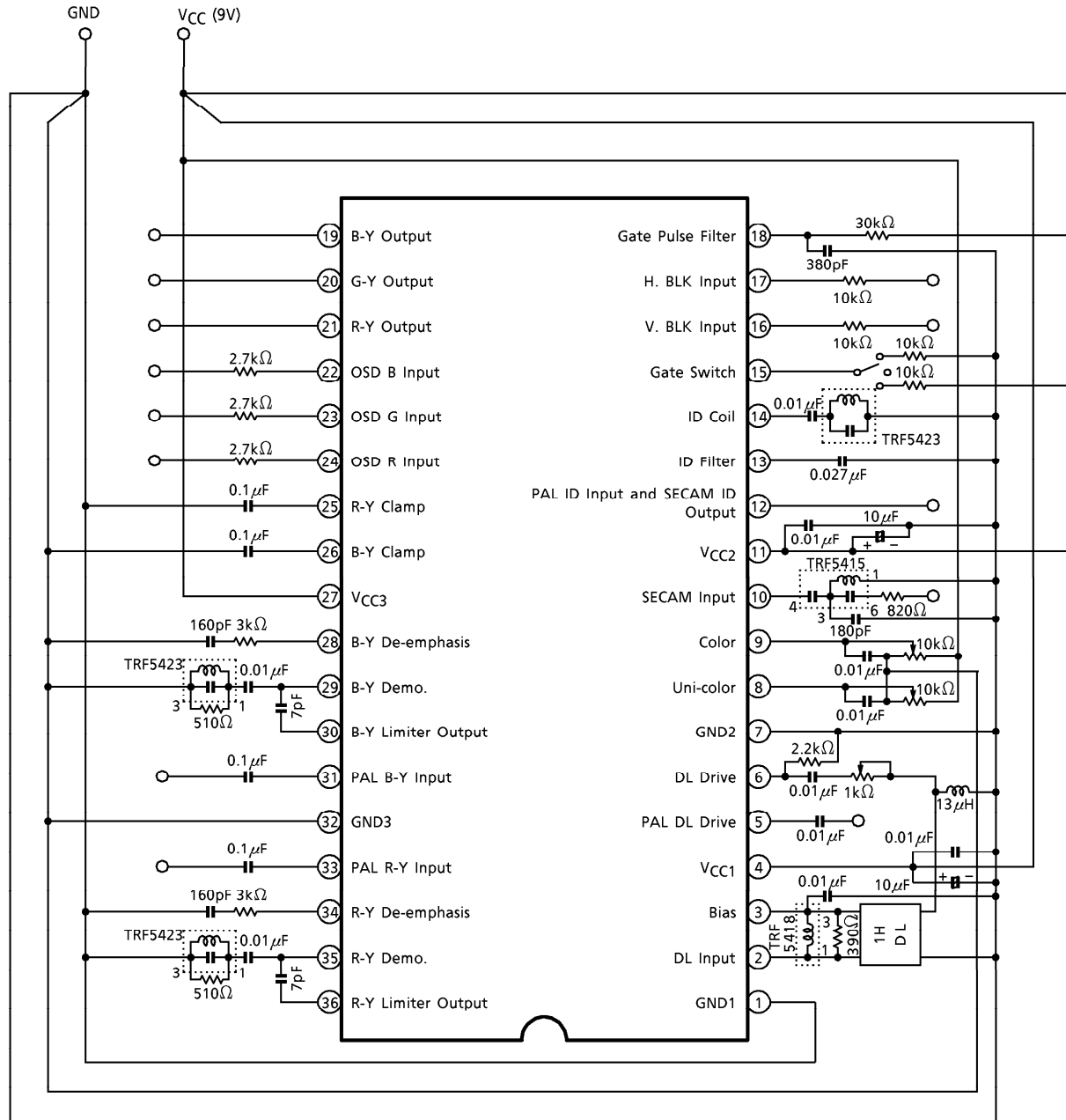
PULSE FOR MEASUREMENT OSD SECTION



TEST CIRCUIT

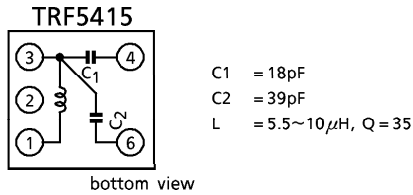


APPLICATION CIRCUIT

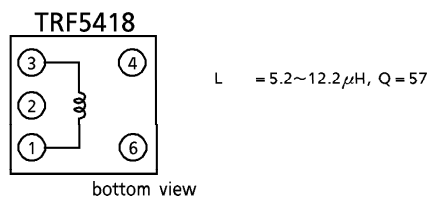


COIL DATA

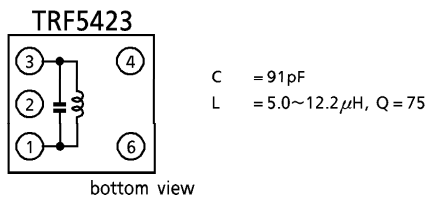
- BELL filter



- Matching coil for 1H glass DL



