

A miniature, 32.768kHz, low profile, smd crystal clock oscillator. Tight symmetry, low ageing, combined tolerance from  $\pm 20$ ppm. Built in ASIC to reduce current consumption.

A standard package for new designs and volume applications combining small size and tight tolerance over an extended temperature range.

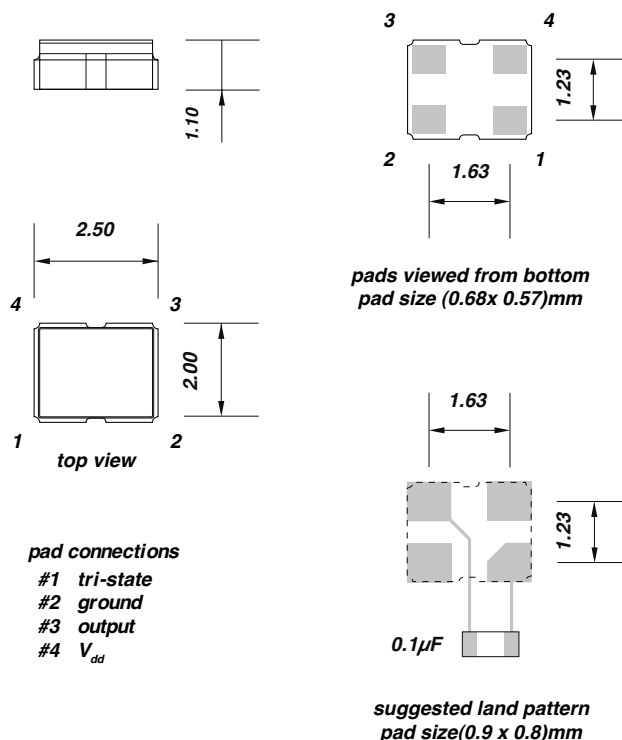
Supplied on tape and reel 3000, pieces per reel.

**Frequency stability -vs- temperature:**

temp. range	combined tolerance		
	$(-10 +60)^{\circ}\text{C}$	$\pm 20\text{ppm}$	$\pm 25\text{ppm}$
$(-20 +70)^{\circ}\text{C}$	-	$\pm 25\text{ppm}$	$\pm 50\text{ppm}$
$(-40 +85)^{\circ}\text{C}$	-	-	$\pm 50\text{ppm}$

Tolerance inclusive of calibration tolerance at  $+25^{\circ}\text{C}$ , temperature tolerance, load variation and supply voltage variation, first year ageing, vibration and shock

**Dimensions(mm)**



**Electrical specification:**

	3.3Vd.c.		2.5Vd.c.		1.8Vd.c.		
	min.	max.	min.	max.	min.	max.	
supply voltage $\pm 10\%$	2.97	3.63	2.25	2.75	1.62	1.98	Vd.c.
frequency	32.768kHz						kHz
supply current	-	65	-	62	-	60	$\mu\text{A}$
duty cycle	45% ~ 55%						%
CMOS o/p high	$90\% V_{DD}$		$90\% V_{DD}$		$90\% V_{DD}$		V
CMOS o/p low	$10\% V_{DD}$		$10\% V_{DD}$		$10\% V_{DD}$		V
$t_r$ rise and fall time	-	50	-	50	-	50	nano sec.
start up time	2		2		2		milli sec.
tri-state: active o/p	$0.7V_{DD}$	-	$0.7V_{DD}$	-	$0.7V_{DD}$	-	V
tri-state: high impedance o/p	-	$0.3V_{DD}$	-	$0.3V_{DD}$	-	$0.3V_{DD}$	V
ageing	-	$\pm 3$	-	$\pm 3$	-	$\pm 3$	ppm
storage temperature range	$(-55 +125)^{\circ}\text{C}$						$^{\circ}\text{C}$

**Ordering information**

<b>EXAMPLE</b>	<i>type OY clock oscillator, 32.768kHz, <math>\pm 25\text{ppm}(-20 +70)^{\circ}\text{C}</math>, +3.3Vd.c., output CMOS</i>
<b>TFC PART NUMBER</b>	<b>OY 32.768k E D C</b>
<b>OY</b>	<i>type: OY = clock oscillator type OY, smd</i>
<b>32.768k</b>	<i>frequency: 32.768k = frequency in kHz</i>
<b>E</b>	<i>supply voltage: E = +3.3Vd.c.,</i>
<b>D</b>	<i>frequency stability: D = <math>\pm 25\text{ppm}</math></i>
<b>C</b>	<i>temperature range: C = <math>(-20 +70)^{\circ}\text{C}</math></i>
<b>OPTIONS</b>	
<b>supply voltage</b>	<i>K = 1.8Vd.c., J = 2.5Vd.c., E: +3.3Vd.c.</i>
<b>frequency stability</b>	<i>C: <math>\pm 20\text{ppm}</math>, : D = <math>\pm 25\text{ppm}</math>, G = <math>\pm 50\text{ppm}</math></i>
<b>temperature range</b>	<i>I: <math>(-10 +60)^{\circ}\text{C}</math>, C: <math>(-20 +70)^{\circ}\text{C}</math>, L: <math>(-40 +85)^{\circ}\text{C}</math></i>