M51489L

VIDEO AGC

DESCRIPTION

The M51489L is a semiconductor integrated circuit designed as video AGC for video equipment applications.

FEATURES

- Keyed/Peak AGC circuit employed
  (Usually, this circuit functions as keyed AGC keeping the amplitude of sync signals constant. If the overall amplitude becomes excessively large, as in case of short sync signals, the circuit automatically operates as peak AGC and forces the output amplitude of video signals constant.)
- Two video signal inputs provided, with a self-contained selector circuit
- Sync separator self-contained
- ZIL package employed, permitting high density mounting requiring only a small area on printed circuit board

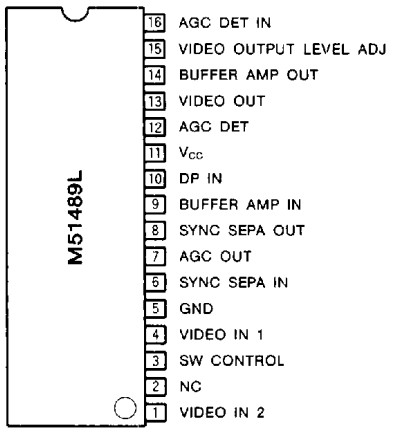
APPLICATION

VCR and other video equipment

RECOMMENDED OPERATING CONDITION

Supply voltage range .....11~12.5 V
Rated supply voltage .....12 V

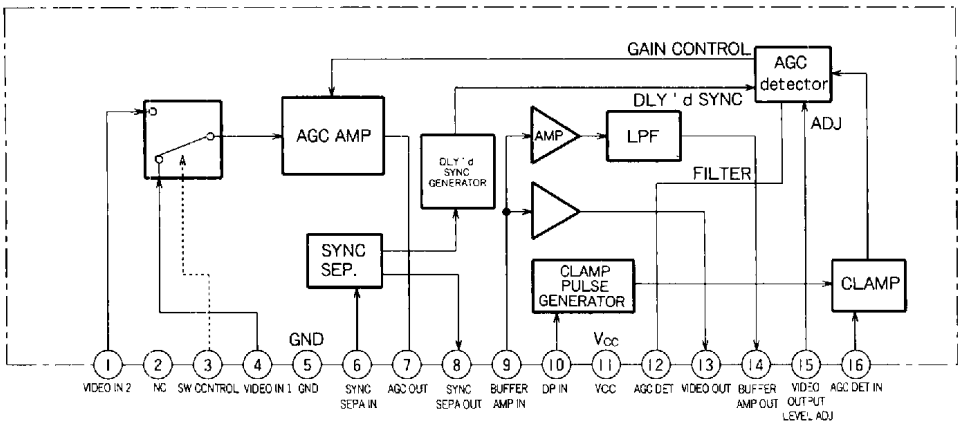
PIN CONFIGURATION



Outline 16P5A

NC : No connection

BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS

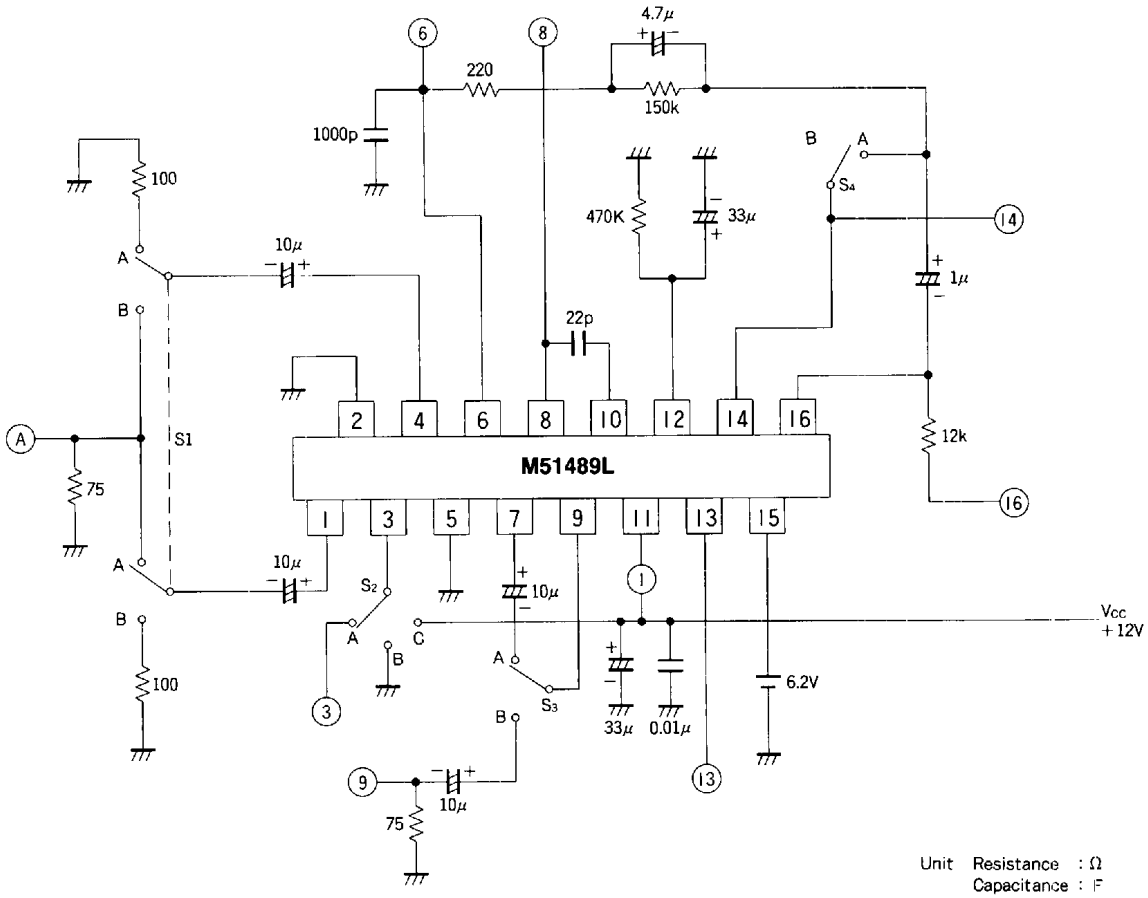
Symbol	Parameter	Ratings	Unit
$V_{CC\ MAX}$	Supply voltage	13	V
$P_{d\ MAX}$	Power dissipation	800	mW
Topr	Operating temperature	−20∼75	℃
Tstg	Storage temperature	−40∼125	℃
K_θ	Thermal derating	8	mW/deg.

