

75 Ω VIDEO LINE DRIVER

FEATURES

- Internal Y-C Summing Circuit
- Internal Switch Circuit for Composite Signal or Y-C Signal
- Voltage Gain is 6 dB Fixed
- Internal 75 Ω Driver
- Very Small Output Capacitor Using SAG Function Pin
- Very Small Package (SOT23L-8)

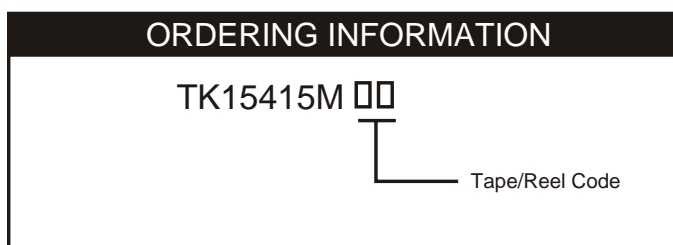
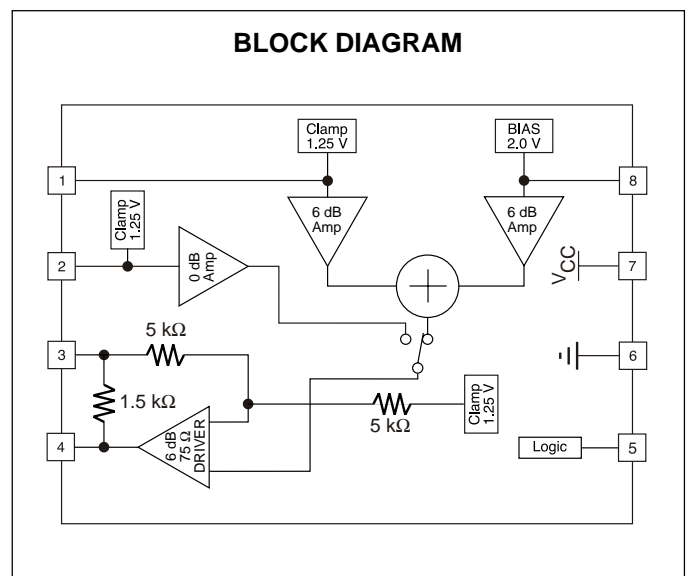
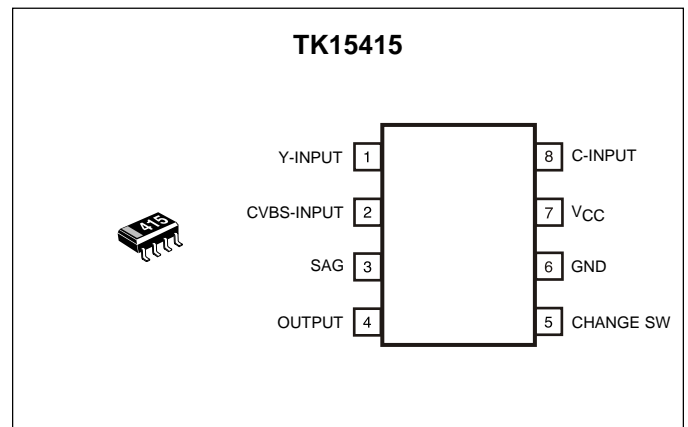
APPLICATIONS

- Video Equipment
- Camcorder
- CCD Cameras
- DVD Player/RW
- Video Board
- Video Tape Recorders
- LCD TV/Monitor

DESCRIPTION

Operating from a single +5 V supply, the TK15415M is a 75 Ω video line driver IC with an internal Y-C summing circuit. It has an internal switch circuit for the CVBS composite signal and the Y-C signal. The internal 1.5 k SAG function resistor provides gain compensation for low frequency signals. (Voltage gain from the CVBS signal input terminal is 6 dB.)

The TK15415M is available in the very small SOT23L-8 surface mount package.



