



TV VIF & SIF & DEFLECTION SYSTEM

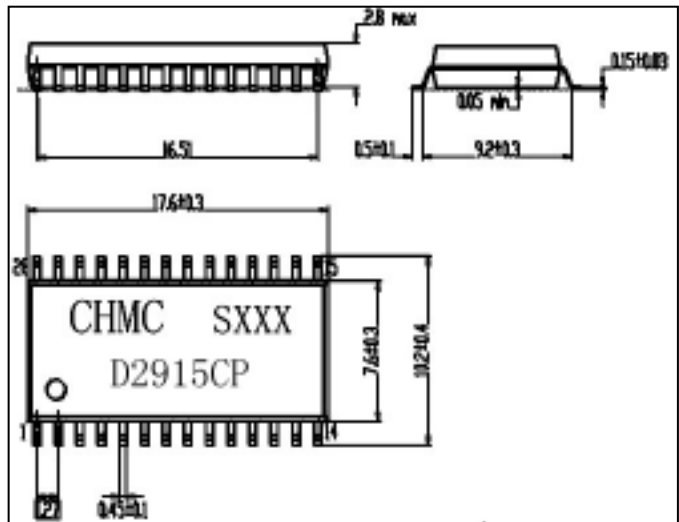
D2915

(IC FOR TV LARGE INTEGRATION)

GENERAL DESCRIPTION

The D2915 is a monolithic integrated circuit containing all stages for the VIF, SIF and deflection functions of television receivers.

OUTLINE DRAWING



FUNCTIONS

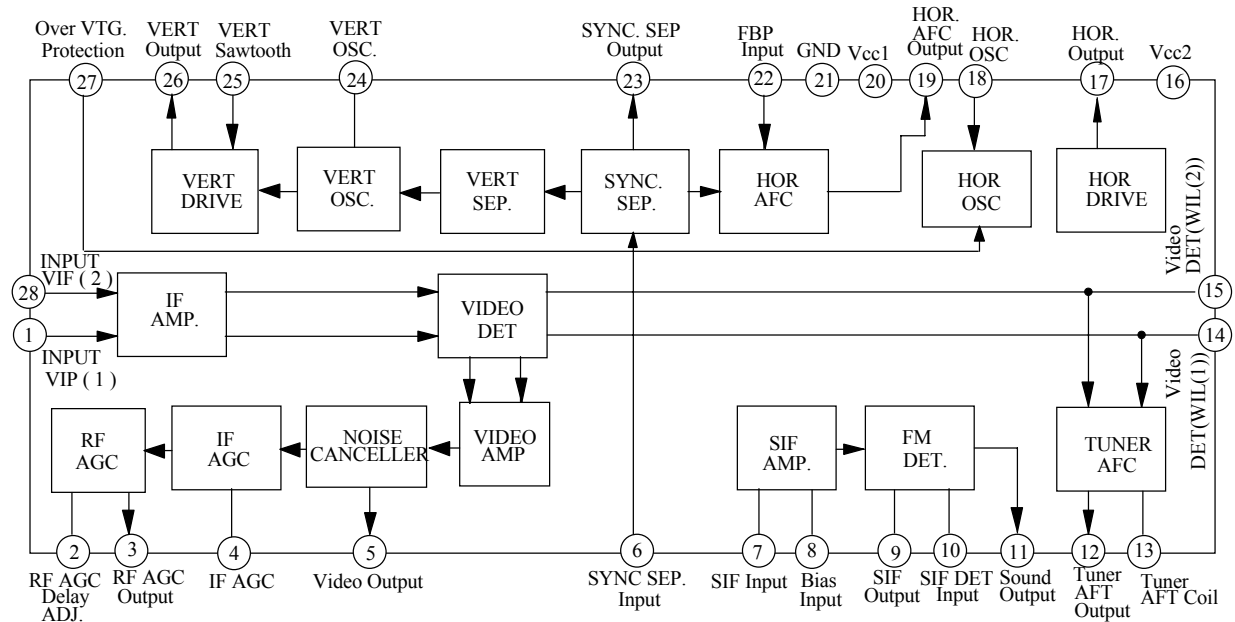
- IF AMP
- Video Amp
- IF AGC
- Tuner AFT
- Sound DET. (FM DET.)
- Vertical trig.
- Vertical drive
- Horizontal drive
- Video DET. (AM DET.)

- Noise canceller
- Forward RF AGC
- SIF Amp
- Sync separation
- Vertical oscillation
- Horizontal oscillation
- Horizontal AFC

FEATURES

- High integrator technology makes it possible the integration of video IF circuit, tuner AFC circuit, sound IF circuit and deflection-jungle circuit on one single chip.
- Supply voltage range : 8~12V (Typ. 10V).
- Operating Temperature: -20°C~+70°C

BLOCKDIAGRAM



ABSOLUTE MAXIMUM RATINGS(TA=25°C)

Characteristic	Symbol	Value		Unit
Supply Voltage	Vcc(V ₂₀₋₂₁)	12		V
Supply Current	I ₂₀	85		mA
	I ₁₆	15		mA
Circuit Voltage	V _{2,3,4,24-21}	V ₂₀₋₂₁	0	V
	V ₈₋₂₁	5.5	0	
	V ₁₃₋₂₁	4.2	0	
	V ₁₇₋₂₁	V ₁₆₋₂₁	0	
Circuit Current	I _{5,6,11,23,26}	+0.3	-10	mA(peak)
	I ₁₉	+0.6	-0.6	
	I ₂₅	+10	0	
	I ₁₇	+10	-4	
Power Dissipation (Ta=70°C)	P _D	1100		mW
Operating Temperature	T _{OPR}	-20~+70		°C
Storage Temperature	T _{STG}	-55~+150		°C

