

Read/Write Amplifier for FDD Use

©2638

Features

- . On-chip diodes for head select
- . The time domain filter contains capacitors for time constant.
- . An external resistor can be used to set the write current to any value.
- . Capable of changing the write current for disk inner track

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Value	Unit
Maximum Supply Voltage	V _{CC1} max	7	V
Maximum Supply Voltage	V _{CC2} max	17	V
Digital Signal Input Channel* Input Voltage		-0.5 to 5.5	V
Power-ON Detector Supply Voltage	V _{CC2} +0.3		V
Erase Output Supply Voltage	V _{CC2} +0.3		V
Common 0, Common 1 Source Current		150	mA
Power-ON Detector Sink Current		20	mA
Erase Output Sink Current		150	mA
Operating Temperature	Topg	-20 to +75	°C
Storage Temperature	Tstg	-65 to +125	°C

* WRITE CURRENT, WRITE DATA, WRITE GATE, ERASE GATE, SIDE1, MMVA CONTROL

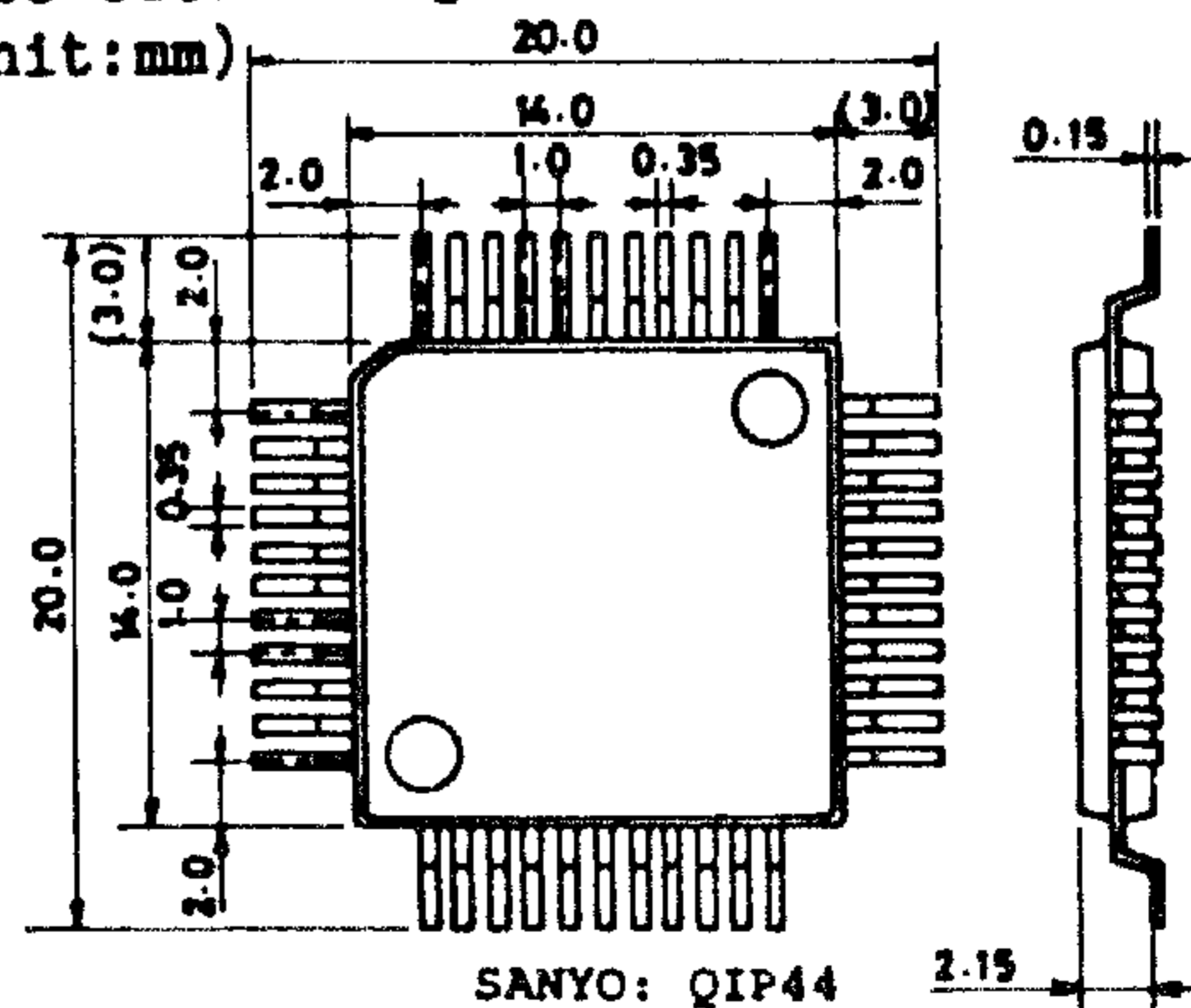
Electrical Characteristics at V_{CC1}=5V, V_{CC2}=12V, Ta=25°C