ELECTRICAL CHARACTERISTICS (Ta=25℃, unless otherwise noted)

Symbol	Parameter			Test conditions	Limits			Unit
					Min.	Typ.	Max.	
Icc	Circuit current			Inflow current at pin 11	12	17	22	mA
Voa	VIDEO output level	a	Input 1 : 1V_{PP} video signal	When V_{I5}=6.2V, S_1=B, S_2=C	0.8	1.0	1.2	V_{PP}
Vob		b	Input 2 : 1V_{PP} video signal	When V_{I5}=6.2V, S_2=B				V_{PP}
AGC+	AGC characteristics	a	Input 2 : 2V_{PP} video signal	S_2=B	−1.0	0.2	1.0	dB
AGC−		b	Input 2 : 0.5V_{PP} video signal	S_2=B	−1.0	−0.2	1.0	dB
FCa	AGC AMP frequency characteristics	a	Input 1 : 5MHz sine wave	S_1=B, S_2=C, S_4=B Attenuation from the standard input amplitude of 0.5V_{PP} at 100kHz	−2.0	−1.1	—	dB
FCb		b	Input 2 : 5MHz sine wave	S_2=B, S_4=B Attenuation from the standard input amplitude of 0.5V_{PP} at 100kHz				dB
FCc	LPF frequency characteristics		Pin 14 output : 5MHz sine wave	S_2=B, S_4=B Attenuation from the standard input amplitude of 0.5V_{PP} at 100kHz	−18	−13	−8	dB
CTa	VIDEO SW crosstalk	a	Input 2 : 1MHz sine wave	S_2=B/C, S_4=B	—	−60	−50	dB
CTb		b	Input 1 : 1MHz sine wave	S_1=B, S_2=C/B, S_4=B				dB
V_{TH}	SW threshold level				0.7	1.2	2.0	V
V_{SH}	Sync separation pulse	Hi voltage			10	11	—	V
V_{SL}		Lo voltage			—	0	0.1	V
Ts		Pulse width			3.9	4.3	4.7	μs

Unless otherwise noted, SWs shall be set to A.