ELECTRICAL CHARACTERISTICS ($V_{CC1}=10V, V_{CC}=9.5V, T_a=25^{\circ}C$)

Video Section

Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Video Det. Output	V_o	$m=87.5\%$	1.8	2.1	2.4	Vp-p
Input Sensitivity	V_s	$V_o=-3dB$		50	55	dB μ
Maximum Input	V_{MAX}	$V_o>+0dB$	105	110		dB μ
SN Rating	S/N	$V_i=80dB\mu$	51	56		dB μ
Differential Gain	AD	$m=87.5\%$		4	8	%
Differential Phase	SPD	$m=87.5\%$		3	6	deg
Video Freq. Characteristic	f_c	$V_o=-3dB$	4.5	6.0	8.0	MHz
Sync. Peak Voltage	V_p		1.9	2.3	2.7	V
Noise Inverter Output Level	V_{NT}		1.0	1.4	1.8	V
Noise Inverter Capture Level	V_{NI}		3.0	4.0	5.0	V
Sound IF Output	V_{SIF}	P/S=20dB	100	104	107	dB μ
Input Resistor (pin 1)	R_{INI}	$f=45.75MHz$	0.8	1.0	1.2	k Ω
Input Capacitor(pin 1)	C_{ZNI}	$f=45.75MHz$	3.0	3.4	3.8	pF
Output Resistor(pin 5)	R_{o5}	$f=500kHz$	30	50	150	Ω
RF AGC Max. Voltage	G_{RFAGC}	$f=10kHz, V_4=5mV$	36	42	48	dB
RF AGC Max. Voltage	$V_{3(MAX)}$		8.2	8.8	9.4	V
RF AGC Min. Voltage	$V_{3(MIN)}$		3.6	4.2	4.8	V
AFC Center Voltage	V_2		4.0	5.4	6.0	V
AFC SW Operating Voltage	V_{AFTSW}	$R_s=10k$	0.5	2.6	3.0	V
AFC Max Output Voltage	$V_{12(Max.)}$		8.5	9.6	10.0	V
AFC Min Output Voltage	$V_{12(Min.)}$		0	0.7	1.2	V
Selection Sensitivity	μ	$R_L=68k / 82k$	30	50	90	mV/kHz

Sound Section

Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Sound Det. Output	V_o	$f_o=4.5MHz, f_m=400Hz$ $f=\pm 25kHz,$ $V_i=100mVrms$	200	300	400	mVrms
Input Limit Voltage	$V_{I(LIM)}$	$f=4.5MHz, f_m=400Hz$ $f=\pm 25kHz$		280	450	$\mu Vrms$
Total Harmonic Distortion	THD	$f_o=4.5MHz,$ $f_m=400Hz$		0.6	1.0	%
AM Rejection Ratio	AMR	$f=\pm 25kHz,$ $V_i=100mVrms$	43	55		dB
Input Impedance	R_{17}	$f=4.5MHz$	6	20	100	k
	C_{17}		1.3	4.3	7.3	pF

Sound Section

continue

Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Detector Input Impedance	R _{D9}	f=4.5MHz	2.0	3.0	4.0	k
	C _{D9}		2.1	5.1	8.1	pF
	R _{D10}		50	200		k
	C _{D10}		2.9	3.4	3.9	pF

Deflection Section

Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Sync Sep. Hori. Pulse Width (1)	Tsync1	Video Input 2.5Vp-p, APL=50%, Vcc1=10V	4.8	5.1	5.4	μS
Sync Sep. Hori. Pulse Width (2)	Tsync2	Video Input 1.0Vp-p, APL=50%, Vcc1=10V	4.9	5.2	5.5	μS
Hori. AFC Hori. Pulse Width (1)	Tsync3	Video Input 2.5Vp-p, APL=50% Vcc1=10V	4.8	5.1	5.4	μS
Hori. AFC Hori. Pulse Width (2)	Tsync4	Video Input 1.0Vp-p, APL=50%, Vcc1=10V	4.9	5.2	5.5	μS
Vert Osc, Start Supply Voltage	Vfvos	fvo=40~60Hz Output=0.7Vp-p		4.9	6	V
Vert. Free Running Frequency	fvo	Rosc(v)=30 k Vcc1=10V	57	60	63	Hz
Vert. OSC. Pulse Width	Tvo	Rosc(v)=30 k Vcc1=10V	470	650	830	μS
Vert. full in Range	fvo/Vcc	Vcc1=12V, 8V fvo/Vcc=fvo(12V)-fvo(8V)	0	1.0	1.3	Hz
Vert. full in Range	fpv	Composite Signal Input 2Vp-p Vcc1=10V	39	43	47	Hz
Hori. OSC. Start Supply Voltage	VhHO.S	fHO=10~20kHz Output=1Vp-p Pin16 Voltage		3.7	5	V
Hori. OSC. Freq.	fHO	Rosc(H)=21K+B=20V	15.0	15.75	16.25	kHz
Hori. OSC. Pulse Width	THO	Rosc(H)=21 K+B=20V	21	24	27	μS
Hori. OSC. Freq. Voltage Dependent	fHo/Vcc	Vcc2=10V,8V fHo/Vcc= fHO(10V)-fHO(8V)	0	50	100	Hz
Hori. OSC. Control sensitivity	β	I1 ± 100μA Input Variable OSC. Freq. Variable	73	81	89	Hz/μA
Phase Det. Sensitivity	μp	TV Input 2Vp-p, R(U)=31.4k , μ=V19*10	13.5	16.5	19.5	μA/μS
X-Ray Protector Operating Voltage	V27-21		0.81	0.87	0.93	V
X-Ray Protector Input Resistor	R27		16	19	22.5	k

TYPICAL APPLICATION CIRCUIT (12" or 14" B/W TV)

