REMOTE-CONTROL INTERFACE

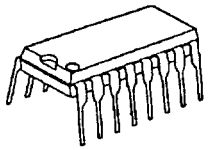
■ GENERAL DESCRIPTION

The NJM2145 is a remote-control Interface for television, VCR, receiver, and others.

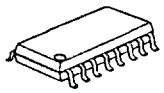
Some items are connected through the OUT2(two-way) terminal, then all of items are controlled when the control signal from any remote-control commander is transmitted to one of items.

If a few OUT2 terminals are open, the NJM2145 operates normally by its error protection circuit.

■ PACKAGE OUTLINE



NJM2145D



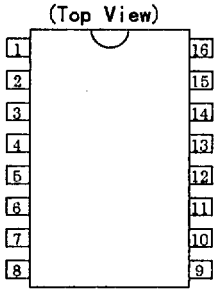
NJM2145M

■ FEATURES

- ●Operating Voltage (4.75V~5.25V)
- ●Internal Error Protection Circuit against open OUT2 terminal
- ●OUT2(Tow-Way)×3
- ●Internal Output Short Protection
- ●Bipolar Technology
- ●Package Outline DIP16, DMP16

■ PIN COFIGURATION

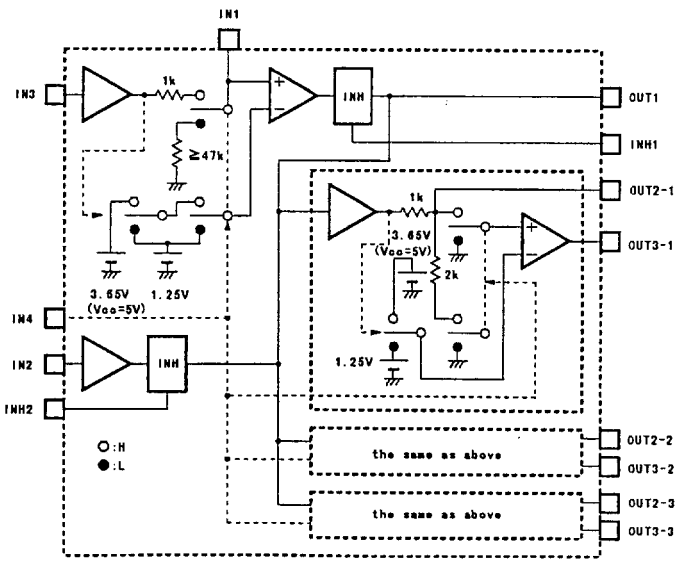
D, M Type
(Top View)



PIN FUNCTION

1.	V^+	9.	OUT2-3
2.	OUT1	10.	OUT2-2
3.	IN4	11.	OUT2-1
4.	IN3	12.	NC
5.	IN2	13.	IN1
6.	OUT3-1	14.	INH2
7.	OUT3-2	15.	INH1
8.	OUT3-3	16.	GND

■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATINGS (Ta=25℃)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V^+	7	V
Power Dissipation	P_D	(DIP16) 700 (DMP16) 300	mW
Operating Temperature Range	Topr	-20～75	℃
Storage Temperature Range	Tstg	-40～125	℃

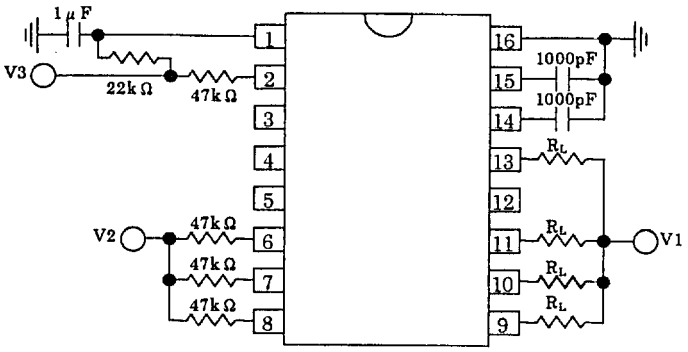
■ ELECTRICAL CHARACTERISTICS (V^+=5V, Ta=25℃)

