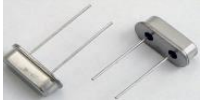




- *Quartz Crystal*
- *Crystal Oscillator, VCXO, TCXO & OCXO*
- *Ceramic Discriminator, Resonator & Filter*
- *SAW Filter & SAW Resonator*
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- *Attention to Products*
- *Cross Reference Part No. List*
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More Products at www.tgscrystals.com.....

MHz Thru-Hole Crystals



➤ **CS series** 11.5*5.0*4.0mm
49S, 3.27680~70.000MHz



➤ **CSS series** 11.5*5.0*3.0mm
49SS, 3.27680~70.00MHz



➤ **CU series** 11.5*4.6*13.46mm
49U, 1.84320~160.00MHz



➤ **CA & CB series** 7.8*3.1*Hmm
UM-1/UM-5, 6.000~200.00MHz



➤ **CCD series** 8.3*3.2mm
Cylindrical type, 4.00~70.0MHz



➤ **CSM2 series** 11.4*4.7*4.0mm
49SMD, 3.27680~70.000MHz



➤ **CSSM2 series** 11.4*4.7*3.0mm
49SSMD, 3.27680~70.000MHz



➤ **CSM3 series** 13.3*4.7*4.0mm
49SMD, 3 PADS, 3.27680~70.000MHz



➤ **CSM4 series** 12.0*4.7*5.2mm
49SMD, 4 pads 3.27680~70.000MHz



➤ **CSSM4 series** 13.4*4.8*4.2mm
49SSMD, 4 pads, 3.2768~70.0MHz

KHz Cylindrical Thru-Hole Crystals

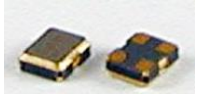


➤ **CCA series** 6.2*2.1mm
Cylindrical type, 30.00~200.0KHz

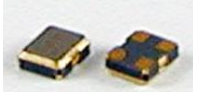


➤ **CCB series** 8.3*3.2mm
Cylindrical type, 30.00~200.0KHz

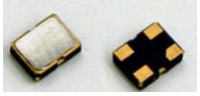
MHz SMD Crystals



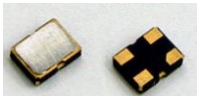
➤ **CM11 series** 1.6*1.2*0.45mm, **NEW !**
Ultra-small SMD type, 26.0~80.0MHz



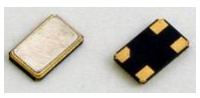
➤ **CM21 series** 2.1*1.6*0.5mm, **NEW !**
Ultra-small SMD type, 20.0~80.0MHz



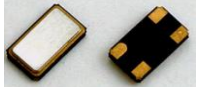
➤ **CM22 series** 2.5*2.0*0.55mm
SMD type, 16.0~80.0MHz



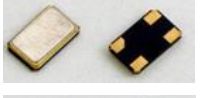
➤ **CM32 series** 3.2*2.5*0.8mm
SMD type, 10.0~60.0MHz



