75 Ω VIDEO LINE DRIVER

FEATURES

- **Fixed Gain (6 dB)**
- **Internal 75 Ω Drivers**
- **Very Small Output Capacitor at SAG Function Pin**
- **Active High ON/OFF Control**
- **Very Low Standby Current (typ. I_{CCS} - 25 µA)**
- **Internal Summing Circuit of Y/C Signal.**

APPLICATIONS

- **Video Equipment**
- **Digital Cameras**
- **CCD Cameras**
- **TV Monitors**
- **Video Tape Recorders**
- **LCD Televisions**

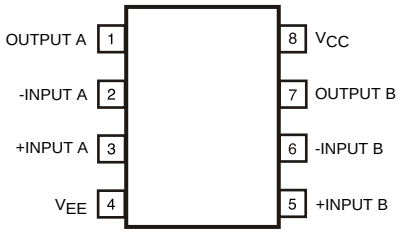
DESCRIPTION

The TK15420M is a video line driver IC which contains 2 channels. It is an operational amplifier type and the voltage gain is adjustable with an external resistor.

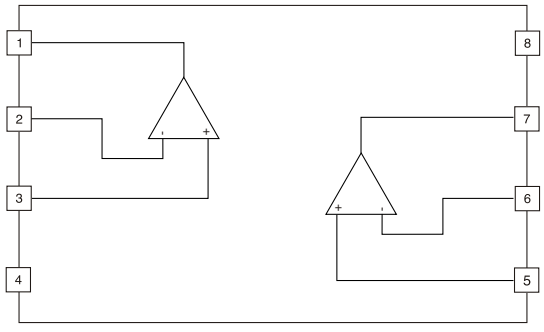
It is suitable for replacement of Motorola's video line driver IC MC14577CF.

The TK15420M is available in the SOP-8 surface mount package.

TK15420M



BLOCK DIAGRAM



ORDERING INFORMATION

TK15420M □□

Tape/Reel Code

TAPE/REEL CODE
TL: Tape Left

ABSOLUTE MAXIMUM RATINGS

Supply Voltage ..... 14 V
Operating Voltage Range ..... 4.0 to 12.0 V
Power Dissipation (Note 1) ..... 400 mW
Storage Temperature Range ..... -55 to +150 °C
Operating Temperature Range ..... -25 to +85 °C
Input Frequency ..... 20 MHz

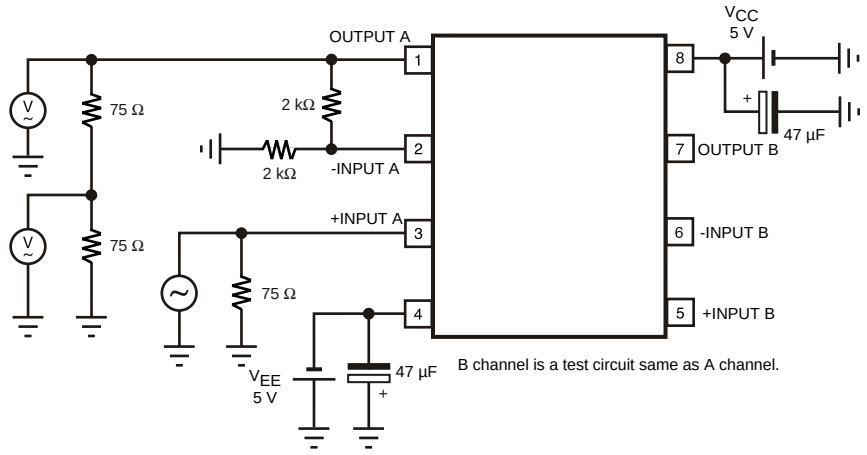
TK15420M ELECTRICAL CHARACTERISTICS

Test conditions: V_{CC} = 5.0 V, V_{EE} = -5.0 V, T_A = 25 °C unless otherwise specified.

