TOKO

75 Ω VIDEO LINE DRIVER

FEATURES

- Fixed Gain (6 dB)
- Internal 75 Ω Drivers
- Very Small Output Capacitor Using SAG Function Pin
- Internal Clamping Circuit
- Single +5 V Power Supply Operation

APPLICATIONS

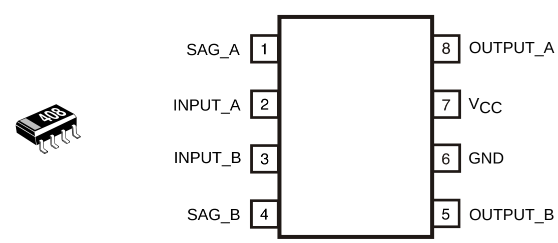
- Video Equipment
- Digital Cameras
- CCD Cameras
- TV Monitors
- Video Tape Recorders
- LCD Projectors

DESCRIPTION

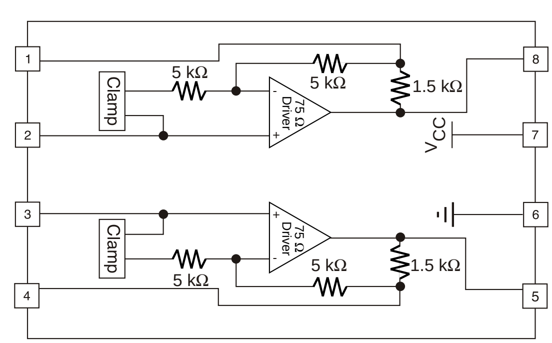
Operating from a single +5 V supply, the TK15408 is a dual video driver IC that takes standard video signals as analog inputs and provides buffered analog outputs for driving 150 Ω loads (series 75 Ω resistor and 75 Ω cable load). Both amplifiers have a fixed gain of 6 dB with internal clamping circuits. Each input is clamped at 1.29 V and amplified 6 dB to produce 2 V_{P-P} (typical) into a series 75 Ω resistor and 75 Ω cable load. The internal 1.5 k SAG function resistors provide gain compensation for low frequency signals. Nominal power dissipation (no input) is typically 76 mW. The TK15408 is ideally suited for S-VHS systems.

The TK15408M is available in the very small SOT23L-8 surface mount package.

TK15408



BLOCK DIAGRAM



ORDERING INFORMATION

TK15408M □□

Tape/Reel Code

TAPE/REEL CODE
TL: Tape Left

ABSOLUTE MAXIMUM RATINGS

Supply Voltage .... 6 V
Operating Voltage Range.............................. 4.5 to 5.5 V
Power Dissipation (Note 1) .... 200 mW
Storage Temperature Range .... -55 to +150 °C
Operating Temperature Range ....-25 to +75 °C

