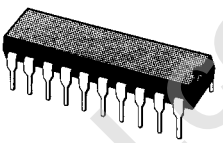
SGS-THOMSON MICROELECTRONICS

TDA8114

VCR PROCESSOR INTERFACE CIRCUIT

ADVANCE DATA

- CAPSTAN TACHO AMPLIFIER WITH OC OUTPUT
- CTL-PLAYBACK AMPLIFIER WITH OC OUTPUT
- CTL-RECORD AMPLIFIER WITH OC INPUT
- REEL TACHO AMPLIFIER WITH OC OUTPUT
- DRUM POSITION DETECTOR WITH OC OUTPUT + INTERNAL PULL UP RESISTOR
- RESET GENERATOR



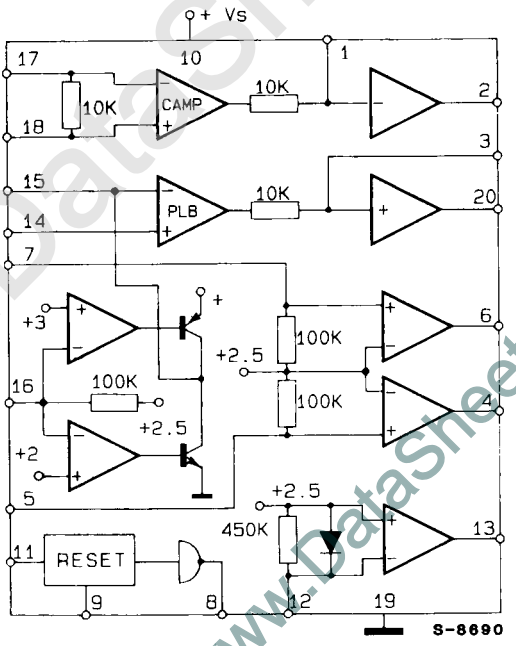
DIP20

ORDER CODE : TDA8114

DESCRIPTION

The TDA 8114 is a monolithic integrated circuit for VCR-applications. It is intended to convert signals from optical and magnetical sensors to µP TTL-level. A special circuit includes a supply voltage supervisor and generates a reset signal for µ-Processor.

BLOCK DIAGRAM



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

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_S	DC Supply Voltage	10	V
V_i	DC Input Voltage	7	V
V_O	Open Collector Output Voltage (all outputs high)	15	V
T_{op}	Operating Junction Temperature	0 to 85	°C
T_{stg}	Storage Temperature	– 55 to 125	°C

THERMAL DATA

$R_{th\ j-amb}$	Thermal Resistance Junction-ambient	Max	100	°C/W

PIN NAMES

N°	Name
1	Capstan Tacho Amplifier Output and Low Pass Filter
2	Capstan Tacho Amplifier OC Output
3	CTL Amplifier Output and Low Pass Filter
4	Reel Tacho OC Output
5	Reel Tacho Sensor Input
6	Reel Tacho OC Output
7	Reel Tacho Sensor Input
8	Reset Open Collector Output with Internal Pull Up
9	Reset Delay Time Capacitor
10	Supply Voltage
11	Reset Supply Voltage Store
12	Drum Position Sensor Input
13	Drum Position Open Collector Output with Internal Pull-up Resistor
14	CTL Tacho Reference Voltage
15	CTL Tacho Amplifier Input
16	CTL Record Amplifier TTL Input
17	Capstan Tacho Amplifier Input
18	Capstan Tacho Reference Voltage
19	Ground
20	CTL Playback Amplifier OC Output

ELECTRICAL CHARACTERISTICS (T_{amb} = 25°C, unless otherwise specified V_S = 5V)

Symbol	Parameter	Pin	Test Conditions	Min.	Typ.	Max.	Unit
V_S	Supply Voltage Operation Range	10		4.5		6	V
I_S	Supply Current	10					mA

CAPSTAN TACHO AMPLIFIER

Symbol	Parameter	Pin	Test Conditions	Min.	Typ.	Max.	Unit
R_i	Input Resistance	17			10		KΩ
V_R	Capstan Reference Voltage	18			2.5		V
V_i	AC-tacho Input Voltage	17	f Input 50 to 2500Hz	150			μV_{rms}
R_F	Filter Output Impedance	1			10		KΩ
V_{sat}	Output Saturation Voltage	2	Low State I_T = 1.8mA			0.4	V
V_O	Output Voltage	2	High State I_T = 0mA			15	V
	Negative slope of output signal pin T yields to zero crossing of input signal Input to output phase relation is non invert.						