SYMBOL	PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNITS
I_{CC}	Supply Current	No signal		16.9	23.0	mA
I_{IB}	Input Bias Current	Input terminal		5.0	15.0	µA
GVA	Voltage Gain	f_{in} = 1 MHz, V_{IN} = 1 V_{P-P}	5.6	5.9	6.2	dB
fr	Frequency Response	f_{in} = 1 MHz / 10 MHz		-0.5		dB
V_{OPP}	Maximum Output Voltage Swing	DC voltage	5.0	5.7		V_{P-P}
DG	Differential Gain	V_{IN} = 1 V_{P-P}, Staircase	-3.0	0.3	+3.0	%
DP	Differential Phase	V_{IN} = 1 V_{P-P}, Staircase	-3.0	0.4	+3.0	deg
CT	Cross Talk	f_{IN} = 4.43 MHz, V_{IN} = 1 V_{P-P}	50.0	63.4		dB
SVRR	Supply Voltage Rejection Ratio	Δ V = 0.4 V_{P-P}, f_{IN} = 100 kHz		48.6		dB
C_{IN}	Input Capacitance			8.6		pF
Z_{IN}	Input Impedance			5.0		MΩ

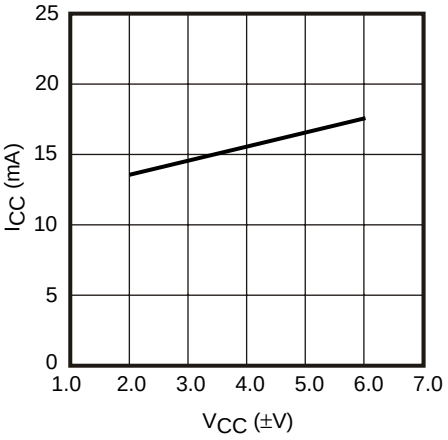
Note 1: Power dissipation is 400 mW when mounted as recommended. Derate at 3.2 mW/°C for operation above 25°C.
Note 2: Turn on in order of V_{EE} and V_{CC} when using this IC with two power supplies.