Parameter	Symbol	Conditions	min	typ	max	unit
Head Input Pin Leakage Current (Write Mode)	I _{LKM}				10	uADC
Head Selector/Preamp Voltage Gain Accuracy	E _{GV}	f=100kHz, R _L =10kohms	-15		+15	%
Head Selector/Preamp High-Band Gain Attenuation	B _W	f=5MHz, R _L =10kohms			3	dB
Head Selector/Preamp Common-Mode Rejection	C _{MRR}			45		dB
Head Selector/Preamp Supply Voltage Rejection	P _{SRR}			70		dB

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Case Outline 3106

(unit:mm)



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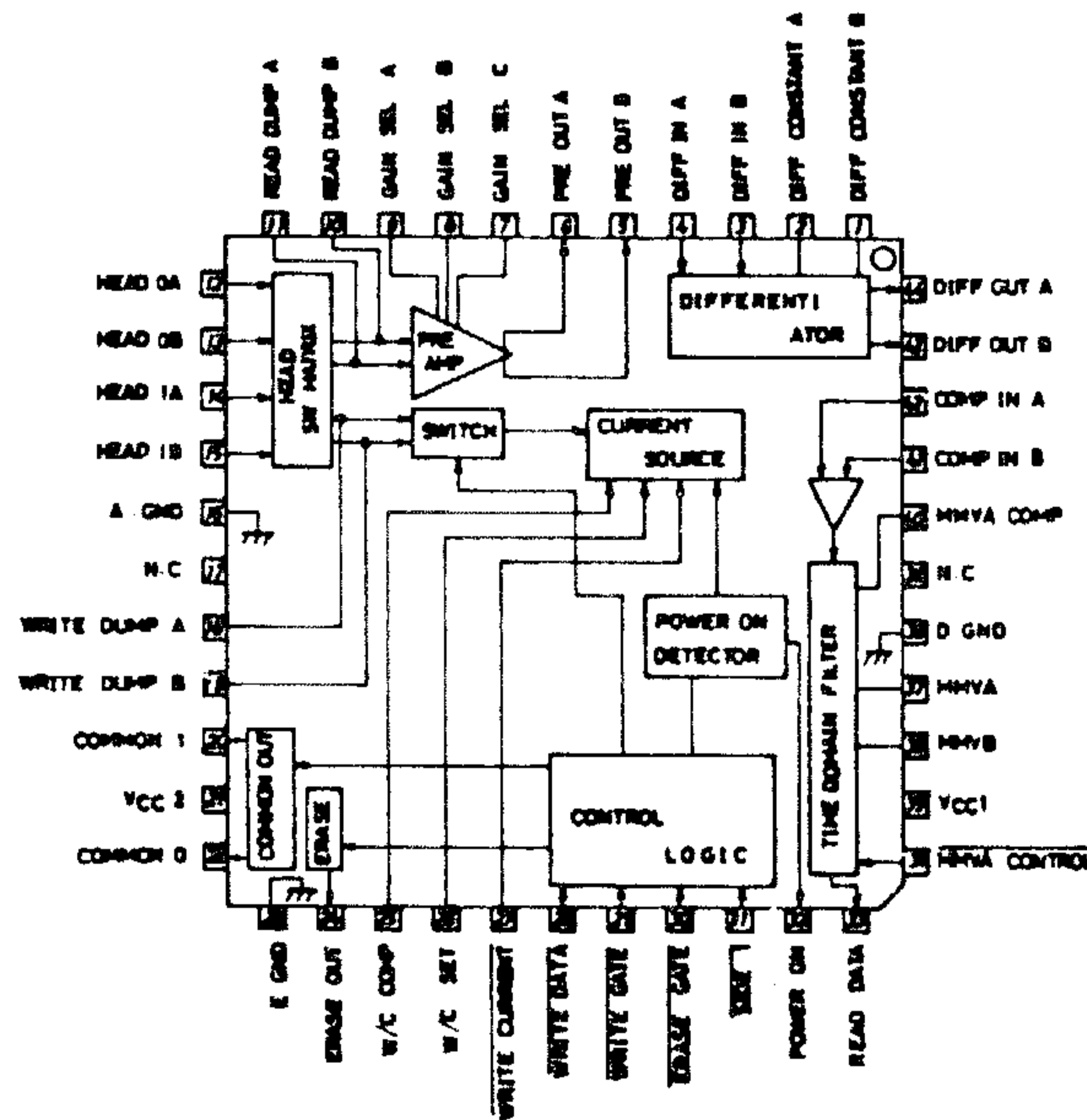
		min	typ	max	unit
Preamp Differential Output Offset Voltage	V_{OFS}			0.5	V
Preamp Differential Output Voltage Amplitude	V_{OUT}	3.7	4.2		Vp-p
Preamp Differential Output Current Amplitude	I_{OUT}	3.0	4.0		mA p-p
Preamp Equivalent Input Noise Voltage	E_N L.P.F 1MHz		4.5		uV
Differentiator Differential Output Offset Voltage	V_{OFD}	-10		+10	mV
Time Domain Filter 1st Monostable Multivibrator Output Pulse Width Accuracy	E_{TM1} $R_A=45kohms$	-15		+15	%
Time Domain Filter 2nd Monostable Multivibrator Output Pulse Width Accuracy	E_{TM2} $R_B=44kohms$	-20		+20	%
