

**2-HEAD PLAYBACK AND RECORD AMPLIFIER FOR VCR**

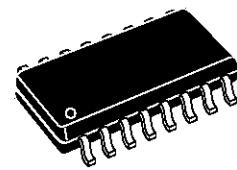
- ONE 5V POWER SUPPLY
- PLAYBACK/RECORD MODE SELECTION THROUGH A LOGIC INPUT
- SO16 PACKAGE
- NO ADJUSTMENT FOR LUMINANCE RECORDING

**PLAYBACK MODE**

- LOW NOISE AND WIDE BAND AMPLIFIERS FOR 2 HEADS
- AUTOMATIC OFFSET CANCELLATION BETWEEN THE 2 SELECTED HEADS
- ONE PLAYBACK OUTPUT
- ONE OUTPUT FOR AUTOMATIC VIDEO TRACKING

**RECORD MODE**

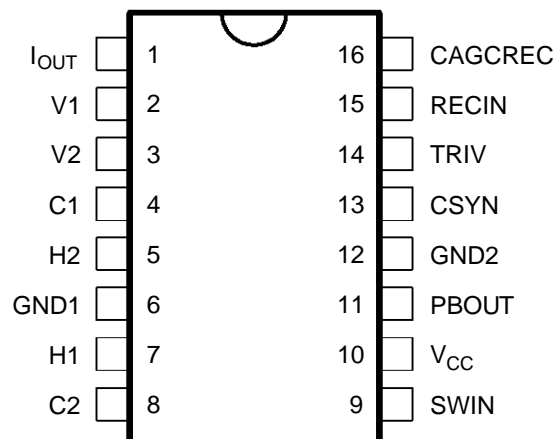
- RECORD AGC AMPLIFIER SAMPLED BY SYNCHRO SIGNAL
- RECORDING SIGNAL LEVEL ADJUSTABLE BY EXTERNAL RESISTOR



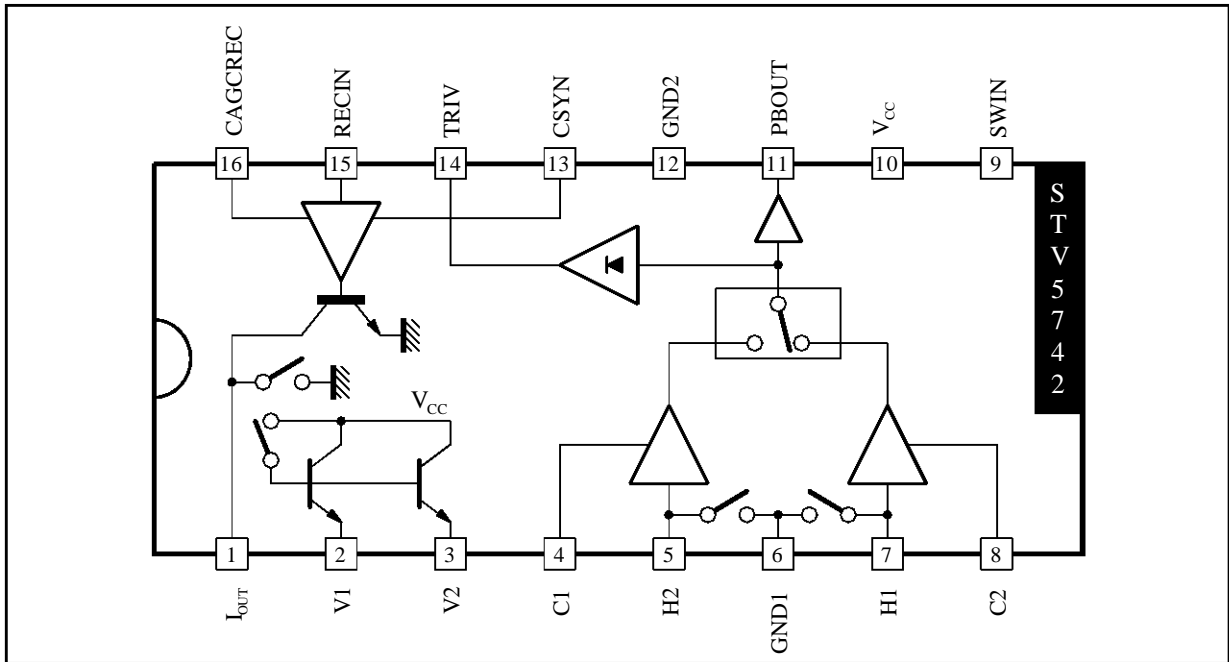
**SO16 Narrow**  
(Plastic Package)