TEST CIRCUIT

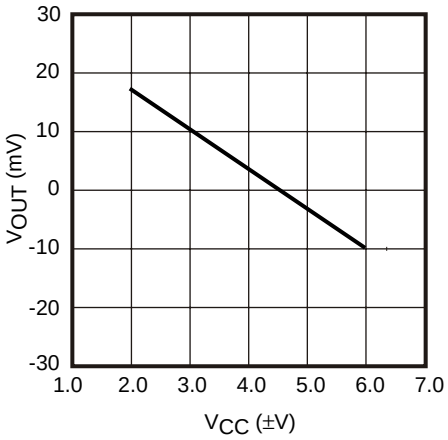


TYPICAL PERFORMANCE CHARACTERISTICS

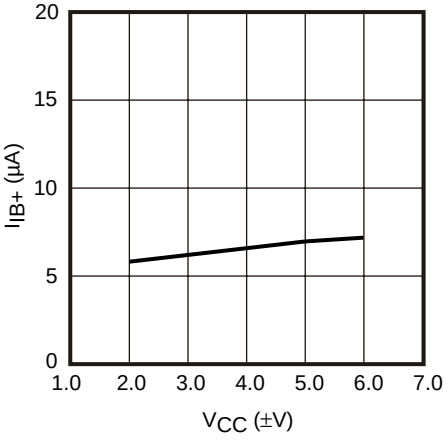
SUPPLY CURRENT vs. SUPPLY VOLTAGE



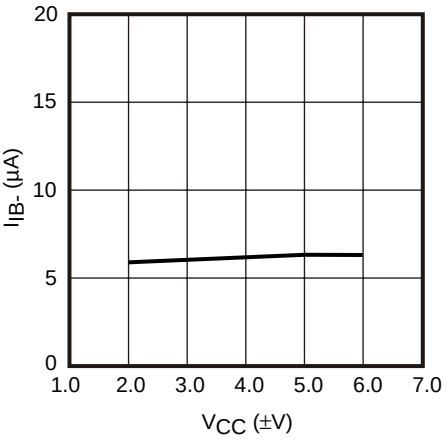
OUTPUT VOLTAGE vs. SUPPLY VOLTAGE



INPUT BIAS CURRENT vs. SUPPLY VOLTAGE

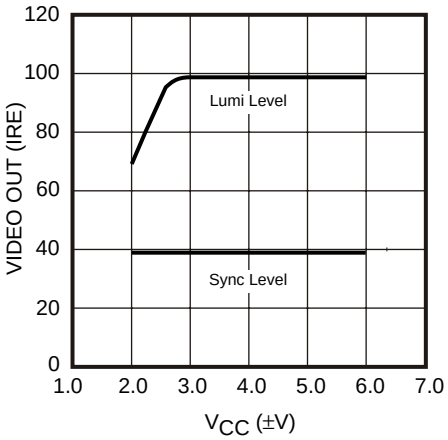


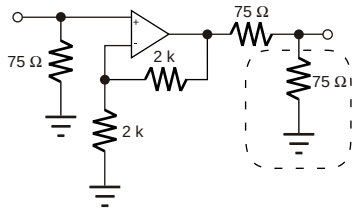
INPUT BIAS CURRENT vs. SUPPLY VOLTAGE



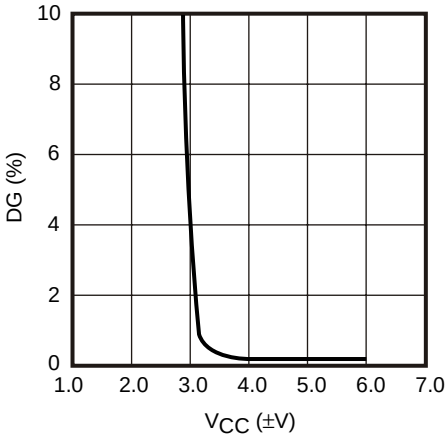
TYPICAL PERFORMANCE CHARACTERISTICS (CONT.)