CTL-PLAYBACK AMPLIFIER

Symbol	Parameter	Pin	Test Conditions	Min.	Typ.	Max.	Unit
R_i	Input Resistance	15		100			KΩ
V_R	CTL-Reference Voltage	14			2.5		V
V_i	Synchronous Peak Input Voltage	15	Pos. plus detected	200			μV
R_F	Filter Output Impedance	3			10		KΩ
V_{sat}	Output Saturation Voltage	20	Low State I_R = 1.8mA			0.4	V
V_O	Output Voltage	20	High State I_R = 0			15	V
	Input to output phase relations is invert.						

CTL-RECORD AMPLIFIER

Symbol	Parameter	Pin	Test Conditions	Min.	Typ.	Max.	Unit
R_i	Input Resistance	16	V_i between V_S and GND		100		KΩ
V_R	Input Reference Voltage	16	Pin Open		2.5		V
V_i	Input Threshold for Output High State	16			3		V
V_{IL}	Input Threshold for Output Low State	16			2		V
$V_{sat\ L}$	Ouptut Saturation Voltage Low State	15	V_Q = L (I_{sink} 5mA)			0.4	V
$V_{sat\ H}$	Ouput Saturation Voltage	15	V_Q = H (I_{source} 5mA)			3.5	V
	Input to output phase relation is non invert.						

ELECTRICAL CHARACTERISTICS (continued)

REEL-TACHO AMPLIFIER

Symbol	Parameter	Pin	Test Conditions	Min.	Typ.	Max.	Unit
R_i	Input Resistance	5/14		100			KΩ
V_R	Input Reference Voltage	5/14			2.5		V
V_i	AC-tacho Input Voltage	5/14	f = 1Hz to 5KHz	1			V_{pp}
V_{sat}	Output Saturation Voltage	4/6	Low State $I_{O/P}$ = 1.8mA			0.4	V
V_O	Output Voltage	4/6	High State $I_{O/P}$ = 0			15	V
	Input to output phase relation is no invert.						

DRUM TACHO AMPLIFIER

Symbol	Parameter	Pin	Test Conditions	Min.	Typ.	Max.	Unit
R_i	Input Resistance	12	V_{IN} between 1 and 7V		450		KΩ
V_R	Input Reference Voltage	12			2.5		V
V_{ic}	Input Clamping Voltage	12	Sink Current 100µA		V_R – 0.6		V
V_{IP}	Input Peak Voltage	12				8	V
V_{sat}	Ouptut Saturation Voltage	13	Low State I_N = 1.8mA			0.4	V
V_O	Output Voltage	13	High State I_N = 0			15	V
V_i	AC-tacho Input Voltage	12		1			V_{pp}
	Input to output phase relation is non invert.						

RESET GENERATION

Symbol	Parameter	Pin	Test Conditions	Min.	Typ.	Max.	Unit
V_S	Reset Supply Voltage	11			V_S – 0.6		V
V_{SR}	Reset Supply Voltage Operation Range	11		3		V_S	V
I_R	Reset Supply Current	11			2		mA
I_C	Charging Current	9			25		µA
I_{DC}	Discharging Current	9	U_K = 2V Discharging current is present for $V_S < V_{sens}$		2.5		mA
V_{sen}	Reset Sense Voltage	10		4.5	4.6	4.7	V
V_{CH}	Comparator High Threshold	9	Output Low to High		2		V
V_{CL}	Comparator Low Threshold Output open Colletor with Intervall Pull up Resistor	9	Output High to Low		3		V
V_{sat}	Output Saturation Voltage	8	Low State I_M = 1.8mA			0.4	V

OPTIONAL OUTPUT (push-pull)

Symbol	Parameter	Pin	Test Conditions	Min.	Typ.	Max.	Unit
V_{sat}	Output Saturation Voltage	8	Low State I_M = 1.8mA			0.4	V
V_{sat}	Output Saturation Voltage	8	High State I_M = 1.8mA	3.5			V