**ORDER CODE : STV5742**

**PIN CONNECTIONS**



**BLOCK DIAGRAM**



5742-02.EPS

**ABSOLUTE MAXIMUM RATINGS**

Symbol	Parameter	Value	Unit
V <sub>CC</sub>	Power Supply Voltage	6	V
T <sub>j</sub>	Junction Temperature	150	°C
T <sub>oper</sub>	Operating Temperature	0, +70	°C

5742-01.TBL

**THERMAL DATA**

Symbol	Parameter	Value	Unit
R <sub>th(j-a)</sub>	Junction-ambient Thermal Resistance	Max. 100	°C/W

5742-02.TBL

**RECOMMENDED OPERATING CHARACTERISTICS**

Symbol	Parameter	Min.	Typ.	Max.	Unit
V <sub>CC</sub>	Power Supply	4.75	5	5.25	V
CAGC	Capacitance on Pin CAGCREC	4.7			nF
RECADJ	Record Biasing Resistor	10		33	kΩ

5742-03.TBL

**ELECTRICAL CHARACTERISTICS** ( $T_{amb} = 25^{\circ}\text{C}$ , unless otherwise specified)**Playback Mode** ( $V_{CC} = 5\text{V}$ , no load on Pin PBOUT, Recadj = 12k $\Omega$ )

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
PLAYBACK AMPLIFIER						
I <sub>CC1</sub>	Supply Current		19	29	39	mA
GPB	Playback Gain	Sinewave 600kHz, 0.4mV <sub>PP</sub> on inputs	58	60	62	dB
EN	Equivalent Voltage Noise	Input grounded via I <sub>OUT</sub> Pin @ 600kHz, BW = 10kHz		0.45	0.6	$\frac{\text{nV}}{\sqrt{\text{Hz}}}$
IN	Equivalent Input Current Noise	Input open @ 6MHz, BW = 10kHz		2.5		$\frac{\text{pA}}{\sqrt{\text{Hz}}}$
CRT1	Crosstalk	Sinewave @ 4MHz, 0.4mV <sub>PP</sub>		-35	-30	dB
RPBSW	Playback Switch on Resistor	@ 6MHz	1	5	10	$\Omega$
BWLCF	Attenuation @ 100KHz	Reference level @ 600kHz	-3	0	1	dB
BWHCF	Attenuation @ 8MHz	Reference level @ 4MHz	-3	-1	0	dB
C <sub>IN</sub>	Input Capacitance	@ 6MHz, 22nF between Vi/Hi	40	50	60	pF
Z <sub>IN</sub>	Input Impedance	@ 6MHz	300	450	600	$\Omega$
ZCPB	Output Resistance	DC	5	24	50	$\Omega$
VDCPB1	DC Level on Pin PBOUT		1.6	2	2.4	V
DVDC	Head Switch Offset		-0.1	0	0.1	V
SHPB1	2nd Harmonic	Sinewave @ 4MHz, 0.4mV <sub>PP</sub>		-45	-40	dB

## TRIV FUNCTION

TRIV0	Output Level (1)	No input signal	0	0.3	1	V
TRIV1	Output Level (2)	Sinewave @ 4MHz, 100mV <sub>PP</sub> @ PBOUT		1.3		V
TRIV4	Output Level (3)	Sinewave @ 4MHz, 400mV <sub>PP</sub> @ PBOUT	2.5	3.1	3.5	V
TRIV6	Output Level (4)	Sinewave @ 4MHz, 600mV <sub>PP</sub> @ PBOUT	3.2	3.7	4.2	V
TRIV1-TRIV0			0.5	1	-	V

