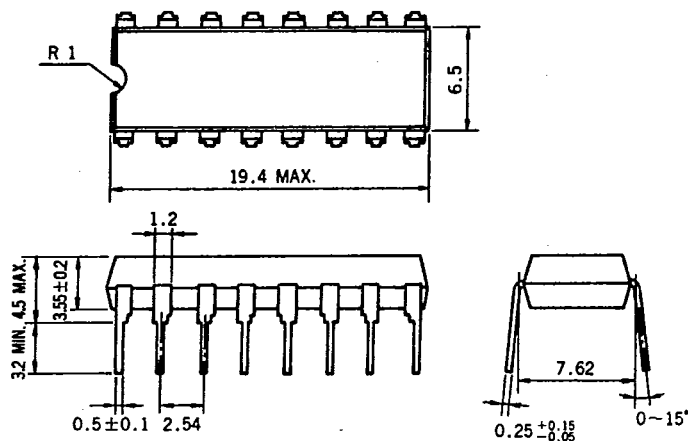
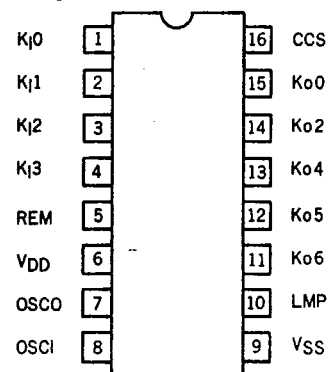


μPD1913C

PACKAGE DIMENSIONS (in millimeters)

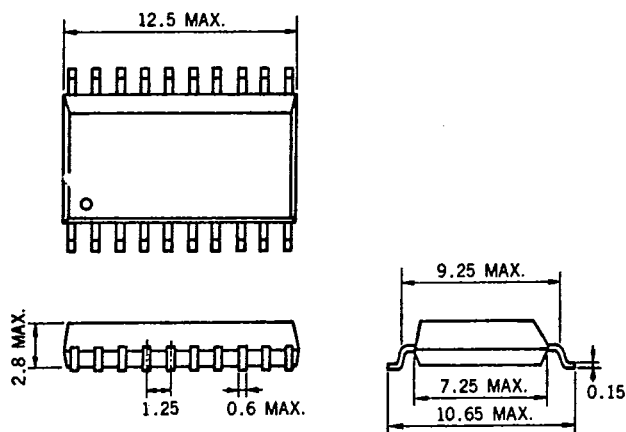


CONNECTION DIAGRAM (Top View)

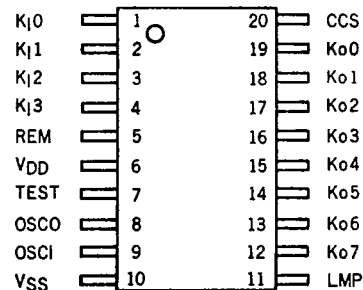


μPD1943G

PACKAGE DIMENSIONS (in millimeters)



CONNECTION DIAGRAM (Top View)



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

Supply Voltage	$V_{DD} - V_{SS}$	4.0	V
Input Voltage	$V_{IN} - V_{SS}$	-0.3 to V_{DD}	V
Output Current	$I_{OH}(\text{REM}, \text{LMP})$	-15.0	mA
Power Dissipation	P_d	250	mW
Operating Temperature Range	T_{opt}	-20 to +75	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-40 to +125	$^\circ\text{C}$

RECOMMENDED OPERATING CONDITIONS

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT
Supply Voltage	V_{DD}	2.0	3.0	3.3	V
Oscillation Frequency	f_{OSC}	400	455	500	kHz
Lamp Output Current	$I_{OL}(\text{LMP})$		1		mA

ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$, $V_{DD} = 3.0\text{ V}$)

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Supply Current	$I_{DD}(\text{OP})$		0.1	1.0	mA	$f_{OSC} = 455\text{ kHz}$
Supply Current	$I_{DD}(\text{ST})$			1	μA	$f_{OSC} = \text{STOP}$
Input High Voltage	$V_{IH}(\text{KI})$	$0.7 V_{DD}$		V_{DD}	V	
Input Low Voltage	$V_{IL}(\text{KI})$	0		$0.3 V_{DD}$	V	
Input Pull Down R	$R(\text{KI})$	150	300	600	$k\Omega$	
Output Current	$I_{OH}(\text{REM})$	-5			mA	$V_{OH}(\text{REM}) = 1.5\text{ V}$
Output Low Voltage	$V_{OL}(\text{LMP})$			0.3	V	$I_{OL} = 1.0\text{ mA}$

