

## 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)

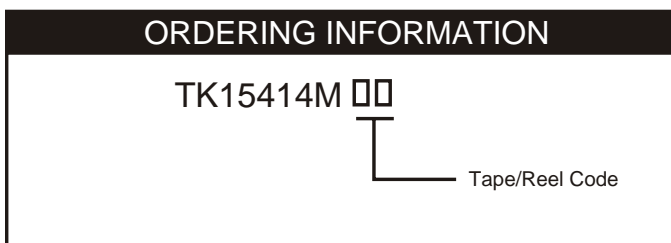
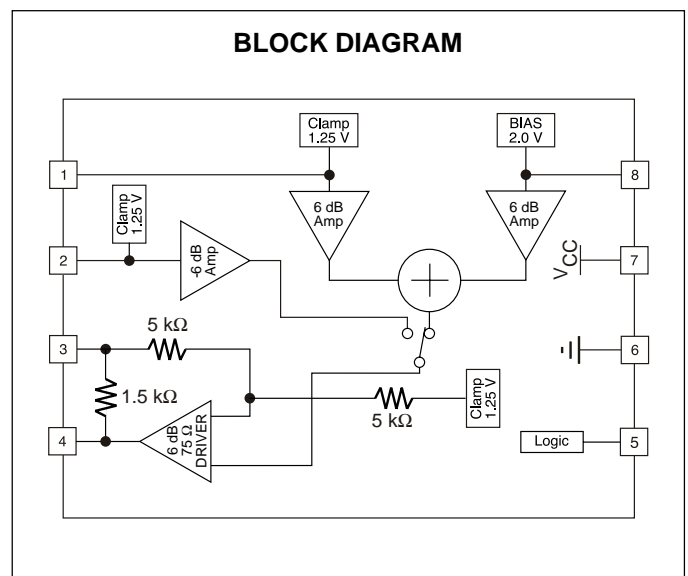
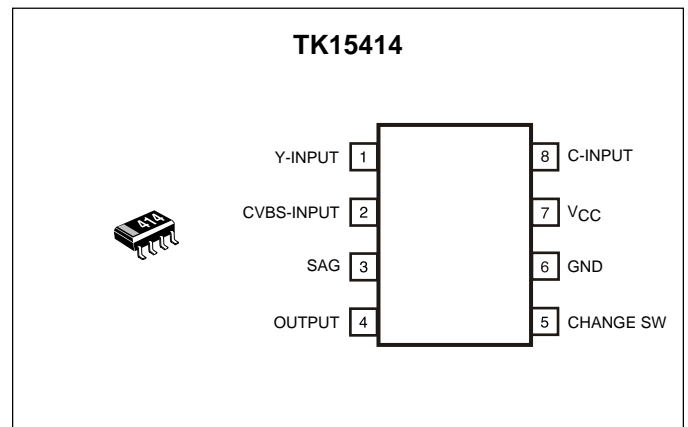
### APPLICATIONS

- 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 TK15414M 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 0 dB.)

The TK15414M is available in the very small SOT23L-8 surface mount package.



TAPE/REEL CODE  
TL: Tape Left

# TK15414

## ABSOLUTE MAXIMUM RATINGS

Supply Voltage .....	6 V	Maximum Input Frequency .....	20 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 +75 °C

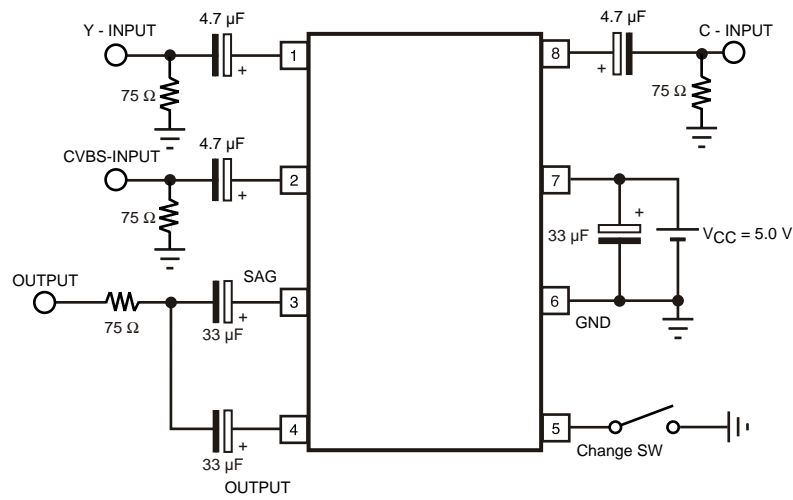
## TK15414M ELECTRICAL CHARACTERISTICS

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.