**Record Mode** ( $V_{CC} = 5\text{V}$ , Recadj = 12k $\Omega$ , SWR = 5V, CAGCREC = 470pF, RRCY = 2.2k $\Omega$ , RRCC = 8.2k $\Omega$ , Load 10 $\mu\text{H}$ /1k $\Omega$  for each simulated head)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
RECORD AMPLIFIER						
I <sub>CC2</sub>	Current Supply		55	85	115	mA
IHA0	DC Current through I <sub>OUT</sub>		28	38	47.5	mA
IHA1	Fundamental	VRCY = 300mV <sub>PP</sub> @ 4MHz	34	36	38	mA <sub>PP</sub>
IHA2	2nd Harmonic	VRCY = 300mV <sub>PP</sub> @ 4MHz		-40	-36	dB
IHA2M	2nd Harmonic	VRCY = 400mV <sub>PP</sub> @ 4MHz, AGC adjusted for IAH1 = 40mA <sub>PP</sub>		-34	-32	dB
BWRECL	Attenuation at 100kHz	Reference level @ 600kHz, AGC locked	-3	0	1	dB
BWRECH	Attenuation at 8MHz	Reference level @ 4MHz, AGC locked	-2	-0.5	1	dB
DVREC	Record AGC Sensitivity	V <sub>IN</sub> = 300mV <sub>PP</sub> $\pm$ 3dB @ f = 4MHz	-0.2	0	+0.2	dB
RIOUT	Output Resistance	$\Delta V = 5\text{V}$	3.5	5.5	-	$\kappa\Omega$
RSAT	Output Stage Resistance	$\Delta I = 10\text{mA}$	5	10	50	$\Omega$
IRN	AGC Capacitor downloading Current	4.5V at CAGC Pin		165		$\mu\text{A}$
IRP	AGC Capacitor uploading Current	0.5V at CAGC Pin, V <sub>IN</sub> = 300mV <sub>PP</sub> @ 4MHz		-165		$\mu\text{A}$

## SWITCHING LEVELS

VSWINH	SWIN Input Threshold	Selects head H1, 0 to 5V	1.5	2	2.5	V
VSWINL	SWIN Input Threshold	Selects head H2, 5 to 0V	1.5	2	2.5	V
ISWINH	SWIN Input Leakage Current	5V at SWIN input	5	18	50	$\mu\text{A}$
ISWINL	SWIN Input Leakage Current	0V at SWIN input	-50	-25	-5	$\mu\text{A}$
VSWRCH	SWRC Input Threshold	Selects record mode, 0 to 5V	3.2	3.4	3.8	V

5742-04.TBL

**ELECTRICAL CHARACTERISTICS** ( $T_{amb} = 25^{\circ}C$ , unless otherwise specified)

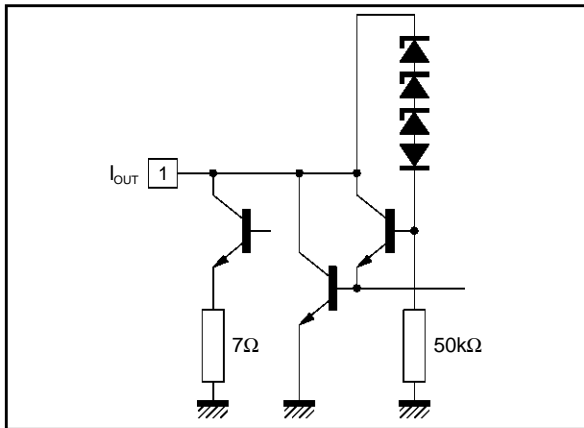
**Record Mode** ( $V_{CC} = 5V$ ,  $Recadj = 12k\Omega$ ,  $SWR = 5V$ ,  $CAGCREC = 470pF$ ,  $RRCY = 2.2k\Omega$ ,  $RRCC = 8.2k\Omega$ , Load  $10\mu H//1k\Omega$  for each simulated head) (continued)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
SWITCHING LEVELS (continued)						
VSWRCL	SWRC Input Threshold	Selects playback mode, 5 to 0V	3.1	3.3	3.8	V
ISWRCH	SWRC Input Leakage Current	5V at SWRC input	2	5	8	mA
ISWRCL	SWRC Input Leakage Current	0V at SWRC input	-20	0	20	$\mu A$
$t_{ON}$	Delay	Signal appears on PBOUT		3		ms
$t_1$	Delay from playback to record : Signal disappears on Pin PBOUT	22nF between Hi/Vi		1		$\mu s$
$t_2$	Delay from record to playback : Signal appears on Pin PBOUT	22nF between Hi/Vi		5		ms
$t_3$	Delay from playback to record : Signal appears on Pin $I_{OUT}$			25		$\mu s$
$t_4$	Delay from record to playback : Signal disappears on Pin $I_{OUT}$			7		$\mu s$
VCSYH	CSYN Input Threshold	Sampling on ( $I = -25\mu A$ )	2.2	2.5	2.8	V
VCSYL	CSYN Input Threshold	Sampling off ( $I = 25\mu A$ )	2.2	2.5	2.8	V
ICSYH	Leakage Current	Sampling on			-10	$\mu A$
ICSYL	Leakage Current	Sampling off	10			$\mu A$