μ PD1913C, μ PD1943G

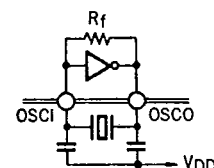
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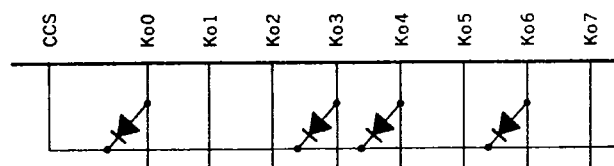
PIN FUNCTION

PIN (μ PD1943G)	PIN (μ PD1913C)	FUNCTION	
1	1	K _I 0	Key Input 0
2	2	K _I 1	Key Input 1
3	3	K _I 2	Key Input 2
4	4	K _I 3	Key Input 3
5	5	REM	Remote Output
6	6	V _{DD}	Positive Supply 2.0 to 3.3 V
7	—	TEST	TEST Terminal normally Open
8	7	OSCO	Oscillator Output
9	8	OSCI	Oscillator Input
10	9	LMP	Lamp Output Indicator for Transmission
11	10	V _{SS}	Ground
12	—	Ko7	Key Output 7
13	11	Ko6	Key Output 6
14	12	Ko5	Key Output 5
15	13	Ko4	Key Output 4
16	—	Ko3	Key Output 3
17	14	Ko2	Key Output 2
18	—	Ko1	Key Output 1
19	15	Ko0	Key Output 0
20	16	CCS	Custom Code Select Input

Internaly Pulldown to V_{SS} by ResistorCeramic Resonator
(400 to 500 kHz)

Custom Code is selected by diode Connection
to Key Output (Ko0 to Ko7)

This terminal is usually pull up to V_{DD} by in-
ternal Resistor.



Custom Code Select

Example ... C0 to C7 = 1 0 0 1 1 0 1 0

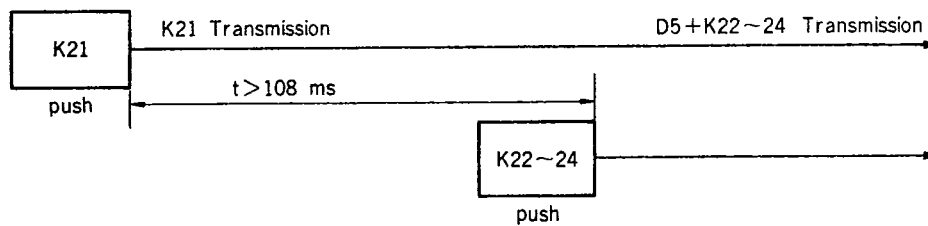
OPERATION OF DUAL ACTION KEY

Keys (K21 to K24) are used for preventing failure caused by mistakes.

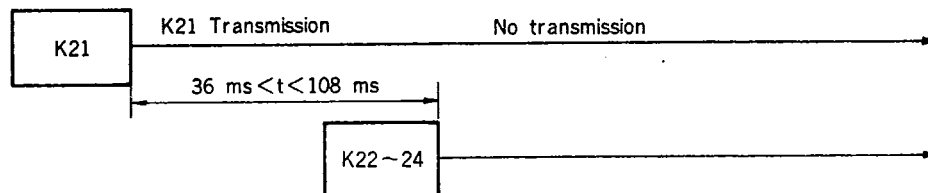
Exsample ; Casset Tape Recorder	K21 ... REC KEY
	K22 ... PLAY KEY

