# TV VIF & SIF & DEFLECTION SYSTEM

# —YD2915

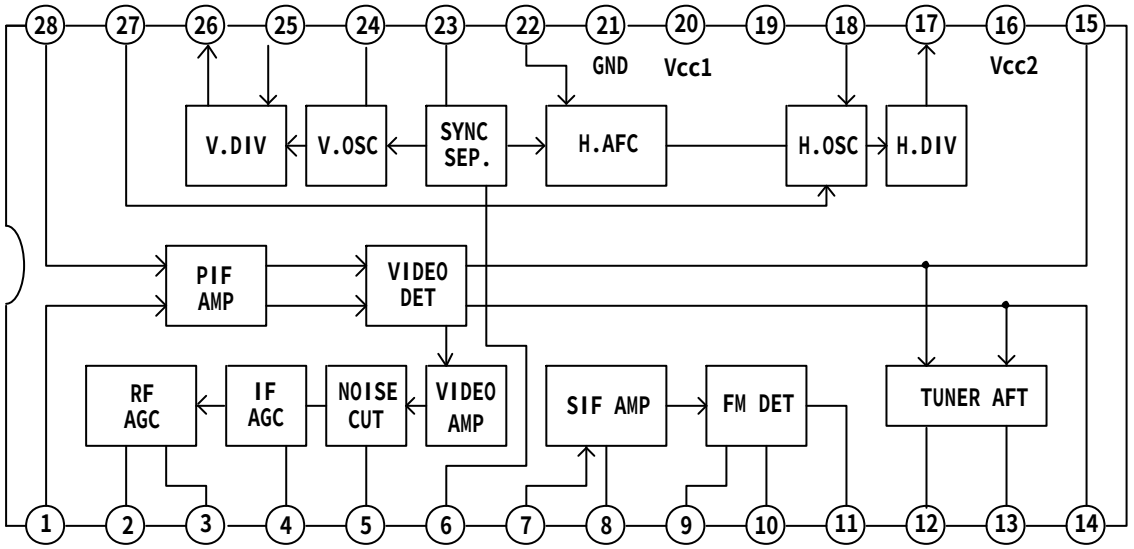
## DESCRIPTION

The YD2915 is a monolithic integrated circuit containing all stage for the VIF, SIF and deflection of television receivers.

## FEATURES

*IF Amplifier with IF AGC
*Video Amplifier, Video Detector
*Noise Canceller, Forward RF AGC
*Tuner AFT, Amplifier
*Sound detector, sync separation
*Vertical oscillation trigger and driver
*Horizontal oscillation driver and AFC

## BLOCK DIAGRAM

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## ABSOLUTE MAXIMUM RATINGS (Tamb=25℃)

| PARAMETER | SYMBOL | MIN | MAX | UNIT |
|---|---|---|---|---|
| Supply Voltage | $V_{CC}(20)$ | | 12 | V |
| Supply Current | $I_{CC}(20)$ | | 85 | mA |
| | $I_{CC}(16)$ | | 15 | |
| Circuit Voltage | $V_2, V_3, V_4, V_{24}$ | 0 | | V |
| | $V_8$ | 0 | 5.5 | |
| | $V_{13}$ | 0 | 4.2 | |
| | $V_{17}$ | 0 | | |
| Circuit Current | $I_5, I_6, I_{11}, I_{23}, I_{26}$ | -10 | 0.3 | mA |
| | $I_{19}$ | -0.6 | 0.6 | |
| | $I_{25}$ | 0 | 10 | |
| | $I_{17}$ | -4 | 10 | |
| Power Dissipation(Tamb=70℃) | $P_D$ | | 1100 | W |
| Operating Temperature | Topr | -20 | 70 | ℃ |
| Storage Temperature | Tstg | -55 | 125 | ℃ |

## ELECTRICAL CHARATERISTICS (Tamb=25℃, $V_{CC1}$=10V, unless otherwise specified)

**VIDEO SECTION** (fp: 38MHz, AGC: AGC, AM: 87.5%, 1kHz)

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|---|---|---|---|---|---|---|
| Video Output Voltage (Pin5) | Vo | AM; AGC; fp; Vi=10mV | 1.8 | 2.1 | 2.6 | V |
| Input Sensitivity | $V_{SVF}$ | AM; AGC; fp; $V_{OVF\ (PP)}$ : -3dB | | 316 | 565 | μV |
| Maximum Input | $V_{IM}$ | AM; AGC; fp; $V_O$>0dB | 178 | 315 | | mV |
| Sync. Peak Voltage | $V_{SYN}$ | fp; V1=20mV | 1.9 | 2.3 | 2.7 | V |
| Noise Inverter Output Level (Pin5) | $V_{TB}$ | $V_{AGC}$=5.35V; fp=38±10MHz Vi=20mV | 1.0 | 1.4 | 1.8 | V |
| Noise Inverter Capture Level (Pin5) | $V_{KB}$ | $V_{AGC}$=5.35V; fp=38±10MHz Vi=20mV | 3.0 | 3.4 | 3.8 | V |
| AGC Range | △AGC | AM; AGC; fp $V_{OVF(pp)}$=1.8~2.4v | 60 | 63 | | dB |
| S/N Ratio | S/N | fp ; Vi=10mV | 51 | 56 | | dB |
| Differential Gain | DG | AM; fp; APL=50% Vi=1.0mV | | 4 | 8 | % |
| Differential Phase | DP | AM; fp; APL=50% Vi=1.0mV | | 3 | 6 | DEG |

