



LA7054

Video, Audio Signal Processor for UHF Band RF Modulator

Overview

The LA7054 is a video, audio signal processor IC for UHF band RF modulators. It performs the functions of TSG (test signal generator), video clamp circuit, white clip circuit, audio FM modulator. It is highly stable to supply voltage variations because the LA7054 has an internal voltage regulator.

Functions

- Audio FM modulator
- Sync pulse peak clamp
- TSG
- White clip
- Voltage regulator

Features

- Low-voltage operation : $V_{CC}=5V$
- Highly stable to supply voltage variations because the LA7054 has an internal voltage regulator.
- On-chip TSG (test signal generator).
- Good frequency characteristic of white clip.
- Wide amplitude of audio carrier and less high-frequency spurious interference.
- Low audio distortion.
- Low current drain : -30% (compared with our similar ICs).
- Minimum number of parts required : Peripherals of clock oscillator for TSG.
- Small-sized package : 9-pin SIP

Specifications

Maximum Ratings at $T_a=25^\circ C$

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	V_{CC} max		9	V
Allowable power dissipation	P_d max	$T_a \leq 60^\circ C$	250	mW
Operating temperature	T_{opr}		-20 to +80	$^\circ C$
Storage temperature	T_{stg}		-40 to +125	$^\circ C$

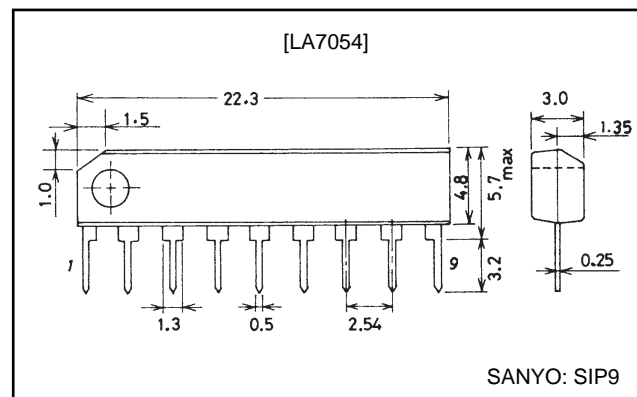
Operating Conditions at $T_a=25^\circ C$

Parameter	Symbol	Conditions	Ratings	Unit
Recommended supply voltage	V_{CC}		5	V
Operating voltage range	V_{CC} op		4.25 to 7.00	V

