SGS-THOMSON MICROELECTRONICS

STV5742

2-HEAD PLAYBACK AND RECORD AMPLIFIER FOR VCR

PRELIMINARY DATA

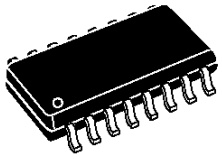
- ONE 5V POWER SUPPLY
- PLAYBACK/RECORD MODE SELECTION THROUGH A LOGIC INPUT
- SO16 PACKAGE
- NO ADJUSTMENT FOR LUMINANCE RECORDING

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

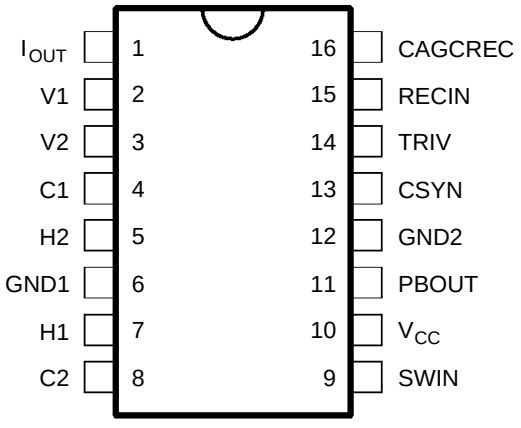
- RECORD AGC AMPLIFIER SAMPLED BY SYNCHRO SIGNAL
- RECORDING SIGNAL LEVEL ADJUSTABLE BY EXTERNAL RESISTOR



SO16 Narrow
(Plastic Package)

ORDER CODE : STV5742

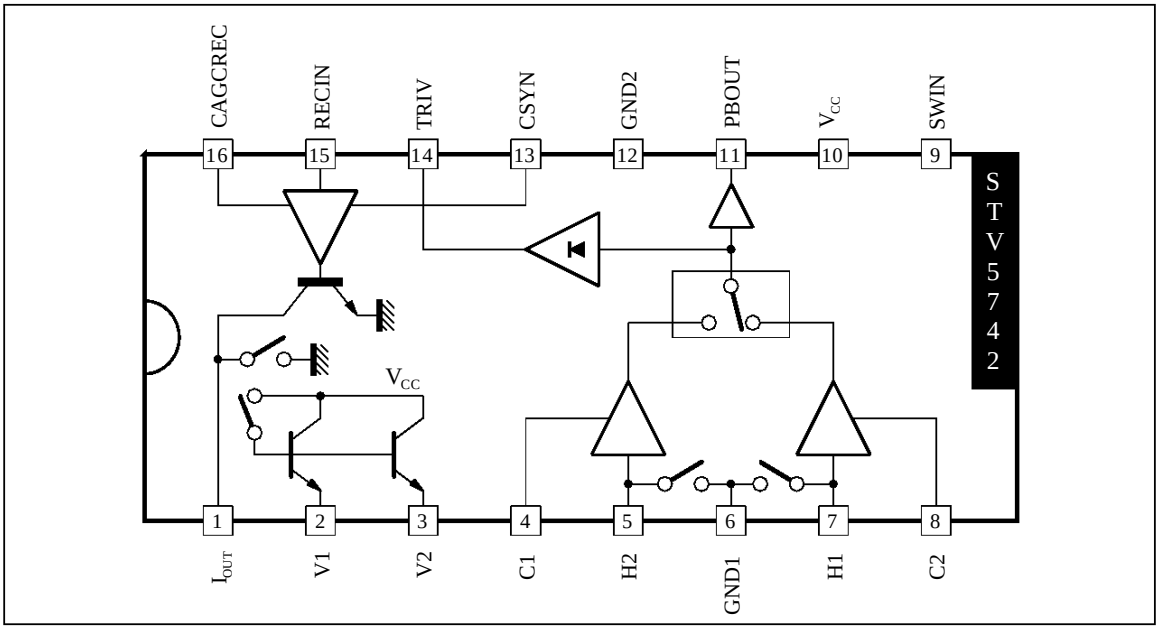
PIN CONNECTIONS



5742-01.EPS

This is advance information on a new product now in development or undergoing evaluation. Details are subject to change without notice.