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|---|---|---|---|---|---|---|
| Video Frequency Characteristics | $DW_V$ | $V_{AGC}$=5.35V<br>G1：38MHz，10Mv<br>G2：37.9-28MHz, 1Mv | 4.5 | 6.0 | 8.0 | MHz |
| .Sound IF Output | $V_{OSIF}$ | G1：38MHz; G2：31.5MHz<br>P/S=20dB | 100 | 160 | 225 | mV |
| Input Resistor | Ri | fp; (Between Pin1 and Pin28) | 0.8 | 1.0 | 1.2 | kΩ |
| Input Capacitor | Ci | fp; (Between Pin1 and Pin28) | 3.0 | 4.0 | 5.0 | pF |
| Output Resistor | $Z_{OVF}$ | f=500KHz; Vi=20mV | 30 | 50 | 150 | Ω |
| RF AGC Gain | $A_{RFAGC}$ | f=10KHz，$V_I$=3.15mV | 37 | 42 | 48 | dB |
| AFT Sensitivity | $S_{AFT}$ | fp=38±1MHz, Vi=20mV | 12.5 | 25 | 35 | kHz/V |

**SOUND SECTION** (fo：6.5MHz，FM/fm：1000Hz; Δf=±50kHz)

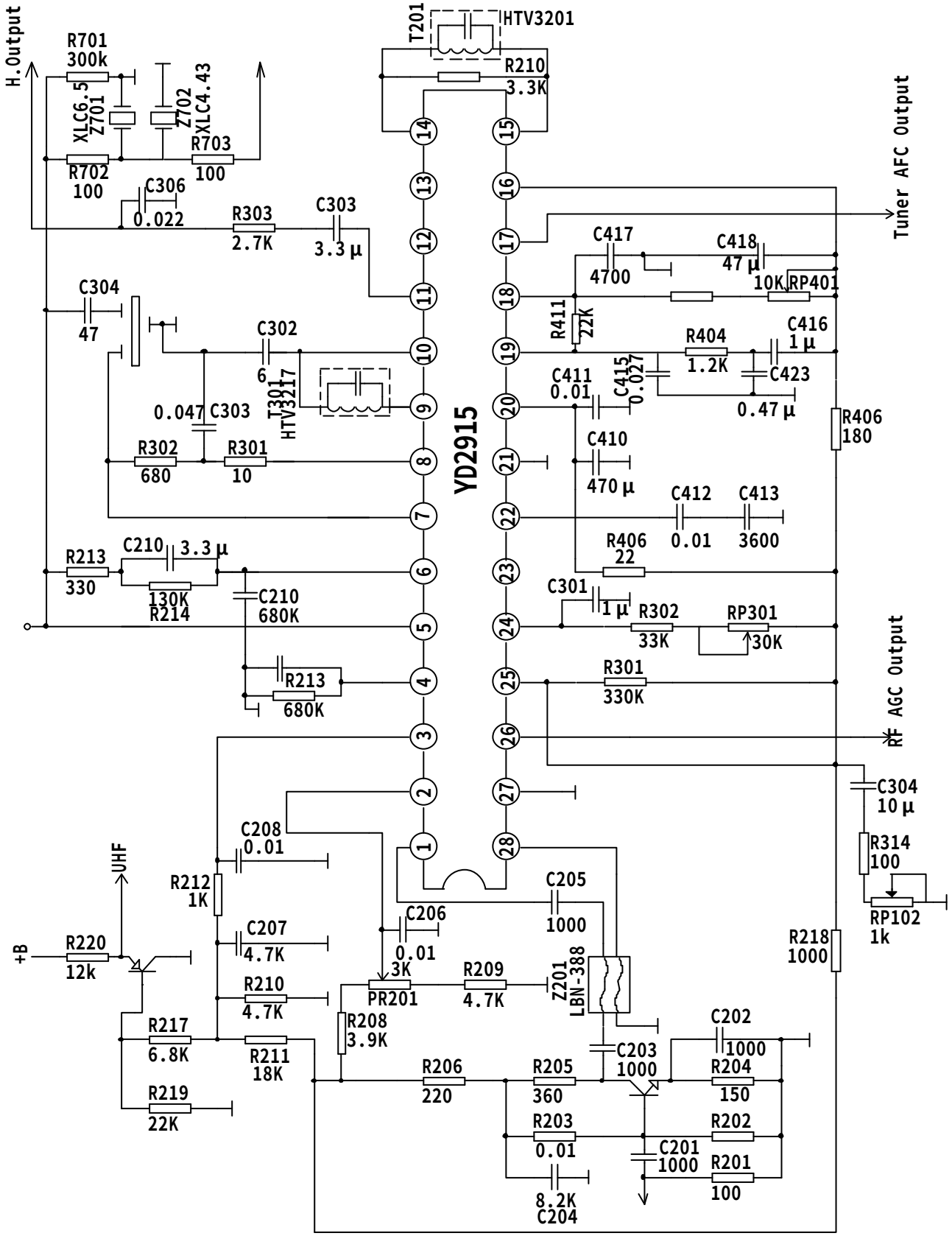
| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|---|---|---|---|---|---|---|
| Sound Det. Output | $V_{OD}$ | fo; FM; Δf; Vi=100mV | 280 | | 800 | mV |
| Input Limit Voltage | $V_{IN(LIM)}$ | fo; FM; Δf; -3dB point | | 280 | 450 | μV |
| Total Harmonic Distortion | THD | fo; FM; Δf; Vi=100mV | | 0.6 | 1.0 | % |
| AM Rejection Ratio | AMR | fo; FM; Δf; Vi=100mV<br>AM：m=0.3 | 37 | 45 | | dB |
| Input Resistor | Ri | fo | 6 | 20 | 100 | kΩ |
| Input Capacitor | Ci | fo | 1.3 | 4.3 | 7.3 | pF |
| Detector Input Resistor | $R_{ID}$ | fo; Pin9 | 2.0 | 3.0 | 4.0 | kΩ |
| Detector Input Capacitor | $C_{ID}$ | fo; Pin9 | 2.1 | 5.1 | 8.1 | pF |
| Detector Input Resistor | $R_{ID}$ | fo; Pin10 | 50 | 200 | | kΩ |
| Detector Input Capacitor | $C_{ID}$ | fo; Pin10 | 2.9 | 3.4 | 3.9 | pF |

