



# INTEGRATED CIRCUIT

## TECHNICAL DATA

### TA7315BP

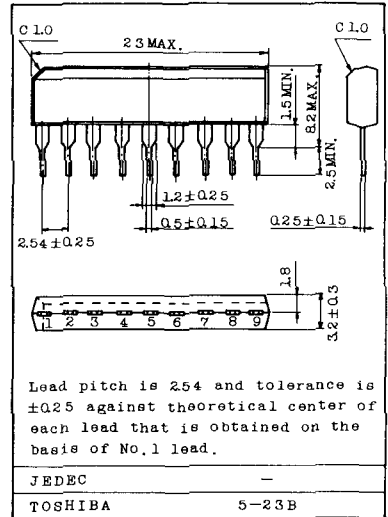
TOSHIBA PIPOLAR LINEAR INTEGRATED CIRCUIT

SILICON MONOLITHIC

#### TV TUNER BAND SWITCHING CIRCUIT

- Supplies 50mA and 80mA Source for VHF and UHF Tuners Respectively.
- Supplies 20mA Sink for VHF-HIGH Band.
- Includes Current Limiter Circuits for the Source Terminals.
- Includes Protector Circuits for the Input Terminals.
- Maximum Ratings, Electrical Characteristics and Truth Table are Partially Different to those of TA7315P.

Unit in mm



Lead pitch is 254 and tolerance is  $\pm 0.25$  against theoretical center of each lead that is obtained on the basis of No. 1 lead.

#### MAXIMUM RATINGS ( $T_a=25^\circ\text{C}$ )

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	VCC	19	V
Average Sink Current	IBS	20	mA
Transient Sink Current	IBSm	40	mA
Average Source Current for VHF Tuner	IBV	50	mA
Transient Source Current for VHF Tuner	IBVm	250	mA
Average Source Current for UHF Tuner	IBU	80	mA
Transient Source Current for UHF Tuner	IBUm	400	mA
Power Dissipation (Note)	PD	625	mW
Application Voltage to the Sink	VS	30	V
Storage Temperature	Tstg	-55 ~ 125	$^\circ\text{C}$
Operating Temperature	Topr	0 ~ 65	$^\circ\text{C}$

Note : Derated above  $T_a=25^\circ\text{C}$  in the proportion of  $5\text{mW}/^\circ\text{C}$ .



#### ELECTRICAL CHARACTERISTICS

(Unless otherwise specified  $V_{CC}=17V$ ,  $V_S=30V$ ,  $T_a=-20 \sim 65^{\circ}C$ )