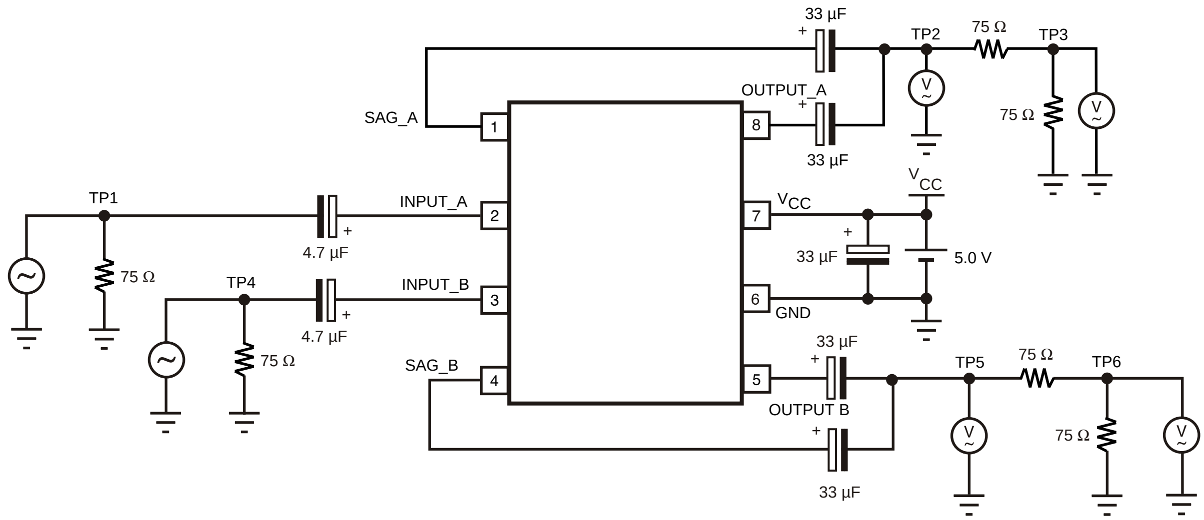
TK15408M ELECTRICAL CHARACTERISTICS

Test conditions: V_{CC} = 5.0 V, V_{IN} = 1.0 V_{P-P}, R_L = 150 Ω, T_A = 25 °C unless otherwise specified.

SYMBOL	PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNITS
I_{CC}	Supply Current	No input		15.1	21.0	mA
V_{CMP}	Clamp Voltage	Pin 2, Pin 3 Input terminal	1.10	1.29	1.50	V
GVA	Voltage Gain	f_{in} = 1 MHz	5.2	5.7	6.2	dB
DG	Differential Gain	Staircase signal input	-3.0	+0.6	+3.0	%
DP	Differential Phase	Staircase signal input	-3.0	-0.1	+3.0	deg
fr	Frequency Response	f_{in} = 1 MHz / 5 MHz		-0.3		dB

Note 1: Power dissipation is 200 mW in free air. Derate at 1.6 mW/°C for operation above 25°C.

TEST CIRCUIT



MEASUREMENT METHOD

1. Supply Current (I_{CC})
The Pin 7 current is measured with no input signal.

2. Clamp Voltage (V_{CMP})
The DC voltage at Pin 2 (Pin 3) is measured with no input signal.

3. Voltage Gain (GVA)
The voltage gain equation is as follows:
GVA = 20 $\log_{10}$ V2/V1
Where V1 is the input voltage at TP1 (TP4) and V2 is the measured voltage at TP2 (TP5).

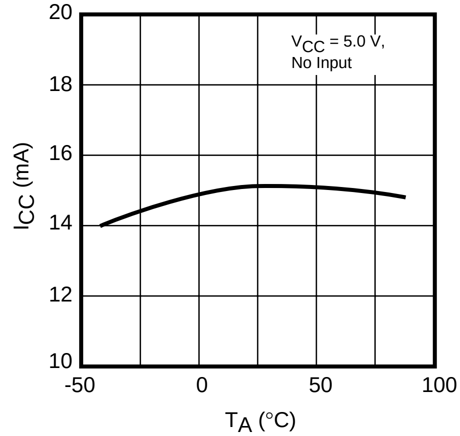
4. Differential Gain (DG)
The differential gain is measured at TP3 (TP6) when a staircase waveform of 10 steps is applied to TP1 (TP4).

5. Differential Phase (DP)
The differential phase is measured at TP3 (TP6) when a staircase waveform of 10 steps is applied to TP1 (TP4).

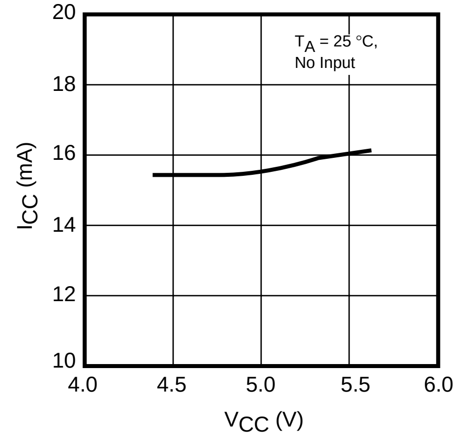
6. Frequency Response (fr)
The frequency response equation is as follows:
fr = 20 $\log_{10}$ V2/V1
Where V1 is the measured TP3 (TP6) voltage when the TP1 (TP4) input frequency is set to 1 MHz and V2 is the measured TP3 (TP6) voltage when the TP1 (TP4) input frequency is set to 5 MHz.