BLOCK DIAGRAM



5742-02.EPS

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CC}	Power Supply Voltage	6	V
T_j	Junction Temperature	150	°C
T_{oper}	Operating Temperature	0, +70	°C

5742-01.TBL

THERMAL DATA

Symbol	Parameter		Value	Unit
$R_{th\ (j-a)}$	Junction-ambient Thermal Resistance	Max.	100	°C/W

5742-02.TBL

RECOMMENDED OPERATING CHARACTERISTICS

Symbol	Parameter	Min.	Typ.	Max.	Unit
V_{CC}	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°C, unless otherwise specified)

Playback Mode (V_{CC} = 5V, no load on Pin PBOUT, Recadj = 12kΩ)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
PLAYBACK AMPLIFIER						
I_{CC1}	Supply Current		19	29	39	mA
GPB	Playback Gain	Sinewave 600kHz, 0.4mV$_{PP}$ on inputs	58	60	62	dB
EN	Equivalent Voltage Noise	Input grounded via I_{OUT} Pin @ 600kHz, BW = 10kHz		0.45	0.6	$\frac{nV}{\sqrt{Hz}}$
IN	Equivalent Input Current Noise	Input open @ 6MHz, BW = 10kHz		2.5		$\frac{pA}{\sqrt{Hz}}$
CRT1	Crosstalk	Sinewave @ 4MHz, 0.4mV$_{PP}$		-35	-30	dB
RPBSW	Playback Switch on Resistor	@ 6MHz	1	5	10	Ω
BWLCF	Attenuation @ 100KHz	Reference level @ 600kHz	-3	0	1	dB
BWHCF	Attenuation @ 8MHz	Reference level @ 4MHz	-3	-1	0	dB
C_{IN}	Input Capacitance	@ 6MHz, 22nF between Vi/Hi	40	50	60	pF
Z_{IN}	Input Impedance	@ 6MHz	300	450	600	Ω
ZCPB	Output Resistance	DC	5	24	50	Ω
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$_{PP}$		-45	-40	dB
TRIV FUNCTION						
TRIV0	Output Level (1)	No input signal	0	0.3	1	V
TRIV1	Output Level (2)	Sinewave @ 4MHz, 100mV$_{PP}$ @ PBOUT		1.3		V
TRIV4	Output Level (3)	Sinewave @ 4MHz, 400mV$_{PP}$ @ PBOUT	2.5	3.1	3.5	V
TRIV6	Output Level (4)	Sinewave @ 4MHz, 600mV$_{PP}$ @ PBOUT	3.2	3.7	4.2	V
TRIV1-TRIV0			0.5	1	-	V

Record Mode (V_{CC} = 5V, Recadj = 12kΩ, SWR = 5V, CAGCREC = 470pF, RRCY = 2.2kΩ, RRCC = 8.2kΩ, Load 10µH//1kΩ for each simulated head)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
RECORD AMPLIFIER						
I_{CC2}	Current Supply		55	85	115	mA
IHA0	DC Current through I_{OUT}		28	38	47.5	mA
IHA1	Fundamental	VRCY = 300mV$_{PP}$ @ 4MHz	34	36	38	mA$_{PP}$
IHA2	2nd Harmonic	VRCY = 300mV$_{PP}$ @ 4MHz		-40	-36	dB
IHA2M	2nd Harmonic	VRCY = 400mV$_{PP}$ @ 4MHz, AGC adjusted for IAH1 = 40mA$_{PP}$		-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
DVLREC	Record AGC Sensitivity	V_{IN} = 300mV$_{PP}$ ±3dB @ f = 4MHz	-0.2	0	+0.2	dB
RIOUT	Output Resistance	ΔV = 5V	3.5	5.5	-	kΩ
RSAT	Output Stage Resistance	ΔI = 10mA	5	10	50	Ω
IRN	AGC Capacitor downloading Current	4.5V at CAGC Pin		165		µA
IRP	AGC Capacitor uploading Current	0.5V at CAGC Pin, V_{IN} = 300mV$_{PP}$ @ 4MHz		-165		µA
SWITCHING LEVELS						
VSWINH	SWIN Input Threshold	Selects head H1, 5 to 0V	1.5	2	2.5	V
VSWINL	SWIN Input Threshold	Selects head H2, 0 to 5V	1.5	2	2.5	V
ISWINH	SWIN Input Leakage Current	5V at SWIN input	5	18	50	µA
ISWINL	SWIN Input Leakage Current	0V at SWIN input	-50	-25	-5	µA
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°C, unless otherwise specified)
Record Mode (V_{CC} = 5V, Recadj = 12kΩ, SWR = 5V, CAGCREC = 470pF, RRCY = 2.2kΩ, RRCC = 8.2kΩ, Load 10µH//1kΩ 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	µA
t_{ON}	Delay	Signal appears on PBOUT		3		ms
t1	Delay from playback to record : Signal disappears on Pin PBOUT	22nF between Hi/Vi		1		µs
t2	Delay from record to playback : Signal appears on Pin PBOUT	22nF between Hi/Vi		5		ms
t3	Delay from playback to record : Signal appears on Pin I_{OUT}			25		µs
t4	Delay from record to playback : Signal disappears on Pin I_{OUT}			7		µs
VCSYH	CSYN Input Threshold	Sampling on (I = -25µA)	2.2	2.5	2.8	V
VCSYL	CSYN Input Threshold	Sampling off (I = 25µA)	2.2	2.5	2.8	V
ICSYH	Leakage Current	Sampling on			-10	µA
ICSYL	Leakage Current	Sampling off	10			µA