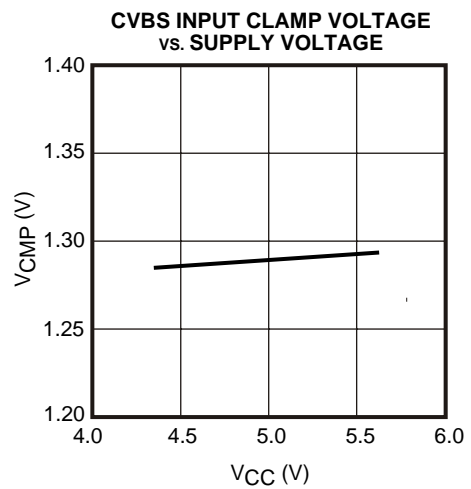
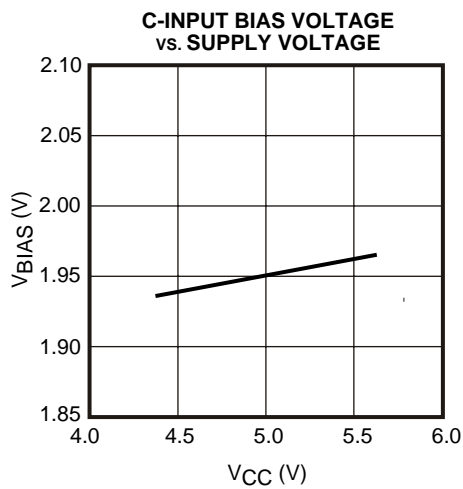
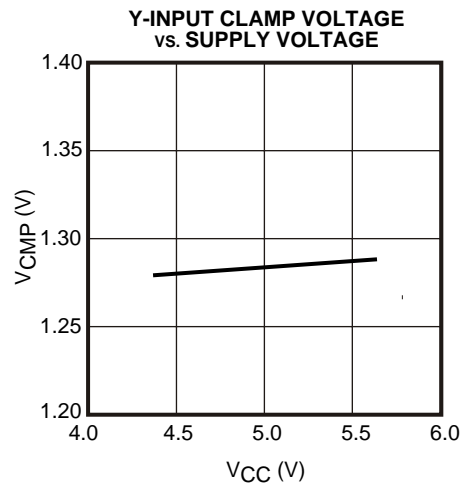
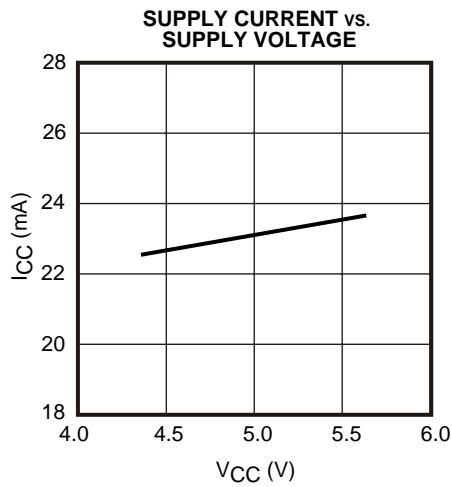
SYMBOL	PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNITS
$I_{CC}$	Supply Current	No input		24.5	36.0	mA
$V_{THL(SW)}$	Switch Threshold Voltage (High to Low)	Pin 5, S-VHS to CVBS			0.3	V
$V_{TLH(SW)}$	Switch Threshold Voltage (Low to High)	Pin 5, CVBS to S-VHS	1.8			V
<b>S-VHS (Pin 5 OPEN)</b>						
$V_{CMP}$	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
<b>CVBS (Pin 5 GND)</b>						
$V_{CMP}$	Clamp Voltage	Pin 2, CVBS input terminal	1.10	1.28	1.50	V
GVA	Voltage Gain	$f_{in} = 1\text{ MHz}$	-0.9	-0.4	-0.1	dB
DG	Differential Gain	Staircase signal input	-3.0	-0.7	+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.