TAPE/REEL CODE
TL: Tape Left

TK15415

ABSOLUTE MAXIMUM RATINGS

Supply Voltage	6 V	Input Frequency	10.0 MHz
Operating Voltage Range	4.5 to 5.5 V	Storage Temperature Range	-55 to +150 °C
Power Dissipation (Note 1)	200 mW	Operating Temperature Range	-25 to +85 °C

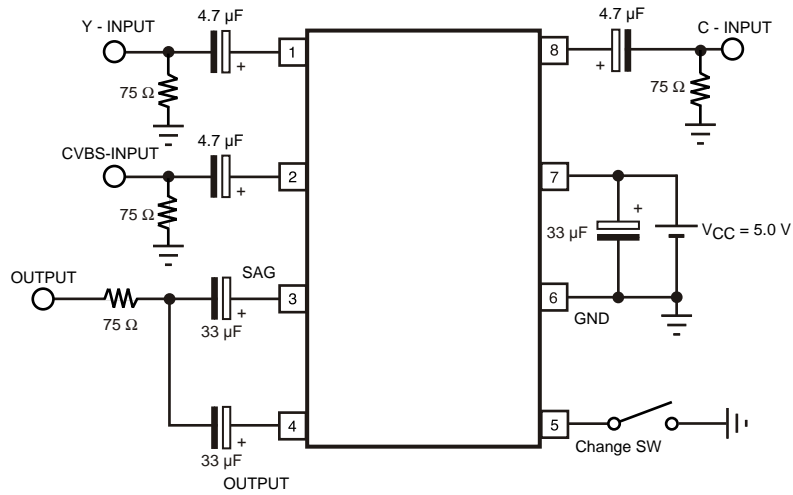
TK15415M ELECTRICAL CHARACTERISTICS

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

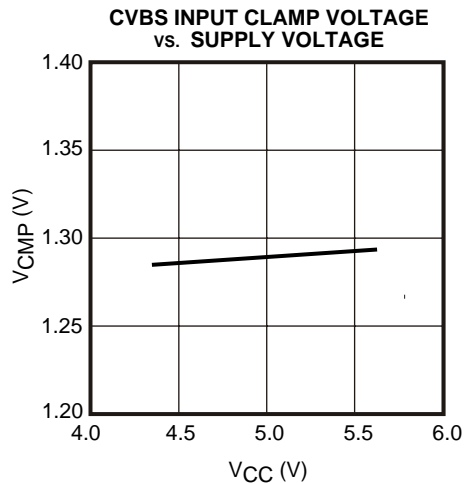
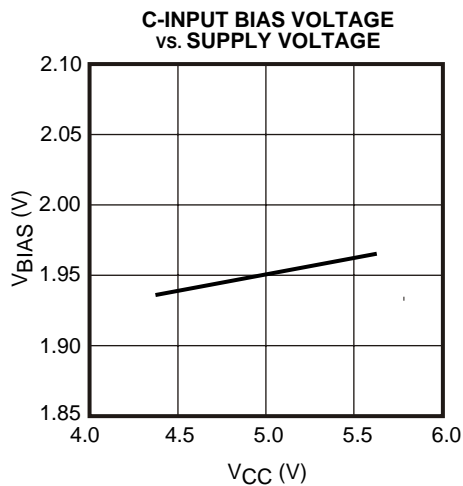
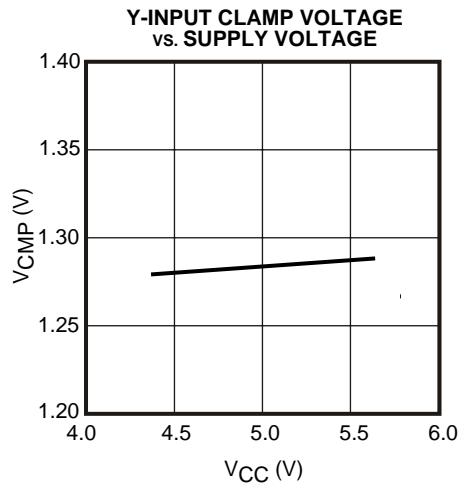
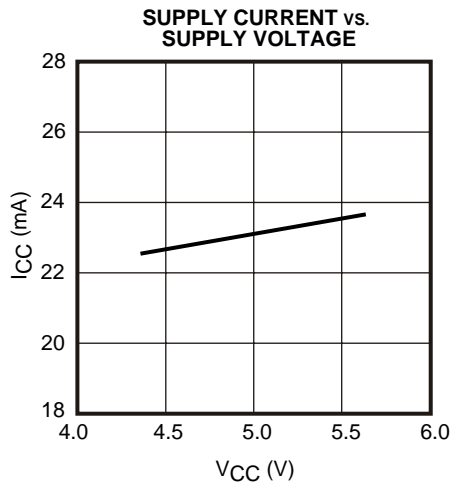
SYMBOL	PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNITS
I_{CC}	Supply Current	No input		25.0	36.0	mA
$V_{THL(SW)}$	Switch Threshold Voltage (High to Low)	Pin 5, S-VHS to CVBS			0.3	V
$V_{TLH(SW)}$	Switch Threshold Voltage (Low to High)	Pin 5, CVBS to S-VHS	1.8			V
S-VHS (Pin 5 OPEN)						
