

Overview

The STK390-120 is a high-accuracy convergence correction circuit hybrid IC designed to complement the advances in modern high-resolution video projectors and CRT displays. It incorporates a convergence circuit that operates at high frequency with a corresponding high slew rate, without the increase in power dissipation and mounting space that discrete devices would entail. It also features a built-in supply switching circuit for high efficiency.

Applications

- Video projectors
- Ultrahigh definition CRT displays

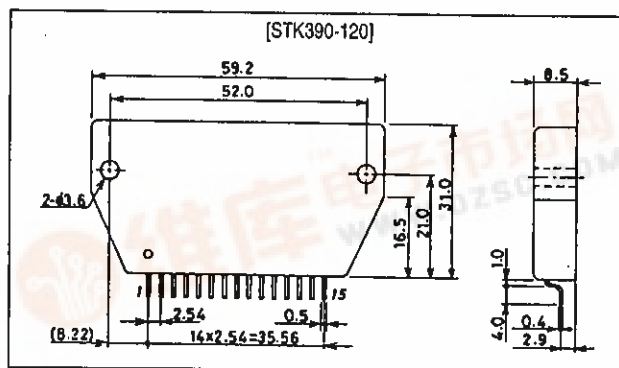
Features

- High absolute maximum supply voltage (V_{CC} max = $\pm 44V$)
- Low thermal resistance ($\theta_{j-c} = 2.7^{\circ}C/W$)
- High temperature stability (strengthened idling current temperature compensation)
- Reduced correction coil inductance to improve stability (over the range $f_H \leq 85kHz$)
- Supply switching circuit built-in to enable large-scale decreases in power dissipation
- Improved convergence characteristics for CRT displays

Package Dimensions

unit: mm

4151



STK390-120

Specifications

Maximum Ratings at $T_a = 25^\circ\text{C}$

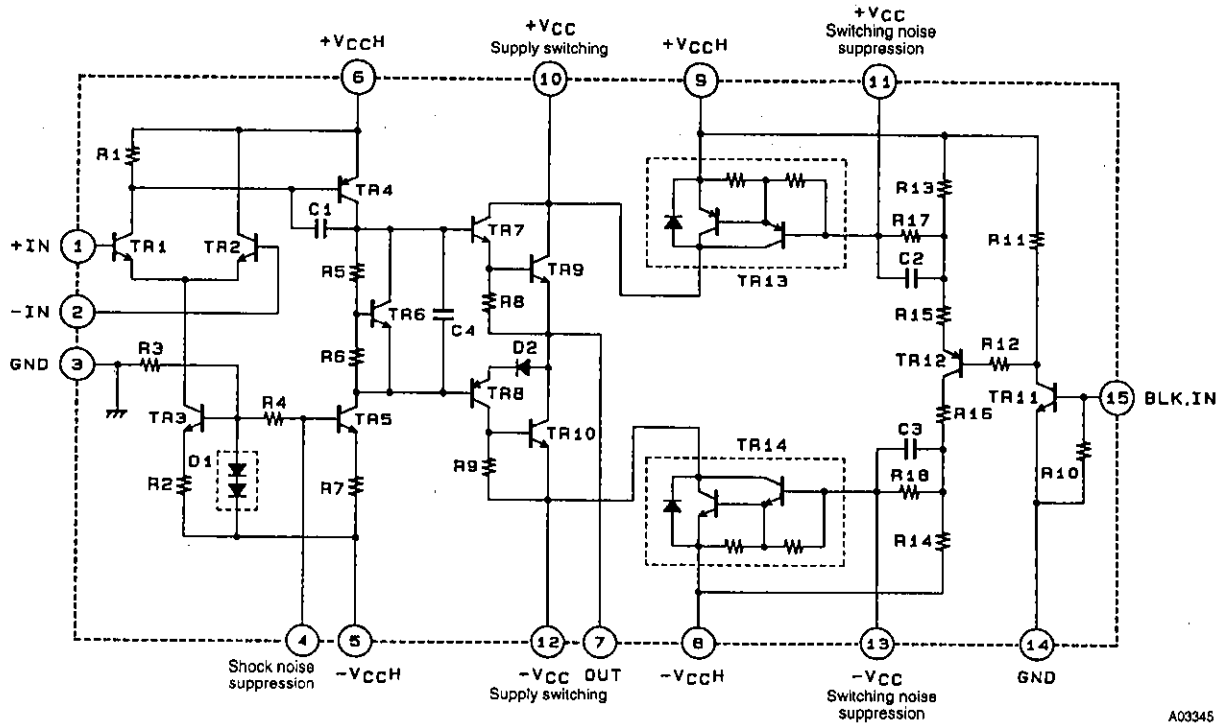
Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	$V_{CC\ max}$	V_{CCH}, V_{CCL}	± 44	V
Maximum collector current	I_c	Tr9, 10, 13, 14	4.0	A
Thermal resistance (1)	θ_{j-c1}	Tr9, 10 (per transistor)	2.7	$^\circ\text{C/W}$
Thermal resistance (2)	θ_{j-c2}	Tr13, 14 (per transistor)	15.0	$^\circ\text{C/W}$
Junction temperature	T_j		150	$^\circ\text{C}$
Operating substrate temperature	T_c		115	$^\circ\text{C}$
Storage temperature	T_{stg}		-30 to +115	$^\circ\text{C}$

Operating Characteristics at $T_c = 25^\circ\text{C}$, $V_{CCH} = \pm 35\text{V}$, $V_{CCL} = \pm 15\text{V}$

