

STK6972

Thick Film Hybrid Integrated Circuit

BRIDGE POWER PACK

TENTATIVE

### General Description

The STK6970 series are small-sized hybrid IC's fabricated using the SC (Substrate Carrier) System which is a new manufacturing technique for small-sized hybrid IC's with our original IMST (Insulated Metal Substrate Technology) substrate. They contain 2-channel bridge power in a single package and have the following functions: forward/reverse rotation, speed control, braking of DC motors. They are especially suited for use in controlling reel motors, loading motors of VTR's and also in driving DC motors of various types.

### Features

- . Linear output proportional to input voltage
- . Brake function available at input open mode
- . Brake function available at the time of simultaneous application of input for forward/reverse rotation
- . Brake function available at forward rotation mode
- . Wide operating supply voltage (3V to 24V)
- . High current gain (ex. 1A typ. for 0.25mA)
- . Excellent stability of output voltage in intermediate region
- . Small current dissipation at braking mode

### Application Areas

- . Forward/reverse rotation of DC motors (VTR's, VD's, printers)
- . Forward rotation (with brake function) of DC motors

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

				unit
Supply Voltage	$V_{CC}$	Quiescent	25	V
Input Applied Voltage	$V_{in}$		25	V
Output Current	$I_C$		2.0	A
Power Dissipation	$P_d^*1$	$T_C=25^\circ\text{C}$	7.5	W
Storage Temperature	$T_{stg}$		-40 to +125	$^\circ\text{C}$
Operating Case Temperature	$T_C$		100	$^\circ\text{C}$
Junction Temperature	$T_j$		150	$^\circ\text{C}$

\*1  $P_d$ : Value for each of TR3, TR6, TR9, TR13

### Operating Characteristics at $T_a=25^\circ\text{C}, V_{CC}=12\text{V}, R_L=10\text{ohm/CH}$

			min	typ	max	unit
Quiescent Current	$I_{CCO}$	$V_{in}=\text{open}$	18	23	30	mA
Input Current - 1	$I_{i-1}$	$I_o=0.5\text{A}$		170	350	$\mu\text{A}$
Input Current - 2	$I_{i-2}$	$I_o=0.9\text{A}, V_{in}=12\text{V}$	0.34	0.7		mA
Input Voltage	$V_i$	$I_{out}=0.5\text{A}$	6.45	7.2		V
Output Saturation Voltage - 1	$V_{st-1}$	$I_{in}=1\text{mA}, V_{in}=12\text{V}$	1.37	2.0		V
Output Saturation Voltage - 2	$V_{st-2}$	$I_{in}=1\text{mA}, V_{in}=12\text{V}$	0.40	1.0		V
Diode Forward Voltage	$V_{df}$	$I_f=1\text{A}$	1.20	1.8		V

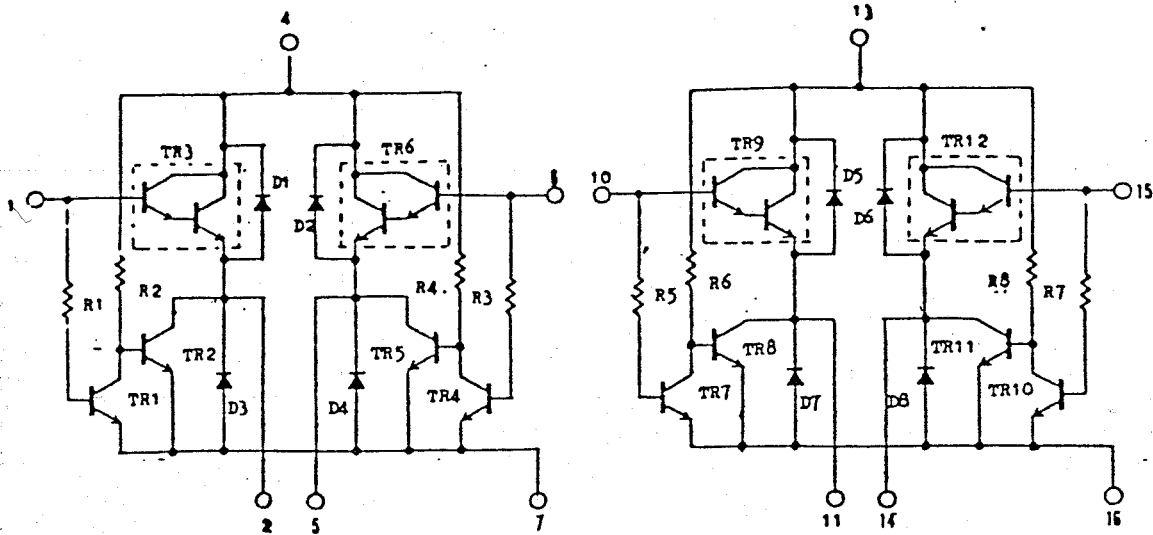
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These specifications are subject to change without notice.