V_{CMP}	Clamp Voltage	Pin 1, Y signal input terminal	1.10	1.28	1.50	V
V_{BIAS}	Bias Voltage	Pin 8, C signal input terminal	1.70	2.00	2.30	V
GVA-Y	Voltage Gain, Y channel	$f_{in} = 1\text{ MHz}$, Y signal input	5.2	5.7	6.2	dB
GVA-C	Voltage Gain, C channel	$f_{in} = 1\text{ MHz}$, C signal input	5.1	5.6	6.1	dB
DG-S	Differential Gain	Staircase signal input	-3.0	-1.5	+3.0	%
DP-S	Differential Phase	Staircase signal input	-3.0	0.0	+3.0	deg
fr-S	Frequency Response	$f_{in} = 1\text{ MHz} / 5\text{ MHz}$		-0.5		dB
CVBS (Pin 5 GND)						
V_{CMP}	Clamp Voltage	Pin 2, CVBS input terminal	1.10	1.28	1.50	V
GVA	Voltage Gain	$f_{in} = 1\text{ MHz}$	5.1	5.6	6.1	dB
DG	Differential Gain	Staircase signal input	-3.0	-0.6	+3.0	%
DP	Differential Phase	Staircase signal input	-3.0	0.2	+3.0	deg
fr	Frequency Response	$f_{in} = 1\text{ MHz} / 5\text{ MHz}$		-0.5		dB