➤ **CM53 series** 5.0*3.2*1.0mm
SMD type, 7.5~125.0MHz



➤ **CM63 series** 6.0*3.5*1.2mm
SMD type, 7.3728~100.0MHz

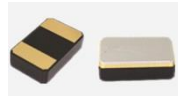


➤ **CM75 series** 7.0*5.0*1.2mm
SMD type, 6.0~70.0MHz

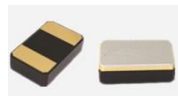


➤ **CCME series** 12.5*4.6*3.7mm
Molded Plastic, SMD type,
3.579545~27.0000MHz

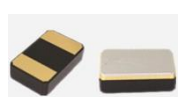
KHz SMD Crystals



➤ **CCMY series** 1.2*1.0mm **NEW !**
SMD type, 32.768KHz



➤ **CCMV series** 1.6*1.0mm **NEW !**
SMD type, 32.768KHz



➤ **CCMS series** 2.0*1.2mm
SMD type, 32.768KHz



➤ **CCMA series** 2.0*1.2mm
SMD type, 30.0~200.00KHz



➤ **CCMB series** 2.0*1.2mm
SMD type, 30.0~200.00KHz



➤ **CCMX series** 4.8*1.9mm
SMD type, 32.768KHz



➤ **CCMC series** 8.0*3.8*2.5mm
Molded plastic, 32.768KHz, 30.0~153.6KHz



➤ **CCMJ series** 4.1*1.5*0.75mm
Low profile, 32.768KHz



➤ **CCMM series** 3.2*1.5*0.9mm
Ultra-small SMD Type, 32.76800KHz



➤ **CCMN series** 7.0*1.5*1.4mm
Molded plastics, 32.768KHz, 12.5pF

MHz Thru-Hole Oscillator

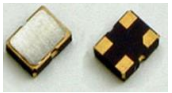


- **CO08 series** 13.2*13.2*5.08mm
8 Pin, Half size, 500KHz~150.00MHz



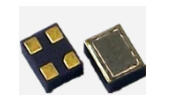
- **CO14 series** 20.8*13.2*5.08mm
14 Pin, Full Size, 500KHz~150.00MHz

KHz SMD Oscillator

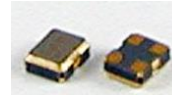


- **COM32 series** 3.2*2.5*1.0mm **NEW!**
HCMOS, 1.8V~5.0V, 32.768KHz

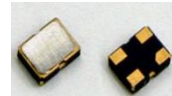
MHz SMD Oscillator



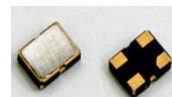
- **COM11 series** 2.0*1.6*0.7mm **NEW!**
HCMOS, 1.8V~3.3V, 1.0~60.0MHz



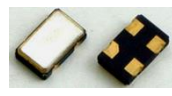
- **COM21 series** 2.0*1.6*0.7mm **NEW!**
HCMOS, 1.8V~3.3V, 1.0~60.0MHz



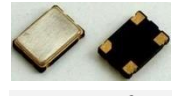
- **COM22 series** 2.5*2.0*1.0mm
HCMOS, 1.8V~3.3V, 1.0~60.0MHz



- **COM32 series** 3.2*2.5*1.2mm
HCMOS, 1.8V~3.3V, 1.0~60.0MHz



- **COM53 series** 5.0*3.2*1.3mm
HCMOS/TTL, 1.8V~5.0V, 1.0~156.0MHz

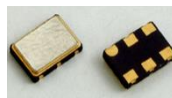


- **COM75 series** 7.0*5.0*1.5mm
HCMOS/TTL, 1.8V~5.0V, 1.0~156.0MHz



- **COM149 series** 14.1*9.6*5.6mm
HCMOS/TTL, 1.8V~5.0V, 1.0~156.0MHz

MHz SMD VCXO



- **VM75C series** 7.0*5.0*1.6mm
HCMOS/TTL, 3.3V/5.0V, 1.0~200.0MHz



- **VM53C series** 5.0*3.2*1.3mm
HCMOS, 3.3V/5.0V, 1.5~50.0MHz

MHz Thru-Hole VCXO



- **V8 series** 13.2*13.2*5.08mm
8 Pin, Half size, 500KHz~150.00MHz

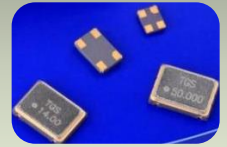


- **V14 series** 20.8*13.2*5.08mm
14 Pin, Full Size, 500KHz~150.00MHz

NEW! Ultra-small package

SMD Crystal

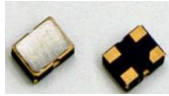
- CM21 series (2.0*1.6*0.45mm)
- CM11 series (1.6*1.2*0.32mm)
- 20.00~80.00MHz, +/-5ppm



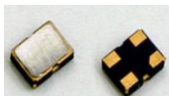
SMD Oscillator

- COM22 series (2.5*2.0*1.0mm)
- COM21 series (2.0*1.6*0.7mm)
- 1.00~60.00MHz, 1.8V~3.3V, HCMOS

