

2-INPUT 1-OUTPUT VIDEO SWITCH

■ GENERAL DESCRIPTION

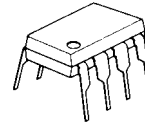
The **NJM2533** is a video switch for VCR, TV, and others.
It contains two bias-type inputs and one buffer-type output.

■ FEATURES

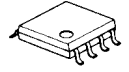
- Operating Voltage (+4.75V to +13V)
- Low Operating Current (MAX : 3.7mA)
- Crosstalk (-70dB)
- 2-Input, 1-Output
- Bipolar Technology
- Package Outline

DIP8, DMP8, SIP8, SSOP8

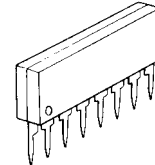
■ PACKAGE OUTLINE



NJM2533D



NJM2533M

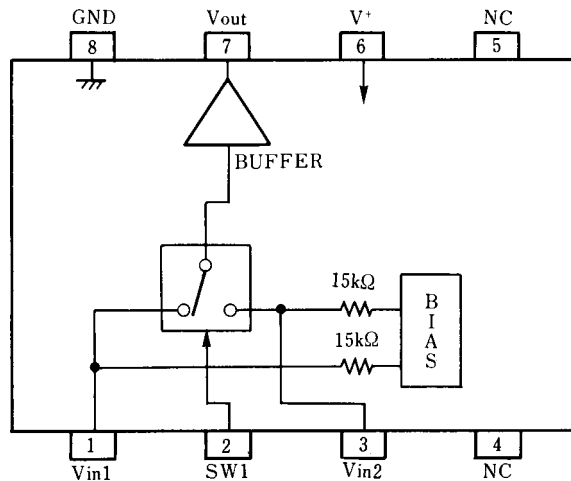


NJM2533L



NJM2533V

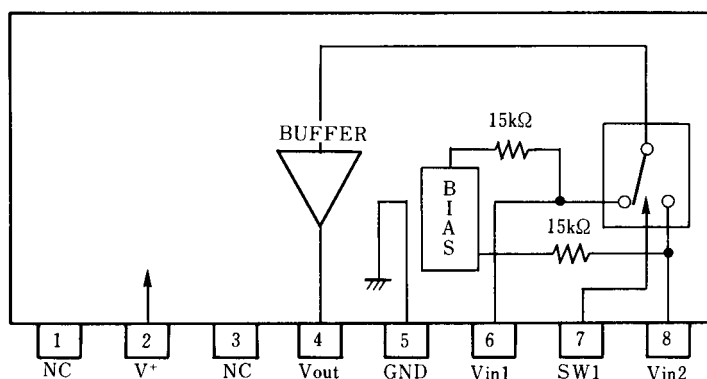
■ PIN CONFIGURATION



PIN FUNCTION

- 1 : Vin1
- 2 : SW1
- 3 : Vin2
- 4 : NC
- 5 : NC
- 6 : V⁺
- 7 : V_{OUT}
- 8 : GND

NJM2533D
NJM2533M
NJM2533V



PIN FUNCTION

- 1 : NC
- 2 : V⁺
- 3 : NC
- 4 : V_{OUT}
- 5 : GND
- 6 : Vin1
- 7 : SW1
- 8 : Vin2

NJM2533L

NJM2533

■ ABSOLUTE MAXIMUM RATINGS

($T_a = 25^\circ\text{C}$)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V^+	+15	V
Power Dissipation	P_D	(DIP-8) 500 (DMP-8) 300 (SIP-8) 800 (SSOP-8) 250	mW
Operating Temperature Range	T_{opr}	-40 to +85	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-40 to +125	$^\circ\text{C}$