PARAMETER	SYMBOL	TEST CONDITION							MIN.	TYP.	MAX	UNIT
		IN2	IN3	IN4	V1	V2	V3	RL				
Operating Supply Voltage	Vopr	–	–	–	–	–	–	–	4.75	5.0	5.25	V
Operating Current1	Icc1	1.5	1.5	1.5	0.0	0.0	Open	47kΩ	–	2.0	4.0	mA
Operating Current2	Icc2	3.5	3.5	3.5	0.0	0.0	Open	1kΩ	–	10	13	mA
IN1-High Electric Potential Output Voltage1	IN1-H1	–	3.5	3.5	5.0	–	–	1kΩ	3.5	–	5.0	V
IN1-Low Electric Potential Output Voltage1	IN1-L1	–	1.5	3.5	5.0	–	–	1kΩ	2.0	2.5	3.0	V
IN1-High Electric Potential Output Voltage2	IN1-H2	–	3.5	3.5	0.0	–	–	1kΩ	2.0	2.5	3.0	V
IN1-Low Electric Potential Output Voltage2	IN1-L2	–	1.5	3.5	0.0	–	–	1kΩ	0.0	–	1.5	V
IN1-Input Impedance	IN1-Imp	–	3.5	1.5	5.0	–	–	47kΩ	47	80	120	kΩ

■ ELECTRICAL CHARACTERISTICS (V^+=5V, Ta=25°C)

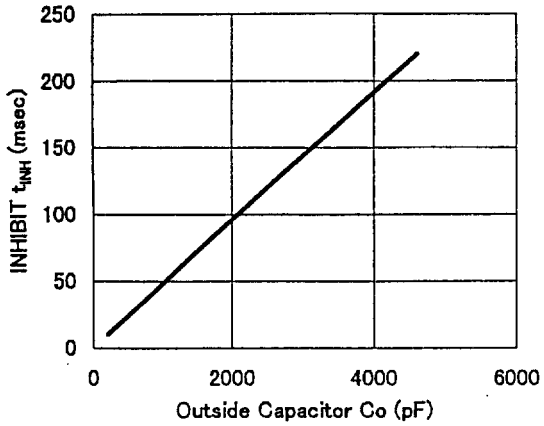
PARAMETER	SYMBOL	TEST CONDITION							MIN.	TYP.	MAX	UNIT
		IN2	IN3	IN4	V1	V2	V3	RL				
OUT1-High Electric Potential Output Voltage1	OUT1-H1	–	3.5	3.5	1.0	–	Open	1kΩ	3.5	–	5.0	V
OUT1-High Electric Potential Output Voltage2	OUT1-H2	–	1.5	3.5	INH*	–	0.0	1kΩ	3.5	–	5.0	V
OUT1-Low Electric Potential Output Voltage	OUT1-L	–	3.5	3.5	4.0	–	Open	1kΩ	0.0	–	1.5	V
OUT2-High Electric Potential Output Voltage1	OUT2-H1	INH*	–	3.5	–	5.0	Open	1kΩ	3.5	4.0	4.5	V
OUT2-Low Electric Potential Output Voltage1	OUT2-L1	1.5	–	3.5	–	5.0	Open	1kΩ	1.5	2.0	2.5	V
OUT2-High Electric Potential Output Voltage2	OUT2-H2	INH*	–	3.5	–	0.0	Open	1kΩ	1.5	2.0	2.5	V
OUT2-Low Electric Potential Output Voltage2	OUT2-L2	1.5	–	3.5	–	0.0	Open	1kΩ	0.0	–	1.5	V
OUT2-High Electric Potential Output Voltage3	OUT2-H3	1.5	–	1.5	–	0.0	1.5	47kΩ	3.5	–	5.0	V
OUT2-Low Electric Potential Output Voltage3	OUT2-L3	1.5	–	1.5	–	5.0	Open	47kΩ	0.0	–	1.5	V
OUT3-High Electric Potential Output Voltage	OUT3-H	3.5	–	3.5	4.0	0.0	Open	47kΩ	3.5	–	5.0	V
OUT3-Low Electric Potential Output Voltage1	OUT3-L1	1.5	–	3.5	1.0	5.0	Open	47kΩ	0.0	–	1.5	V
OUT3-Low Electric Potential Output Voltage2	OUT3-L2	3.5	–	1.5	1.0	5.0	Open	47kΩ	0.0	–	1.5	V
IN1, OUT2 Input Threshold Voltage1	V_{TH1-1}	–	–	1.5	–	–	–	–	1.0	1.3	2.0	V
IN1, OUT2 Input Threshold Voltage2	V_{TH1-2}	–	3.5	3.5	–	–	–	–	3.0	3.65	4.5	V
IN2, IN3, IN4 Input Threshold Voltage	V_{TH2}	–	–	–	–	–	–	–	2.0	2.5	3.0	V
Inhibit Time1 (IN1→OUT1)	INH1	–	1.5	3.5	INH*	–	0.0	1kΩ	20	60	100	msec
Inhibit Time2 (IN2→OUT2)	INH2	INH*	–	3.5	–	5.0	0.0	1kΩ	20	60	100	msec
Slew Switch	SS	V^+=0V, IN1=3.5V						47kΩ	3.5	–	4.0	V

