Ordering number: EN 5006

Thick Film Hybrid IC

SANYO

No. 5006

STK390-120

1-Channel + Supply Switching Convergence Correction Circuit (I_C max = 4A)

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

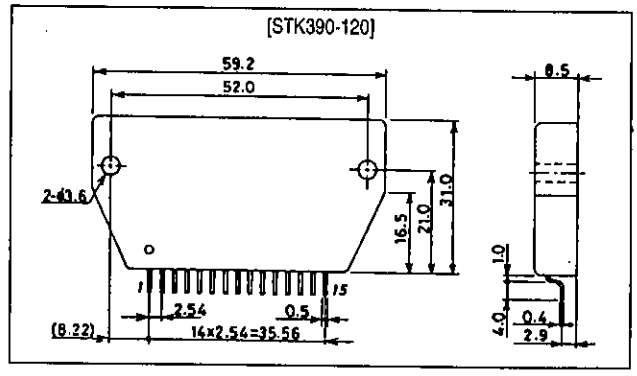
Features

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

Package Dimensions

unit: mm

4151



Specifications

Maximum Ratings at Ta = 25°C

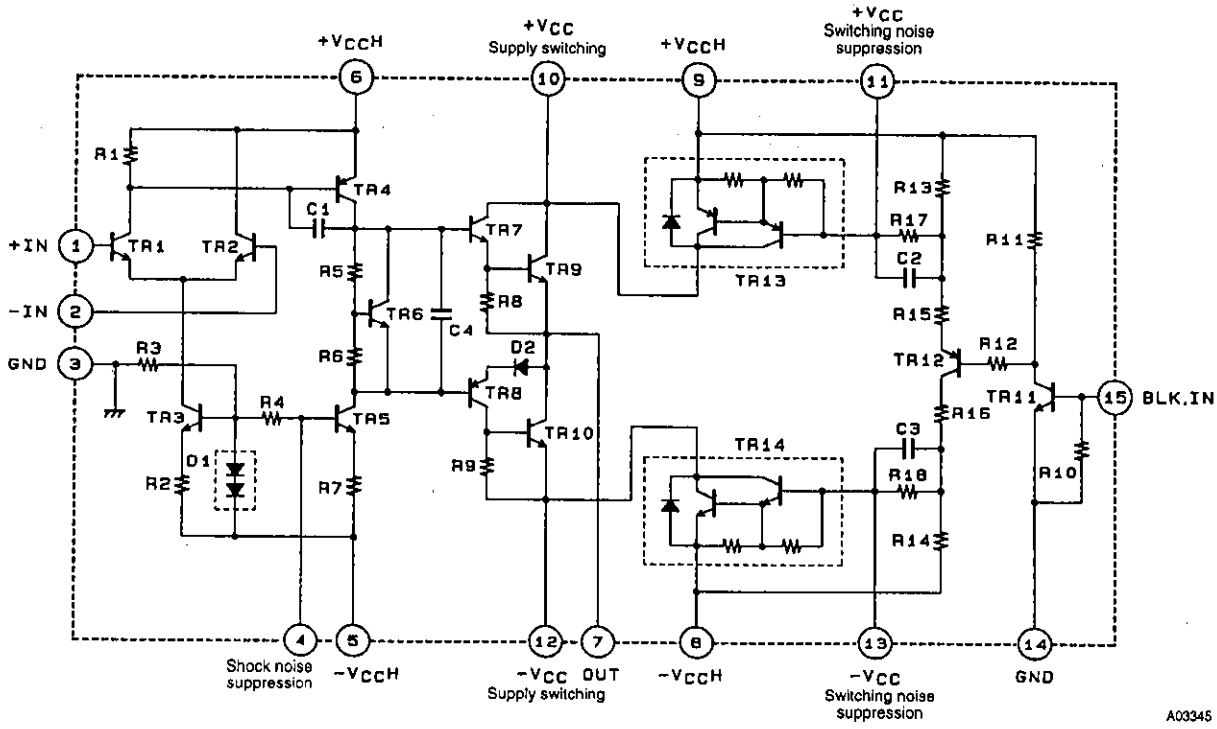
Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	V_{CC} max	$V_{CC}H$, $V_{CC}L$	±44	V
Maximum collector current	I_C	Tr9, 10, 13, 14	4.0	A
Thermal resistance (1)	θj-c1	Tr9, 10 (per transistor)	2.7	°C/W
Thermal resistance (2)	θj-c2	Tr13, 14 (per transistor)	15.0	°C/W
Junction temperature	Tj		150	°C
Operating substrate temperature	Tc		115	°C
Storage temperature	Tstg		–30 to +115	°C