TYPICAL PERFORMANCE CHARACTERISTICS

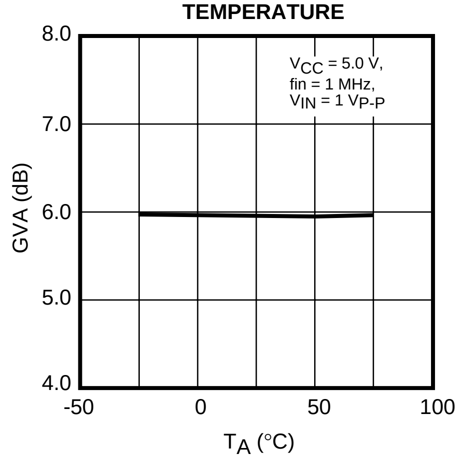
SUPPLY CURRENT vs. TEMPERATURE



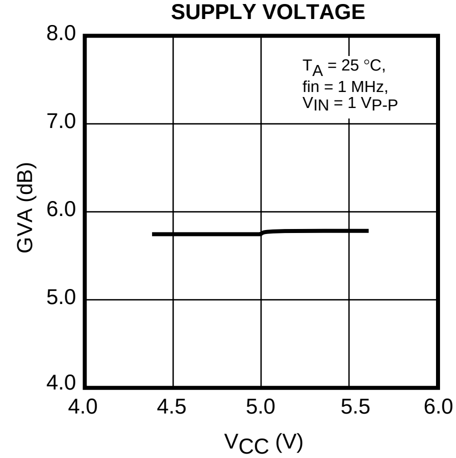
SUPPLY CURRENT vs. SUPPLY VOLTAGE



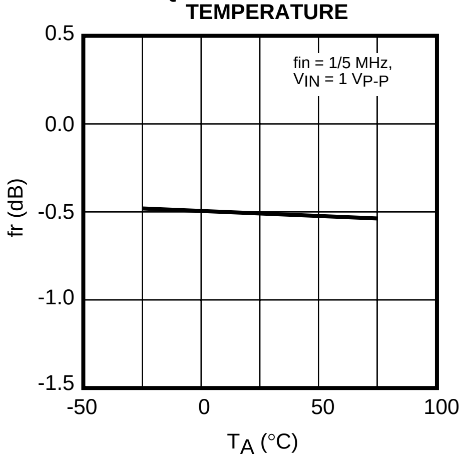
VOLTAGE GAIN vs. TEMPERATURE



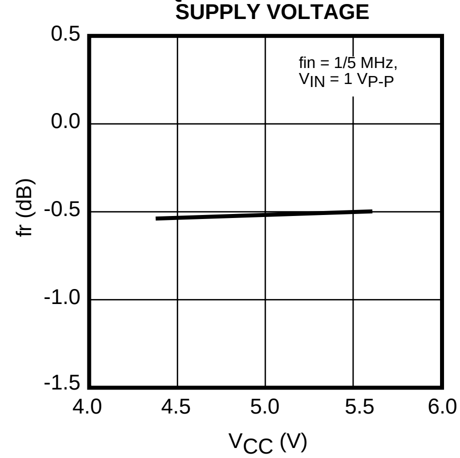
VOLTAGE GAIN vs. SUPPLY VOLTAGE



FREQUENCY RESPONSE vs. TEMPERATURE

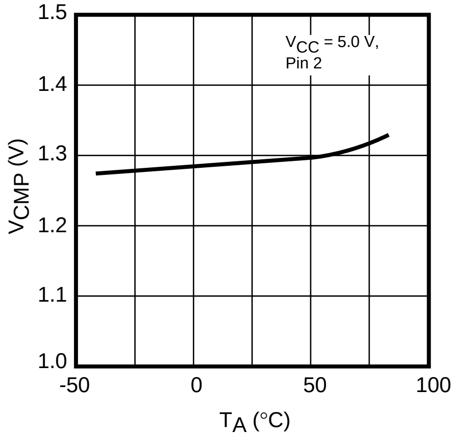


FREQUENCY RESPONSE vs. SUPPLY VOLTAGE

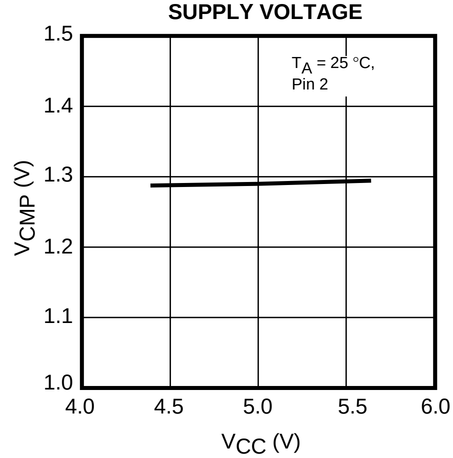


TYPICAL PERFORMANCE CHARACTERISTICS (CONT.)