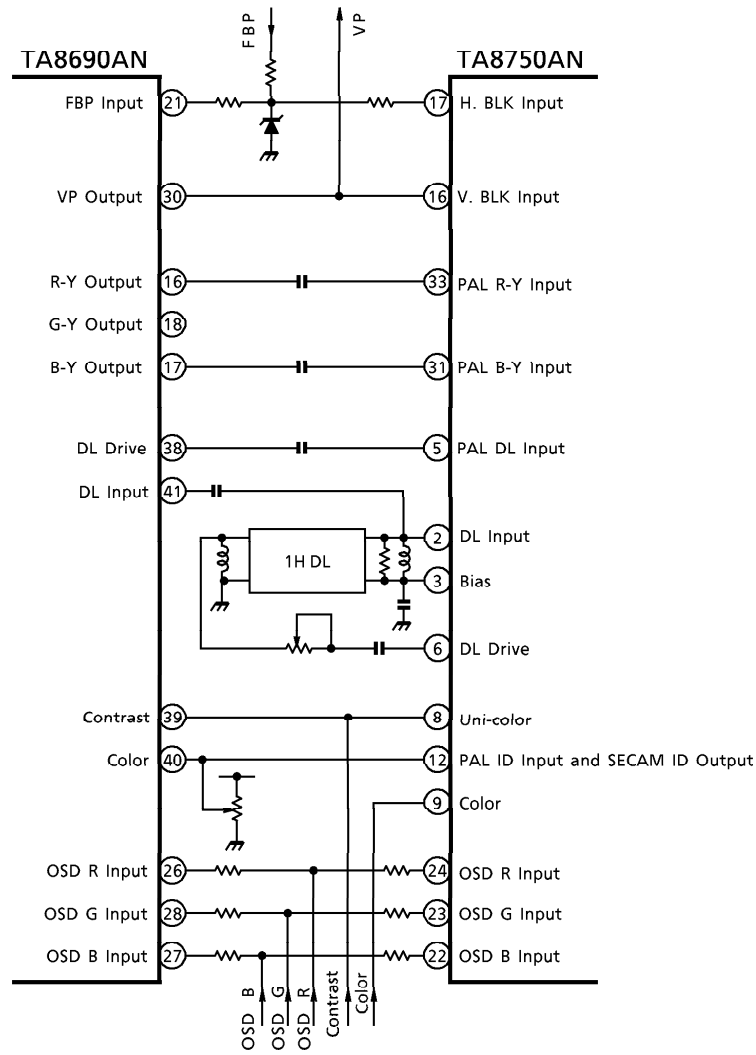
- SECAM ID, color difference demodulation coil



1H glass DL data

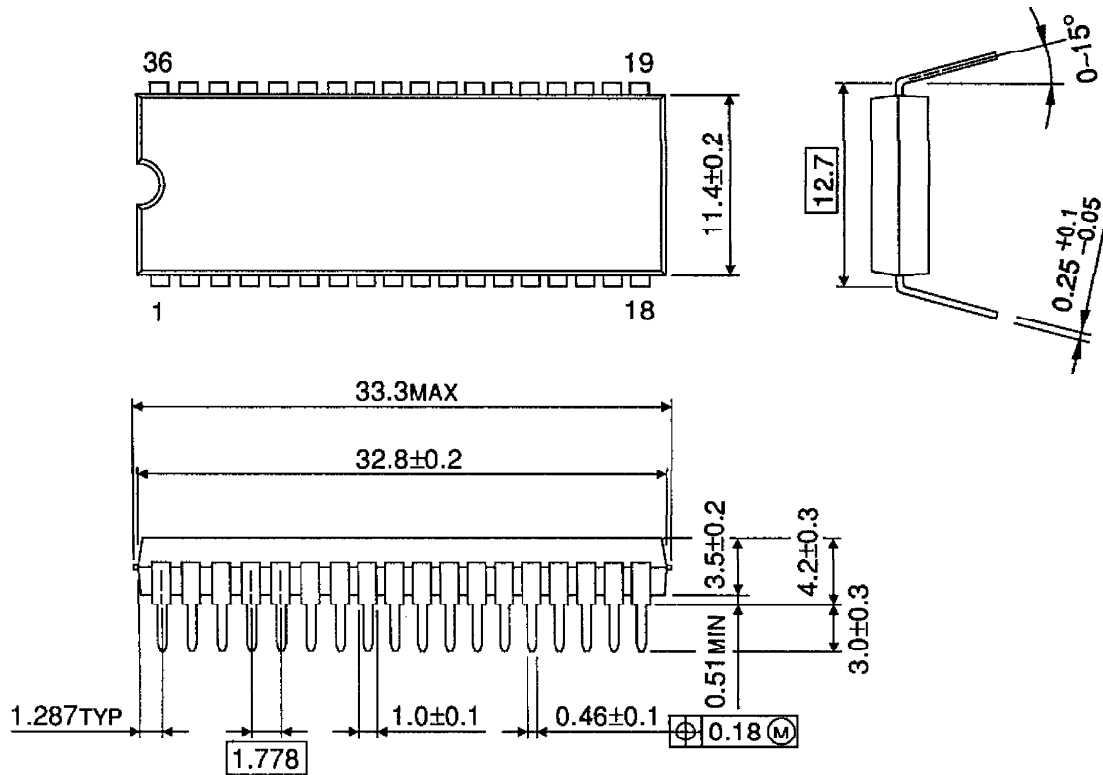
Center frequency : 4.433619MHz
 Passing loss : 10 ± 3dB
 3dB band width : ± 1.0MHz

EXAMPLE FOR CONNECTION WITH TA8690AN



OUTLINE DRAWING
SDIP36-P-500-1.78

Unit : mm



Weight : 2.98g (Typ.)