5742-05.TBL

INTERNAL SCHEMATICS

Figure 1

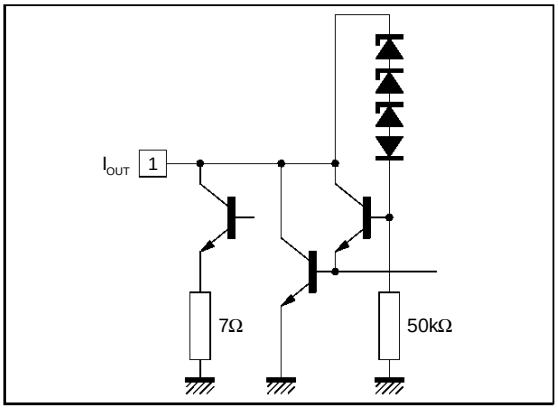


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Figure 2

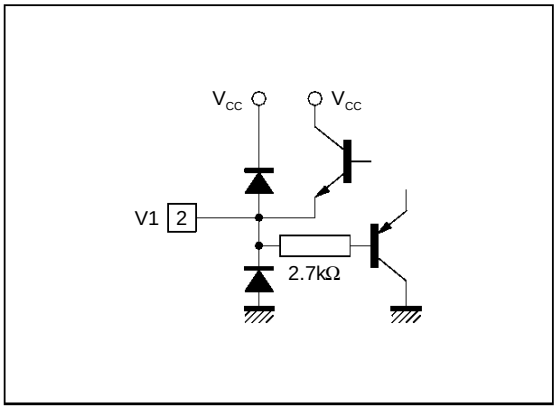

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Figure 3

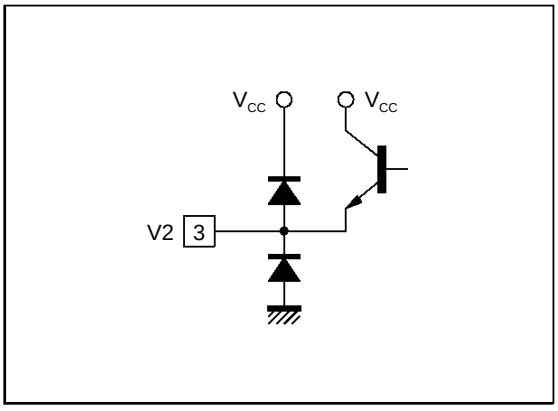

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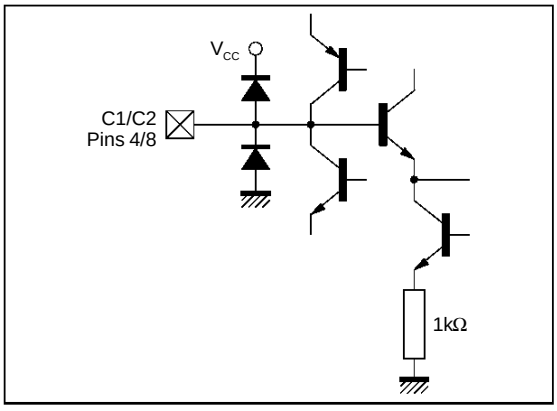
Figure 4



