

# HE-SMO-180 / 190 SERIES WIDE OPERATING TEMP OSCILLATOR hec, inc.

The HE-SMO-180 and HE-SMO-190 series is the ceramic base SMD clock oscillator with the ability to drive both HCMOS and TTL loads in high density applications. These oscillators have industry standard pin out spacing and feature a height of only 1.6mm max. The HE-SMO-190 product line features the low voltage operation of 3.3V, helping to increase battery life, reduce heat generation, and improve EMI. Tape and Reel.



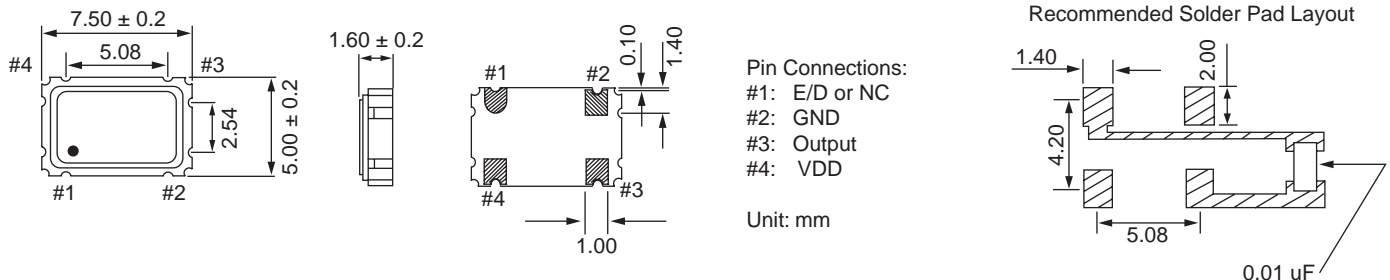
## FEATURES:

- **Extended temperature ranges available from -55°C to +105°C**
- Industry Standard Pin-Out
- Stabilities as tight as  $\pm 10$  PPM
- Voltage options 3.3V, 5V, 1.8V, and 2.5 Volt

## ELECTRICAL SPECIFICATIONS

PARAMETERS	SPECIFICATIONS		UNIT
HEC PART NUMBER	HE-SMO-180	HE-SMO-190	
FREQUENCY RANGE	20.0 ~ 69.0 MHz	20 ~ 75 MHz	MHz
FREQUENCY STABILITY	$\pm 100$ PPM		PPM
OPERATING TEMPERATURE RANGE	-55°C to +105°C		°C
INPUT VOLTAGE	5.0V $\pm$ 5%	3.3V $\pm$ 5%	V
INPUT CURRENT	20mA max (20~32 MHz) 45mA max (33~49 MHz) 50mA max (50~69 MHz)	12mA max (20~32 MHz) 25mA max (33~49 MHz) 35mA max (50~69 MHz) 60mA max (70~75 MHz)	mA
OUTPUT LOAD	15pF ~ 50pF	15pF ~ 30pF	
RISE & FALL TIME	10ns max		
DUTY CYCLE	45 / 55		%
TRISTATE	Enable/Disable		
JITTER	10pS (Cycle to Cycle Jitter RMS, 1 sigma)		ps

## MECHANICAL DRAWING



Note: A 0.01 mF bypass capacitor is recommended between VDD (pin 4) and GND (pin 2) to minimize power supply line noise.

Recommended Solder Reflow is 260°C, 10 seconds max.

## PART NUMBERING GUIDE

HEC PART NO.	VOLTAGE	STABILITY	TEMP. RANGE	FREQUENCY	OPTIONS
HE-SMO	180 = 5.0V 190 = 3.3V	C = $\pm 100$ PPM	E105 <b>55°C to +105°C</b>	ENTER YOUR FREQUENCY	ENTER YOUR CUSTOM OPTIONS