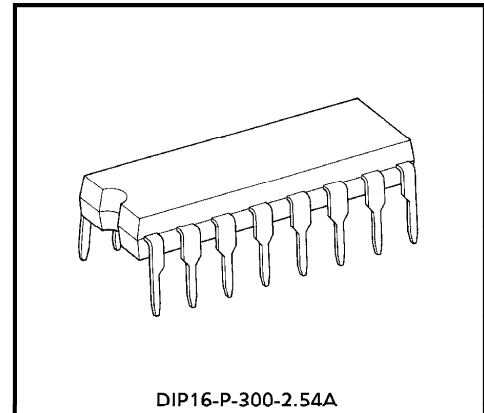


TOSHIBA BIPOLAR LINEAR INTEGRATED CIRCUIT SILICON MONOLITHIC

TA8637BP**VHF MODULATOR FOR VCR OR VDP****FEATURES**

- Video clamp
- White clip
- Main carrier oscillator
- Main carrier attenuator
- Video Modulator
- Sound Modulator
- Sound FM Modulator
- Channel Switch
- Low power operation
- Adjustable output level and V/A ratio with external resistance.
- Minimum number of external parts required.
- Regulator circuit is included.
- Operating voltage range : 4.5V~5.5V, Typ. 5V
- Suggested operating voltage : 4.75V~5.25V, Typ. 5V