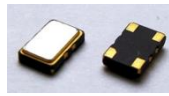
MHz SMD TCXO



- **TM22T/TM22MF series** 2.5*2.0*1.2mm
HCMOS, 1.8V~3.3V, 1.0~60.0MHz

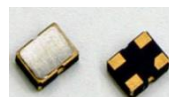


- **TM32T/TM32 series** 3.2*2.5*1.2mm
HCMOS, 1.8V~3.3V, 1.0~60.0MHz

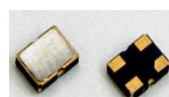


- **TM53 series** 5.0*3.2*1.3mm
HCMOS/TTL, 1.8V~5.0V, 1.0~156.0MHz

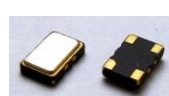
MHz SMD VCTCXO



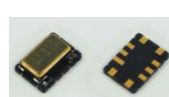
- **VTCM25 series** 2.5*2.0*1.0mm
HCMOS, 1.8V~3.3V, 1.0~60.0MHz



- **VTCM32 series** 3.2*2.5*1.2mm
HCMOS, 1.8V~3.3V, 1.0~60.0MHz



- **VTCM53 series** 5.0*3.2*1.3mm
HCMOS/TTL, 1.8V~5.0V, 1.0~156.0MHz



- **VTCM75 series** 7.0*5.0*1.3mm
HCMOS/TTL, 1.8V~5.0V, 1.0~156.0MHz

MHz OCXO



- **O2012 series** 20.12*12.5*10.0mm
2.0~100.0MHz



- **O2020 series** 20.5*20.5*11.0mm
2.0~100.0MHz



- **O2525 series** 25.4*25.4*12.70mm
2.0~140.0MHz



- **O3627 series** 36.0*27.0*19.0mm
2.0~200.0MHz



KHz SMD Ceramic Discriminator



- **CDBC series** 6.0*3.6*2.8mm
3 pads, 450KHz/455KHz



- **CRTP series** 6.0*3.0*1.5mm
3 pads, 2.0~12.0MHz

MHz SMD Ceramic Discriminator



- **CDCV series** 3.7*3.1*1.2mm
2 pads, 10.7MHz

KHz SMD Ceramic Resonator



- **CRBMA series** 7.9*3.6*9.3mm
2 pads, 375~400kHz



- **CRBMB series** 7.0*3.5*9.0mm
2 pads, 401~699kHz

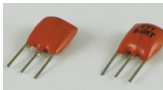


- **CRBMC series** 5.2*2.8*6.8mm
2 pads, 700~1250kHz

MHz Thru-Hole Ceramic Resonator



- **CRA series**
2 pins, Blue Material option, 2.0~50.0MHz



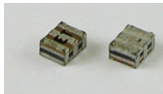
- **CRT series**
3 pins, Blue Material option, 2.0~50.0MHz

MHz Thru-Hole Ceramic Filter



- **CF series**
3 pins, Blue Material option, 4.5~6.5MHz

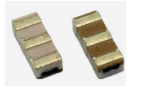
MHz SMD Ceramic Resonator



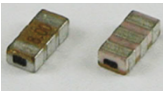
- **CRAW series** 2.5*2.0*1.2mm
2 pads, 20.0~60.0MHz



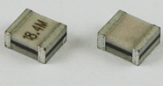
- **CRTW series** 2.5*2.0*1.2mm
3 pads, 20.0~48.0MHz



- **CRTE series** 3.2*1.3*1.0mm
3 pads, 8.0~12.0MHz



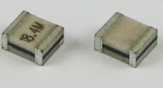
- **CRAR series** 4.5*2.0*1.2mm
2 pads, 4.0~8.0MHz



- **CRAS series** 4.7*4.1*1.6mm
2 pads, 6.0~13.0MHz



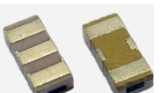
- **CRAV series** 3.7*3.1*1.2mm
2 pads, 20.0~50.0MHz