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

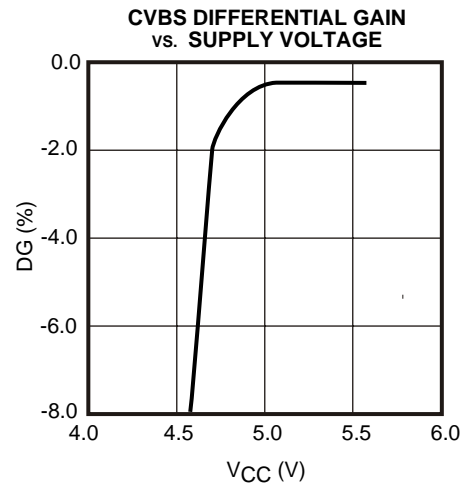
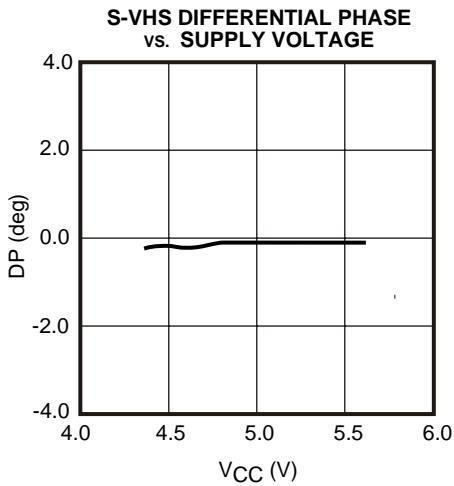
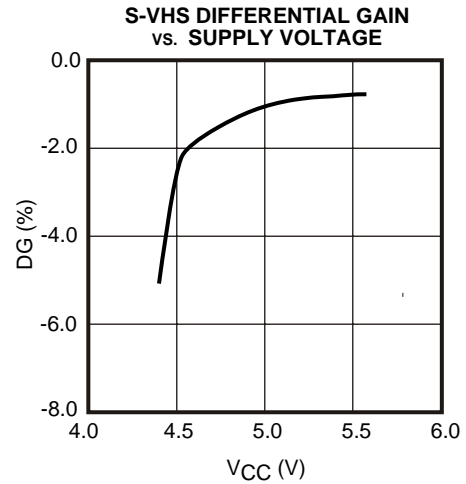
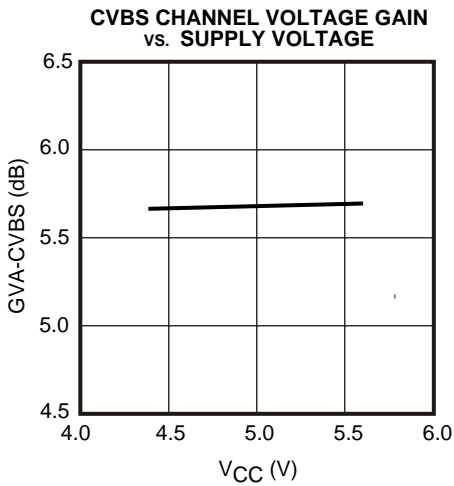
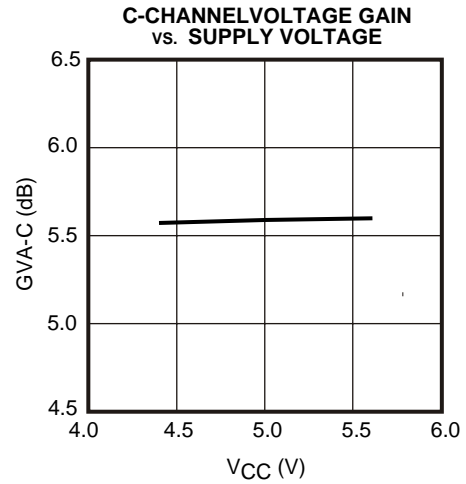
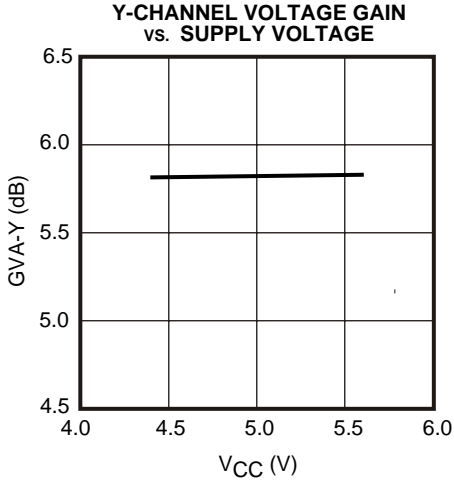
TEST CIRCUIT