■ ELECTRICAL CHARACTERISTICS

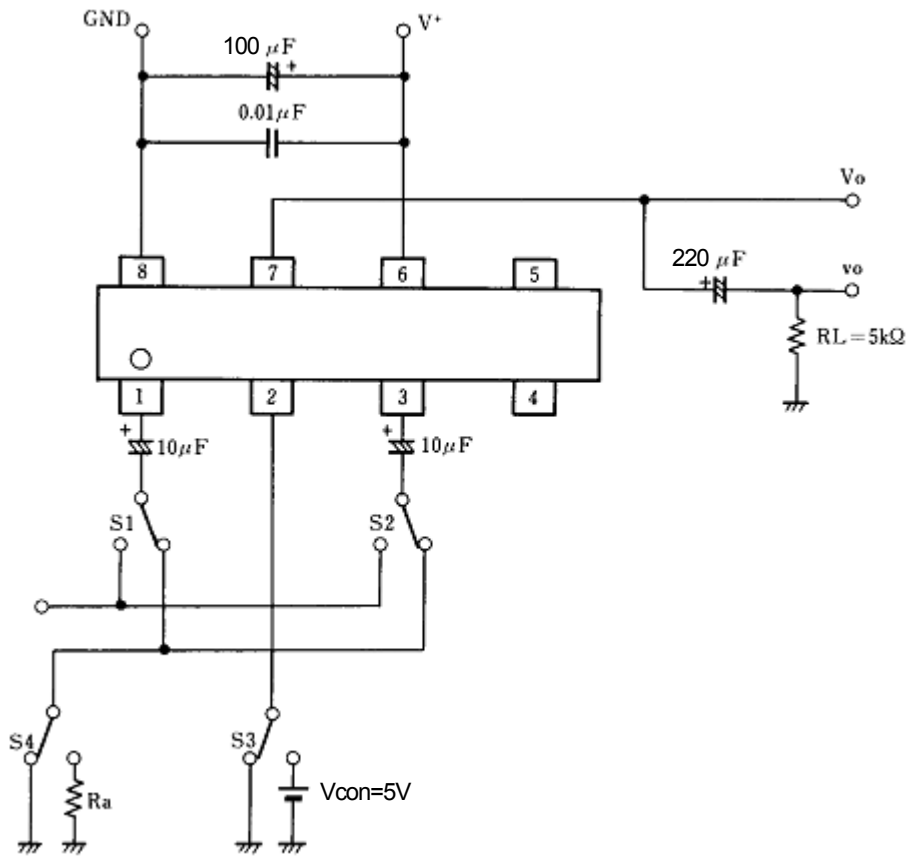
($V^+ = 5\text{V}$, $T_a = 25^\circ\text{C}$)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Operating Voltage	V^+		+4.5	-	+13.0	V
Operating Current	I_{CC}		-	2.7	3.7	mA
Frequency Characteristics	G_f	$V_{IN} = 2V_{PP}$, $V_O = 10\text{MHz}/100\text{kHz}$	-1.0	0	+1.0	dB
Voltage Gain	G_v	$V_{IN} = 2V_{PP}$, 100kHz	-0.5	0	+0.5	dB
Total Harmonic Distortion	THD	$V_{IN} = 2.5V_{PP}$, 1kHz	-	0.05	0.1	%
Differential Gain	DG	$V_{IN} = 2V_{PP}$, Standard staircase signal, APL = 50%	-	0.2	3.0	%
Differential Phase	DP	$V_{IN} = 2V_{PP}$, Standard staircase signal, APL = 50%	-	0.2	3.0	deg
Output Offset Voltage	V_{off}		-15	0	+15	mV
Crosstalk	CT	$V_{IN} = 2V_{PP}$, 4.3MHz	-	-70	-60	dB
Switching Voltage	V_{CH}		2.4	-	-	V
	V_{CL}		-	-	0.8	V
Input Impedance	R_i		-	30	-	k Ω
Output Impedance	R_o		-	25	-	Ω
Input Bias Voltage	V_{IN}		-	2.5	-	V

■ CONTROL SIGNAL-OUTPUT SIGNAL

SW1	OUTPUT SIGNAL
L	V_{IN1}
H	V_{IN2}

■ TEST CIRCUIT



Terminal DC voltage at test circuit ($T_a=25^\circ\text{C}$)