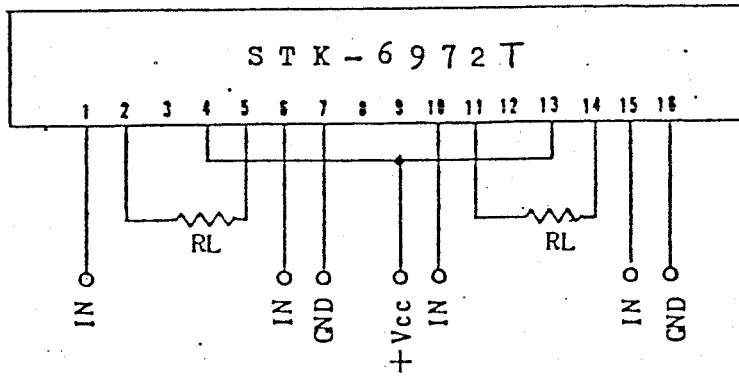
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6063KI/TS STK6972-1/3

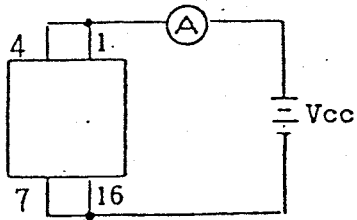
Equivalent Circuit



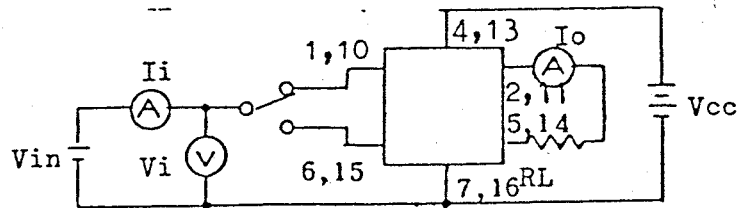
Test Circuit



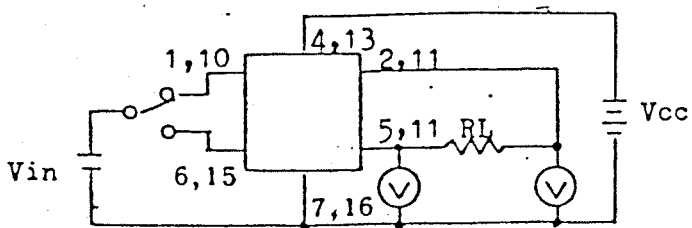
4-1)  $I_{cc}$