VIDEO OUT vs. SUPPLY VOLTAGE

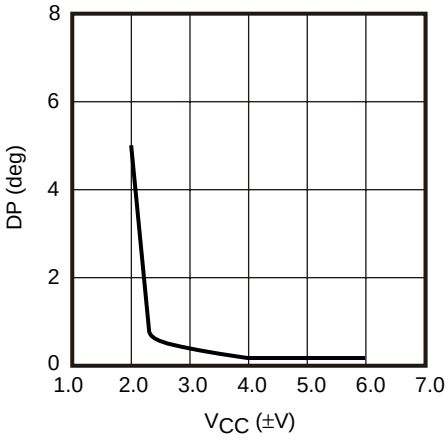




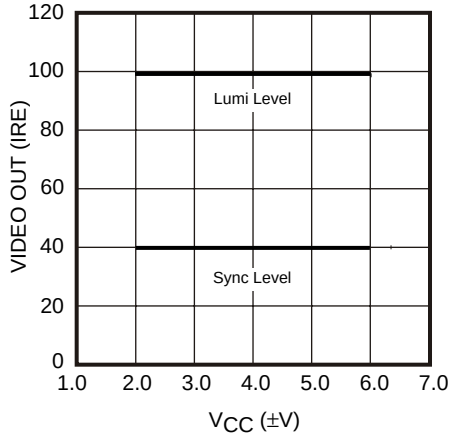
DIFFERENTIAL GAIN vs. SUPPLY VOLTAGE

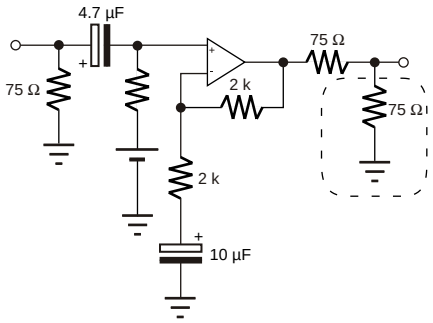


DIFFERENTIAL PHASE vs. SUPPLY VOLTAGE



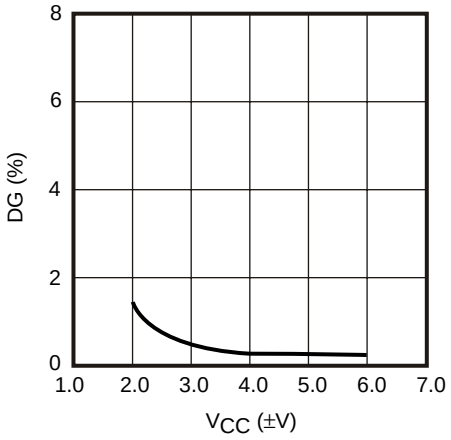
VIDEO OUT vs. SUPPLY VOLTAGE



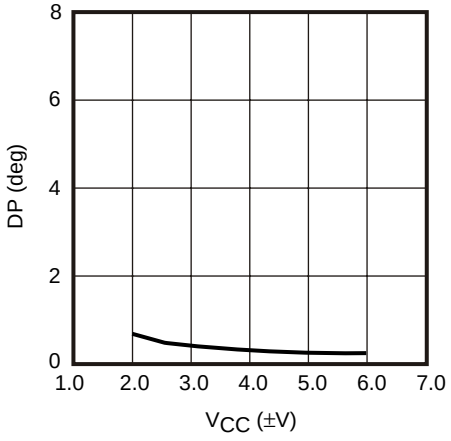


TYPICAL PERFORMANCE CHARACTERISTICS (CONT.)