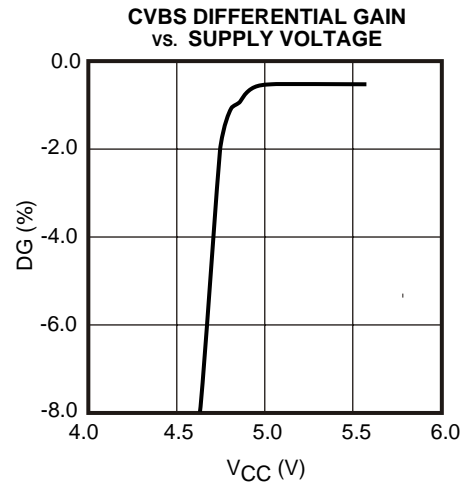
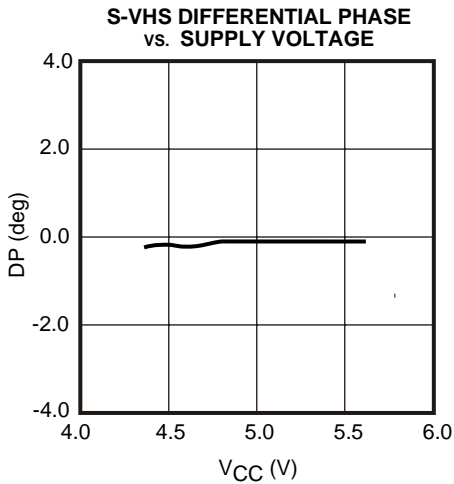
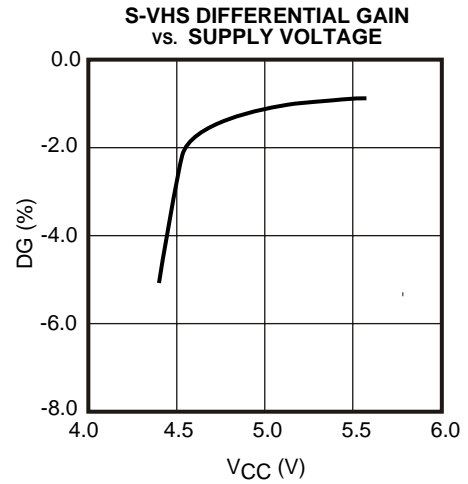
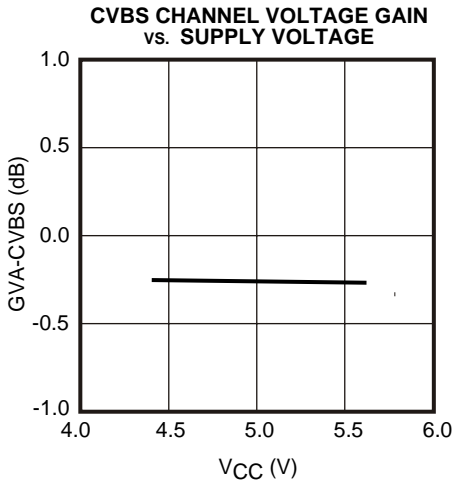
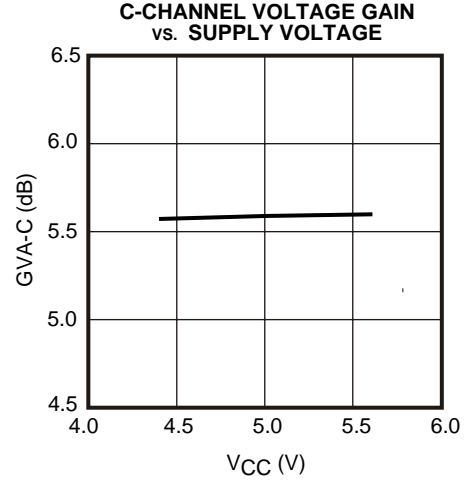
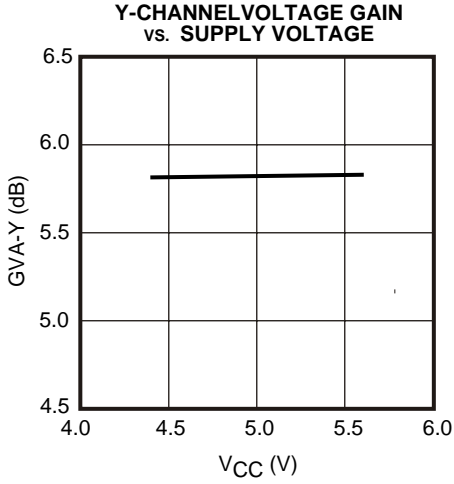
**TEST CIRCUIT**



