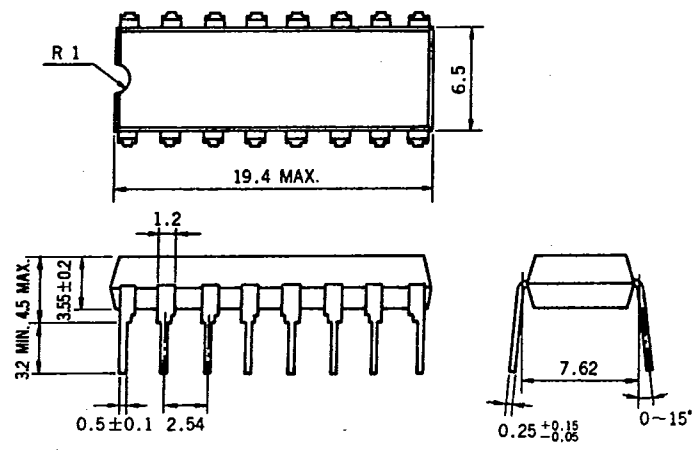
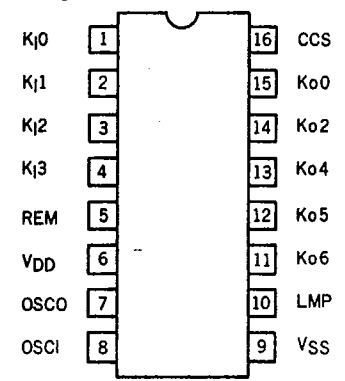


**μPD1913C**

**PACKAGE DIMENSIONS (in millimeters)**

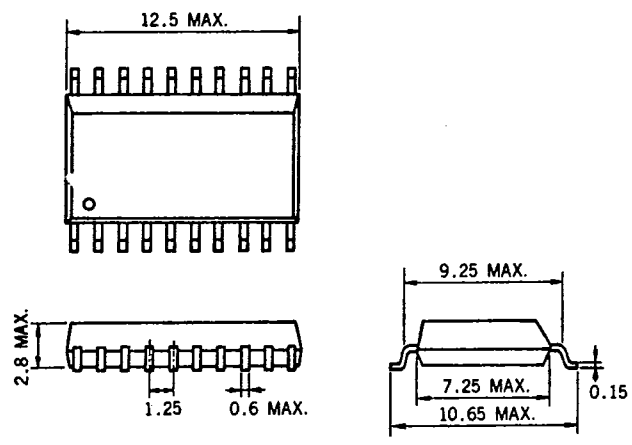


**CONNECTION DIAGRAM (Top View)**

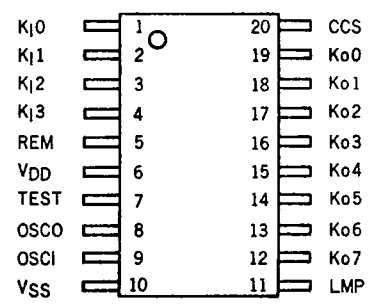


**μPD1943G**

**PACKAGE DIMENSIONS (in millimeters)**



**CONNECTION DIAGRAM (Top View)**



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**ABSOLUTE MAXIMUM RATINGS (Ta = 25 °C)**

Supply Voltage	$V_{DD} - V_{SS}$	4.0	V
Input Voltage	$V_{IN} - V_{SS}$	-0.3 to $V_{DD}$	V
Output Current	$I_{OH(REM, LMP)}$	-15.0	mA
Power Dissipation	$P_d$	250	mW
Operating Temperature Range	$T_{opt}$	-20 to +75	°C
Storage Temperature Range	$T_{stg}$	-40 to +125	°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	$I_{OL(LMP)}$		1		mA

**ELECTRICAL CHARACTERISTICS (Ta = 25 °C,  $V_{DD} = 3.0$  V)**

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

**μPD1913C, μPD1943G**

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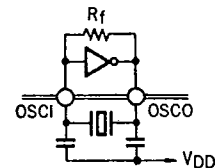
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**PIN FUNCTION**

PIN (μPD1943G)	PIN (μPD1913C)	FUNCTION
1	1	K <sub>I</sub> 0 Key Input 0
2	2	K <sub>I</sub> 1 Key Input 1
3	3	K <sub>I</sub> 2 Key Input 2
4	4	K <sub>I</sub> 3 Key Input 3
5	5	REM Remote Output
6	6	V <sub>DD</sub> 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 <sub>SS</sub> 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

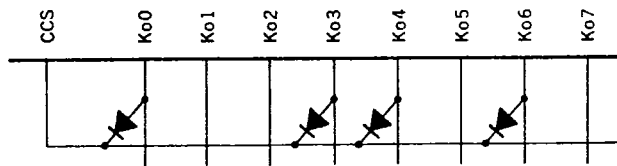
Internally Pulldown to V<sub>SS</sub> by Resistor

Ceramic 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<sub>DD</sub> by internal Resistor.



Custom Code Select

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



**μPD1913C, μPD1943G**

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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	μPD1913C is unable to use
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	
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	
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	
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.  $f_{osc} = 455 \text{ kHz}$