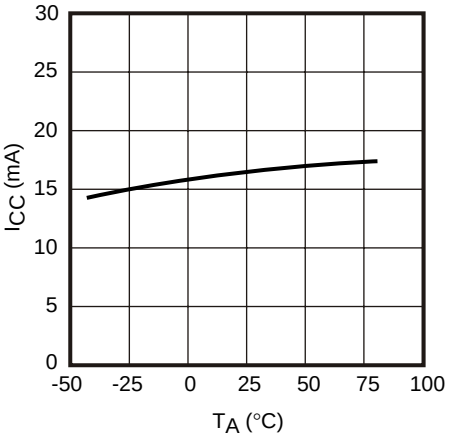
DIFFERENTIAL GAIN vs. SUPPLY VOLTAGE



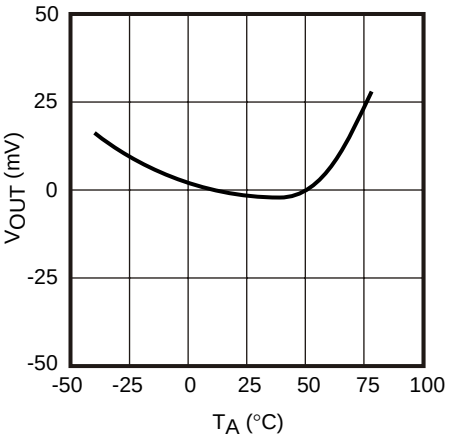
DIFFERENTIAL PHASE vs. SUPPLY VOLTAGE



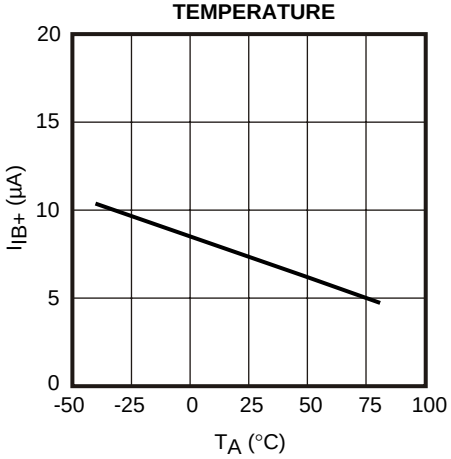
SUPPLY CURRENT vs. TEMPERATURE



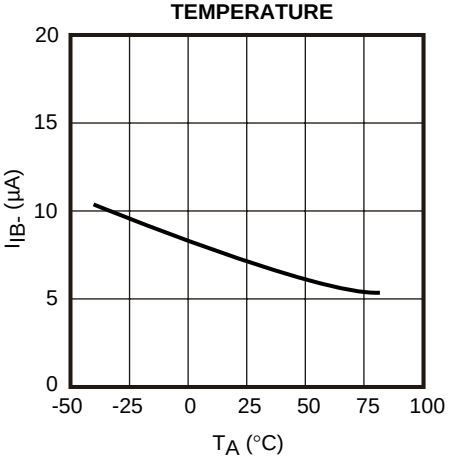
OUTPUT VOLTAGE vs. TEMPERATURE



INPUT BIAS CURRENT vs. TEMPERATURE

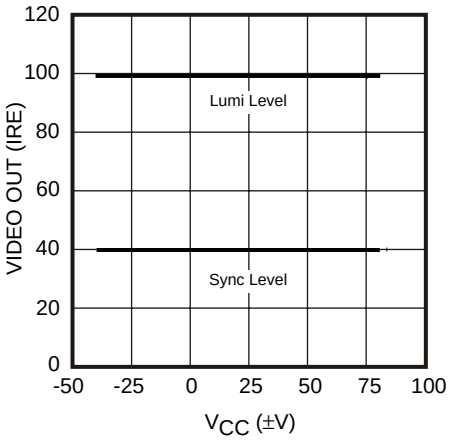


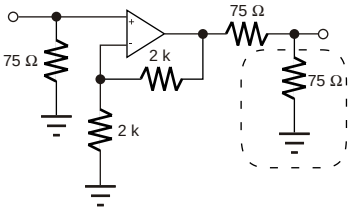
INPUT BIAS CURRENT vs. TEMPERATURE



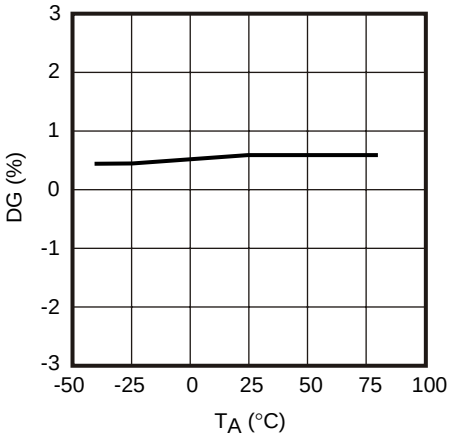
TYPICAL PERFORMANCE CHARACTERISTICS (CONT.)