Time Domain Filter 1st Monostable Multivibrator Output Pulse Width Compensation Accuracy	E_{TMIC} $R_{COMP}=81.6kohms$	-15		+15	%
Peak Shift	PS			1	%
Write Current Source Output Current Accuracy	EW $R_{W1}=4.3kohms$	-10		+10	%
Write Current Source Output Imbalance	DW			1.0	%
Write Current Source Compensation Current Accuracy	E_{WC} $R_{W2}=12.6kohms$	-10		+10	%
Head Input Pin Saturation Voltage at Write Mode	V_{sat} $R_L=10kohms, V_{RL}=12V$			4.0	V
Center Tap Voltage Source L Output Voltage at Write Mode	V_{WLCM}			0.1	V
Center Tap Voltage Source H Output Voltage at Write Mode	V_{WHCM} $I_O=-100mA$	10.5		11.4	V
Center Tap Voltage Source H Output Voltage at Read Mode	V_{RHCM}	4.8		5.4	V
Erase Current Switch Output Saturation Voltage	V_{IR} $R_L=110ohms, V_{RL}=12V$			0.5	V
Erase Current Switch Leakage Current	I_{LKIR} $V_O=12V$			15	uA
Power Supply ON/OFF Detector 5V System Threshold Voltage	V_{TH5}	3.4	3.9	4.4	V
Power Supply ON/OFF Detector 12V System Threshold Voltage	V_{TH12}	8.2	9.0	10.0	V
Digital Signal Input Logic L Input Voltage	V_{LIN}			0.8	V
Digital Signal Input Logic H Input Voltage	V_{HIN}	2.0			V