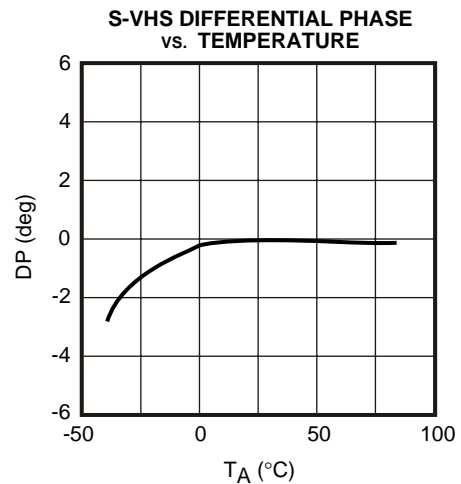
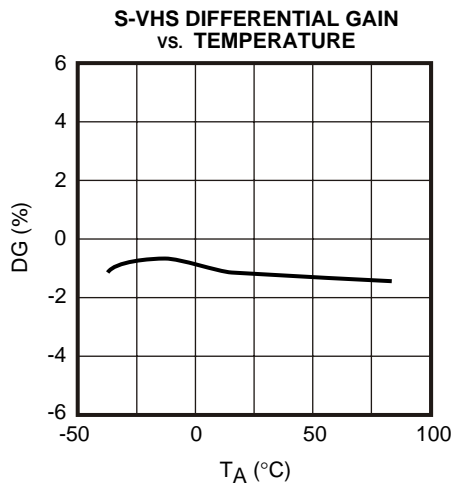
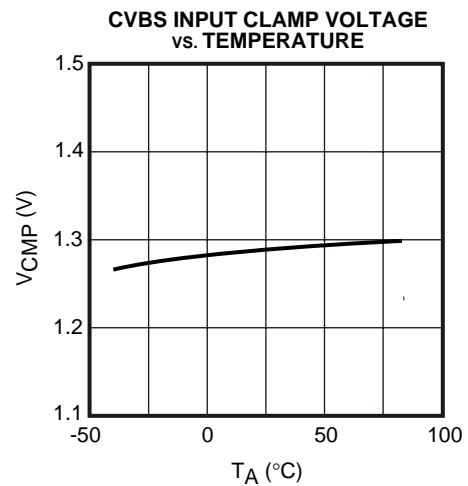
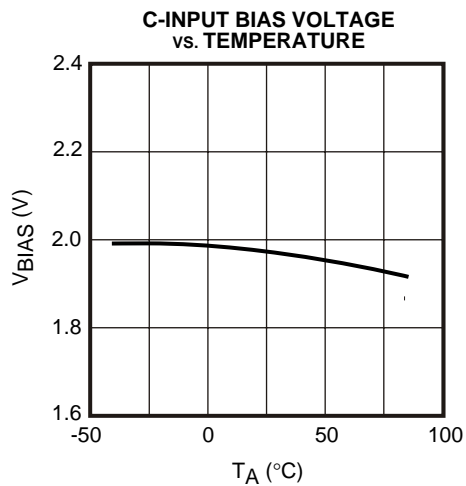
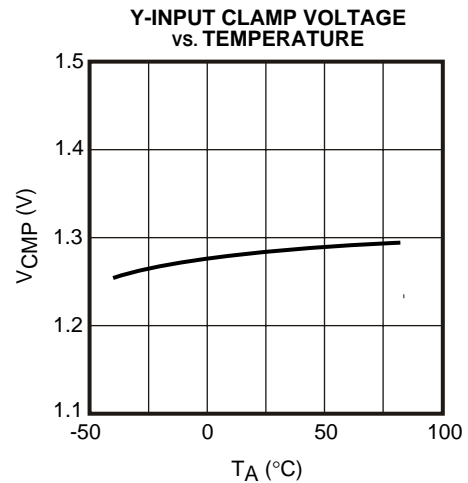
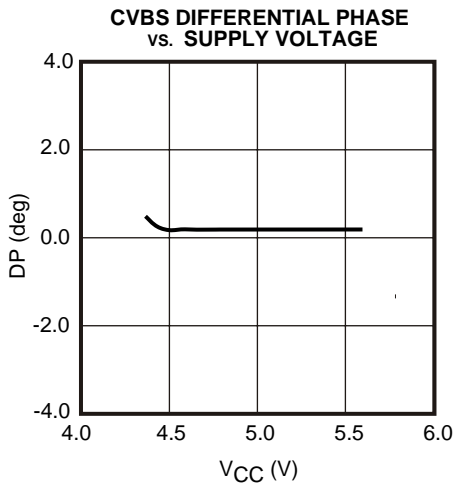
TYPICAL PERFORMANCE CHARACTERISTICS