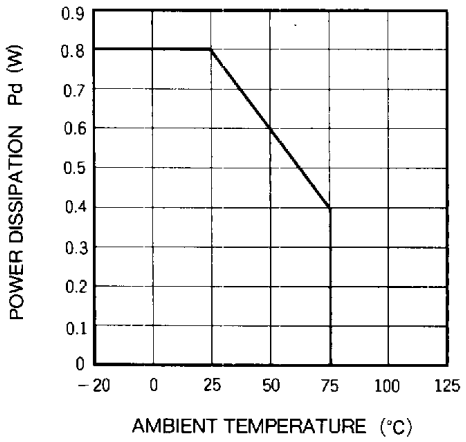
TEST CIRCUIT



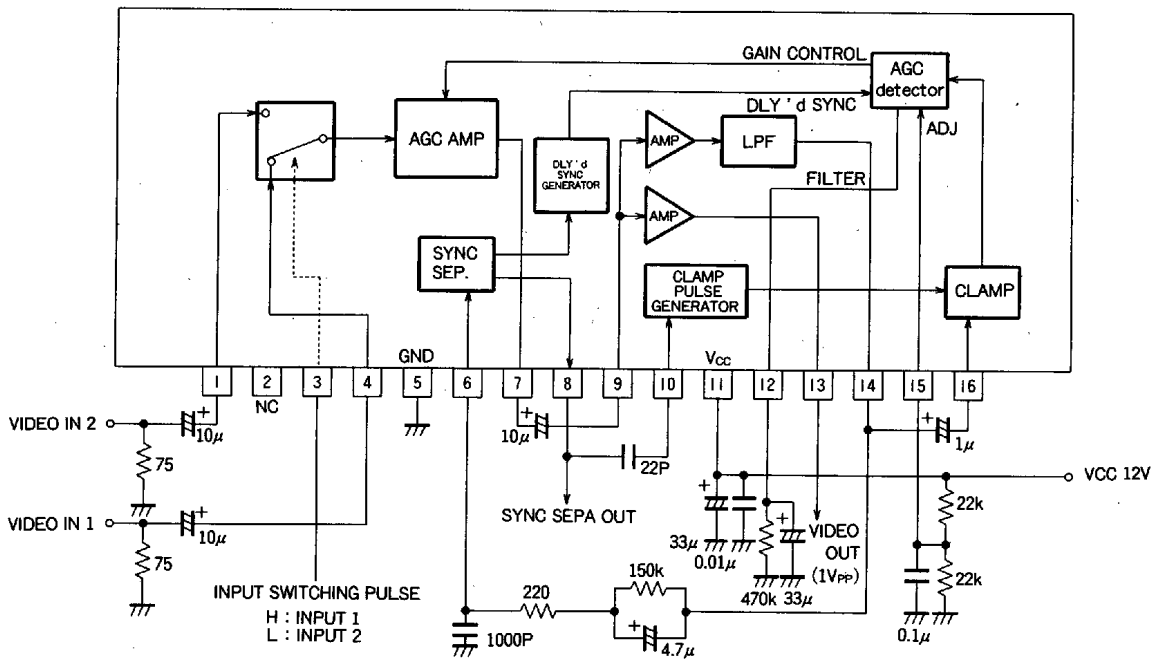
Unit Resistance : Ω
Capacitance : F

TYPICAL CHARACTERISTICS

THERMAL DERATING (MAXIMUM RATING)

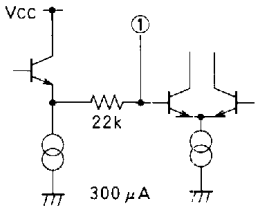
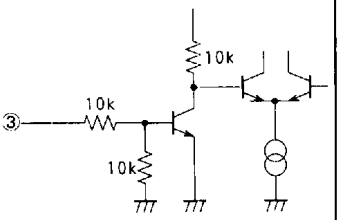
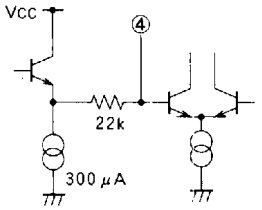
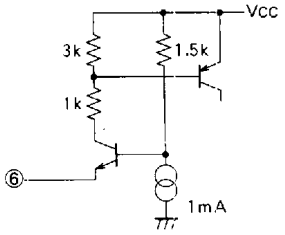


