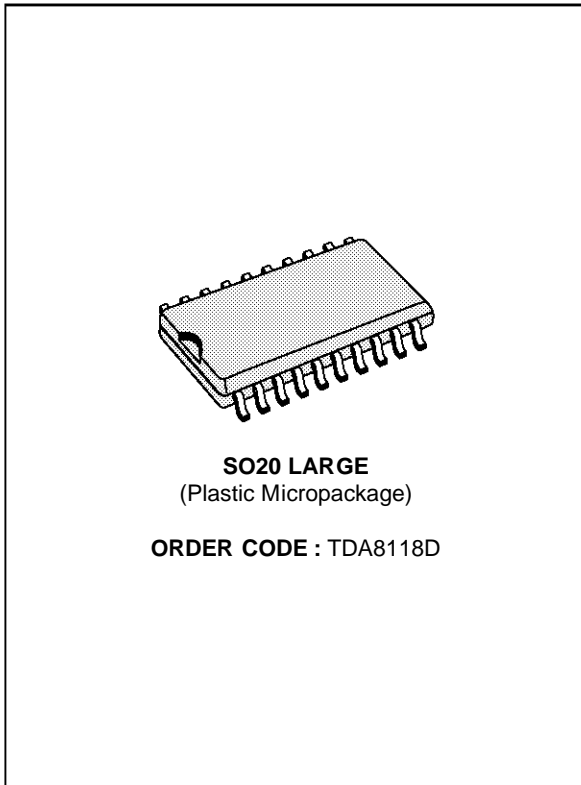


**CONTROL HEAD PLAYBACK  
& RECORD AMPLIFIER AND SIGNALS INTERFACE**

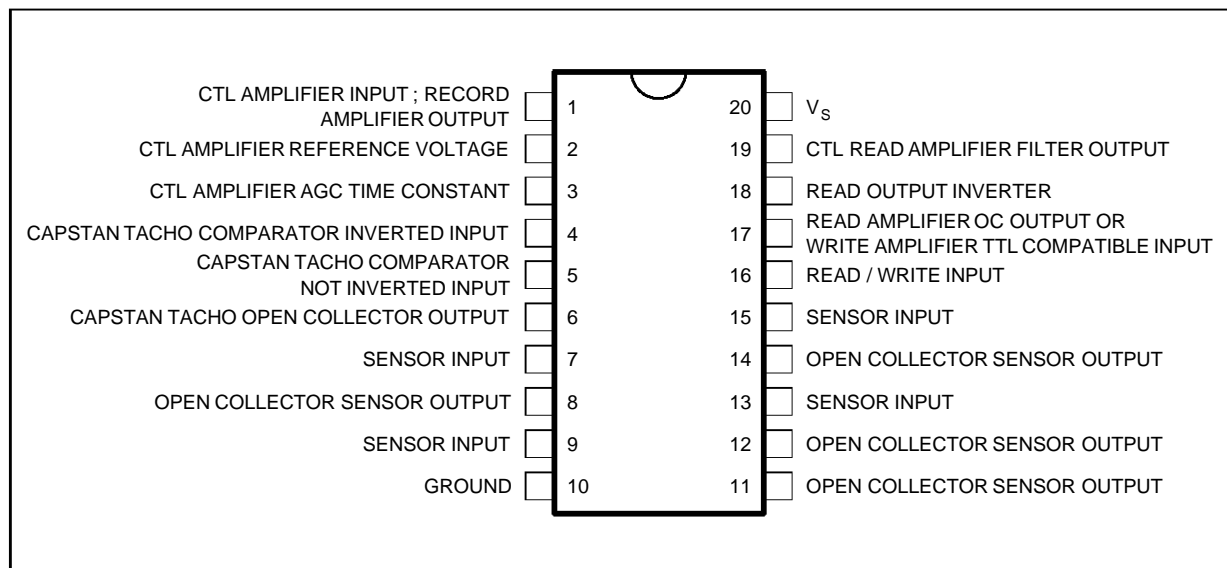
- CONTROL HEAD PLAYBACK AMPLIFIER WITH AGC
- CONTROL HEAD RECORD AMPLIFIER WITH SINK/SOURCE OUTPUT STAGE
- CONTROL PLAY-BACK SIGNAL INVERTER
- 4 COMPARATORS WITH INTERNAL FIXED THRESHOLD (2.5V)
- COMPARATORS WITH GROUND/V<sub>S</sub> COMPATIBLE INPUTS AND OPEN COLLECTOR OUTPUTS