■ TEST CIRCUIT

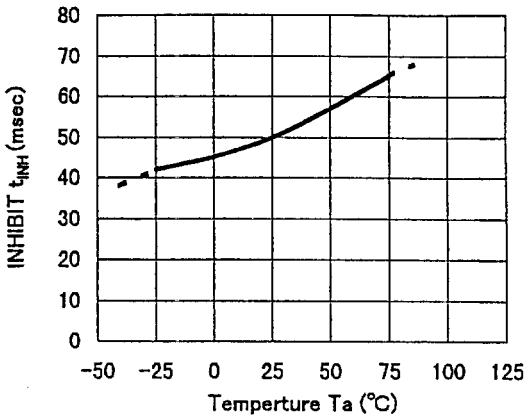


■ TYPICAL CHARACTERISTICS

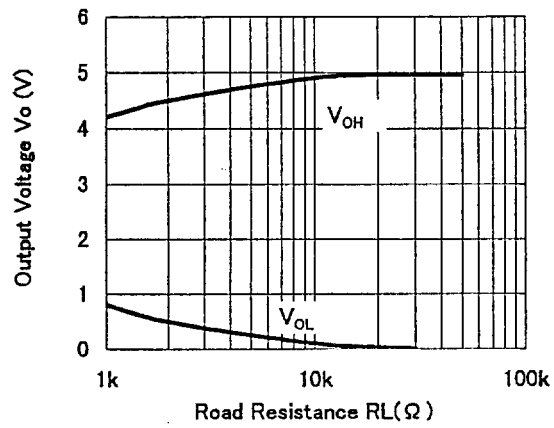
INHIBIT Time vs. Outside Capacitor
(Vcc1=5V,Ta=25°C)



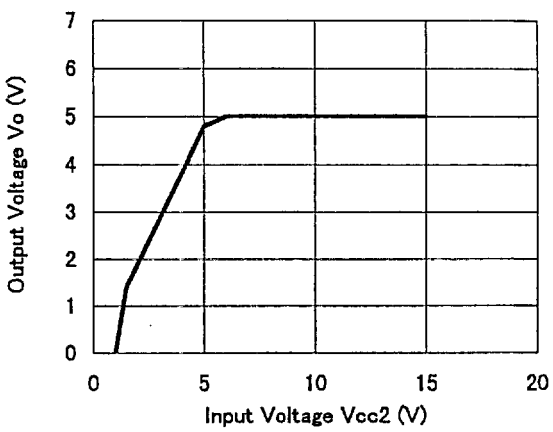
INHIBIT Time vs. Temperture
(Vcc1=5V,C=1000pF)



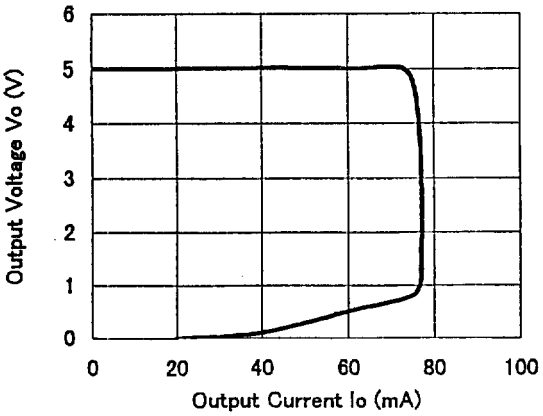
Out2 Output Voltage vs. Load Resistance
(Vcc1=IN2=5V,Ta=25°C)



Regulator Output Characteristics
(Vcc1=5V,R_L=100Ω,Ta=25°C)



Regulator Load Characteristics
(Vcc1=5V,Vcc2=5.9V,Ta=25°C)



Ripple Rejection
(Vcc1=5V,Vcc2=5.9V+300mVrms,R_L=100Ω,Ta=25°C)