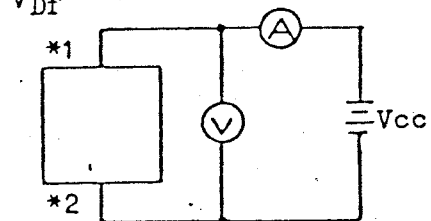
4-2)  $I_{i-1}, I_{i-2}, V_i$



4-3)  $V_{st-1}, V_{st-2}$



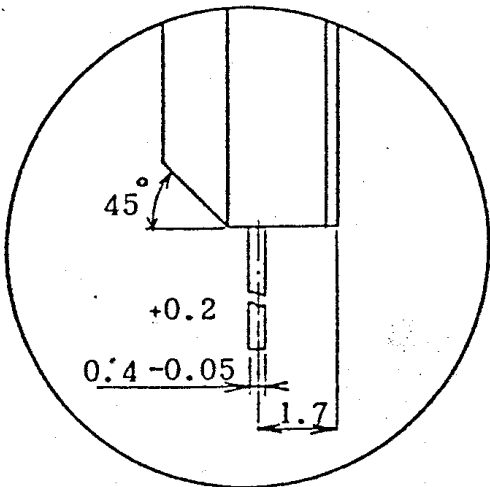
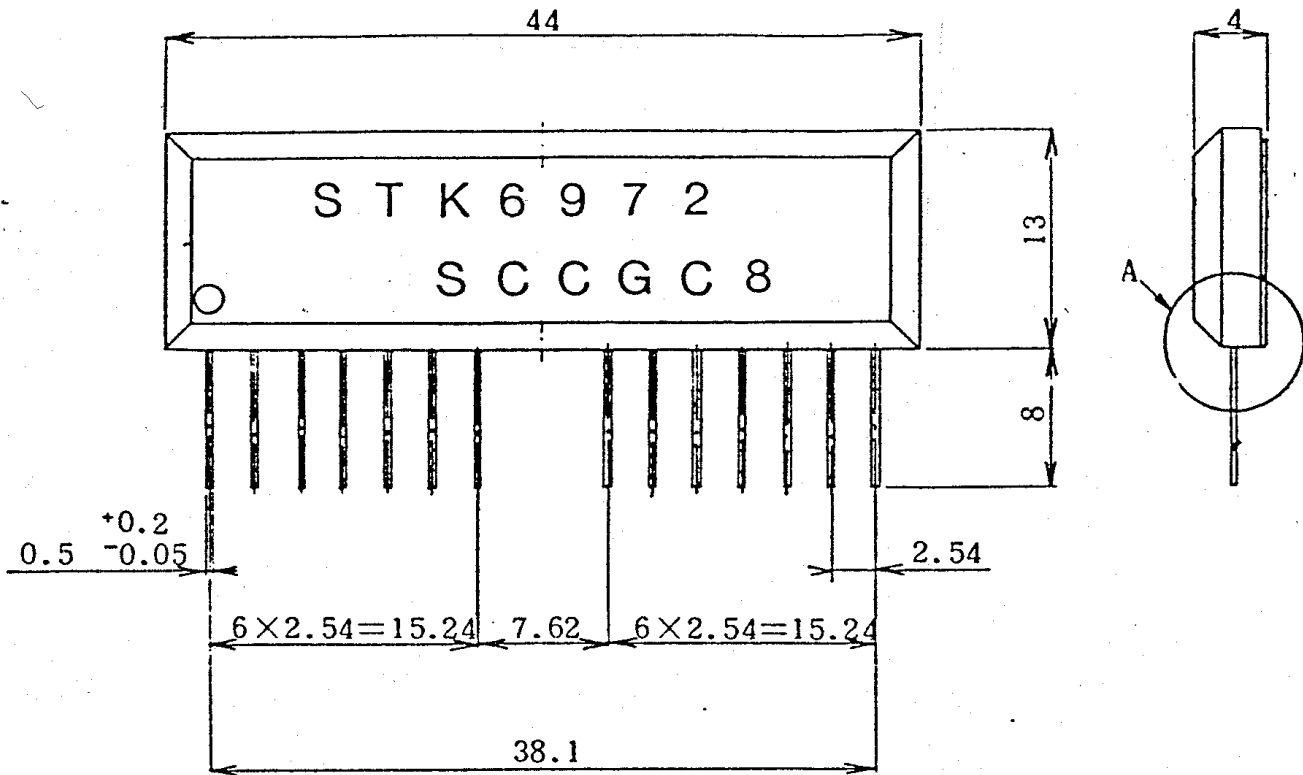
4-3)  $V_{Df}$



Anode Cathode  
 \*1 2,5,11,14 → Vcc  
 \*2 Gnd - 2,5,11,14

Case Outline

unit:mm



Detail drawing of A