**DESCRIPTION**

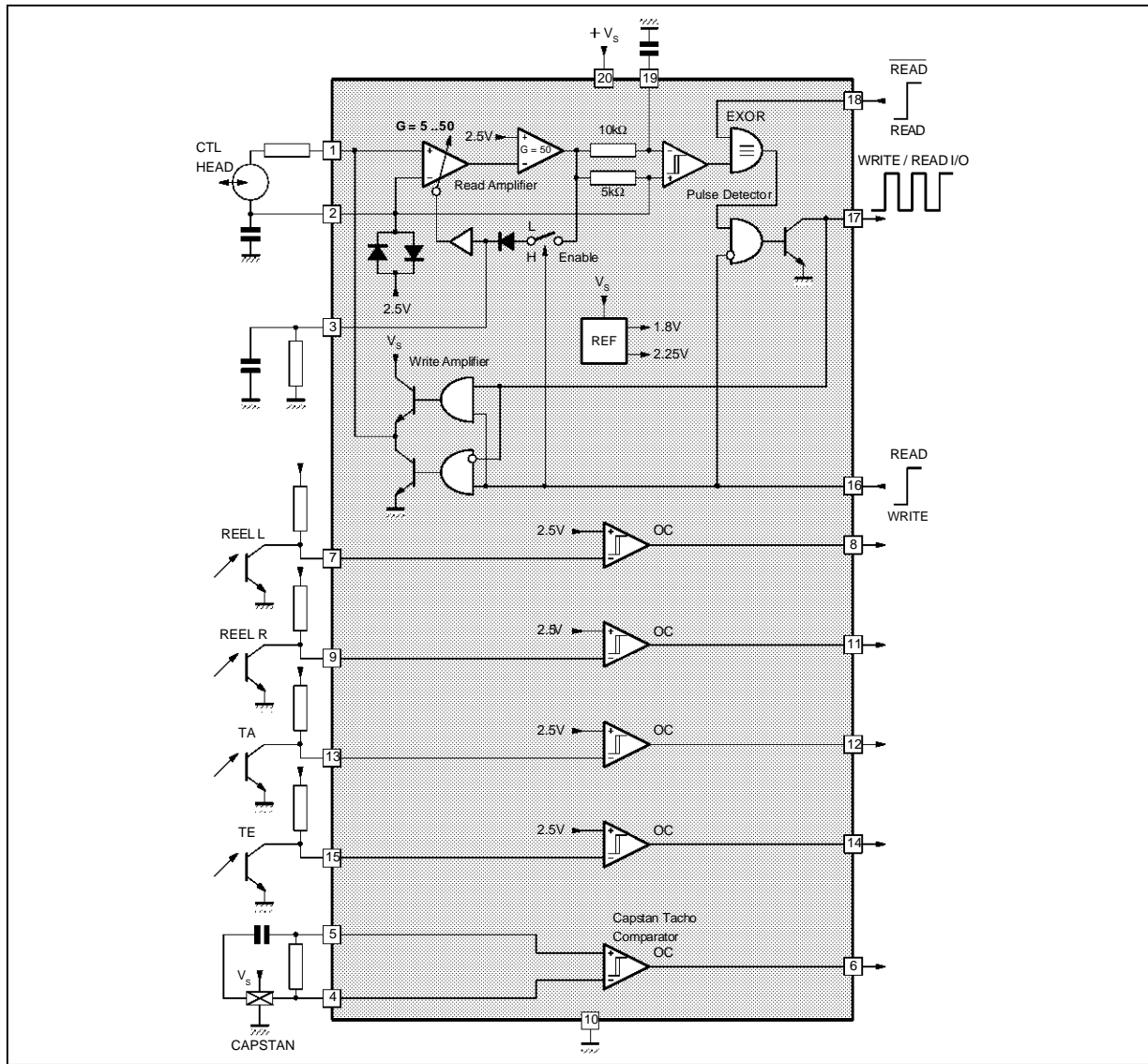
The TDA8118 is a bipolar integrated circuit for VCR application. It is intended to process the CTL-signal in record and playback mode. An internal AGC provides a wide range of input signal level. 5 further internal hysteresis comparators are intended to convert signals from optical and hall sensors to TTL-level.