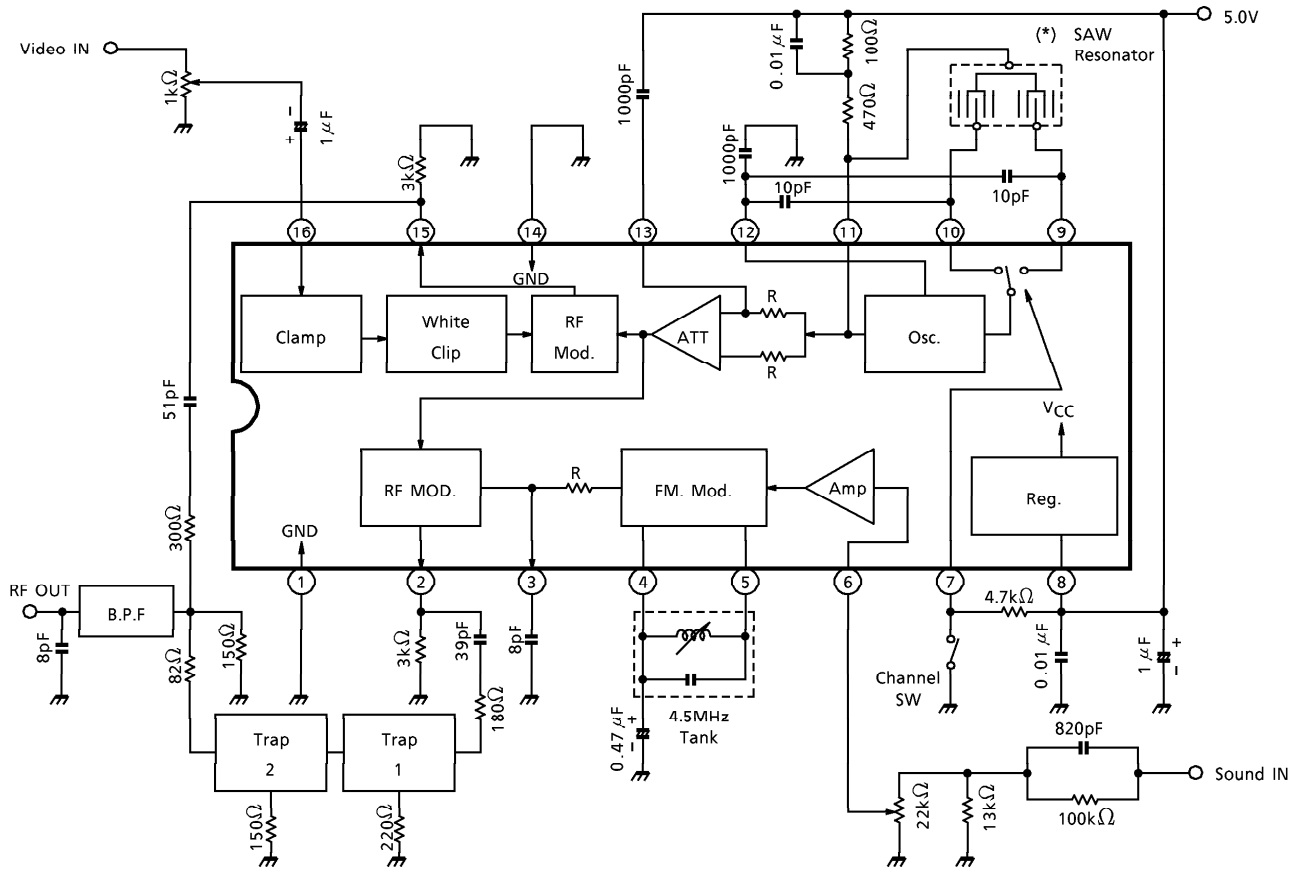
DIP16-P-300-2.54A

Weight : 1.11g (Typ.)

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BLOCK DIAGRAM & APPLICATION CIRCUIT



(*) See SAW Resonator Technical Data.

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V _{CC}	7	V
Power Dissipation	P _D (Note)	750	mA
Input Signal Voltage	e _{in}	2.5	V _{p-p}
Input Voltage at Pin 7	V _{in}	GND - 0.3 ~ V _{CC} + 0.3	V
Operating Temperature	T _{opr}	- 10 ~ 70	°C
Storage Temperature	T _{stg}	- 55 ~ 150	°C

(Note) Derated above Ta = 25°C in the proportion of 6mW/°C.

ELECTRICAL CHARACTERISTICS ($V_{CC} = 5.0V$, $T_a = 25^\circ C$)

CHARACTERISTIC	SYMBOL	TEST CIRCUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Supply Current	I_{CC}	—	$S_1 = 2, S_2 = 1, S_3 = 2$	10	14	20	mA
Video RF Output Level	$V_O (f_{p1})$	—	$S_2 = 1, S_3 = 2$ (Note 1) V_{i1} : No input signal V_{O1} : Output level	90	92	94	$dB_{\mu V}$
	$V_O (f_{p2})$	—					
Video RF Output Level Temperature Drift	$\Delta V_O (f_{p1})$	—	$V_O (f_{p1})$ ($T_a = -10 \sim 70^\circ C$) $- V_O (f_{p1})$ ($T_a = 25^\circ C$)	—	—	± 2	dB
	$\Delta V_O (f_{p2})$	—	$V_O (f_{p2})$ ($T_a = -10 \sim 70^\circ C$) $- V_O (f_{p2})$ ($T_a = 25^\circ C$)				
Video Modulation Factor	m_{p1}	1	$S_2 = 1, S_3 = 2$ $V_{i1} = 0.45V_{p-p}$, white	72	77	82	%
	m_{p2}						
Video Modulation Factor Temperature Stability	Δm_{p1}	1	m_{p1} ($T_a = -10 \sim 70^\circ C$) $- m_{p1}$ ($T_a = 25^\circ C$)	—	—	± 3	%
	Δm_{p2}	1	m_{p2} ($T_a = -10 \sim 70^\circ C$) $- m_{p2}$ ($T_a = 25^\circ C$)				
Video Modulation Factor Difference	Δm_p	1	$m_{p1} - m_{p2}$	—	—	± 1	%
Max. Video Modulation Factor	$m_{p2} (Max.)$	1	$S_1 = 1, S_2 = 1, S_3 = 2$ $V_{i1} = 2.0V_{p-p}$, white	89	94	98	%
Max. Video Modulation Temperature Drift	$\Delta m_{p2} (Max.)$	1	$T_a = -10 \sim 70^\circ C$ $m_{p2} (Max.)$	89	94	98	%
Defferential Gain	DG_1	2	$S_2 = 1, S_3 = 2,$ $V_{i1} = 0.45V_{p-p}$, Stair case, (Note 2)	—	± 2	± 5	%
	DG_2						
Defferential Phase	DP_1	2	$S_2 = 1, S_3 = 2,$ $V_{i1} = 0.45V_{p-p}$, Stair case, (Note 2)	—	± 2	± 5	$^\circ$
	DP_2						
Sound RF Output Level	$V_O (f_{s1})$	—	$S_2 = 1, S_3 = 2$ (Note 1) V_{O3} : Sound RF level	81	83	86	$dB_{\mu V}$
	$V_O (f_{s2})$						
Sound FM Temperature Drift	Δf_s	—	$S_1 = 1, S_2 = 2, S_3 = 2$ (Note 3) f_s ($T_a = 0 \sim 60^\circ C$) $- f_s$ ($T_a = 25^\circ C$)	—	—	± 10	kHz
Sound FM Modulation Sensitivity	β_s	—	$S_1 = 1, S_2 = 2, S_3 = 1$ (Note 4)	—	0.43	—	kHz / mV
Sound Total Harmonic Distortion	THD	—	$S_1 = 1, S_2 = 2, S_3 = 3$ $V_{i2} = 1kHz$ (Note 5)	—	0.2	1.0	%