- **CRTS series** 4.7*4.1*1.6mm
3 pads, 6.0~50.0MHz



- **CRTV series** 3.7*3.1*1.2mm
3 pads, 20.0~50.0MHz



- **CRTR series** 4.5*2.0*1.2mm
3 pads, 4.0~8.0MHz



- **CRAP series** 6.0*3.0*1.4mm
2 pads, 2.0~12.0MHz

MHz SMD Ceramic Filter



- **CF73 series** 7.0*3.0*1.5mm
3 pads, 10.7MHz



- **CF33 series** 3.45*3.1*1.4mm
4 pads, 10.7MHz

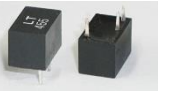
KHz Thru-Hole Ceramic Filter



- **CFM W series** 9.5*6.4*6.3mm
5 pins, 450KHz/455KHz



- **CF W series** 11.0*7.0*7.5mm
5 pins, 450KHz/455KHz



- **CF U series** 7.0*7.0*8.0mm
3 pins, 450KHz/455KHz



- **CFM U series** 6.5*6.5*6.3mm
4 pins, 450KHz/455KHz

KHz SMD Ceramic Filter



- **CF7C W series** 11.9*7.5*3.0mm
4 pads, 450KHz/455KHz



- **CF7C U series** 6.5*6.0*4.2mm
3 pads, 450KHz/455KHz

RF SAW Filter

40.68~1960.0MHz*



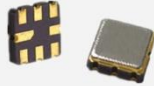
- **W2 type** \varnothing 13.0*4.5mm, 5 pins,



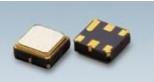
- **F11 type** 11.0*4.5*4.0mm, 4 pins



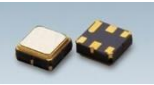
- **5D type** 11.0*4.5*4.0mm, 5 pins



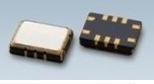
- **S3 type** 5.0*5.0*1.36mm, 8 pads,



- **S4 type** 3.8*3.8*1.5mm, 6pads,



- **S6 type** 3.0*3.0*1.3mm, 6 pads



- **S21 type** 7.0*5.0*1.6mm, 10 pads,



- **SM24 type** 13.3*6.5*1.8mm, 12 pads

IF SAW Filter

40.68~1575.42MHz*



- **SM24 type** 13.3*6.5*1.8mm, 12 pads



- **F64 type** 35.0*12.8*5.5mm, 4 pins



- **F61 type** 20.3*12.7*5.5mm, 4 Pins



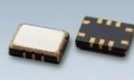
- **F62 type** 22.0*12.6*5.5mm, 4 Pins



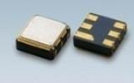
- **F63 type** 27.3*12.7*5.5mm, 4 Pins

GPS SAW Filter

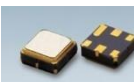
0.68~1960.0MHz*



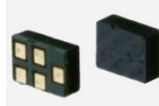
- **S21 type** 7.0*5.0*1.6mm, 10 pads,



- **S4 type** 3.8*3.8*1.5mm, 6 pads,



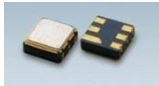
- **S6 type** 3.0*3.0*1.3mm, 6 pads,



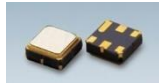
- **B2 type** 1.4*1.1*0.6mm, 5 pads,

SAW Filter Communication

295.0~931.0MHz*



- **S4 type** 3.8*3.8*1.5mm, 6 pads,



- **S6 type** 3.0*3.0*1.3mm, 6 pads



- **S7 type** 3.0*3.0*1.1mm, 8 pads

SAW Duplexers

773.0~2655.0Hz*



- **B2 type** 1.4*1.1*0.6mm, 5 pads



- **B5 type** 1.1*0.9*0.65mm, 5 pads



- **B11 type** 1.8*1.4*0.65mm, 7 pads



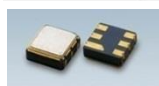
- **P4 type** 2.0*1.6*0.60mm, 4 pads

SAW Resonator

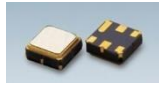
224.5~980MHz*



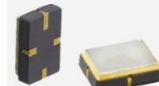
- **S3 type** 5.0*5.0*1.36mm, 8 pads,



- **S4 type** 3.8*3.8*1.5mm, 6 pads,



- **S6 type** 3.0*3.0*1.3mm, 6 pads



- **S20 type** 5.0*3.5*1.4mm, 4 pads



- **F11 type** 11.0*4.5*3.2mm, 4 pins



- **TO39 type** \varnothing 9.5*3.5mm, 3 pins,

Note: 1) * Frequency range is subject to different application
2) More holder type is option at www.tgscrytals.com

