

DBL 2036

PAL / SECAM DETECTOR FOR A VTR

The DBL 2036 is a monolithic integrated circuit designed for use the PAL / SECAM Signal Detector.

FUNCTION

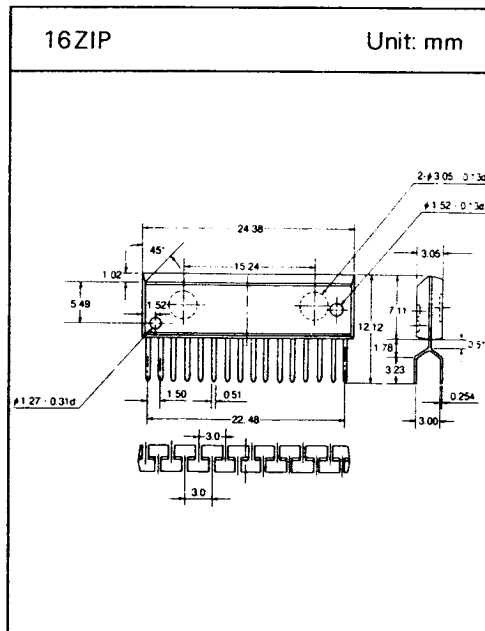
- Burst Gate and Limit Amp.
- F-V Converter
- Master-Slave F/F
- Level Shifter and Peak detector
- Diff Amp and Comparator

FEATURES

- Possible to detect high sensitivity for variation of noise and burst input level
- Very few external Components
- built-in display LED driver.
- Possible to use burst Gate Pulse of positive or negative charge
- Operating Supply voltage Range($V_{CC}=4.5V \sim 6.0V$)

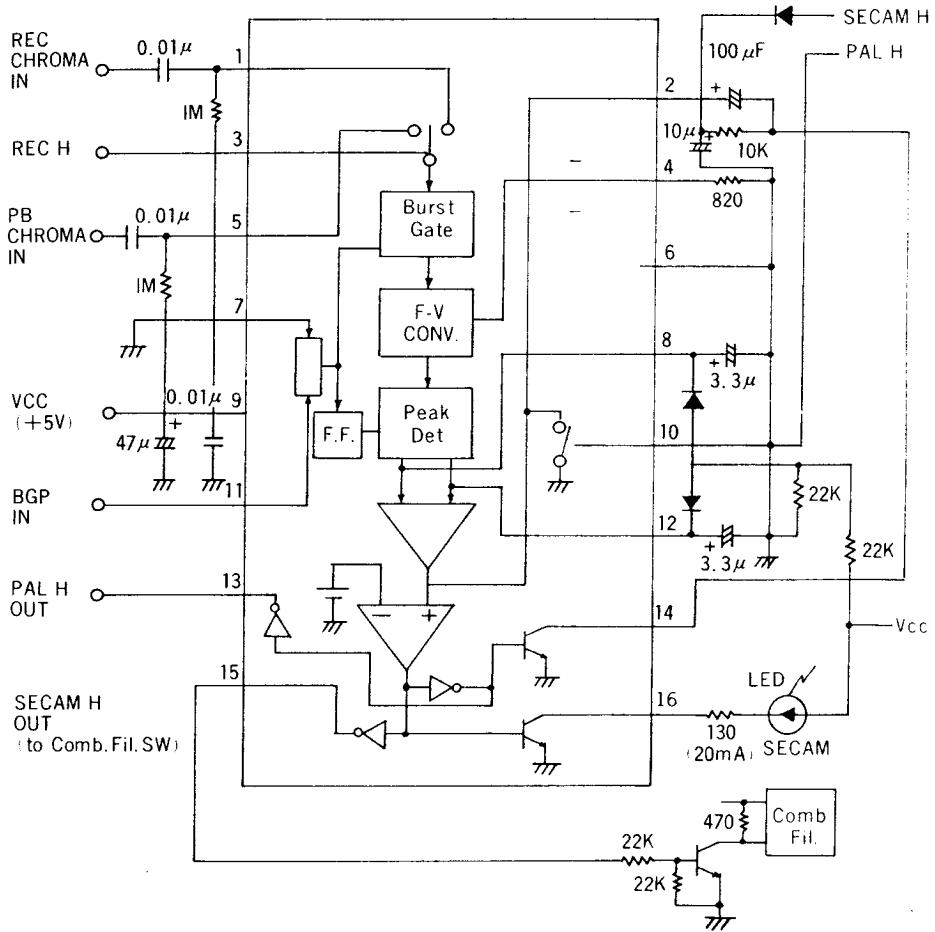
MAXIMUM RATINGS($T_a=25^{\circ}C$)