Terminal name	Vin1	Vin2	Vout
DC voltage (V)	$V^+/2$	$V^+/2$	$V^+/2 - 0.7$

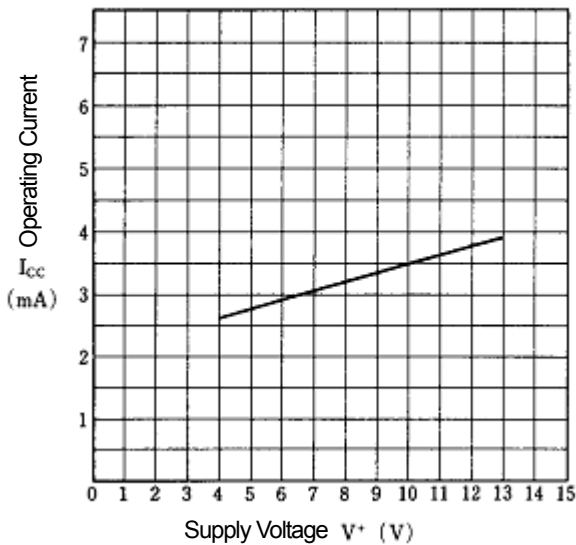
NJM2533

■ TERMINAL DESCRIPTION (Terminal number indicates the DIP , DMP, SSOP)

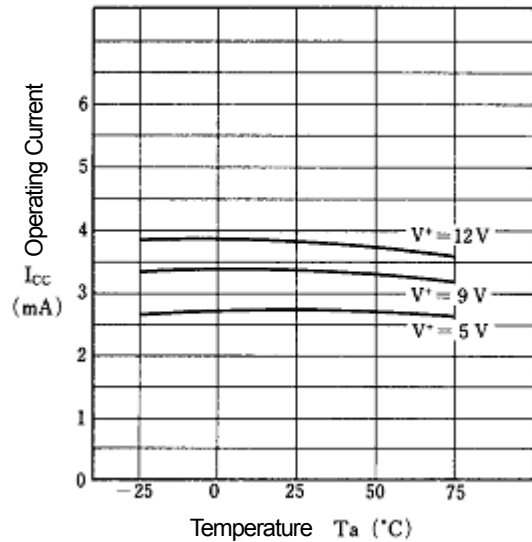
No.	SYMBOL	EQUIVALENT CIRCUIT	No.	SYMBOL	EQUIVALENT CIRCUIT
1	V_{IN1}		5	NC	
2	SW1		6	V^+	
3	V_{IN2}		7	V_{OUT}	
4	NC		8	GND	

■ TYPICAL CHARACTERISTICS

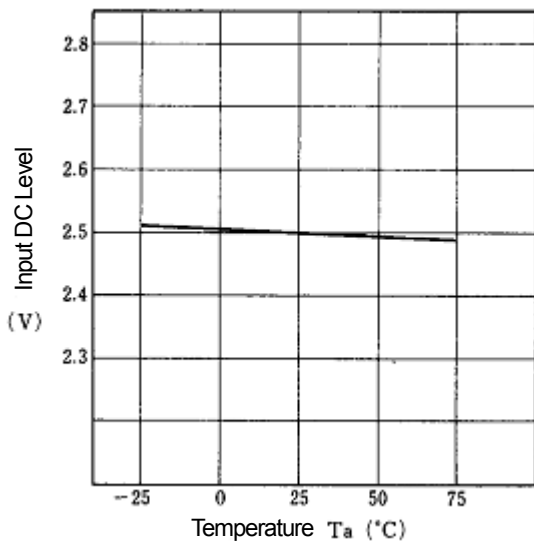
Operating Current vs. Supply Voltage
($T_a = 25^\circ\text{C}$)



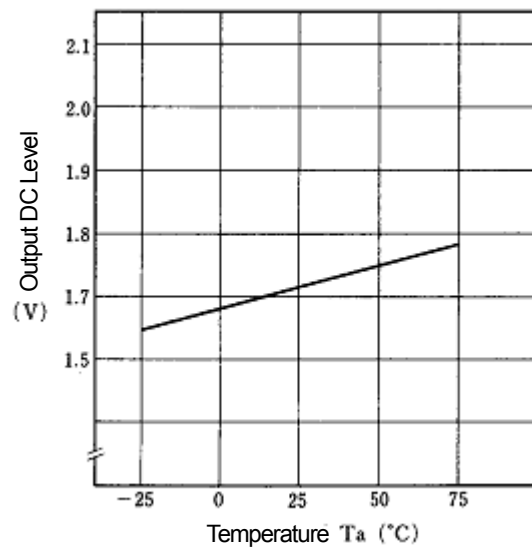
Operating Current vs. Temperature
($T_a = 25^\circ\text{C}$)