Parameter	Symbol	Conditions	min	typ	max	Unit
Output amplifier block						
Output noise voltage	V_{NO}	$R_g = 10\text{k}\Omega$	-	-	0.2	mVrms
Quiescent current	I_{CCO}	$R_g = 10\text{k}\Omega$	-	10	20	mA
Neutral voltage	V_N	$R_g = 10\text{k}\Omega$	-50	0	+50	mV
Output delay time	t_D	$R_g = 50\Omega$, $f = 100\text{kHz}$, triangular wave input, $V_{OUT} = 1.5\text{Vp-p}$	-	-	0.1	μs
Output saturation voltage (upper)	$V_{sat\ 10-7}$	Between pins 10 and 7, $I = 1.0\text{A}$	-	1.0	1.5	V
Output saturation voltage (lower)	$V_{sat\ 7-12}$	Between pins 7 and 12, $I = 1.0\text{A}$	-	1.7	2.2	V
Supply switching block						
Supply switching circuit saturation voltage (upper)	$V_{sat\ 9-10}$	Between pins 9 and 10, $I = 1.0\text{A}$	-	1.0	1.5	V
Supply switching circuit saturation voltage (lower)	$V_{sat\ 12-8}$	Between pins 12 and 8, $I = 1.0\text{A}$	-	1.0	1.5	V
Supply switching pulse width (upper)	t_{PW10}	Pin 10 $I = 1.0\text{A}$, $f = 100\text{kHz}$, BLK input pulse width = $1.0\mu\text{s}$	-	-	3.0	μs
Supply switching pulse width (lower)	t_{PW12}	Pin 12 $I = 1.0\text{A}$, $f = 100\text{kHz}$, BLK input pulse width = $1.0\mu\text{s}$	-	-	3.0	μs

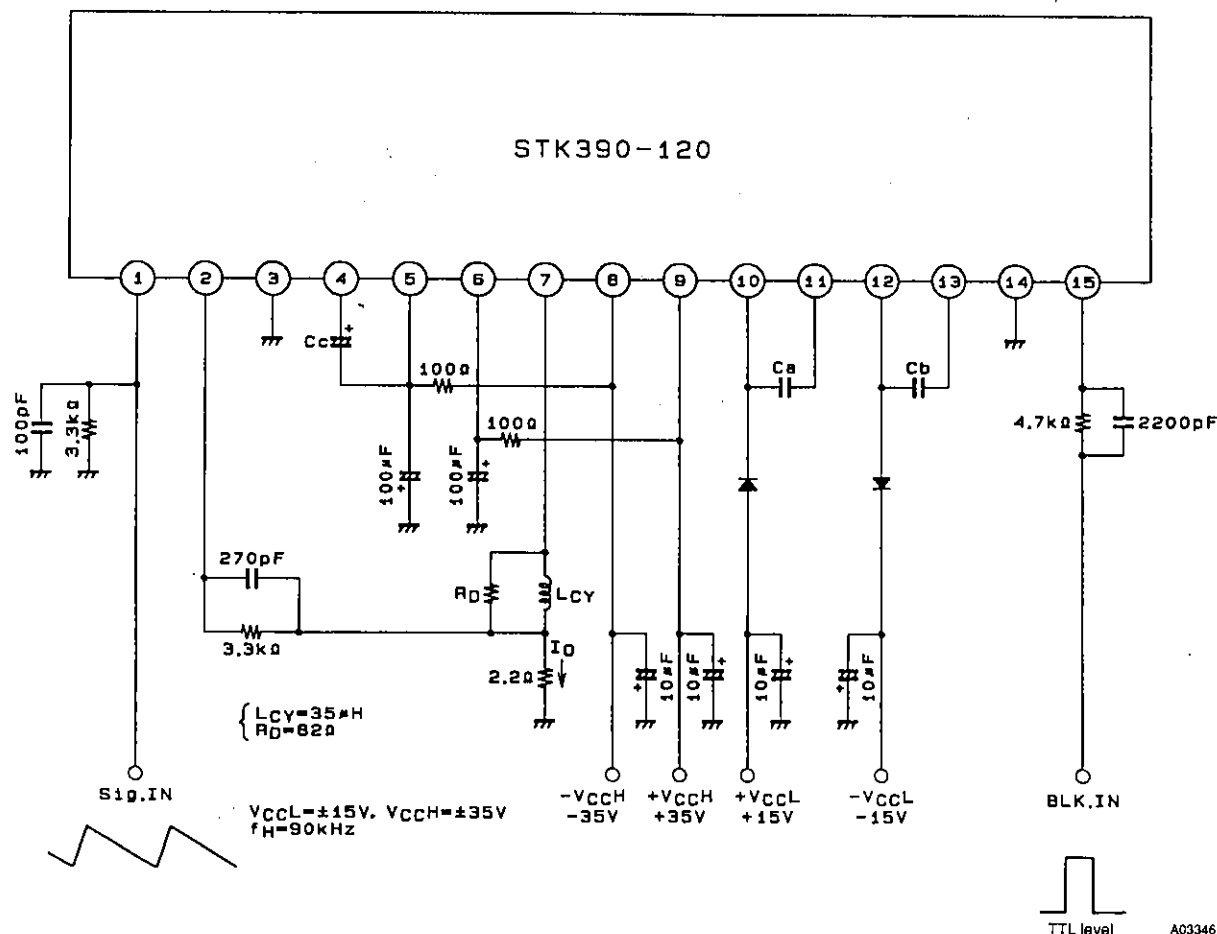
Note. All measurements are made using a constant-voltage supply.

Equivalent Circuit



STK390-120

Sample Application Circuit



- Notes. Ca, Cb (0 to 120pF) are for V_{CC} switch noise suppression.
Cc (47 to 220μF) is for supply switch ON shock noise suppression.

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