5742-05.TBL

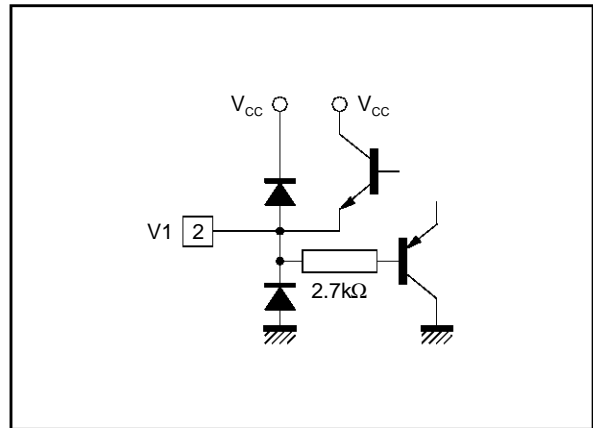
**INTERNAL SCHEMATICS**

Figure 1



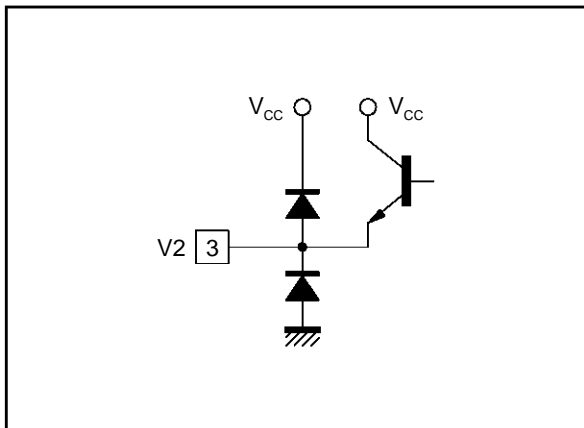
5742-04.EPS

Figure 2



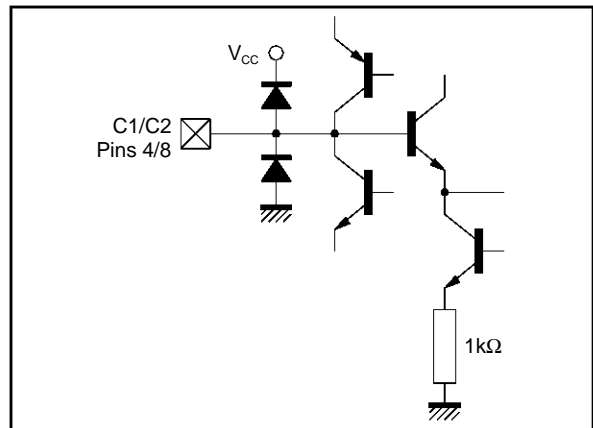
5742-05.EPS

Figure 3



5742-06.EPS

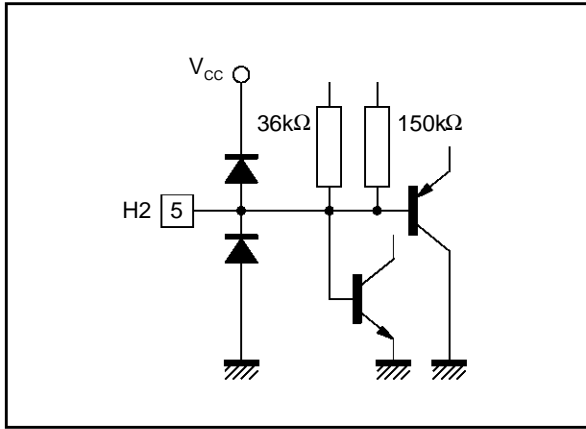
Figure 4



5742-07.EPS

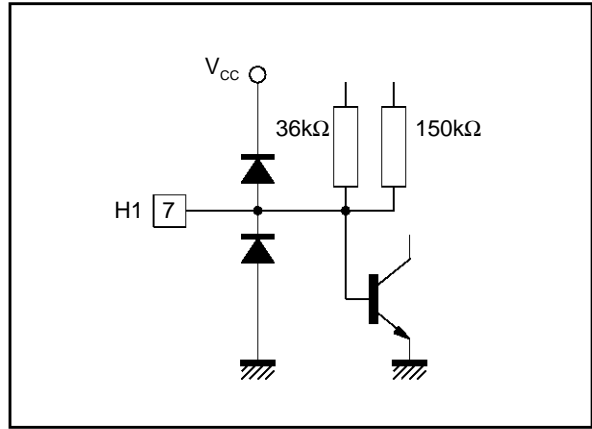
INTERNAL SCHEMATICS (continued)