Input DC Level vs. Temperature
($V^+ = 5\text{V}$, $T_a = 25^\circ\text{C}$)

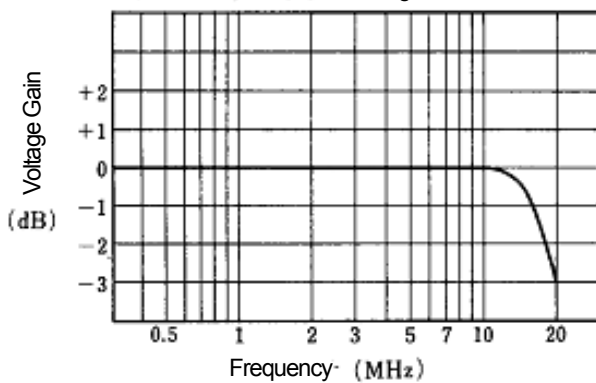


Output DC Level vs. Temperature
($V^+ = 5\text{V}$)



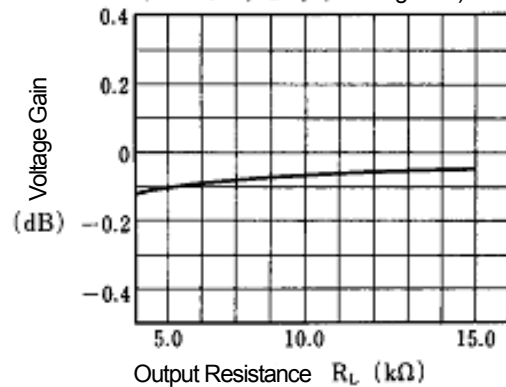
Voltage Gain vs. Frequency

($V^+ = 5\text{V}$, $2V_{p-p}$ Sin signal, $R_L = 5\text{k}\Omega$)