| Characteristic | Symbol | Rating | Limit |
|-----------------------------|----------------|-----------------|-------------|
| Maximum Supply Voltage | $V_{CC}(\max)$ | 7.0 | V |
| Allowable Power Dissipation | $P_d(\max)$ | 130 | mW |
| Operating Temperature | T_{OPR} | $-10 \sim +70$ | $^{\circ}C$ |
| Storage Temperature | T_{STG} | $-55 \sim +150$ | $^{\circ}C$ |



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□ BLOCK DIAGRAM AND APPLICATION CIRCUIT



note 1 : Pin 7 → input, pin 11 → V_{CC} When BGP is Positive charge.

note 2 : Pin 10 open When pin 10 is not use.

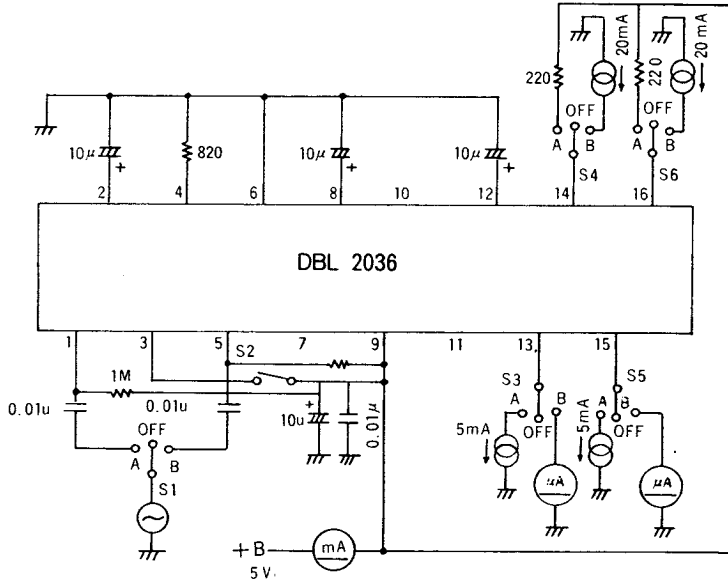
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ELECTRICAL CHARACTERISTICS (Ta = 25°C, Vcc = 5V)

| Characteristic | Symbol | Test Condition | Min | Typ | Max | Unit |
|--|-----------------------|---------------------------------------|-----|------|------|---------------|
| Dissipation Current | I_{CC} | | 6.7 | 9.6 | 12.4 | mA |
| F-V Variable Gain(PB) | ΔV_P | Difference between 4.4MHz and 4.25MHz | 75 | 105 | 135 | mV |
| F-V Variable Gain(REC) | ΔV_R | " | 75 | 105 | 135 | mV |
| PAL→SECAM Difference of inverter voltage | V_{S12} | | 35 | 50 | 65 | mV |
| R/P Convert Threshold Voltage | V_{TH} | | 2.0 | 2.35 | 2.7 | V |
| BG Threshold Voltage I | V_{TH1} | | 1.5 | 1.7 | 1.9 | V |
| " II | V_{TH2} | | 3.2 | 3.4 | 3.6 | V |
| Forced PAL Threshold Voltage | V_{TH3} | | 1.3 | 1.7 | 2.2 | V |
| Forced SECAM Threshold Voltage | V_{TH4} | | 1.7 | 2.0 | 2.3 | V |
| Detector Output Voltage I | V_{D1} | ID = 5mA | 4.0 | 4.2 | 4.4 | V |
| " II | V_{D2} | ID = 5mA | 4.0 | 4.2 | 4.4 | V |
| Detector output Leak Current I | $I_{L1}(\text{Leak})$ | | — | 0 | 5 | μA |
| " II | $I_{L2}(\text{Leak})$ | | — | 0 | 5 | μA |
| Pin 12 DC Voltage | V_{12} | 4.43MHz 100mV p-p input | 2.1 | 2.6 | 3.1 | V |
| Input Burst Level | V_{IN} | | 60 | 100 | 200 | mVp-p |
| Drive Saturation Voltage I | V_{D1} | ID = 20mA | — | 170 | 400 | mV |
| " II | V_{D2} | ID = 20mA | — | 170 | 400 | mV |

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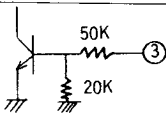