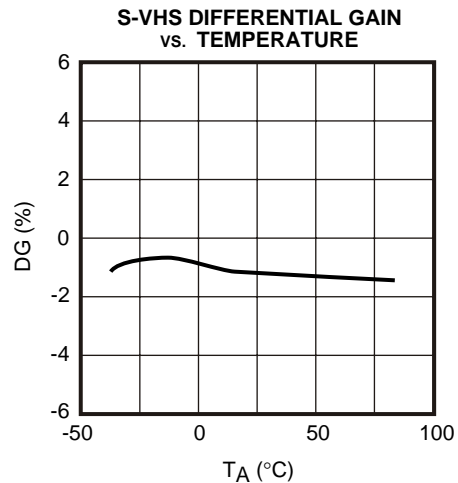
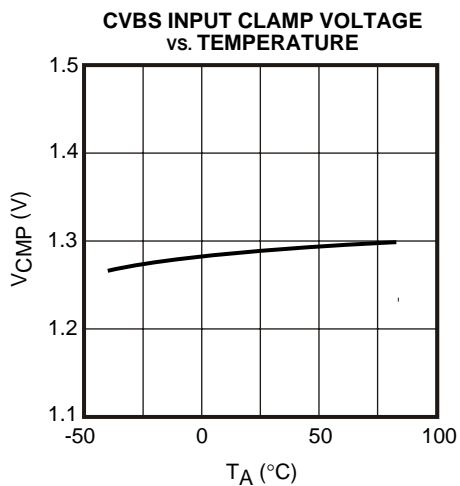
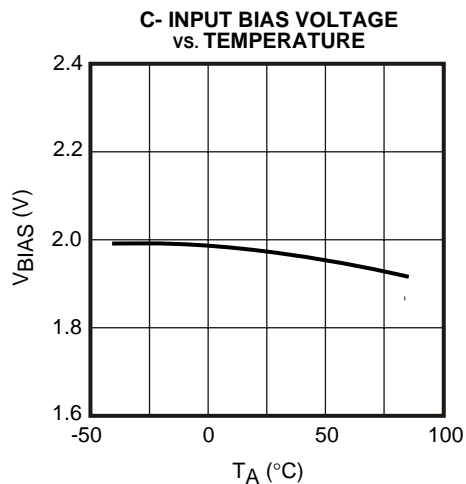
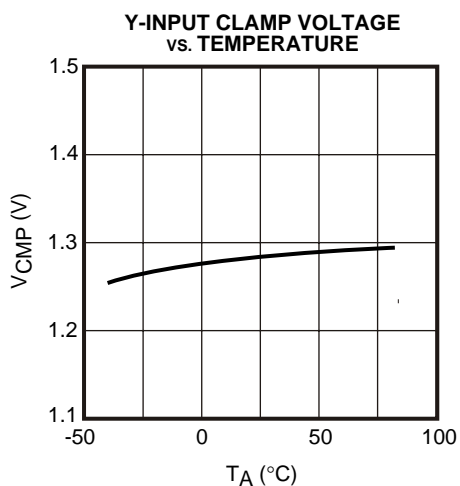
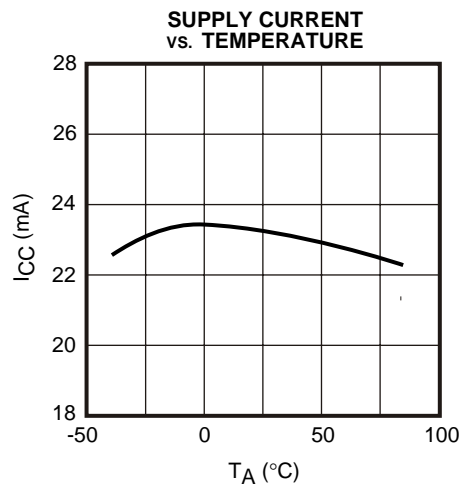
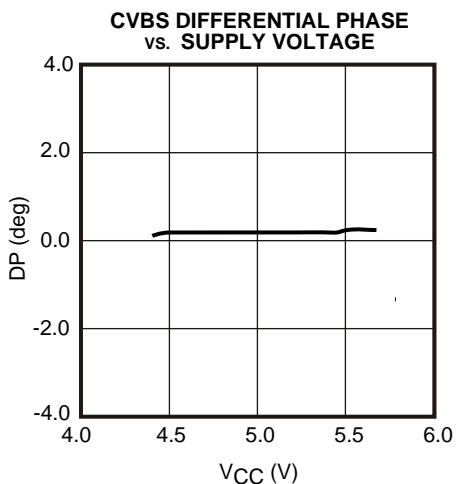
**TYPICAL PERFORMANCE CHARACTERISTICS**