5742-07.EPS

INTERNAL SCHEMATICS (continued)

Figure 5

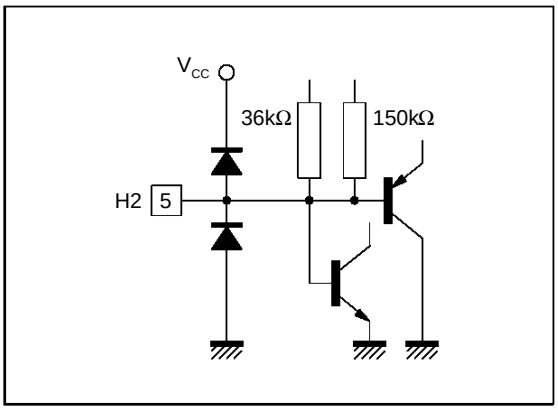


Figure 6

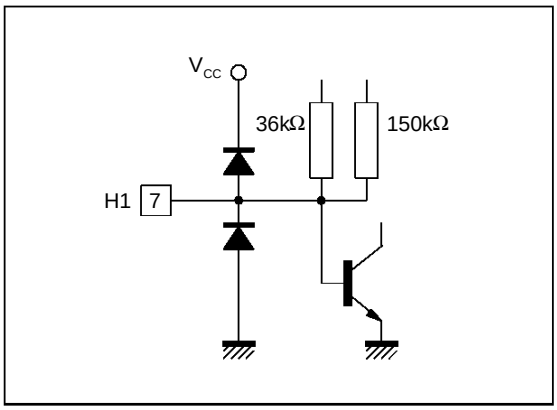


Figure 7

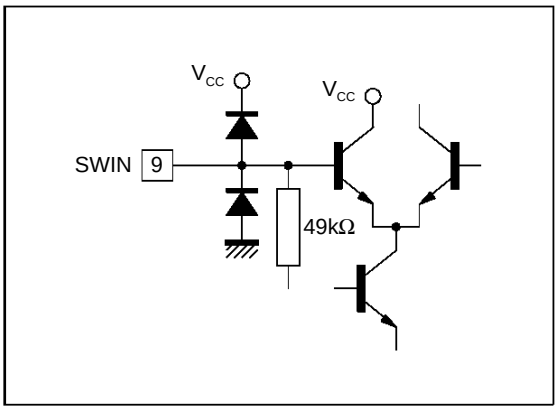


Figure 8

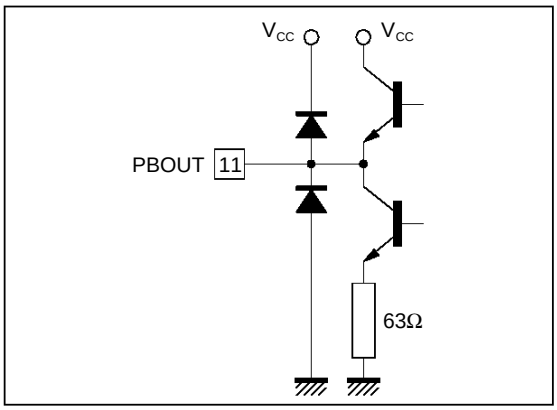


Figure 9