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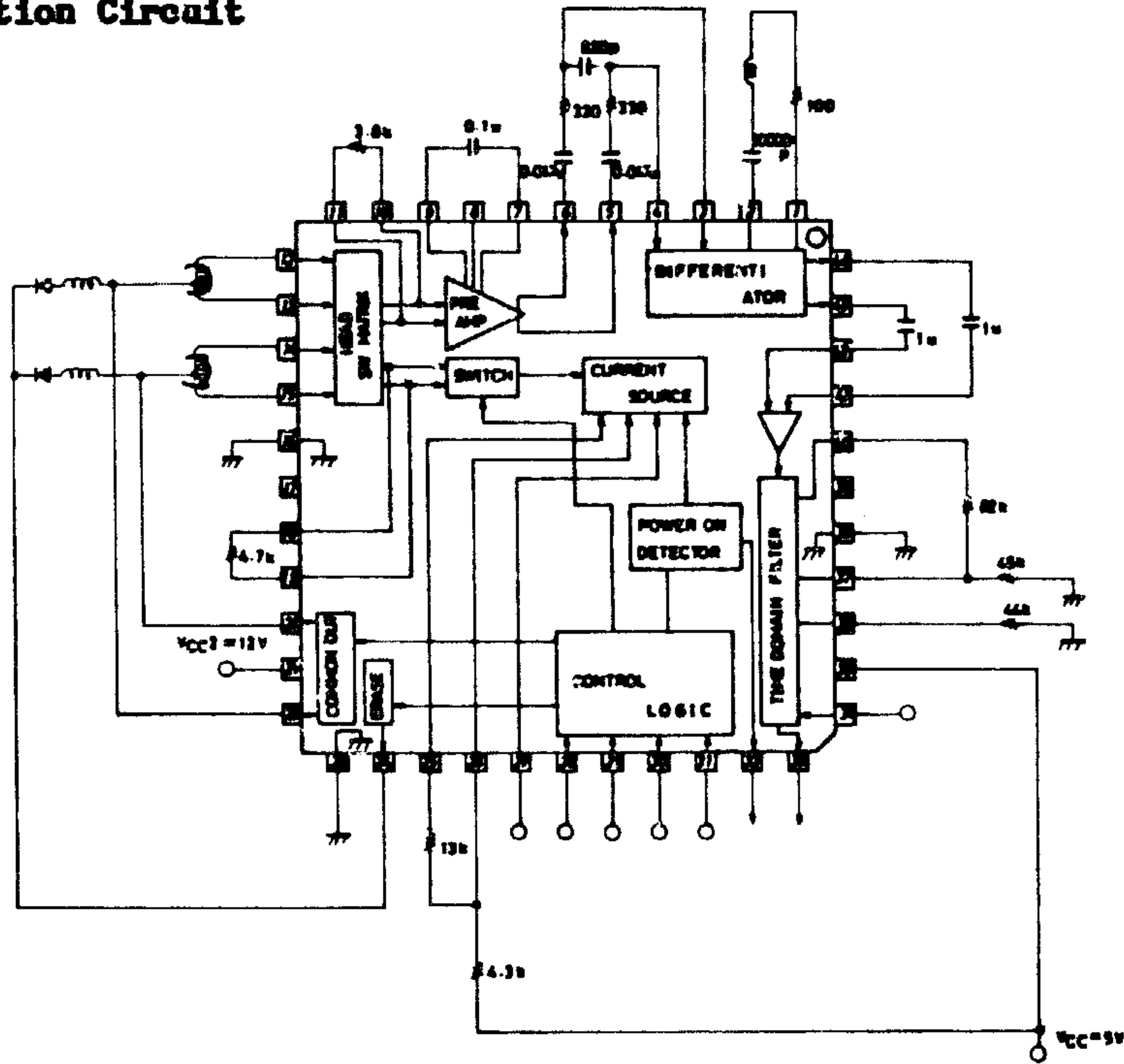
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		min	typ	max	unit
Digital Signal Input Logic H Input Current	I_{HIN} $V_{IN}=2.4V$			130	μA
Digital Signal Input Logic L Input Current	I_{LIN} $V_{IN}=0.4V$			250	μA
Digital Signal Output Logic L Output Voltage	V_{LOUT} $I_C=2mA$			0.5	V
Digital Signal Output Logic H Output Voltage	V_{HOUT} $I_O=-0.4mA$	2.8			V
Digital Signal Output Rise Time	TR			100	ns
Digital Signal Input Fall Time	TF			100	ns
5V System Current Dissipation at Read Mode	I_{CC1R}	16	20	28	mA
5V System Current Dissipation at Write Mode	I_{CC1W}	7	11	16.5	mA
12V System Current Dissipation at Read Mode	I_{CC2R}	6	9	14	mA
12V System Current Dissipation at Write Mode	I_{CC2W}	9	11	16	mA