VIDEO OUT vs. TEMPERATURE

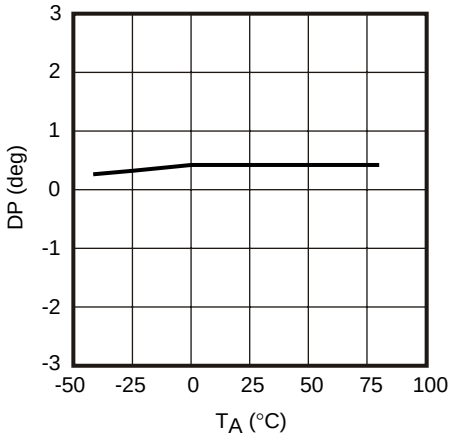




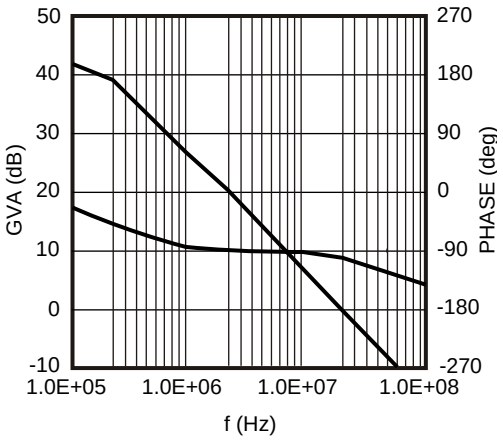
DIFFERENTIAL GAIN vs. TEMPERATURE

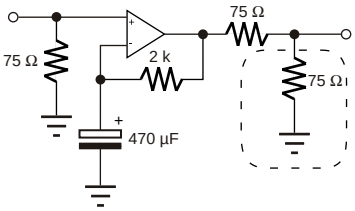


DIFFERENTIAL PHASE vs. TEMPERATURE



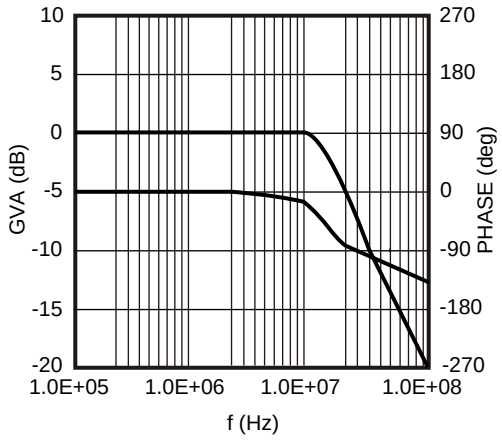
Title

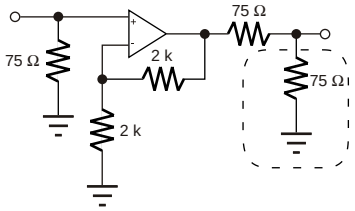




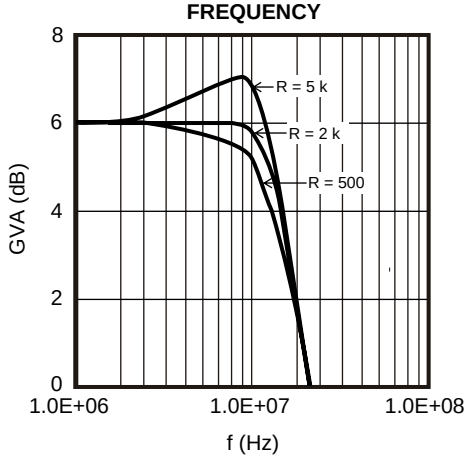
TYPICAL PERFORMANCE CHARACTERISTICS (CONT.)