- (Note 1) Measure RF level by spectrum analyzer (Input impedance = 50) and calculate measurement data V_O (dBm) by

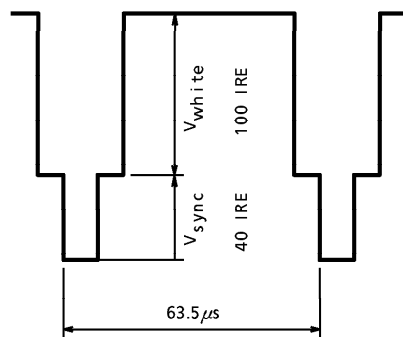
$$\text{Output Level (dB}\mu\text{V)} = V_O + 107 + 16 \text{ (dB}\mu\text{V)}$$
- (Note 2) Measure after that demodulated by the standard demodulator (For example Tektronix 1450).
- (Note 3) Adjust a sound FM center frequency to 4.500MHz at $T_a = 25^\circ\text{C}$, then measure a frequency drift at $T_a = 0\sim 60^\circ\text{C}$ for at $T_a = 25^\circ\text{C}$.
 This spec (Δf_s) does not include TANK temperature coefficienty.
- (Note 4) Connect $V_a + 0.2$ (V) and $V_a - 0.2$ (V) to V_1 (V_a ; #6 terminals open voltage) then measure each frequency and calculate by

$$\beta_s = \frac{\text{Frequency difference between } V_1 = V_a + 0.2 \text{ and } V_2 = V_a - 0.2}{0.4}$$

- (Note 5) Adjust V_{i2} level so that FM deviation become $\pm 20\text{kHz}$, then measure THD after that demodulate by standard demodulator (for example tektronix 1450)

