



## HD HAPTIC ACTUATOR DATASHEET

### Solenoid Resonant Actuator

20mm Bar Type – HD Haptic Actuator

**Model : SR1X-2006-80B1**

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## Overview

The X-20 is a high performance Haptic actuator which has fast response and can be applied to the haptic actions with a wide frequency vibration band.

It's fast response time (about 20 msec) can make the users feel more realistic crisp feelings like the keypad clicking and wide frequency vibration capability make the users feel various tactile feelings from the smooth silk surface feeling to rough leather surface feeling. And its stiff spring structure based on SRA technology<sup>i</sup> can guarantee more reliable features.

This stiff structure makes X-20 suitable for more tough application area like automotive industry as well as mobile phone industry

## FEATURES

- Resonant Frequency (  $f_N$  ) : 205 Hz
- 1.0 G Maximum Acceleration
- 2.8 V Rated Voltage ( No Boost at Mobile Phone Power )
- 190 ~ 225 Hz Operation Frequency ( Applicable to Touchsense 5000 / 1.0 G<sub>pp</sub> )
- 20 ms Response Time at  $f_N$
- Power Consumption : Max. 200 mW

## APPLICATIONS

- Mobile Communication Devices
- PDA, GPS and Media Players
- Computers with Touch Interfaces
- Portable Instruments with Touch Interface
- Handheld Games

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<sup>i</sup> SRA is an abbreviation for "Solenoid Resonant Actuator", which is unique technology patented to "Hysonic"

## Physical Specification

PARAMETER	CONDITIONS	SPECIFICATION	
		VALUE	TOLERANCE
Length	Maximum Body dimension	20.4 mm	±0.1 mm
Width		6.3 mm	±0.1 mm
Thickness		2.8 mm	±0.1 mm
Weight		1.6±0.1 g	

## Leads & Connectors Specification

PARAMETER	CONDITIONS	SPECIFICATION	
		VALUE	TOLERANCE
Lead Length	The Leads & Connectors can be adjusted		

## Conformity Limits Specification

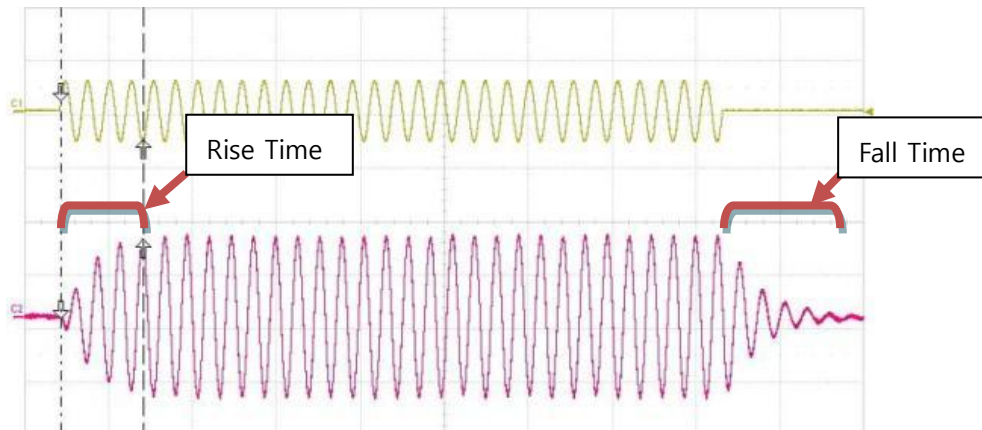
PARAMETER	CONDITIONS	SPECIFICATION	
		VALUE	TOLERANCE
Rated Voltage		2.0 V RMS	
Max. Start Current	At rated Voltage	90 mA RMS	
Max. Limit Voltage		4.6 V <sub>DC</sub>	
Max. Limit Current		135 mA	

## Typical Electrical Characteristics

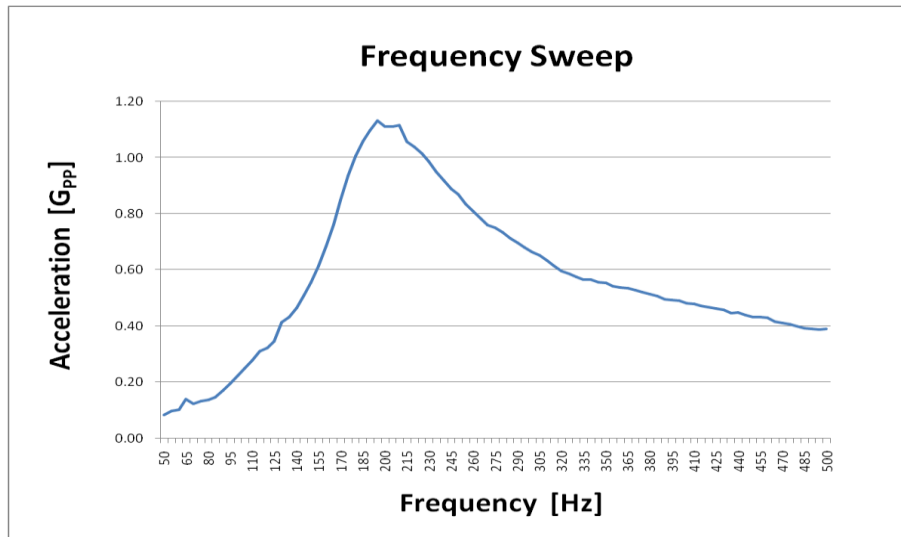
PARAMETER	CONDITIONS	SPECIFICATION	
		VALUE	TOLERANCE
Typical Operating Current	At rated voltage	90 mA RMS	
Typical Power Consumption	At rated voltage	200 mW	
Typical Vibration Efficiency	At rated voltage		
Typical Max. Terminal Resistance		22±1 Ω	
Typical Max. Terminal Inductance		2.3 mH ± 10%	

## Typical Haptic Characteristics

PARAMETER	CONDITIONS	SPECIFICATION	
		VALUE	TOLERANCE
Typical Rising Time	Time to get to 100% of the rated amplitude at rated voltage	≤ 20 ms	
Typical Falling Time	Time to get to 0% of the rated amplitude at rated voltage	≤ 50 ms	



### Typical SRA Performance Characteristics



\* At Rated Voltage

### Typical Mechanical Characteristics

PARAMETER	CONDITIONS	SPECIFICATION	
		VALUE	TOLERANCE
Resonant Frequency	At rated voltage	205±5 Hz	
Acceleration	At rated voltage ( $f_N$ )	Min. 1.0 G <sub>pp</sub>	
Frequency Bandwidth	≥ 1.0 G <sub>pp</sub> At rated voltage	190 ~ 225 Hz	

\*  $f_N$  : Resonant Frequency

## Product Dimensional Specification