**PIN CONNECTIONS**



8118-01.EPS

BLOCK DIAGRAM



8118-02.EPS

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
$V_S$	DC Supply Voltage	14	V
$V_i$	DC Input Voltage	- 0.3 to $V_S$	V
$V_o$	DC Output Voltage	$V_S$	V
$I_o$	Open Collector Output Current	5	mA
$T_{stg}$	Storage Temperature	-55 to 125	°C
$T_j$	Operating Junction Temperature	0 to 85	°C

Note : The circuit is ESD protected according to MIL-STD-883C

8118-01.TBL

THERMAL DATA

Symbol	Parameter	Value	Unit
Rth(j-a)	Junction-ambient Thermal Resistance	70	°C/W

8118-02.TBL

**ELECTRICAL CHARACTERISTICS**

$V_S = 5V \pm 5\%$ ,  $T_{amb} = 25^\circ C$  (unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_S$	Operating Supply Voltage (Pin 20)		4.5		6	V
$I_S$	Supply Current (Pin 20)	Pins 6, 8, 11, 12, 14, 16, 17 open			5	mA

**CTL READ AMPLIFIER**

$V_{REF}$	CTL Reference Voltage (Pin 2)		2.1	2.25	2.4	V
$R_{IN}$	Input Resistance (Pin 1)		100			k $\Omega$
$G_V$	Voltage Gain (Pins 1/19)	AGC not active, Pin 3 = GND, $f = 1kHz$	66			dB
$\Delta G_V$	Voltage Gain range of AGC (Pins 1/19)	$f = 1kHz$ , $R_S = 220k\Omega$ , $C_3 = 33\mu F$		18		dB
$R_F$	Filter Output Impedance (Pin 19)		7	10	13	k $\Omega$
$V_{IN}$	Minimum Peak Input Voltage (Pin 1)		0.5			mV

**CTL PULSE DETECTOR**

$I_{H+}$	Positive Schmitt Trigger Threshold (Pins 17/19)	See timing diagram		$V_Z + 0.5$		V
$I_{H-}$	Negative Schmitt Trigger Threshold (Pins 17/19)	See timing diagram		$V_Z - 0.5$		V
$V_{SAT}$	Output Saturation Voltage (Pin 17)	$V_{17} = \text{Low}$ , $I_{17} = 1.8mA$			0.4	V
$I_C$	Output Leakage Current (Pin 17)	$V_{17} = V_S$			10	$\mu A$
$V_{REL}$	Read Inverter Input Low Voltage (Pin 18)		-0.3		1.5	V
$V_{REH}$	Read Inverter Input High Voltage (Pin 18)		2.3		$V_S$	V

**CTL WRITE AMPLIFIER**

$V_{RWL}$	Read/Write Enable Input Low Voltage (Pin 16)		-0.3		1.5	V
$V_{RWH}$	Read/Write Enable Input High Voltage (Pin 16)		2.3		$V_S$	V
$V_{WRL}$	Write Input Low Voltage (Pin 17)	Pin 16 = Low	-0.3		1.5	V
$V_{WRH}$	Write Input High Voltage (Pin 17)	Pin 16 = Low	2.3		$V_S$	V
$V_{SATL}$	Output Saturation Voltage Low State (Pin 1)	$I_{SINK} = 5mA$ , Pin 16 = Low, Pin 17 = Low			0.4	V
$V_{SATH}$	Output Saturation Voltage High State (Pin 1)	Pin 16 = Low, Pin 17 = High $I_{SOURCE} = 5mA$ $I_{SOURCE} = 2mA$			1.5 1.3	V V