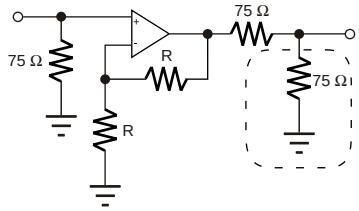
Title



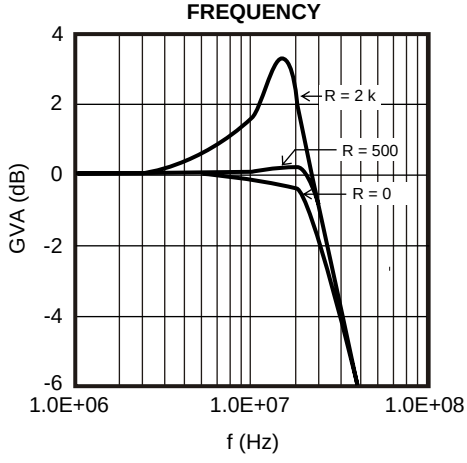


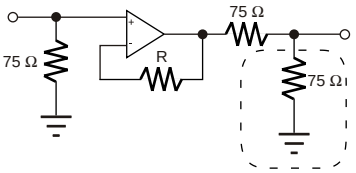
VOLTAGE GAIN vs. FREQUENCY



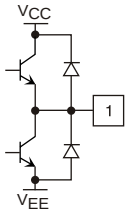
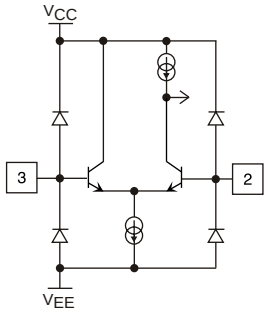
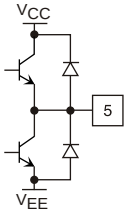
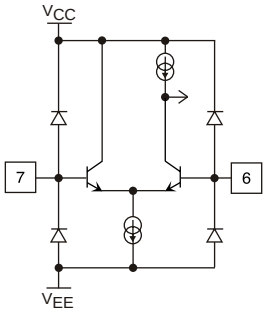


VOLTAGE GAIN vs. FREQUENCY



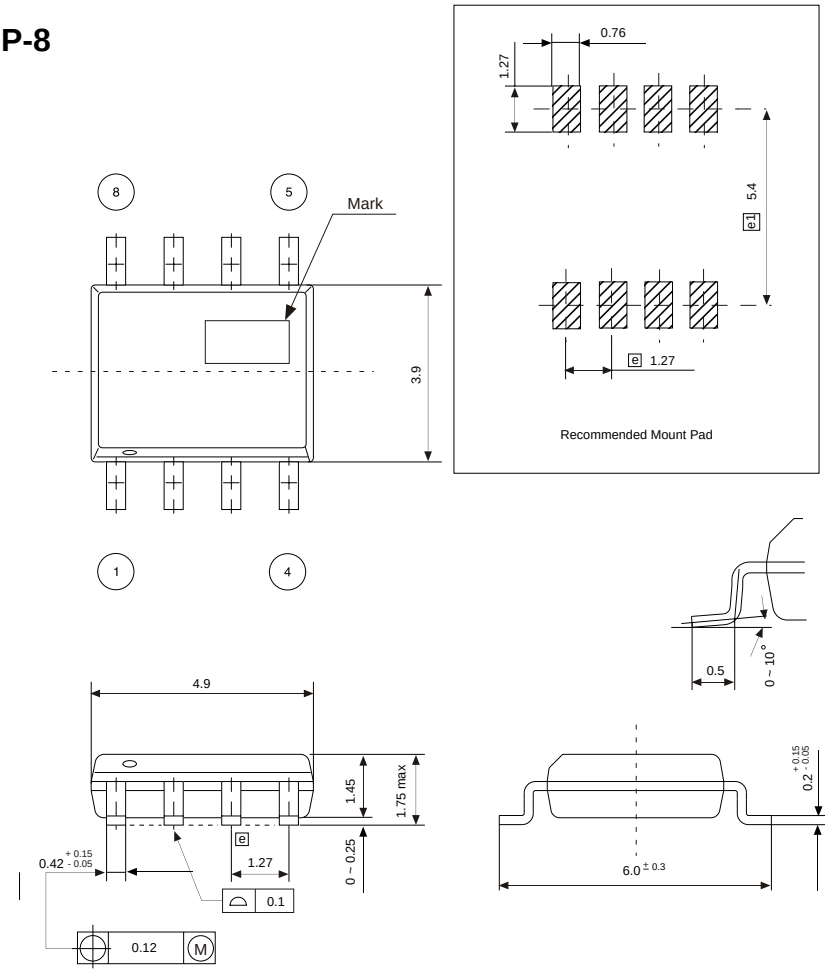


PIN FUNCTION DESCRIPTION

PIN NO.	SYMBOL	INTERNAL EQUIVALENT CIRCUIT	DESCRIPTION
1	OUTPUT A		
2 3	-INPUT A +INPUT A		
4	V_{EE}		
5	OUTPUT B		
6 7	-INPUT B +INPUT B		
8	V_{CC}		

PACKAGE OUTLINE

SOP-8



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

Marking Information

	Marking
TK15420	420

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