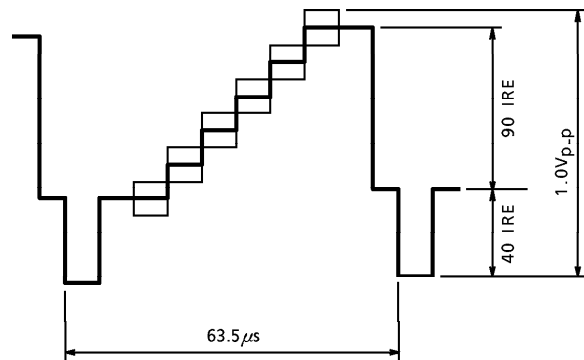
Input wave form

White signal

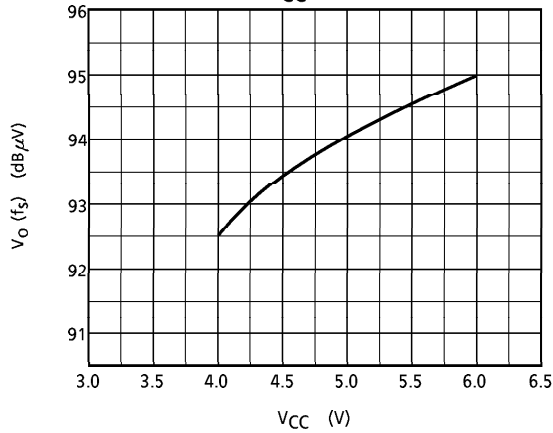


Stair case signal

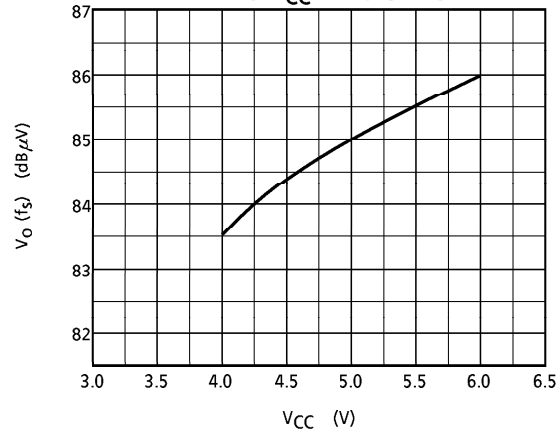
APL 50% sub carrier 20 IRE



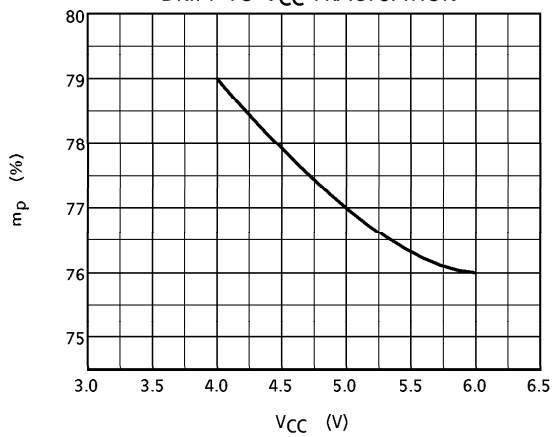
VIDEO RF OUTPUT LEVEL
DRIFT TO V_{CC} FRACTUATION



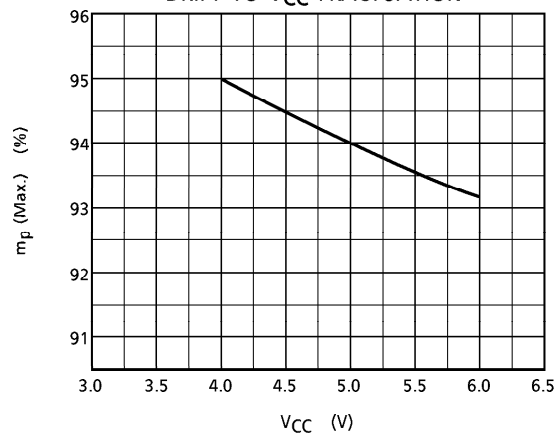
SOUND RF OUTPUT LEVEL
DRIFT TO V_{CC} FRACTUATION



VIDEO MODULATION FACTOR
DRIFT TO V_{CC} FRACTUATION



MAXIMUM VIDEO MODULATION FACTOR
DRIFT TO V_{CC} FRACTUATION



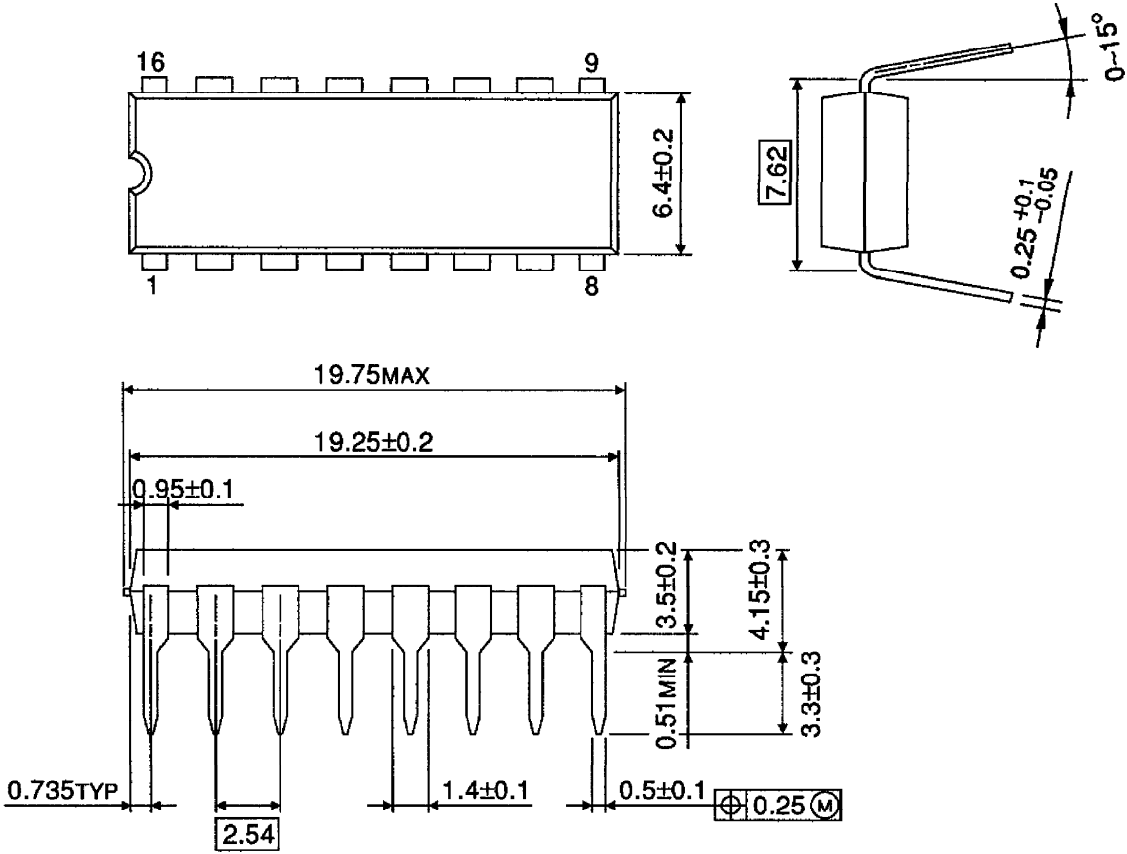
SOUND, VIDEO MODULATION RANK CLASSIFICATION

RANK	SOUND FM MODULATION SENSITIVITY				VIDEO MODULATION FACT				MARK
	MIN	TYP.	MAX	UNIT	MIN	TYP.	MAX	UNIT	
1	0.36	0.39	0.42	kHz / mV	72	75	78	%	Green
2	0.39	0.43	0.46		72	75	78		Yellow
3	0.44	0.48	0.52		72	75	78		Red
4	0.36	0.39	0.42		76	79	82		Blue
5	0.39	0.43	0.46		76	79	82		Orange
6	0.44	0.48	0.52		76	79	82		Purple

(Note) TA8637BP does not receive the rank classification specification when ordering.

OUTLINE DRAWING
DIP16-P-300-2.54A

Unit : mm



Weight : 1.11g (Typ.)