**SENSOR INTERFACE**

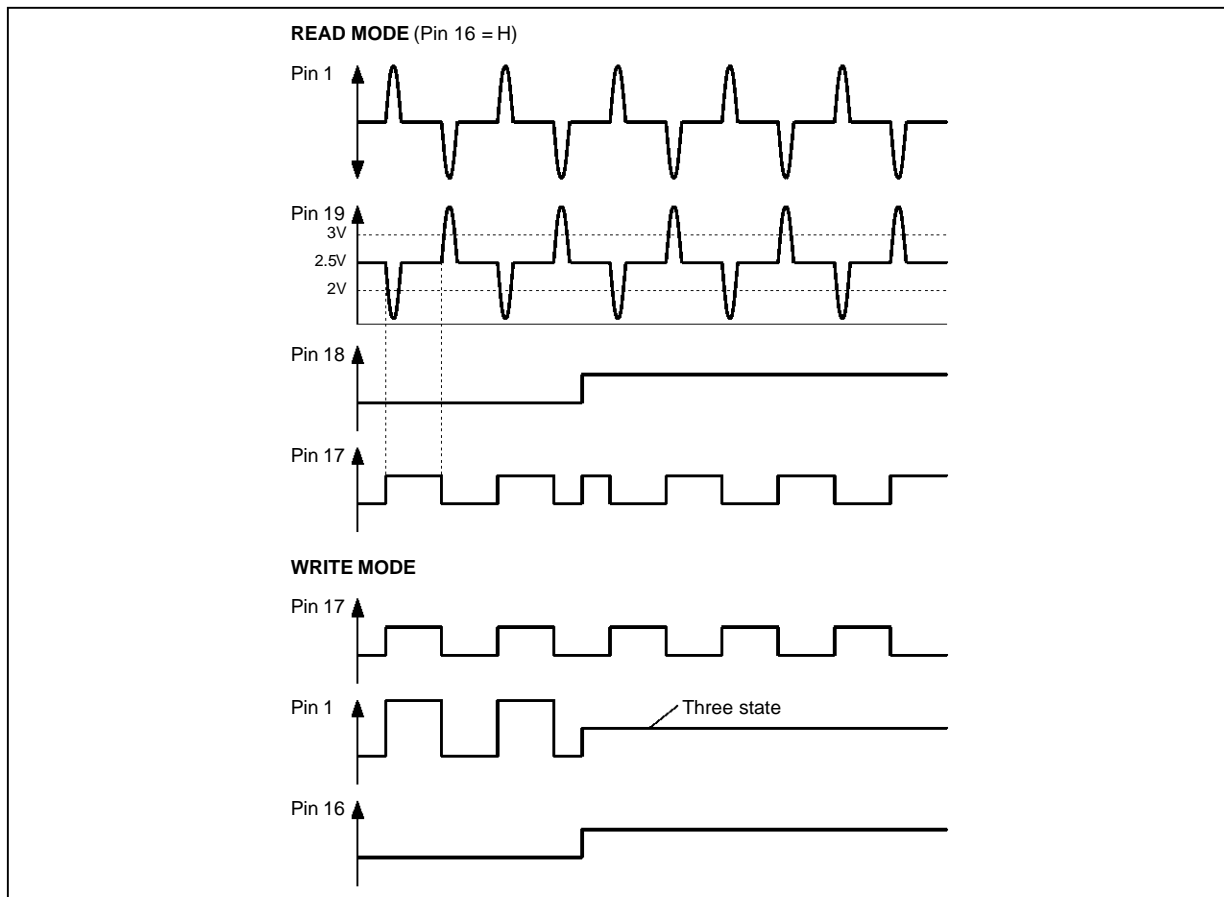
$I_{IN}$	Input Bias Current (Pins 7/9, 13/15)	$V_{IN} = 1V$	-3		1	$\mu A$
$I_{TH}$	Input Threshold Voltage (Pins 7/9, 13/15)		2.1	2.25	2.4	V
$I_{HYS}$	Input Hysteresis (Pins 7/9, 13/15)		150	200	250	mV
$V_{SAT}$	Output Saturation Voltage (Pins 8/11/12/14)	$I_{SINK} = 1.8mA$			0.4	V
$I_L$	Output Leakage Current (Pins 8/11/12/14)	$V_{OUT} = V_S$			10	$\mu A$