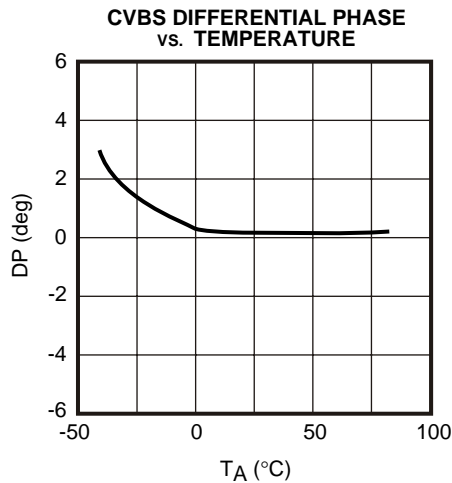
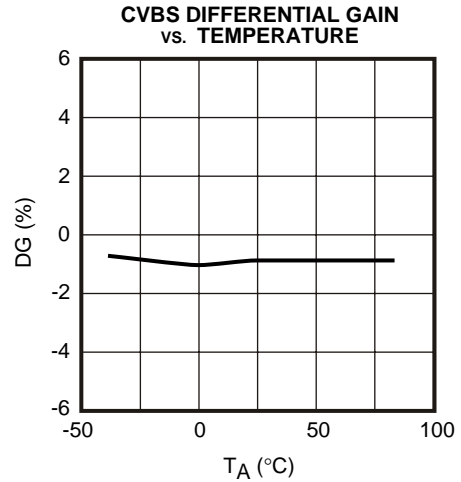
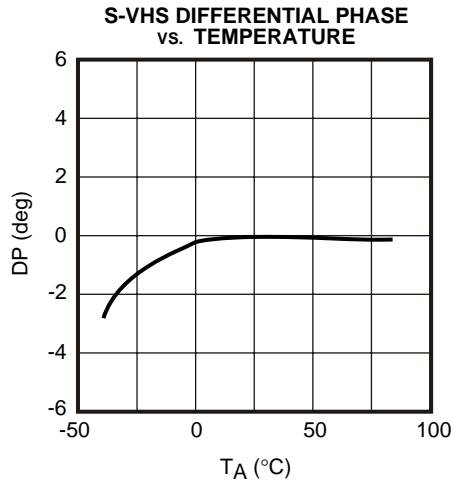
TYPICAL PERFORMANCE CHARACTERISTICS