KEY	D0	D1	D2	D3	D4	D5	D6	D7
K21 + K22	1	0	1	0	1	1	0	0
K21 + K23	0	1	1	0	1	1	0	0
K21 + K24	1	1	1	0	1	1	0	0

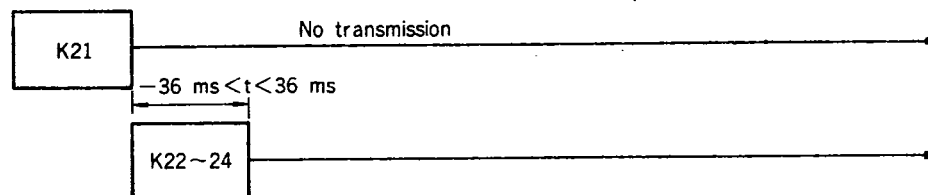
(a) Operation



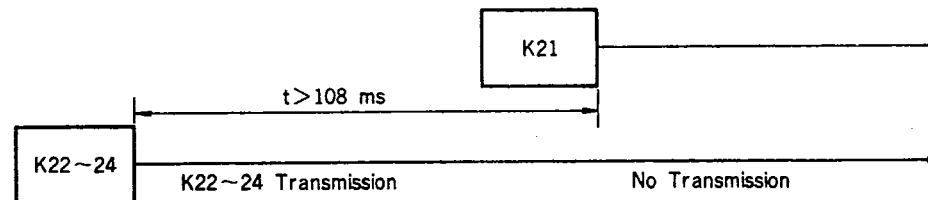
(b) No operation



(c) No operation



(d) No operation



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Transmission Code

	C 0	C 1	C 2	C 3	C 4	C 5	C 6	C 7	C 0	C 1	C 2	C 3	C 4	C 5	C 6	C 7	D 0	D 1	D 2	D 3	D 4	D 5	D 6	D 7	D 0	D 1	D 2	D 3	D 4	D 5	D 6	D 7
Leader Code	Custom Code							Custom Code							Data Code							Data Code										

Key Data Code

KEY	CONNECTION				Ko	DATA CODE								NOTES
	K10	K11	K12	K13		D0	D1	D2	D3	D4	D5	D6	D7	
K 1	*				Ko0	0	0	0	0	0	0	0	0	
K 2		*				1	0	0	0	0	0	0	0	
K 3			*			0	1	0	0	0	0	0	0	
K 4				*		1	1	0	0	0	0	0	0	
K 5	*				Ko1	0	0	1	0	0	0	0	0	μPD1913C is unable to use
K 6		*				1	0	1	0	0	0	0	0	
K 7			*			0	1	1	0	0	0	0	0	
K 8				*		1	1	1	0	0	0	0	0	
K 9	*				Ko2	0	0	0	1	0	0	0	0	
K10		*				1	0	0	1	0	0	0	0	
K11			*			0	1	0	1	0	0	0	0	
K12				*		1	1	0	1	0	0	0	0	
K13	*				Ko3	0	0	1	1	0	0	0	0	μPD1913C is unable to use
K14		*				1	0	1	1	0	0	0	0	
K15			*			0	1	1	1	0	0	0	0	
K16				*		1	1	1	1	0	0	0	0	
K17	*				Ko4	0	0	0	0	1	0	0	0	
K18		*				1	0	0	0	1	0	0	0	
K19			*			0	1	0	0	1	0	0	0	
K20				*		1	1	0	0	1	0	0	0	
K21	*				Ko5	0	0	1	0	1	0	0	0	
K22		*				1	0	1	0	1	0	0	0	
K23			*			0	1	1	0	1	0	0	0	
K24				*		1	1	1	0	1	0	0	0	
K25	*				Ko6	0	0	0	1	1	0	0	0	
K26		*				1	0	0	1	1	0	0	0	
K27			*			0	1	0	1	1	0	0	0	
K28				*		1	1	0	1	1	0	0	0	
K29	*				Ko7	0	0	1	1	1	0	0	0	μPD1913C is unable to use
K30		*				1	0	1	1	1	0	0	0	
K31			*			0	1	1	1	1	0	0	0	
K32				*		1	1	1	1	1	0	0	0	

Dual Action Key Code

KEY	D0	D1	D2	D3	D4	D5	D6	D7	NOTES
K21 + K22	1	0	1	0	1	1	0	0	
K21 + K23	0	1	1	0	1	1	0	0	
K21 + K24	1	1	1	0	1	1	0	0	

Remote Output Waveforms

Ex. $f_{osc} = 455 \text{ kHz}$ 