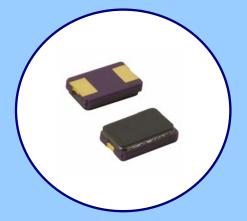


# MODEL GA532

# CRYSTAL - AUTOMOTIVE ELECTRONICS

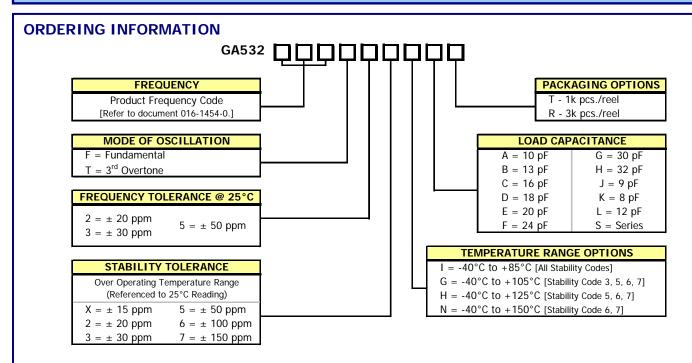
## **FEATURES**

- AEC-Q200 Compliant
- Standard 5.0mm x 3.2mm Glass Seal Package
- Fundamental Crystal Design
- Frequency Range 8 40 MHz Fundamental, 24 120 MHz 3<sup>rd</sup> Overtone
- Frequency Tolerance; ±20 ppm, ±30 ppm and ± 50 ppm
- Frequency Stability, reference Ordering Information
- Operating Temperature, -40°C to +125°C standard
- Tape & Reel Packaging Standard, EIA-481
- RoHS Compliant in Accordance with EU Directive 2011/65/EU
  - Lead-Free Termination Finish
  - Exemption 7(c)-I, Electrical and electronic components containing lead [Pb] in glass



#### **APPLICATIONS**

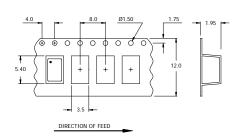
Model GA532 is a low cost crystal specifically developed for use in automotive electronics.

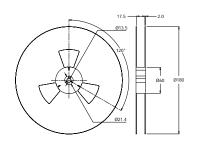


Not all performance combinations and frequencies may be available. Contact your local CTS Representative or CTS Customer Service for availability.

#### PACKAGING INFORMATION [Reference]

Device quantity is 1k pcs. minimum and 3k pcs. maximum per 180mm reel. DIMENSIONS IN MILLIMETERS







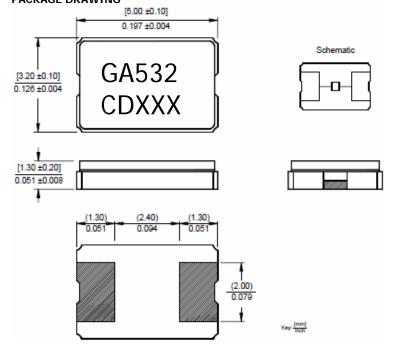
## **ELECTRICAL CHARACTERISTICS**

	PARAMETER	VALUE								
	Operating Mode	Fundame	ntal	3 <sup>rd</sup> Overtone						
	Frequency Range	8.0 MHz to 40	0.0 MHz	24.0 MHz to 120.0 MHz						
	Crystal Cut	AT-Cut								
	Frequency Tolerance @ 25°C	±20 ppm, ±30 ppm, ±50 ppm								
	Frequency Stability Tolerance <sup>1</sup>	±15 ppm, ±20 ppm, ±30 ppm,								
RS	[Operating Temperature Range, Referenced to 25°C Reading]	±50 ppm, ±100 ppm, ±150 ppm								
PARAMETERS	Operating Temperature Range <sup>1</sup>	-40°C to +85°C [All Stability Codes] -40°C to +105°C [Stability Code 3, 5, 6, 7] -40°C to +125°C [Stability Code 5, 6, 7] -40°C to +150°C [Stability Code 7]								
		8.000 MHz - 9.999 MHz	150 Ohms maximum	24.000 MHz - 53.999 MHz	150 Ohms maximum					
<u>2</u>	Equivalent Series Resistance	10.000 MHz - 15.999 MHz	60 Ohms maximum	54.000 MHz - 120.000 MHz	100 Ohms maximum					
꼳		16.000 MHz - 40.000 MHz	50 Ohms maximum							
ELECTRICAL	Load Capacitance or Resonance Mode [See Ordering Information for More Options]	8pF, 12pF standard								
	Shunt Capacitance (C <sub>0</sub> )	3.0 pF typical, 5.0 pF maximum								
	Drive Level	10 μW typical, 100 μW maximum								
	Aging @ +25°C	±5 ppm/yr maximum								
	Insulation Resistance [@ DC 100V]	500M Ohms minimum								
	Storage Temperature Range	-40°C to +125°C								
	Reflow Condition, per JEDEC J-STD-020	+260°C maximum, 10 Seconds maximum								

<sup>1</sup> See Ordering Information.

## **MECHANICAL SPECIFICATIONS**

## PACKAGE DRAWING



## MARKING INFORMATION

- 1. GA532 CTS Model Series.
- 2. C CTS.
- 3. D Date code. See Table I for codes.
- XXX Frequency code.
  [Reference CTS document 016-1450-0, Frequency Code Tables.]

#### **NOTES**

- Complete CTS part number, frequency value, date code and manufacturing site code information must appear on reel and carton labels.
- 2. Termination pads [e4]; barrier plating is nickel [Ni] with gold [Au] flash plate.
- Reflow conditions per JEDEC J-STD-020; 260°C maximum, 10 seconds.

# SUGGESTED SOLDER PAD GEOMETRY

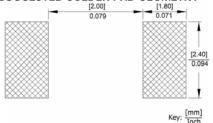


TABLE I - DATE CODE

			JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	ост	NOV	DEC		
	YEAR				JAN	FLB	WAK	ALK	WAI	JON	JUL	AUG	JLF	001	NOV	DEC
2001	2005	2009	2013	2017	Α	В	С	D	E	F	G	Н	J	K	L	М
2002	2006	2010	2014	2018	N	Р	Q	R	S	Т	U	V	W	Х	Υ	Z
2003	2007	2011	2015	2019	а	b	С	d	е	f	g	h	j	k		m
2004	2008	2012	2016	2020	n	р	q	r	S	t	u	V	W	Х	у	Z