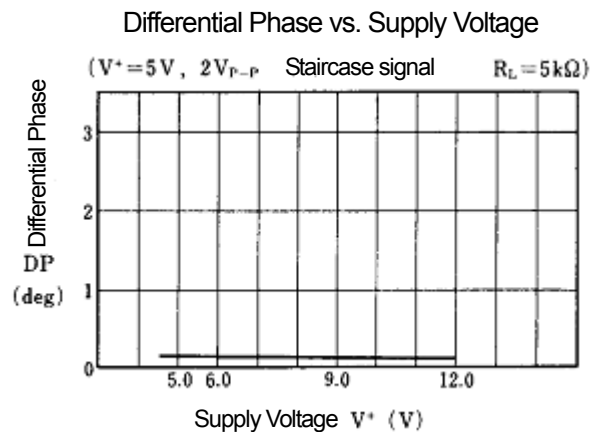
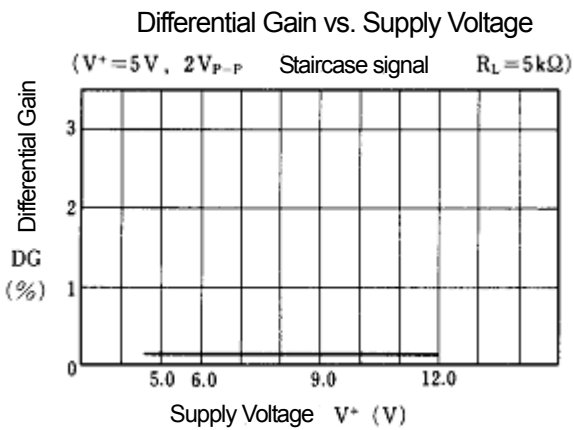
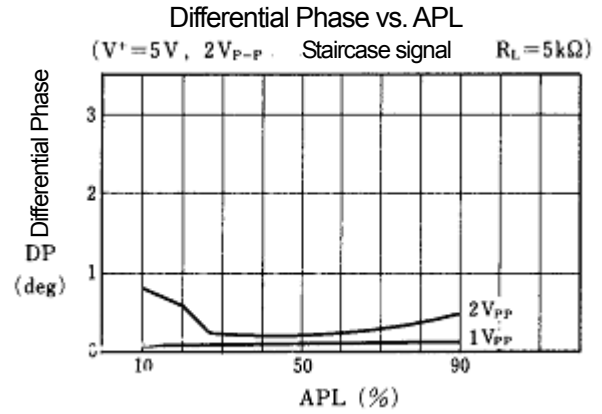
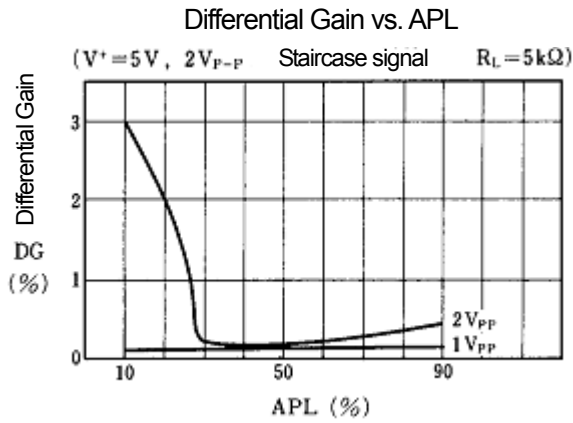
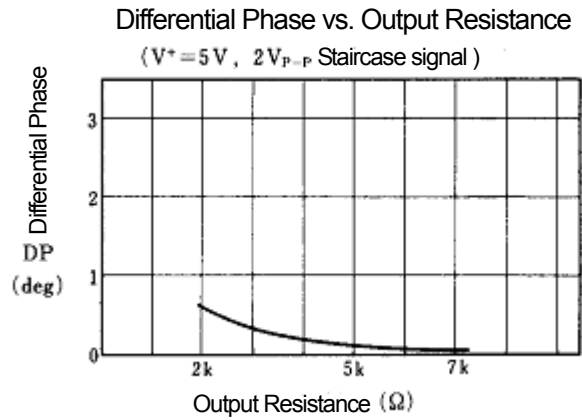
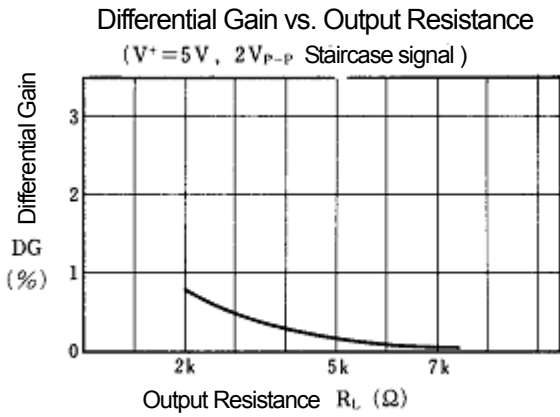


Voltage Gain vs. Output Resistance

($V^+ = 5\text{V}$, $2V_{p-p}$ Sin signal)

