

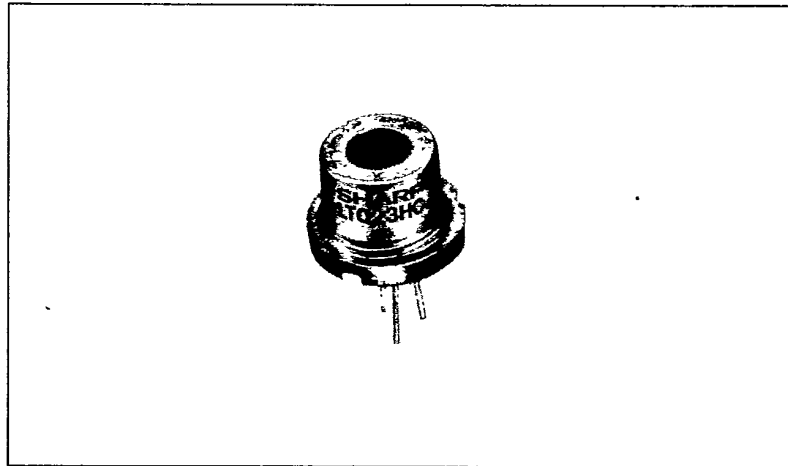
# LT023HC

## Features

- Wide temperature range  
( $-30^{\circ}\text{C} \sim +85^{\circ}\text{C}$ )
- Low noise  
S/N: 80 dB (according to measurement method Fig. 29-2)
- Wavelength: 780nm
- Single transverse mode
- Multi longitudinal mode

## Applications

- Video disc players
- Fiber optic communications
- Light source for analog processing
- Measurement instruments
- Analysis instruments



## Absolute Maximum Ratings

(T<sub>c</sub>=25°C)

Parameter	Symbol	Ratings	Units
Optical power output	P <sub>o</sub>	5	mW
Reverse voltage	Laser	2	V
	PIN	30	
Operating temperature* <sup>1</sup>	T <sub>opr</sub>	$-30 \sim +85$	°C
Storage temperature* <sup>1</sup>	T <sub>stg</sub>	$-40 \sim +100$	°C
Soldering temperature* <sup>2</sup>	T <sub>sol</sub>	260 (less than 5 seconds)	°C

\*1 Case temperature \*2 At point 1.6 mm from lead base

## Electro-optical Characteristics\*<sup>1</sup>

(T<sub>c</sub>=25°C)

Parameter	Symbol	Condition	Ratings			Units		
			MIN	TYP	MAX			
Threshold current	I <sub>th</sub>	—	—	50	90	mA		
Operating current	I <sub>op1</sub>	P <sub>o</sub> =3mW	—	65	110	mA		
Operating voltage	V <sub>op</sub>	P <sub>o</sub> =3mW	—	1.75	2.2	V		
Wavelength* <sup>2</sup>	λ <sub>p</sub>	P <sub>o</sub> =3mW	770	780	795	nm		
Monitor current	I <sub>m</sub>	P <sub>o</sub> =3mW V <sub>R</sub> =15V	0.3	0.9	1.6	mA		
Radiation characteristics	Angle* <sup>3</sup>	Parallel to junction	θ <sub>∥</sub>	P <sub>o</sub> =3mW	9	11	16	deg
		Perpendicular to junction	θ <sub>⊥</sub>	P <sub>o</sub> =3mW	20	37	48	deg
	Ripple	P <sub>o</sub> =3mW	—	—	±20	%		
Emission point accuracy	Angle	Δφ <sub>∥</sub>	P <sub>o</sub> =3mW	—	—	±2	deg	
		Δφ <sub>⊥</sub>	P <sub>o</sub> =3mW	—	—	±3	deg	
	Position	Δx, Δy, Δz	—	—	±80	μm		
Differential efficiency	η	$\frac{2\text{mW}}{I_F(3\text{mW}) - I_F(1\text{mW})}$	0.1	0.25	0.6	mW/mA		
Coherence	γ	P <sub>o</sub> =3mW	—	—	0.47			

\*1 Initial value

\*3 Angle at 50% peak intensity (full width at half-maximum)

\*2 Single transverse mode

## Electrical Characteristics of Photodiode

(T<sub>c</sub>=25°C)

Parameter	Symbol	Condition	Ratings			Units
			MIN	TYP	MAX	
Sensitivity	S	V <sub>R</sub> =15V	—	0.3	—	mA/mW
Dark current	I <sub>D</sub>	V <sub>R</sub> =15V	—	—	250	nA
Terminal capacitance	C <sub>t</sub>	V <sub>R</sub> =15V	—	8	20	pF