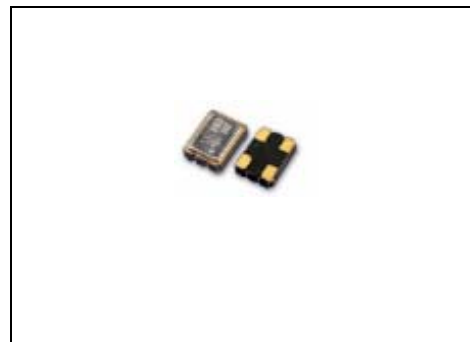


## Type PY smd clock oscillator (1.0 ~ 200.0)MHz

- # (2.5 x 2.0)mm height 1.0mm ceramic smd
- # Operation voltage 1.8V, 2.5V, 3.3V
- # Tight symmetry (45%~55%)standard
- # RoHS Compliant Standard



### Electrical Specification

<b>Case Style</b>	type PY: (2.5 x 2.0)mm, height 1.0 mm				
<b>Frequency range</b>	(1~133)MHz @ 1.8V, (1~166)MHz @ 2.5V, (1~200)MHz @ 3.3V				
<b>Stability*</b>	±(20~100)ppm, temperature range dependent				
<b>Supply voltage <math>V_{DD} \pm 10\%</math></b>		<b>+1.8V</b>	<b>+2.5V</b>	<b>+3.3V</b>	
	1MHz ≤ Fo < 30MHz	6mA	8mA	10mA	
	30MHz ≤ Fo < 75MHz	8mA	10mA	15mA	
	75MHz ≤ Fo < 133MHz	12mA	15mA	20mA	
	133MHz ≤ Fo < 166MHz	-	15mA	22mA	
	166MHz ≤ Fo ≤ 200MHz	-	-	25mA	
<b>Standby current</b>		10µA max.			
<b>Start time</b>		5mSec. Max.			
<b>Rise and fall time max.**</b>	1MHz ≤ Fo < 10MHz	10nSec	8nSec	6nSec	
	10MHz ≤ Fo	6nSec	5nSec	5nSec	
<b>Operating temperature</b>	(-10 + 60)°C ~ (-40 + 85)°C				
<b>Storage temperature</b>	(-55 + 125)°C				
<b>Symmetry</b>	45~55% as standard				

\*Inclusive of calibration @ 25°C, operating temperature range, input voltage variation, load variation, aging, shock, and vibration.

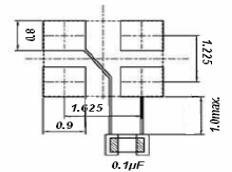
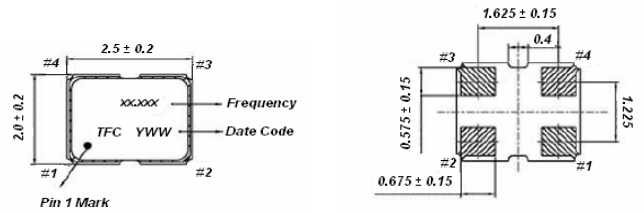
\*\*Transition times are measured between 10% and 90% of VDD, with an output load of 15pF.

**Ordering Information**

TFC PART NUMBER .... PY 13.0M E T D C J  
 (1) (2) (3) (4) (5) (6) (7)

- 1) **Type:** PY = smd clock oscillator type PY
- 2) **Frequency:** 13.0M = 13.0MHz, frequency range from (1.0 ~200.0)MHz
- 3) **Supply voltage:** K: +1.8Vd.c. J: 2.5Vd.c. E: +3.3Vd.c.
- 4) **Tri state:** T: Fixed freq. with tri-state function on pin#1
- 5) **Frequency stability:** C: ±20ppm, D: ±25.0ppm, G: ±50ppm, H: ±100ppm
- 6) **Temperature range :** I: (-10 to +60)°C, C: (-20 to +70)°C, L: (-40 to +85)°C
- 7) **Output logic and symmetry:** J: CMOS 15pF, (45~55)%

**PY dimensions(mm)**



**Recommended soldering pattern**

- #1 tri-state
- #2 GND
- #3 output
- #4 V<sub>DD</sub>