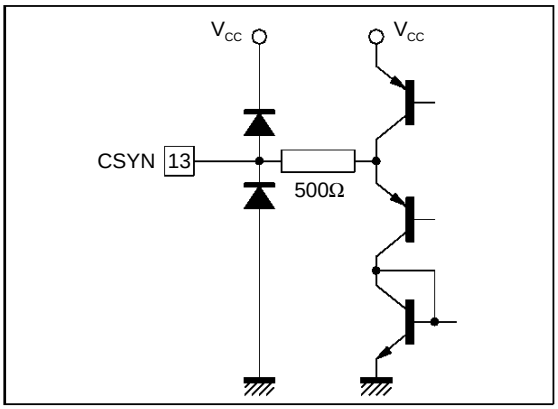
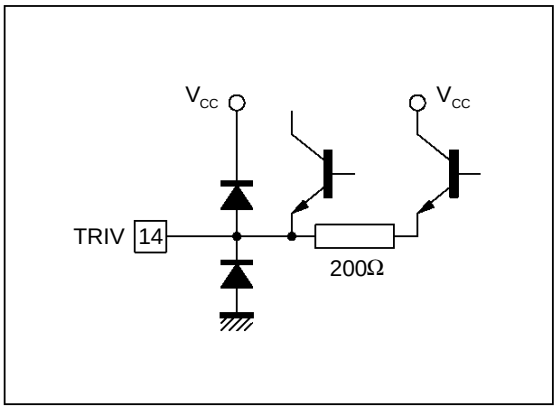


Figure 10



INTERNAL SCHEMATICS (continued)

Figure 11

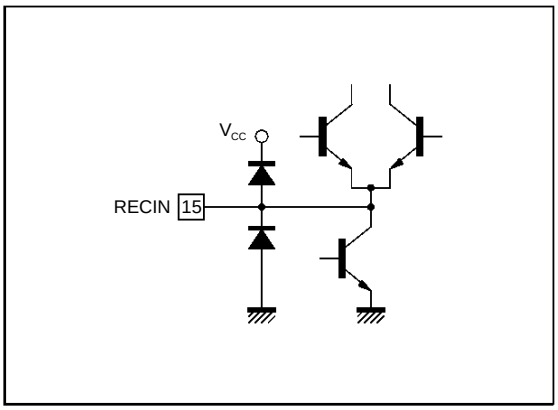
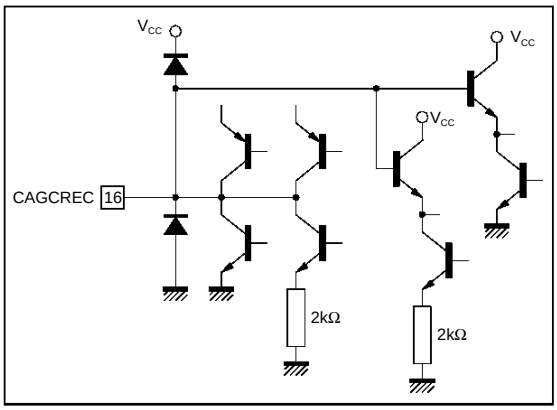
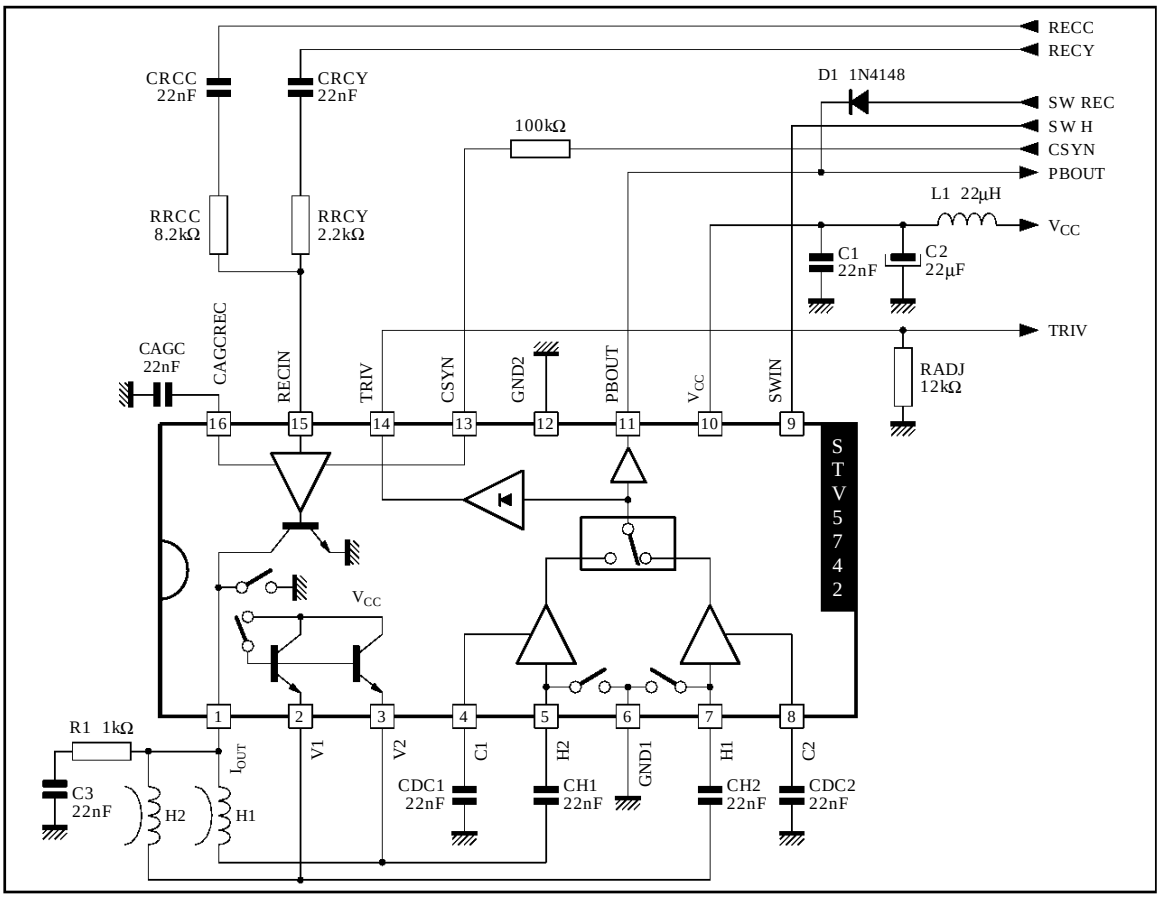