Operating Characteristics at Tc = 25°C, $V_{CC}H$ = ±35V, $V_{CC}L$ = ±15V

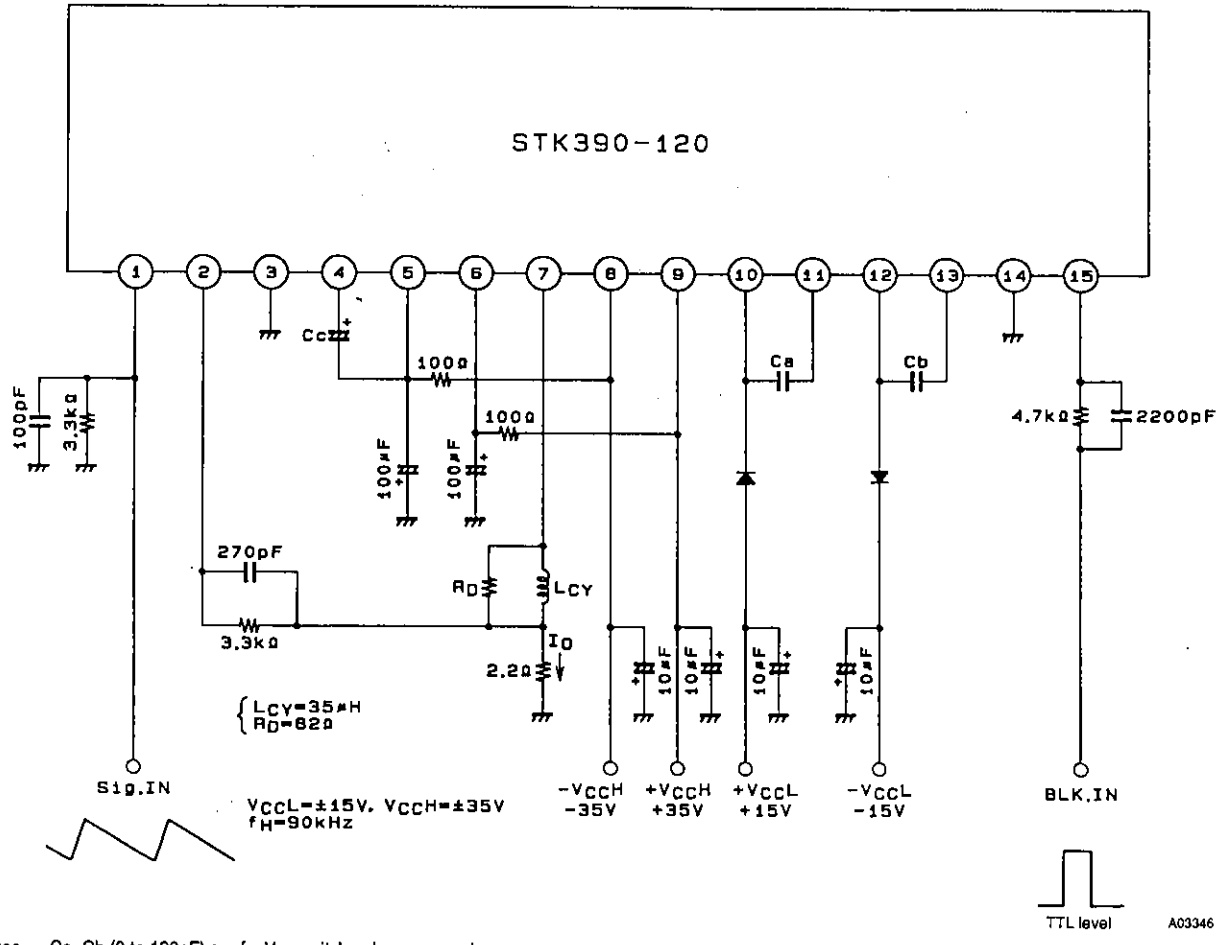
Parameter	Symbol	Conditions	min	typ	max	Unit
Output amplifier block						
Output noise voltage	V_{NO}	Rg = 10kΩ	–	–	0.2	mVrms
Quiescent current	I_{CCO}	Rg = 10kΩ	–	10	20	mA
Neutral voltage	V_N	Rg = 10kΩ	–50	0	+50	mV
Output delay time	t_D	Rg = 50Ω, f = 100kHz, triangular wave input, V_{OUT} = 1.5Vp-p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

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

Equivalent Circuit



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.