**DEFLECTION SECTION**

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|---|---|---|---|---|---|---|
| Vertical Free-Running Frequency | fv | Pin26 | 47 | 50 | 53 | Hz |
| Vertical OSC Pulse Width | $t_{WH}$ | | 470 | 650 | 830 | μS |

| | | | | | | |
|---|---|---|---|---|---|---|
| Vertical OSC Start Supply Voltage | Vsv | fvo=40~60Hz $V_{O(PP)}$>0.7V | | 4.9 | 6 | V |
| Vertical Full in Range | $\frac{\Delta fv}{V_{CC1}}$ | $V_{CC1}$=12V, 8V<br>$\Delta f_{VO}/V_{CC}=f_{VO(12V)}-f_{VO(8V)}$ | 0 | 1.0 | 1.3 | Hz |
| Horizontal OSC Frequency | $f_H$ | | 15.0 | 15.75 | 16.25 | KHz |
| Horizontal OSC Pulse Width | $t_{WH}$ | | 21 | 24 | 27 | μS |
| Horizontal OSC Start Supply Voltage | VSH | $f_{HD}$=10-20Hz VO(PP)>1.0V | | | 5 | V |
| Horizontal Full in Range | $\frac{\Delta f_H}{V_{CC2}}$ | $V_{CC2}$=12V, 8V<br>$\Delta f_H/V_{CC}=f_{H(12V)}-f_{H(8V)}$ | 0 | 50 | 100 | Hz |
| Horizontal OSC Control Sensitivity | β | △I1=100μA input Variable OSC. Frequency Variable | 73 | 81 | 89 | Hz/μA |
| Phase Det. Sensitivity | μp | Video Input $V_{IV(PP)}$=2V<br>R(μ)=3.14kΩ | 13.5 | 16.5 | 19.5 | μA/μS |
| Sync Separation Horizontal Pulse Width 1 | $t_{SYN.1}$ | Video input $V_{IV(PP)}$=2.5V<br>APL=50% | 4.8 | 5.1 | 5.4 | μS |
| Sync Separation Horizontal Pulse Width 2 | $t_{SYN.2}$ | Video input $V_{IV(PP)}$=1.0V<br>APL=50% | 4.9 | 5.2 | 5.5 | μS |
| Horizontal AFC Horizontal Pulse Width 1 | $t_{SYN.3}$ | Video input $V_{IV(PP)}$=2.5V<br>APL=50% | 4.8 | 5.1 | 5.4 | μS |
| Horizontal AFC Horizontal Pulse Width 2 | $t_{SYN.4}$ | Video input $V_{IV(PP)}$=1.0V<br>APL=50% | 4.9 | 5.2 | 5.5 | μS |

## APPLICATION CIRCUIT



## OUTLINE DRAWING