MHZ & KHz Quartz Crystal

Logo	Series No.	Freq. Range	Oscillator Mode	Freq. Tol. +/-ppm	CL pF	Frequency Stability +/-ppm	Operating Temp. °C	ESR ohm	Package	RoHS Compliance	Other value	Internal Control Code
TGS	CS	20M0	A	30	-20	-30	-20	-30	T	LF		
	CS	20M0: 20.0MHz	A: AT Fund.	5	S: series resonant	Blank: -for KHZ crystal	0: 0 ~+50	20	B: Bulk		Blank: N/A	Blank: N/A
	CSS	M: MHz	B: BT Fund.	10	6	5	10: -10 ~+60	25	T: Tape/Reel		3: 3 pins	
	CU	K: KHz	C: 3rd Overtone	15	8	10	15: -15~+65	30	A: Ammo- pack		C3.5: Pin 3.5mm	
	CA	Specify	D: 5th Overtone	20	9	15	20: -20~+70	40	R: Radial Reel		C4: Pin 4.0mm	
	CB		E: 7th Overtone	25	10	20	30: -30~+80	50			W: White insulation Washer	
	CCA			30	12	25	40: -40 ~+85	60			Specify	
	CCB			50	12.5	30	45: -45 ~+90	70				
	CM11			100	16	50	50: -50 ~+95	80				
	CM21			Specify	18	100	55: -55~105	90				
	CM22				20	Specify		100				
	CM32				22			120				
	CM53				30			150				
	CM63				33			200				
	CM75				Specify			300				
	CCME							Specify				
	CSM2											
	CSSM2	CCMB										
	CSM3	CMMC										
	CSM4	CCML										
	CSSM4	CCMM										
	CCMG	CCMN										

For examples: TGS CSM2 4M0A20-18-50-10-100 TLF & TGS CCMC 32K768A20-12.5-40-40TLF-AM

Note: *Not all combinations of options are available **Specifications subject to change without notice

Crystal Oscillator, VCXO and VXTCXO

Logo	Series	Supply Voltage	Enable/Disable Function	Freq. Stability +/-ppm	Operating Temp. °C	Symmetry	Output Load	Package	RoHS Complaint	Other Value	Internal Control Code	Freq. Range
TGS	COM75	5	0	B	G	H	01	T	LF			-32M768
	CO08	1: 1.8V	0: N/A	A: 25	D: 0~70	Blank : N/A	Blank: N/A	T: T/R		Blank: N/A	Blank: N/A	M: MHz
	CO14	2:2.5V	1: Tri-state via Pin 1	B:50	E:-10 ~+60	H: 40/60	01: 1-10TTL// 15pF	B: Bulk		Specify		K: KHz
	COM21	3:3.3V	2: Tri-state via pad 2	C:100	F:-20~+70	I: 45/55	02: 1-10TTL	TB: tube				32M768: 32.768MHz
	COM22	5:5.0V		J: 20	G:-40 ~+85		03: HCMOS 15pF					Specify
	COM32						04: HCMOS 30pF					
	COM53						05: HCMOS 50pF					
	COM75											
	COMA75	V14										
	COMB75	VTM25										
	VM53	VTM32										
	VM75	VTCM25										
	VM53	VTCM32										
	V8	VTCM53	VTCM75									

Example: TGS COM7550BGH01TLF-32M768

Note: *Not all combinations of options are available

**Specifications subject to change without notice

Ceramic Discriminator, Resonator & Ceramic Filter

Logo	Series	Frequency Range	Frequency Unit	Design Mode	Package	RoHS	Internal Control Code
TGS	CRA	3.58	M	G	B	LF	
	CRA	3.58	Blank: KHz		A: Ammo-pack		Blank: N/A
	CRARS	Specify	M: MHz		B: Bulk		
	CRT				T: T/R		
	CRTRS				R: Radial Reel		
	CRAC						
	CRACR	CRTCR	CFB	CFTCU			
	CRAS	CRTS	CF	CFMS			
	CRAV	CRTV	CFM	CAFW	CFAU		
	CRAW	CRTW	CFMU	CFMW	CDBC		
	CRTC	CFA	CFTCW	CFSW	CDCV		