Figure 5



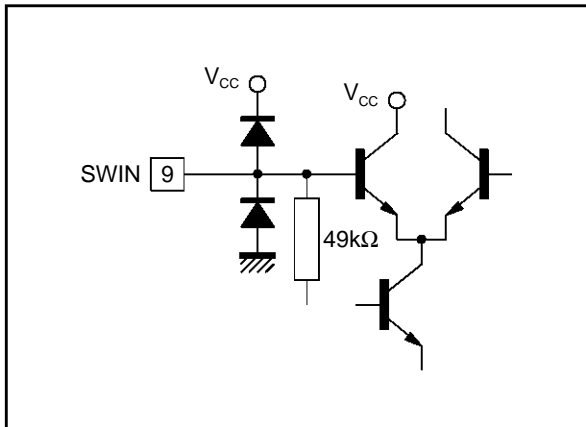
5742-08.EPS

Figure 6



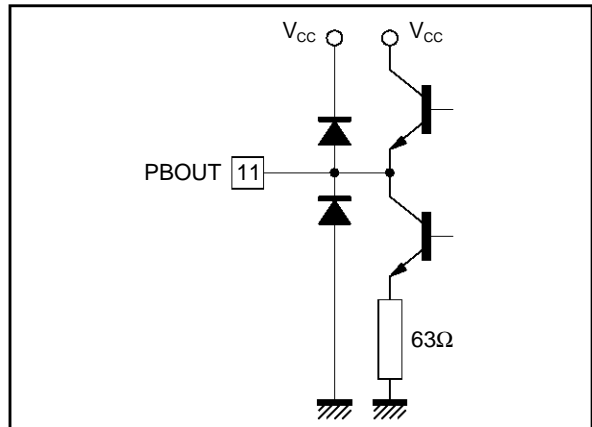
5742-09.EPS

Figure 7



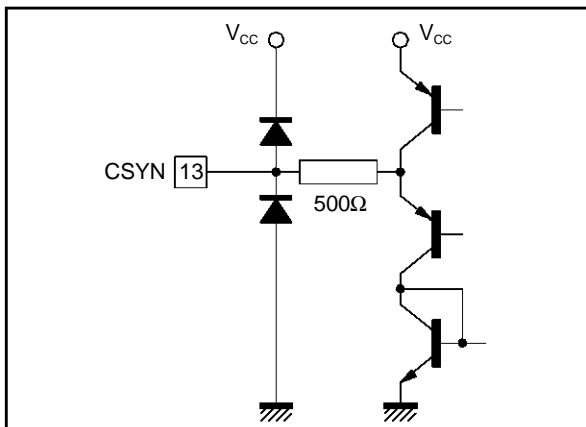
5742-10.EPS

Figure 8



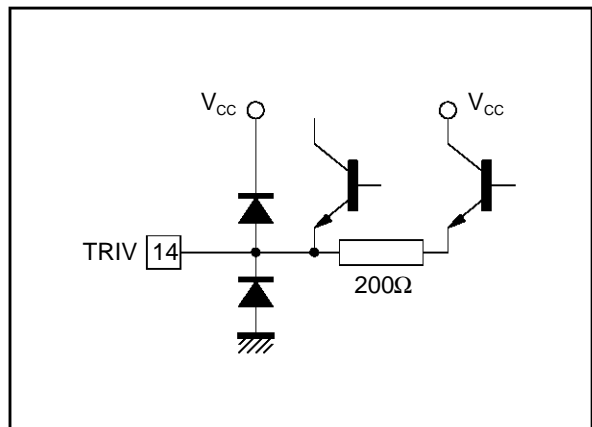
5742-11.EPS

Figure 9



5742-12.EPS

Figure 10



5742-13.EPS

INTERNAL SCHEMATICS (continued)

