

### MAIN FEATURE

- 32.768KHz Std and wide Frequency range
- Low Cost, Short lead time and massive quantity supply

### APPLICATION

- Clock/Watch and more

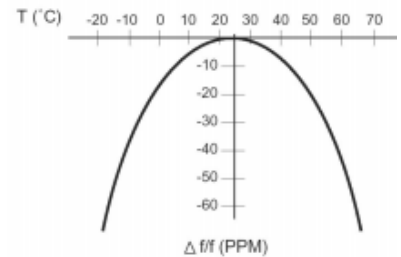
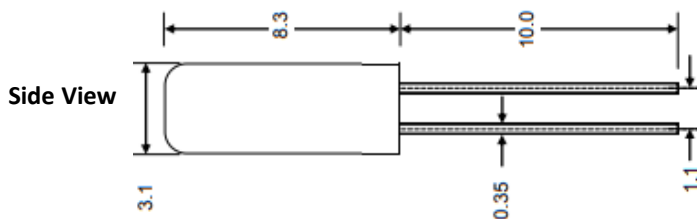


Ø3.1\*H8.3mm

### STANDARD SPECIFICATION

Parameter	Value			Unit	Condition
	Min.	Type	Max.		
Frequency Range	30.00	32.768	200.00	KHz	
Oscillation Mode	AT Fund.				
Frequency Tolerance	-	±20		ppm	@25 °C or Specify
Operating Temperature Range	-10	-	+60	°C	CL: 7.0pF, 9.0pF or Specify Wide Operating Temp. range See Part number Guide for option
Storage Temperature Range	-40	-	+85	°C	
Load Capacitance (CL)	-	12.5	-	pF	
Frequency/Temp Coefficient	0.028	0.034	0.040	ppm/C <sup>2</sup>	
Turnover Temp	+20	+25	+30	°C	
Equivalent Series Resistance		-	30	Kohm	
Drive Level	-	-	1.0	µW	
Shunt Capacitance	0.9	1.8	2.0	pF	
Dynamic Capacitance	-	2.1	-	Ff	
Quality Factor		60000			
Capacitance Ratio	-	450	-		
Aging per year	-	±5		ppm/year	
Insulation Resistance	500	-	-	Mohm	@ 100Vdc ± 15V

### DIMENSION (+/-0.1mm)



Temperature Coefficient

### PART NUMBER GUIDE

Example: TGS CCA 32K768A20-12.5-10-30 BLF

### Part Number and Part Code Structure

TGS	CCA	32K768	A	20	-12.5	-10	-30	B	LF	XX
1	2	3	4	5	6	7	8	9	10	11

- 1) TGS: Company Code
- 2) CCA: KHz Thru Hole Crystals, Ø3.1\*H8.3mm
- 3) 32K768: Frequency Range 32.7680KHz standard or specify from 30.00KHz to 200.00KHz
- 4) A: Oscillation Mode, AT Fund.
- 5) 20: Frequency tolerance: +/-20ppm or specify
- 6) 12.5: Load Capacitance, 12.5pF; 7: 7.0pF; 9: 9.0pF or Specify
- 7) 10: Operating Temp. Range -10°C ~+60°C; 20: -20°C ~+70°C; 40: -40°C ~+85°C or specify
- 8) 60: Equivalent Series Resistance, 30 Kohm Max.
- 9) B: Package in Bulk
- 10) LF: RoHS Compliant
- 11) XX: Internal Control Code- 2 letter or digits ; Blank: N/A

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