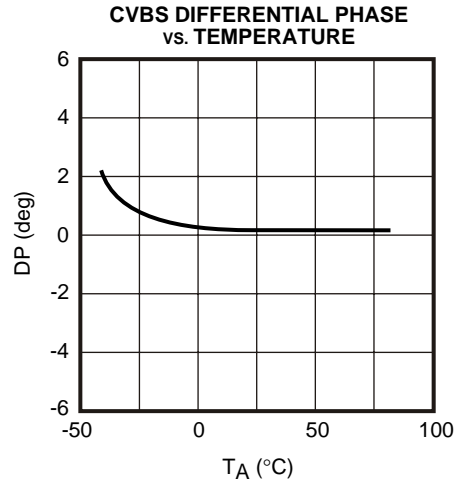
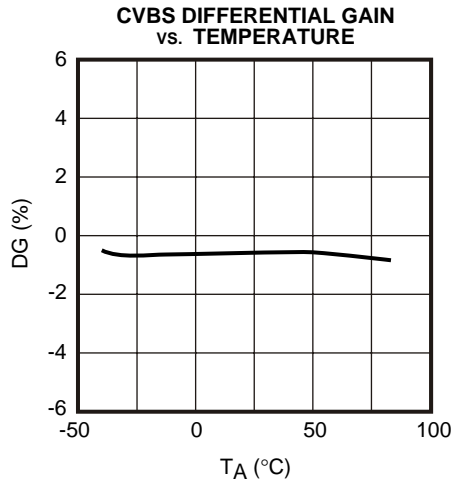
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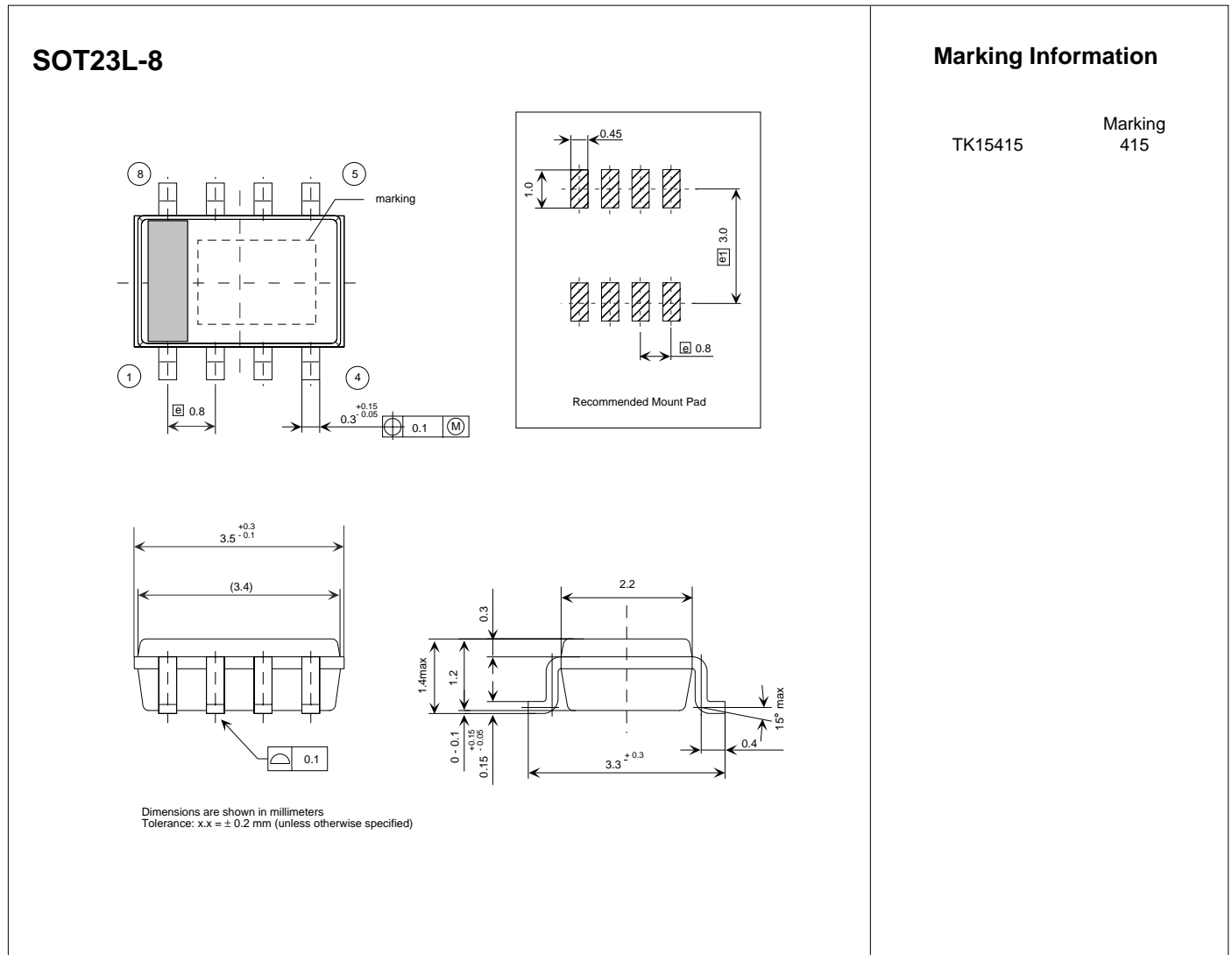
PIN FUNCTION DESCRIPTION

PIN NO.	SYMBOL	INTERNAL EQUIVALENT CIRCUIT	DESCRIPTION
1	Y-INPUT		Luminance Input Terminal. The luminance input signal is clamped at 1.25 V.
2	CVBS-INPUT		CVBS Signal Input Terminal. The CVBS input signal is clamped at 1.25 V.

PIN FUNCTION DESCRIPTION

PIN NO.	SYMBOL	INTERNAL EQUIVALENT CIRCUIT	DESCRIPTION
3 4	SAG OUTPUT		<p>Pin 3: SAG Terminal.</p> <p>Pin 4: Signal Output Terminal. The output is available to drive a $75 \Omega + 75 \Omega$ load.</p>
5	CHANGE SW		<p>Change-Over Switch Terminal for selecting S-VHS or CVBS. The S-VHS signal is applied to the output when Pin 5 is connected to High or Open. The CVBS signal is applied to the output when Pin 5 is connected to Low.</p>
6	GND		GND Terminal
7	V_{CC}		Power Supply Terminal
8	C-INPUT		<p>Chrominance Input Terminal. The chrominance input signal is biased to 2.0 V by a $100 \text{ k}\Omega$ bias resistor.</p>

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