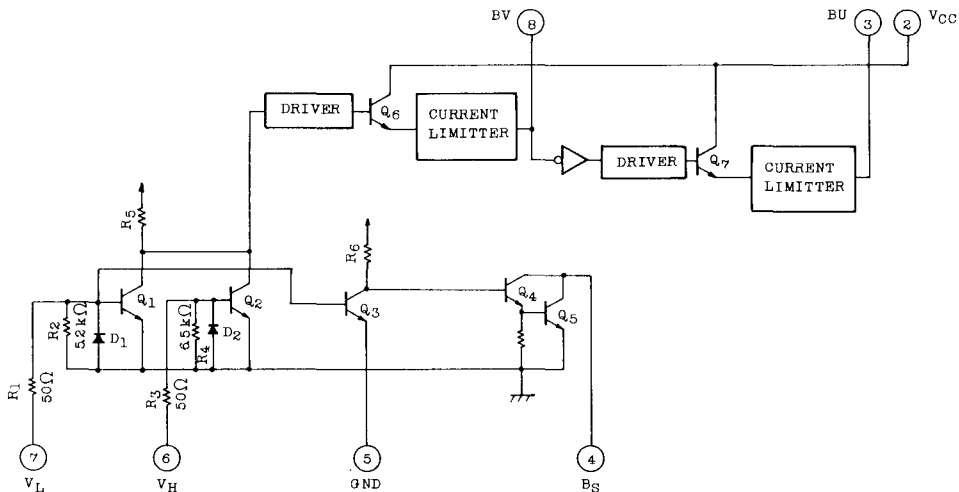
CHARACTERISTIC	SYMBOL	TEST CONDITION					MIN.	TYP.	MAX.	UNIT
		$T_a(^{\circ}C)$	$V_{CC}(V)$	$I_8(mA)$	$I_3(mA)$	$I_4(mA)$				
Each Inputs Current	$I_{IN}$	-	-	-	-	-	300	-	-	$\mu A$
VHF-L Power Dissipation Current	(Note 1) $I_{OL}$	25 -	17 17	50 50	0 0	0 0	4.10 3.80	6.00 6.00	8.90 9.90	mA
VHF-H Power Dissipation Current	(Note 2) $I_{OH}$	25 -	17 17	50 50	0 0	20 20	4.00 3.70	5.90 5.90	8.70 9.70	mA mA
UHF Power Dissipation Current	(Note 3) $I_{OU}$	25 -	17 17	0 0	80 80	0 0	2.70 2.45	4.50 4.50	7.30 8.20	mA mA
VHF Output Voltage	$V_V(SAT)$	-	-	50	0	0	0.6	0.9	1.5	V
UHF Output Voltage	$V_U(SAT)$	-	-	0	80	0	0.6	0.9	1.5	V
VHF-H Sink Output Voltage	$V_S(SAT)$	-	-	50	0	20	0.6	0.9	1.5	V
Temperature Coefficient of VHF Output Voltage	$\frac{dV_V(SAT)}{dT}$	-	-	50	0	0	-4.5	-2.0	-	$mV/^{\circ}C$
Temperature Coefficient of UHF Output Voltage	$\frac{dV_U(SAT)}{dT}$	-	-	0	80	0	-4.5	-2.0	-	$mV/^{\circ}C$
Temperature Coefficient of VHF-H Sink Output Voltage	$\frac{dV_S(SAT)}{dT}$	-	-	50	0	20	-4.5	-2.0	-	$mV/^{\circ}C$
Each Outputs Leak Current	$I_{LEAK}$	-	-	-	-	-	-	-	10	$\mu A$
Power Dissipation	$P_D$	-	19	50	0	20	-	-	400	mW
Operating Supply Voltage	$V_{CC}$	-	-	-	-	-	13	-	19	V

(Note 1)  $I_{OL}=I_{CC}-50mA$

(Note 2)  $I_{OH}=I_{CC}-50mA$

(Note 3)  $I_{OU}=I_{CC}-80mA$

#### BLOCK DIAGRAM



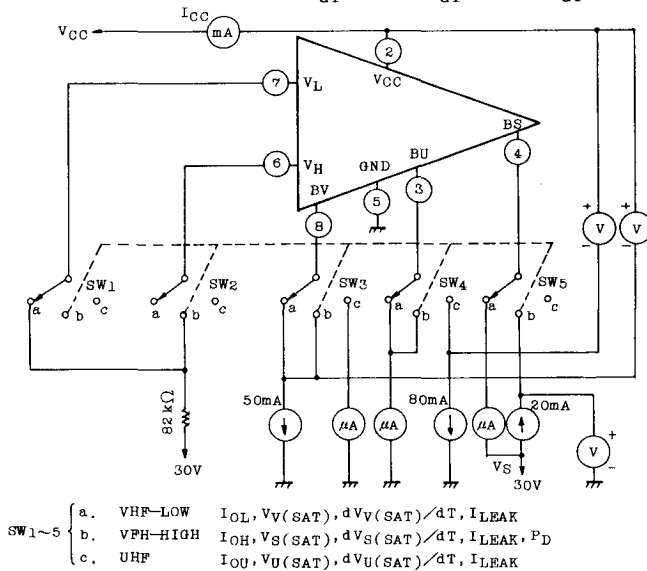
TRUTH TABLE (POSITIVE LOGIC)  $V_{CC}=13\sim 19V$