## TYPICAL PERFORMANCE CHARACTERISTICS



**TYPICAL PERFORMANCE CHARACTERISTICS**



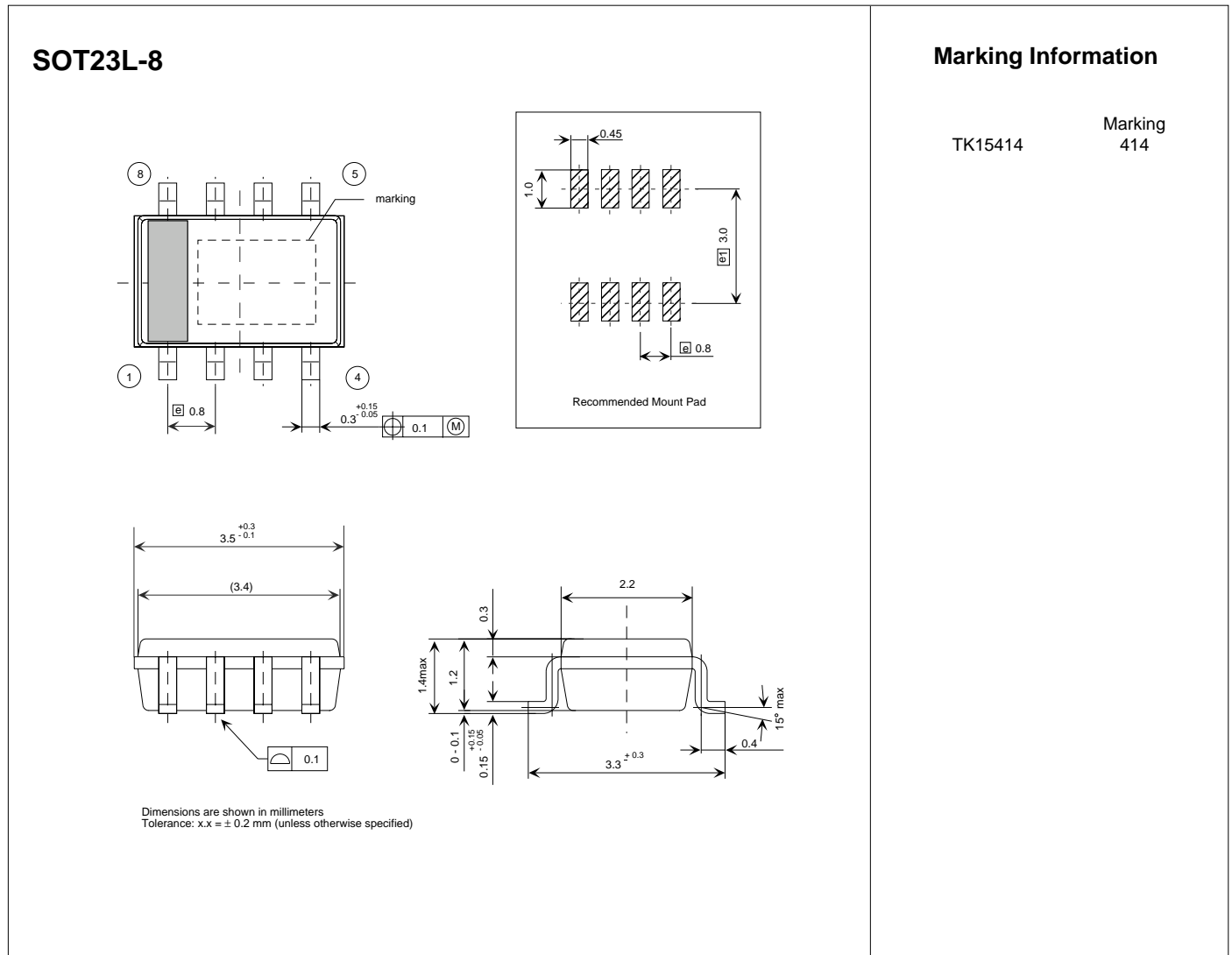
**PIN FUNCTION DESCRIPTION**

PIN NO.	SYMBOL	INTERNAL EQUIVALENT CIRCUIT	DESCRIPTION
1	Y-INPUT		<p>Luminance Input Terminal. The luminance input signal is clamped at 1.25 V.</p>

## PIN FUNCTION DESCRIPTION (CONT.)

PIN NO.	SYMBOL	INTERNAL EQUIVALENT CIRCUIT	DESCRIPTION
2	CVBS-INPUT		<p>CVBS Signal Input Terminal.</p> <p>The CVBS input signal is clamped at 1.25 V.</p>
3 4	SAG OUTPUT		<p>Pin 3: SAG Terminal</p> <p>Pin 4: Signal Output Terminal.</p> <p>The output is available to drive a <math>75\ \Omega + 75\ \Omega</math> 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.</p> <p>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.</p> <p>The chrominance input signal is biased to 2.0 V by a 100 k<math>\Omega</math> bias resistor.</p>

PACKAGE OUTLINE



Toko America, Inc. Headquarters  
1250 Feehanville Drive, Mount Prospect, Illinois 60056  
Tel: (847) 297-0070 Fax: (847) 699-7864

TOKO AMERICA REGIONAL OFFICES

Midwest Regional Office  
Toko America, Inc.  
1250 Feehanville Drive  
Mount Prospect, IL 60056  
Tel: (847) 297-0070  
Fax: (847) 699-7864

Western Regional Office  
Toko America, Inc.  
2480 North First Street, Suite 260  
San Jose, CA 95131  
Tel: (408) 432-8281  
Fax: (408) 943-9790

Eastern Regional Office  
Toko America, Inc.  
107 Mill Plain Road  
Danbury, CT 06811  
Tel: (203) 748-6871  
Fax: (203) 797-1223

Semiconductor Technical Support  
Toko Design Center  
4755 Forge Road  
Colorado Springs, CO 80907  
Tel: (719) 528-2200  
Fax: (719) 528-2375

Visit our Internet site at <http://www.tokoam.com>

The information furnished by TOKO, Inc. is believed to be accurate and reliable. However, TOKO reserves the right to make changes or improvements in the design, specification or manufacture of its products without further notice. TOKO does not assume any liability arising from the application or use of any product or circuit described herein, nor for any infringements of patents or other rights of third parties which may result from the use of its products. No license is granted by implication or otherwise under any patent or patent rights of TOKO, Inc.