**CAPSTAN TACHO COMPARATOR**

$I_{IN}$	Input Bias Current (Pins 4/5)	$V_{IN} = \text{Low}$	-3		1	$\mu A$
$V_{OFF}$	Input Offset Voltage (Pins 4/5)				5	mV
$I_{HYS}$	Input Hysteresis (Pins 4/5)			5	10	mV
$V_{SAT}$	Output Saturation Voltage (Pin 6)	$I_{SINK} = 1.8mA$			0.4	V
$I_{LEAK}$	Output Leakage Current (Pin 6)	$V_{OUT} = V_S$			10	$\mu A$

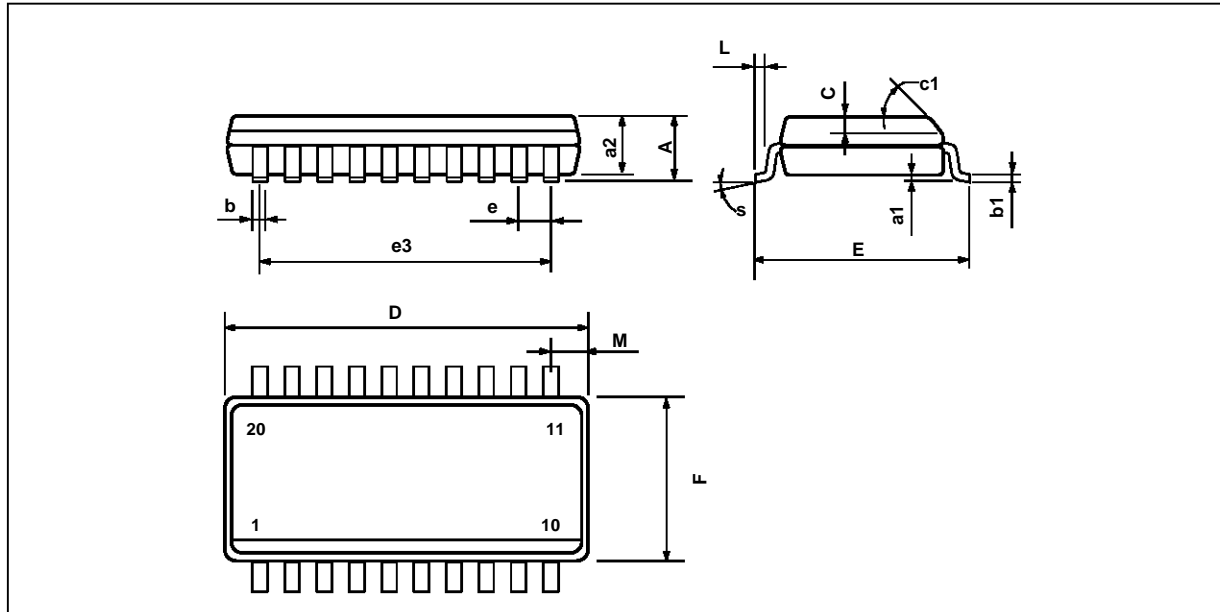
8118-03.TBL

TIMING DIAGRAM



8118-03.EPS

**PACKAGE MECHANICAL DATA**  
20 PINS - PLASTIC MICROPACKAGE



PM-SO20LEPS

Dimensions	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A			2.65			0.104
a1	0.1		0.2	0.004		0.008
a2			2.45			0.096
b	0.35		0.49	0.014		0.019
b1	0.23		0.32	0.009		0.013
C		0.5			0.020	
c1	45° (typ.)					
D	12.6		13.0	0.496		0.510
E	10		10.65	0.394		0.419
e		1.27			0.050	
e3		11.43			0.450	
F	7.4		7.6	0.291		0.300
L	0.5		1.27	0.020		0.050
M			0.75			0.030
S	8° (max.)					

SO20LLEPS

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