INPUT		OUTPUT			MODE
$V_L$	$V_H$	BV	BU	BS	
0	0	Z	1	0	UHF
0	1	1	Z	0	VHF-HIGH
1	0	1	Z	Z	VHF-LOW
1	1	1	Z	Z	-

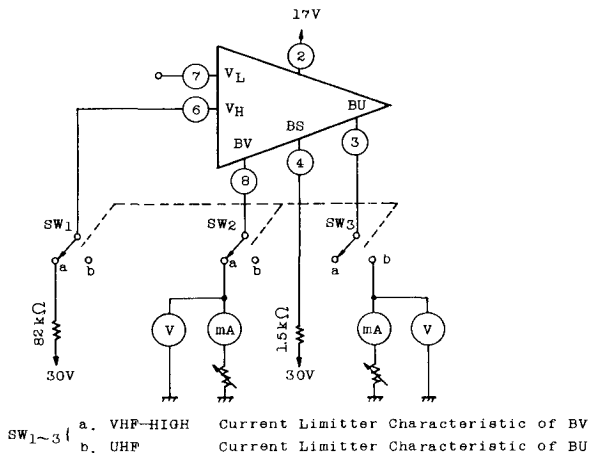
Z : High impedance

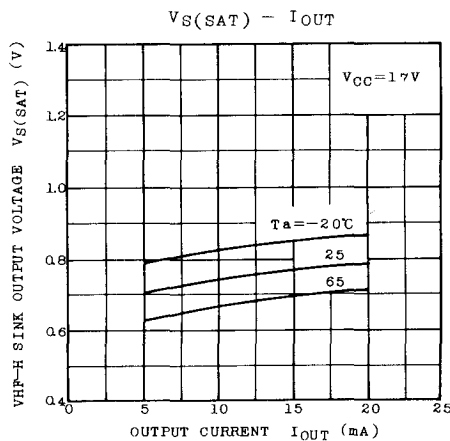
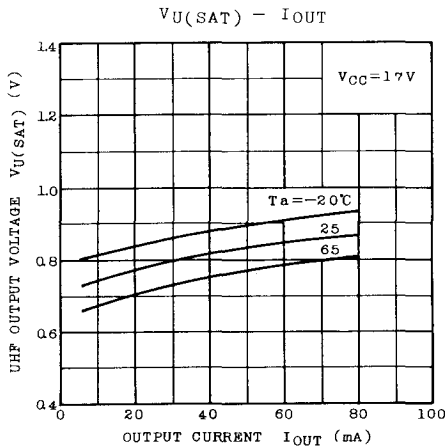
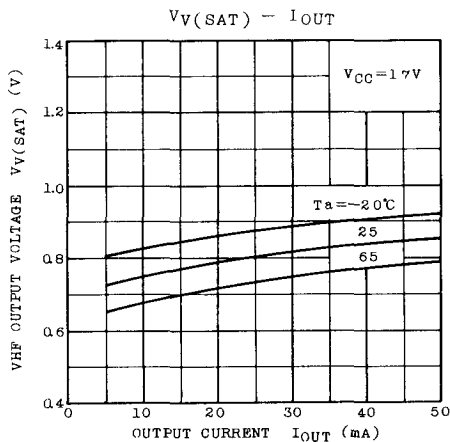
#### TEST CIRCUIT

- 1)  $I_{OL}, I_{OH}, I_{OU}, V_V(SAT), V_U(SAT), V_S(SAT), \frac{dV_V(SAT)}{dT}, \frac{dV_U(SAT)}{dT}, \frac{dV_S(SAT)}{dT}, I_{LEAK}, P_D$

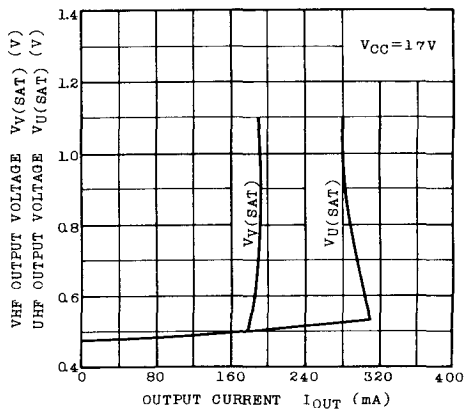


#### 2) CURRENT LIMITER CHARACTERISTIC





CURRENT LIMITER CHARACTERISTIC OF BV AND BU





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## APPLICATION CIRCUIT