APPLICATION EXAMPLE

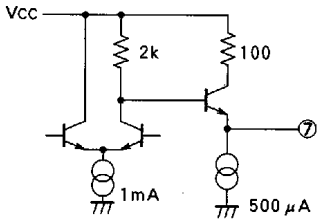
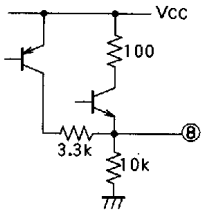
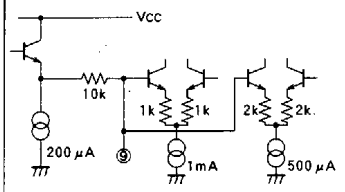
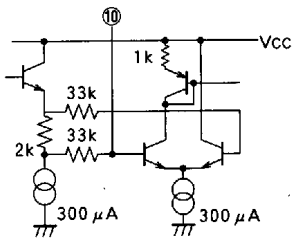
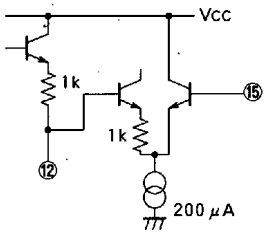


Unit Resistance : Ω
Capacitance : F

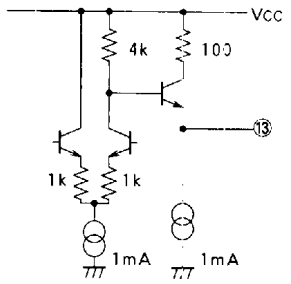
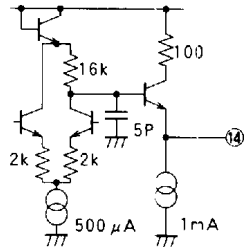
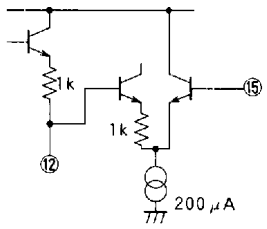
DESCRIPTION OF PIN

Pin No.	Symbol	Function	DC Voltage (V)	Peripheral circuit of pins
①	VIDEO IN 2	Input video signal ② (Input impedance≒22KΩ) (Synchronizing by trailing edge)	5.9V	
②	N. C.	—	—	—
③	SW CONTROL	Video input switching (V_{TH}≒1.2V)	—	
④	VIDEO IN 1	Input video signal ① (Input impedance≒22KΩ) (Synchronizing by trailing edge)	5.9V	
⑤	GND	Grounding	0V	—
⑥	SYNC SEPA IN	Sync separation circuit Signal input (Synchronizing by trailing edge)	9.8V	

DESCRIPTION OF PIN (cont.)

Pin No.	Symbol	Function	DC Voltage (V)	Peripheral circuit of pins
⑦	AGC OUT	Video AGC Gain control amp (Emitter-follower output) (Output amplitude≒0.5V_{PP}, synchronizing by trailing edge)	10.2V	
⑧	SYNC SEPA OUT	Sync separator output (Sync「H」)	0/11V	
⑨	BUFFER AMP IN	Buffer amp input (Input impedance=10KΩ) (Input amplitude≒0.5V_{PP}, synchronizing by trailing edge)	4.1V	
⑩	DP IN	Differential pulse input (Differential pulse of sync signal) For clamp pulse generation	3.5V	
⑪	Vcc	Power supply	12V	—
⑫	AGC DET	AGC filter (AGC detector voltage holding pin)	6.2V	

DESCRIPTION OF PIN (cont.)

Pin No.	Symbol	Function	DC Voltage (V)	Peripheral circuit of pins
⑬	VIDEO OUT	Video output (Emitter-follower Output amplitude≒1V_{P-P} Synchronizing by trailing edge)	9.2V	
⑭	BUFFER AMP OUT	(Buffer amp output Emitter-follower Output amplitude≒2V_{P-P} Synchronizing by trailing edge)	6.5V	
⑮	VIDEO OUT LEVEL ADJ.	AGC level adjustment	6V	
⑯	AGC DET IN	(AGC detector input Clamp input Input amplitude≒2V_{P-P} Synchronizing by falling edge)	4V