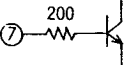
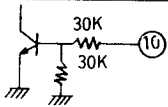
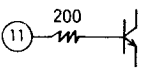
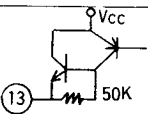

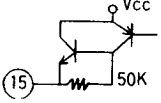

TEST CIRCUIT



| | S1 | S2 | S3 | S4 | S5 | S6 | Condition |
|-----------------------|-----|-----|-----|-----|-----|-----|--|
| I_{CC} | off | off | off | off | off | off | $V_9 = 5V$ |
| V_P | B | ↓ | ↓ | ↓ | ↓ | ↓ | Input : 100mVp-p, 4.4MHz and 4.25MHz, Measure Voltage Difference of V_8 (or V_{12}) |
| V_R | A | on | ↓ | ↓ | ↓ | ↓ | the same as above |
| V_{8-12} | off | off | ↓ | A | ↓ | ↓ | $V_7 = 0V, V_{11} = 5V, V_8 = 1.9V, V_{12} = 1.9V + \alpha, V_{14} > 4V, \alpha (0V \uparrow)$ |
| V_{3TH} | ↓ | ↓ | ↓ | off | ↓ | ↓ | $V_1 = V_7 = V_{11} = 0V, V_8 < 0.1V$, Measure $V_3 (0V \uparrow)$ |
| V_{7TH} | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | $V_{11} = 5V, V_8 > 1.0V$, Measure $V_7 (0V \uparrow)$ |
| V_{11TH} | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | $V_7 = 0V, V_8 > 1.0V$, Measure $V_{11} (5V \downarrow)$ |
| V_{10TH} | ↓ | ↓ | ↓ | ↓ | ↓ | A | $V_7 = V_{11} = 0V, V_{16} > 4V$, Measure $V_{10} (0V \uparrow)$ |
| V_{2TH} | ↓ | ↓ | ↓ | A | ↓ | off | $V_8 = V_{12} = 3V, V_{14} > 4V$, Measure $V_2 (0V \uparrow)$ |
| V_{13} | ↓ | ↓ | A | off | ↓ | ↓ | Pin13 Voltage of $V_2 = 0V$, Drive Current 5mA |
| V_{15} | ↓ | ↓ | off | ↓ | A | ↓ | Pin15 Voltage of $V_2 = 3V$, Drive Current 5mA |
| $I_{13}(\text{leak})$ | ↓ | ↓ | B | ↓ | off | ↓ | Drive Current when $V_2 = 3V$, Pin 13 = GND |
| $I_{15}(\text{leak})$ | ↓ | ↓ | off | ↓ | B | ↓ | Drive Current when $V_2 = 0V$, Pin 15 = GND |
| $V_{14}(\text{sat})$ | ↓ | ↓ | ↓ | B | off | ↓ | $V_2 = 0V$, Measure Pin14 Voltage, Drive Current 20mA |
| $V_{16}(\text{sat})$ | ↓ | ↓ | ↓ | off | ↓ | B | $V_2 = 3V$, Measure Pin16 Voltage, Drive Current 20mA |

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I/O FUNCTION

| Pin | Function | I/O Impedance | | DC voltage | Comment |
|-----|-----------------|--------------------|---|-----------------|-------------------|
| 1 | REC Chroma in | 10Kohm | | 4.1V | |
| 2 | SECAM Holder | | | | SECAM > 2.0V |
| 3 | R/P Control | |  | 0V (PB) | REC > 2.4V |
| 4 | Current Source | Open Emitter |  | 410mV | |
| 5 | PB Chroma In | 10Kohm | | 4.1V | |
| 6 | GND | | | 0V | |
| 7 | BGP In | Pulse |  | | Burst Gate > 1.7V |
| 8 | Peak Filter 1 | Emitter follower | | | |
| 9 | V _{cc} | | | 5V | |
| 10 | PAL high In | |  | 0V | Forced PAL > 1.7V |
| 11 | BGP In | Pulse |  | | Burst Gate > 3.4V |
| 12 | Peak Filter 2 | Emitter follower | | | |
| 13 | PAL high out | |  | 4.1V (PAL) | Until 5mA |
| 14 | PAL Drive | NPN Open Collector |  | | Until 25mA |
| 15 | SECAM high out | |  | 4.1V (SECAM) | Until 5mA |
| 16 | SECAM Drive | NPN Open Collector |  | | Until 25mA |