Equivalent Circuit Block Diagram



Sample Application Circuit



Pin Description

Pin No.	Pin Name	Pin Description
12	HEAD 0A	Input/output for one magnetic head For center tap-provided REC/PB common type
13	HEAD 0B	
22	COMMON 0	
14	HEAD 1A	Same as above
15	HEAD 1B	
20	COMMON 1	
11	READ DUMP A	Input point of preamp to which a head damping resistor at the read mode or a capacitor for frequency response compensation is connected
10	READ DUMP B	
9	GAIN SEL.A.B.C.	One capacitor for AC short is connected across these pins to set the preamp gain to 100 or 200.
8		
7		
6	PRE OUT A	Preamp output
5	PRE OUT B	
4	DIFF IN A	Differentiator input
3	DIFF IN B	
2	DIFF CONSTANT A	Pins to which differential constants are connected
1	DIFF CONSTANT B	
44	DIFF OUT A	Differentiator output
43	DIFF OUT B	
42	COMP IN A	Comparator input
41	COMP IN B	
40	MMVA COMP	Pin to which a resistor is connected for time domain filter 1st monostable multivibrator output pulse width compensation

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Pin No.	Pin Name	Pin Description
38	D.GND	Digital GND
37	MMVA	Pin to which R_A is connected for time domain filter 1st monostable multivibrator
36	MMVB	Pin to which R_B is connected for time domain filter 2nd monostable multivibrator
35	V_{CC1}	5V supply
34	MMVA CONTROL	40 MMVA COMP control input. When brought to "L" level, the 1st monostable multivibrator output pulse width is made narrow.
33	READ DATA	Read data output (totem pole output)
32	POWER ON	V_{CC1}, V_{CC2} checker output. Turned ON when the value is less than specified. (Open collector output)
31	SIDE 1	Head select control input. When brought to "L" level, the HEAD 1 is selected.
30	ERASE GATE	Erase circuit control input. Low-active
29	WRITE GATE	Write circuit control input. Low-active
28	WRITE DATA	Write data input. H→L causes trigger.
27	WRITE CURRENT	Write current compensation control input. When brought to "L" level, the write current increases.
26	W/C SET	Pin to which a write current setting resistor is connected
25	W/C COMP	Pin to which a resistor used to set the current value to be increased by the 27 WRITE CURRENT is connected
24	ERASE OUT	Erase output (open collector output)
23	E.GND	Erase GND
18	WRITE DUMP A	Pins to which a head damping resistor at the write mode is connected
19	WRITE DUMP B	
21	V_{CC2}	12V supply
16	A.GND	Analog GND