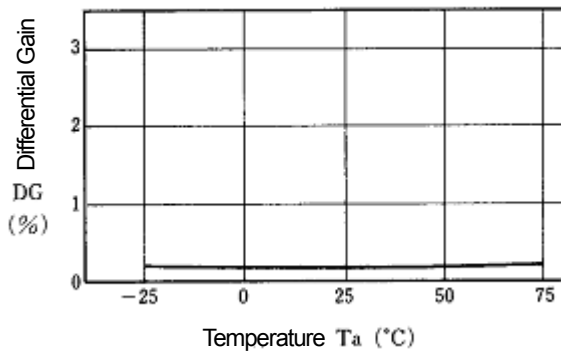


■ TYPICAL CHARACTERISTICS

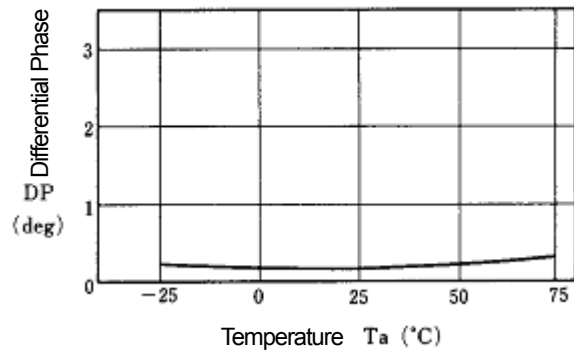


■ TYPICAL CHARACTERISTICS

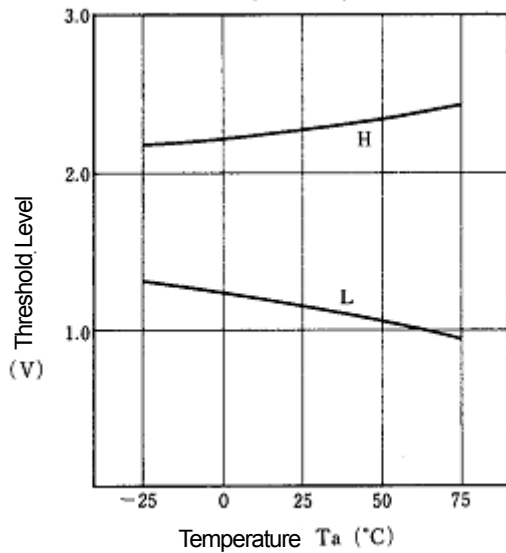
Differential Gain vs. Temperature
($V^+ = 5V$, $2V_{P-P}$ Staircase signal)



Differential Phase vs. Temperature
($V^+ = 5V$, $2V_{P-P}$ Staircase signal)

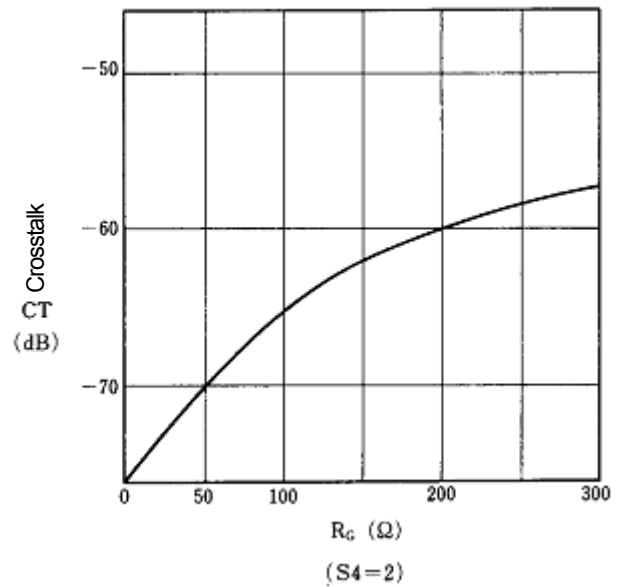


Threshold Level vs. Temperature
($V^+ = 5V$)

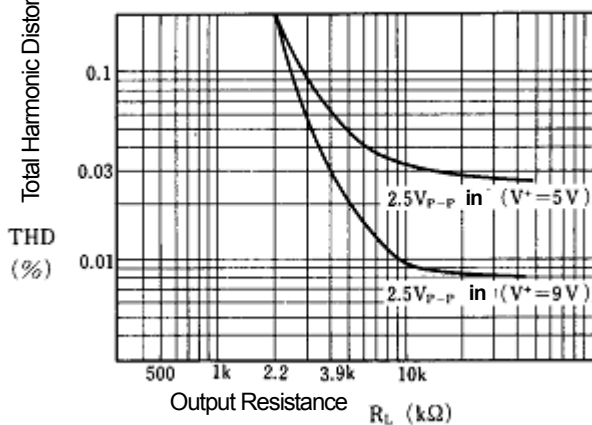


Crosstalk vs. R_G

($V^+ = 5V$, 4.43MHz $2V_{P-P}$ Sin signal)

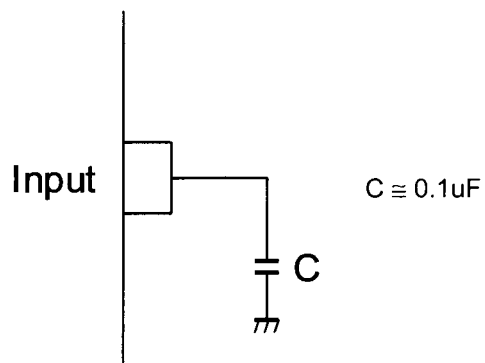


Total Harmonic Distortion vs. Output Resistance
(1kHz Sin signal)



■ APPLICATION

This IC requires 0.1 μ F capacitor between INPUT and GND for bias type input at mute mode.



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