Figure 12

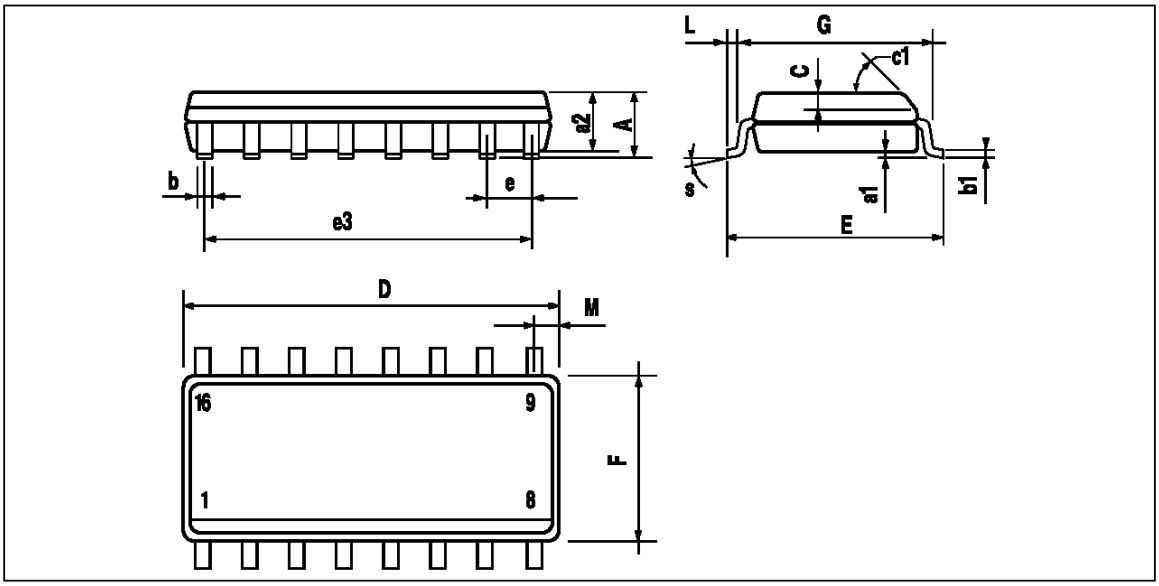


APPLICATION DIAGRAM



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^o (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^o (Max.)					

SO16N.TBL

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