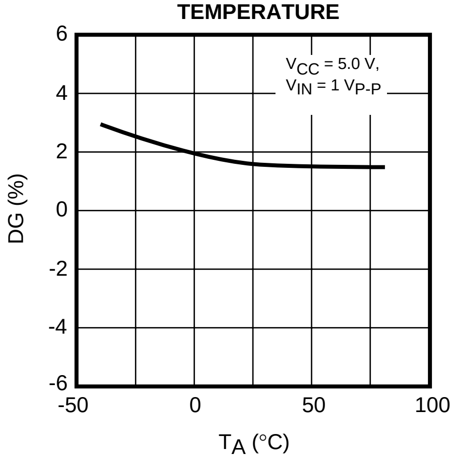
CLAMP VOLTAGE vs. TEMPERATURE



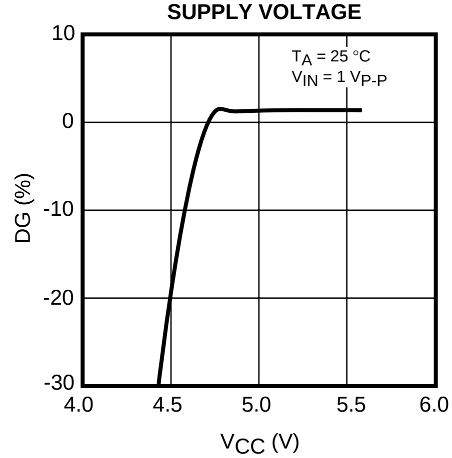
CLAMP VOLTAGE vs. SUPPLY VOLTAGE



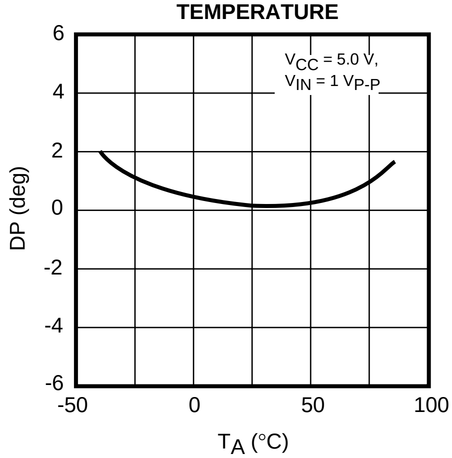
DIFFERENTIAL GAIN vs. TEMPERATURE



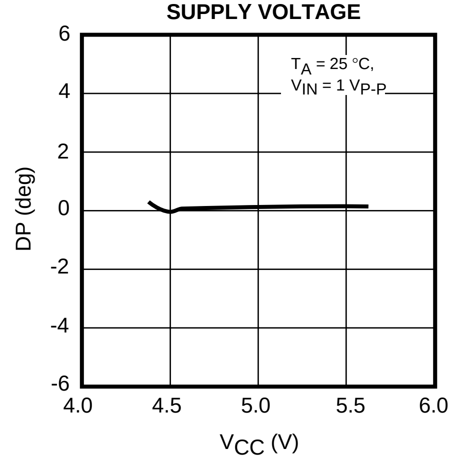
DIFFERENTIAL GAIN vs. SUPPLY VOLTAGE



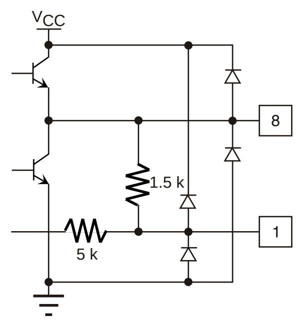
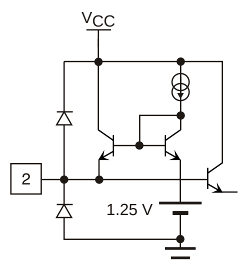
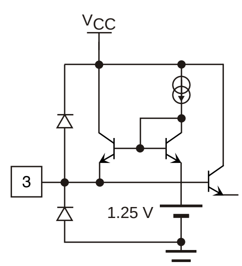
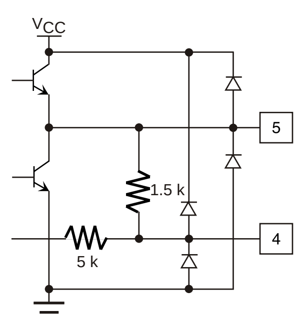
DIFFERENTIAL PHASE vs. TEMPERATURE



DIFFERENTIAL PHASE vs. SUPPLY VOLTAGE



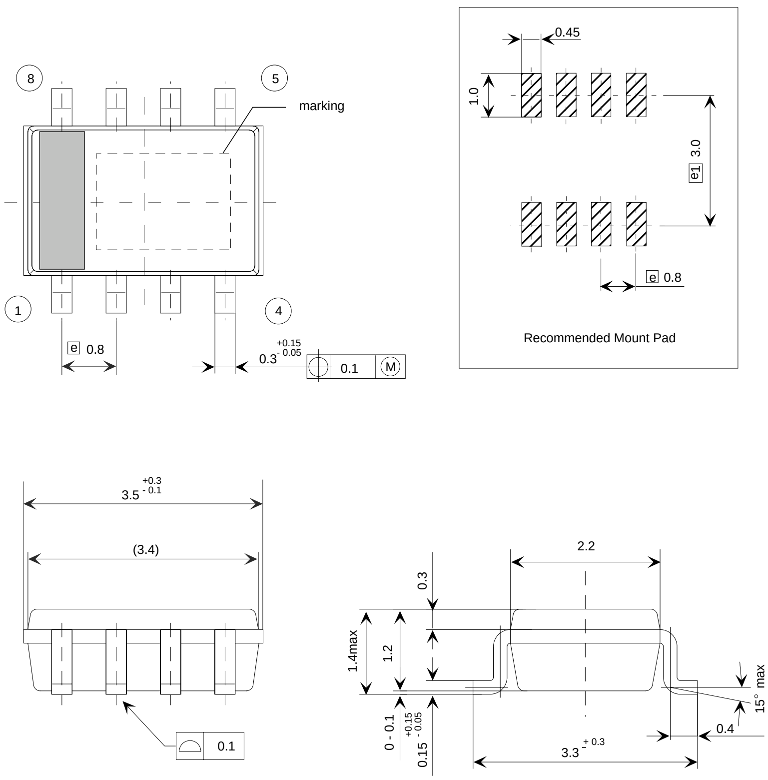
PIN FUNCTION DESCRIPTIONS

TERMINAL			INTERNAL EQUIVALENT CIRCUIT	DESCRIPTION
PIN NO.	SYMBOL	VOLTAGE		
8 1	OUTPUT_A SAG_A	1.6 V 1.4 V		Pin 8: Output A terminal. The output A is available to drive 75 Ω + 75 Ω load. Pin 1: SAG A terminal
2	INPUT_A	1.3 V		Input A terminal. The luminance input signal is clamped at 1.29 V.
3	INPUT_B	1.3 V		Input B terminal. The luminance input signal is clamped at 1.29 V.
4 5	SAG_B OUTPUT_B	1.4 V 1.6 V		Pin 5: Output B terminal. The output B is available to drive 75 Ω + 75 Ω load. Pin 4: SAG B terminal.
6	GND	GND		GND terminal.
7	V_{CC}	V_{CC}		Power Supply terminal.

NOTES

PACKAGE OUTLINE

SOT23L-8



Dimensions are shown in millimeters
Tolerance: x.x = ± 0.2 mm (unless otherwise specified)

Marking Information

	Marking
TK15408	408

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