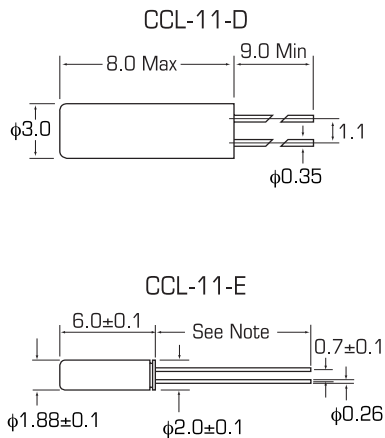




## XTAL - QUARTZ CRYSTALS - 32.768kHz FAMILY

**MODEL CCL-11-D**  
**CCL-11-E**  
**CCL-11-F**

Model	CCL-11-D	CCL-11-E	CCL-11-F
Nominal Frequency	32.768kHz	32.768kHz	32.768kHz
Frequency Stability	±15ppm    ±20ppm    ±30ppm	±15ppm    ±20ppm    ±30ppm	±15ppm    ±20ppm    ±30ppm
Operating Temperature Range	-10°C ~+60°C	-10°C ~+60°C	-10°C ~+60°C
Storage Temperature Range	-30°C ~+70°C	-30°C ~+70°C	-30°C ~+70°C
Series Resistance	35kΩ Max	35kΩ Max	40kΩ Max
Load Capacitance	12.5pF, Typical	12.5pF, Typical	8.0pF, Typical
Shunt Capacitance	1.6pF, Typical	1.35pF, Typical	1pF, Typical
Motional Capacitance	0.0035pF, Typical	0.003pF, Typical	0.0025pF, Typical
Capacitance Ratio	460, Typical	450, Typical	400, Typical
Drive Level	1μW Max	1μW Max	1μW Max
Aging in first year	3ppm Max @ +25°C	3ppm Max @ +25°C	3ppm Max @ +25°C
Parabolic Curvature Constant	-0.034ppm/°C <sup>2</sup> , Typical	-0.034ppm/°C <sup>2</sup> , Typical	-0.034ppm/°C <sup>2</sup> , Typical



NOTE : KHz 10.0 ±0.2  
 : MHz 4.0 min.