Package Dimensions

unit: mm

3017C-SIP9

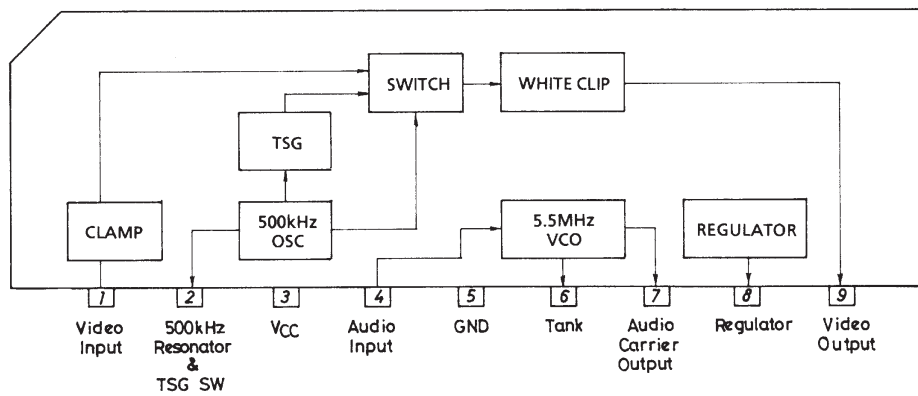


LA7054

Operating Characteristics at $T_a=25^\circ\text{C}$, $V_{CC}=5\text{V}$

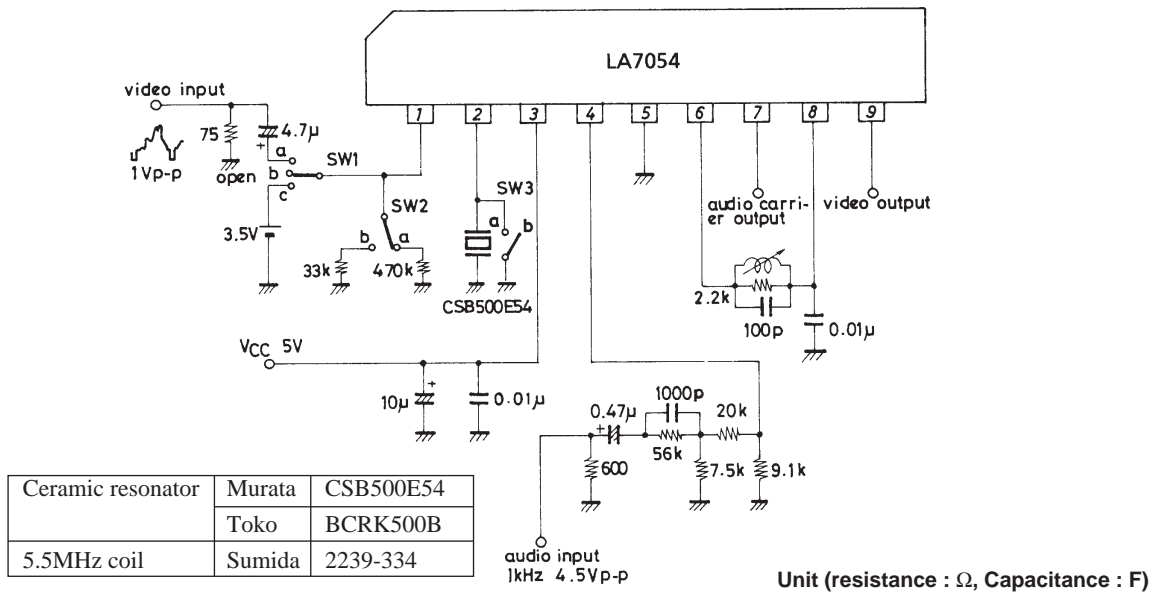
Parameter	Symbol	SW Mode			Conditions	Ratings			Unit
		SW1	SW2	SW3		min	typ	max	
Current drain	I_{CC}	a	a	a		10	14	18	mA
Video clamp voltage	V_{CL}	a	b	a		1.35	1.60	1.85	Vp-p
White clip level	V_{WC}	c	-	a	$V_{WC}=V_1-V_{CL}$ V1 : Output voltage	1.10	1.14	1.18	Vp-p
TSG output amplitude	V_{TO}	-	-	b		0.85	1.00	1.15	Vp-p
TSG V/S ratio	V/S	-	-	b		6.0/4.0	6.5/3.5	7.2/2.8	
Horizontal sync signal period	t_S	-	-	b		63.7	64.0	64.3	μs
Horizontal sync signal width	H_S	-	-	b		3.6	4.0	4.4	μs
White signal width	H_V	-	-	b		3.6	4.0	4.4	μs
Sync-1st white signal rise time	t_{V1}	-	-	b		22	24	26	μs
Sync-2nd white signal rise time	t_{V2}	-	-	b		38	40	42	μs
Audio carrier amplitude	V_{AO}	-	-	b		1.05	1.30	1.55	Vp-p
Audio modulation degree A	ms	-	-	-	Input signal : 1kHz 4.5Vp-p, $\pm 50\text{kHz}$: 100%	73	81	89	%
Audio modulation degree B	ms	-	-	-		81	90	99	%
Audio modulation degree C	ms	-	-	-		90	100	110	%
Audio modulation degree D	ms	-	-	-		99	110	121	%
Audio modulation degree E	ms	-	-	-		109	121	133	%
Audio distortion	THD	-	-	-	Same as above	-	0.3	1.5	%

Equivalent Circuit Block Diagram

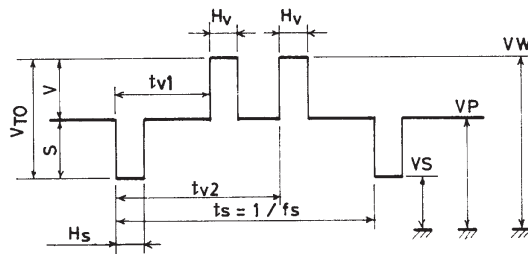


LA7054

Test Circuit



TSG Output Waveform



- No products described or contained herein are intended for use in surgical implants, life-support systems, aerospace equipment, nuclear power control systems, vehicles, disaster/crime-prevention equipment and the like, the failure of which may directly or indirectly cause injury, death or property loss.
- Anyone purchasing any products described or contained herein for an above-mentioned use shall:
 - ① Accept full responsibility and indemnify and defend SANYO ELECTRIC CO., LTD., its affiliates, subsidiaries and distributors and all their officers and employees, jointly and severally, against any and all claims and litigation and all damages, cost and expenses associated with such use:
 - ② Not impose any responsibility for any fault or negligence which may be cited in any such claim or litigation on SANYO ELECTRIC CO., LTD., its affiliates, subsidiaries and distributors or any of their officers and employees jointly or severally.
- Information (including circuit diagrams and circuit parameters) herein is for example only; it is not guaranteed for volume production. SANYO believes information herein is accurate and reliable, but no guarantees are made or implied regarding its use or any infringements of intellectual property rights or other rights of third parties.

This catalog provides information as of July, 1997. Specifications and information herein are subject to change without notice.