Figure 11

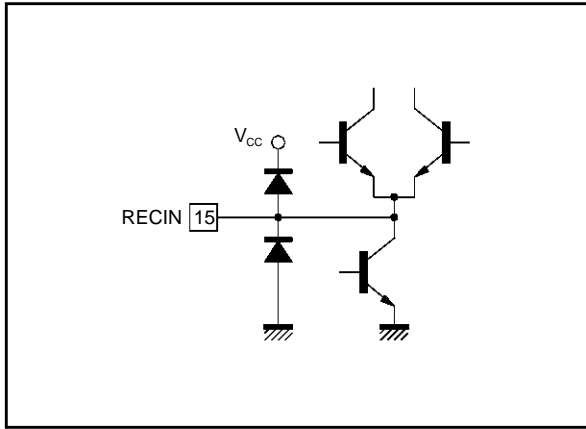
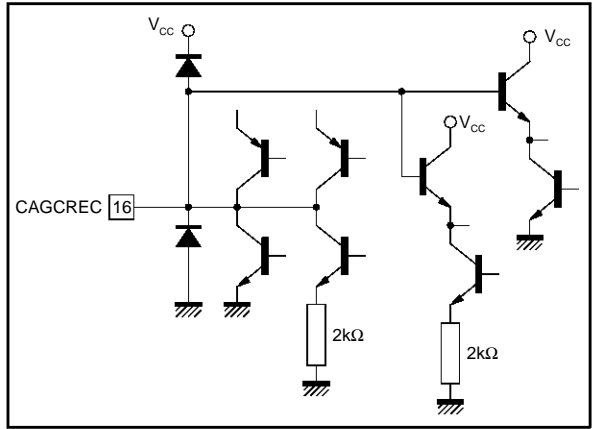
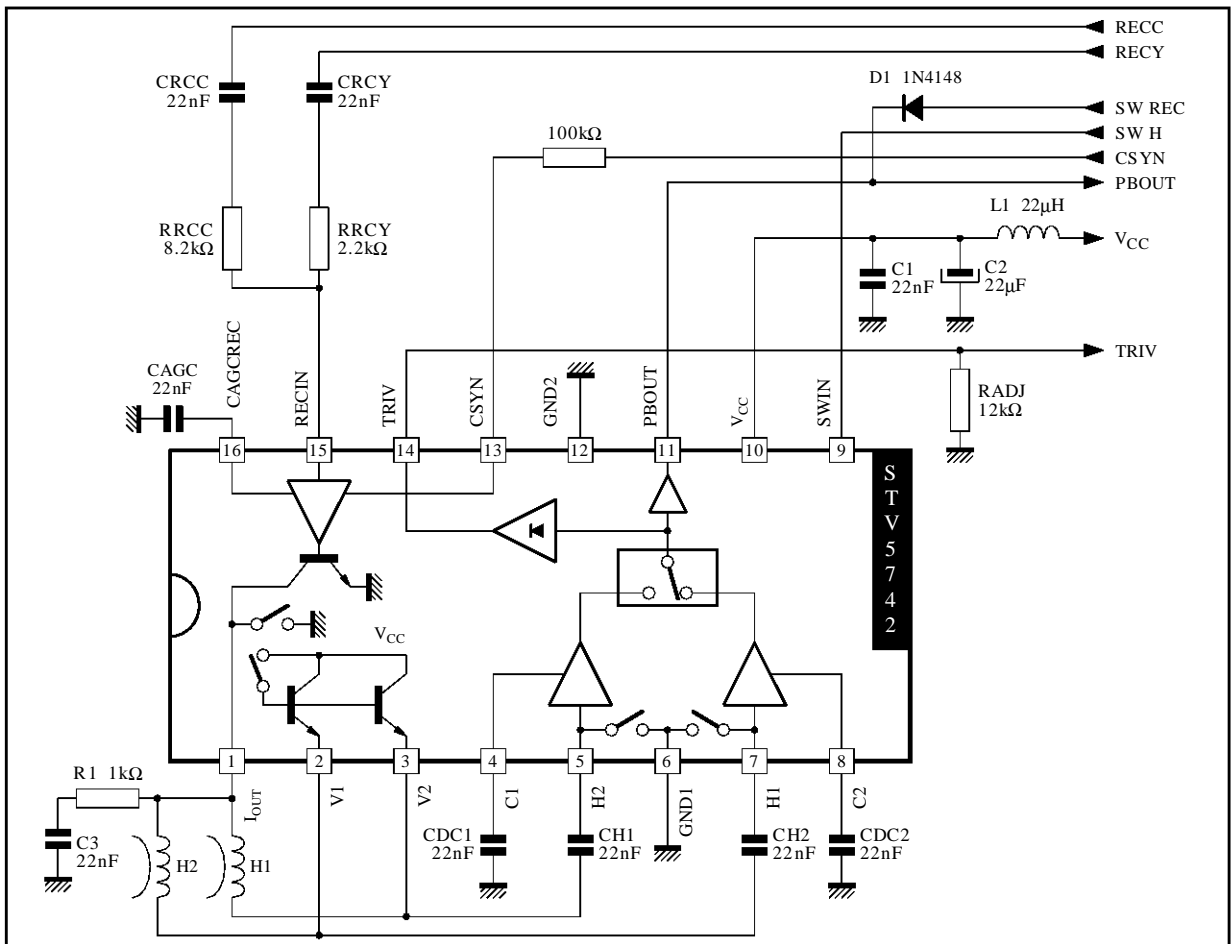


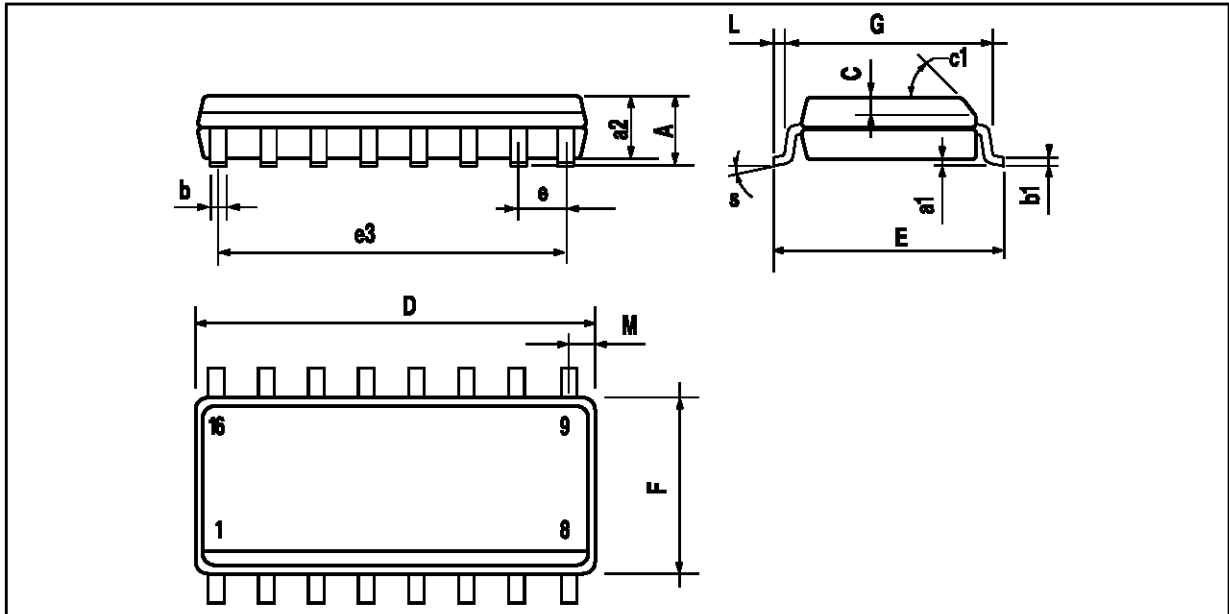
Figure 12



APPLICATION DIAGRAM



**PACKAGE MECHANICAL DATA**  
 16 PINS - PLASTIC MICROPACKAGE (SO)



PM-SO16N.EPS

Dimensions	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A			1.75			0.069
a1	0.1		0.25	0.004		0.009
a2			1.6			0.063
b	0.35		0.46	0.014		0.018
b1	0.19		0.25	0.007		0.010
C		0.5			0.020	
c1	45° (typ.)					
D	9.8		10	0.386		0.394
E	5.8		6.2	0.228		0.244
e		1.27			0.050	
e3		8.89			0.350	
F	3.8		4.0	0.150		0.157
L	0.4		1.27	0.016		0.050
M			0.62			0.024
S	8° (Max.)					

SO16N.TBL

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