Example: TGS CRA 3.58MG BLF

Note: *Not all combinations of options are available **Specifications subject to change without notice

SAW Filter & SAW Resonator

Logo	Product	Option for SR	Frequency Range	Frequency Tolerance	Design Mode	Holder Type	Package	RoHS	Other	Internal Control Code
TGS	SF		433.92M			TO39	B	LF		
	SF: SAW Filter	Blank: N/A	433.92MHz	Blank: N/A	Blank: N/A	TO39	T: T/R		Blank: N/A	Blank: N/A
	SR: SAW Resonator	A: 1-port SR	Specify	A: +/- 75KHz	Specify	F11	B: Bulk		Specify	
		B: 2-port SR		B: +/- 150KHz		W2				
						5D				
						S3				
				B2	SM24	S4				
				B5	F61	S5				
				B11	F62	S6				
				P4	F63	S7				
				S20	F64	S21				

Example: TGS SR 433.92MATO39BLF

Note: *Not all combinations of options are available **Specifications subject to change without notice

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Above all, when using TGS products, please take care the following point:

1. Don't apply voltage exceeding the rated voltage of components
2. Be certain not to operate outside the recommended operating temperature range of components
3. Be careful of soldering temperature and duration of components when soldering
4. Don't place soldering iron on the body of components
5. Be careful not to subject the terminates or leads of components to excessive force
6. Pay attention to the type of flux cleaning solvents that may damage components

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TGS warrants its products to be free from defects in materials and workmanship under normal use and service and to be in accordance with TGS specifications and drawings for a period of six months after date of shipment by TGS.

Within warranty period, TGS's sole liability and responsibility is to replace or repair any product, this is returned to it by Buyer and which TGS determines to be defective or non-conforming to the specification of the product ordered. The remedies stated herein are exclusive remedies and TGS shall not be responsible or liable for any indirect, consequential or indirect and consequential damages suffered by Buyer for delays, production reduction and any other matter related to its business activity. This warranty does not include, nor does TGS assume responsibility for defects or damage caused by misuse, abuse, service or repair by others and normal wear and tear

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Cross Reference Part No. List (part I)

Products	TGS	Abracon	Advanced Crystal Tech.UK	Citizen	Golledge	Jauch	QVS Tech	Total Frequency (TFC),UK	
Crystals	CM21	ABM11	ACT 2016SMX-4		GSX-221	JXS21	QCM100		
	CM25	AMB10	ACT 2205SMX-4		GSX-323	JXS22	QCM95	XY	
	CM32	AMB8	ACT 321AKSMX-4	CS325	GSX-331	JXS32	QCM70	XX	
	CM53	AMB3B	ACT 531SMX-4		GSX-531	JXS53	QCM40	XV	
	CM63	AMBB2	ACT 631SMX-4		GSX-641	JXS63	QCM45	XR	
	CM75	ABMM1	ACT 753SMX-4		GSX-751	JXS75	QCM25	XC	
	CS	ABL	ACT HC49/US	HC-49 / U-S	HC49-4H	SS4	QVS49S	U4	
	CSS	ABL2			HC49-3H	SS2	QVS49S2	U3	
	CSM2	ABLS	ACT HC49/US SMX	HCM49	GSX49-4	SMU4	QVS49P	XJ	
	CSSM2	ABLS2			GSX49-3	SMU2	QVS49P2	XP	
	CSM3	ABL5G							
	CSM4	ABSM3A	ACT HC49/US			SMU5	QVS49P4	49SXK	
	CA	ABU	ACT UM1		UM-1	MQ5	QVSU1	UM1	
	CB	ABU5	ACT UM5		UM-5	MQ1	QVSU5	UM5	
	CCA	AB26T	ACT2X6	CFS206/CFV-206	GWX-26	MMTF32	QVS26	TC26	
	CCB	AB38T	ACT3X8			MTF32	QVS38C	TC38	
	CCD	AB308		CSA-309	GCX-39	MTF38	QVS39		
	CCMB	AB26TRB		CMR200T	GSCX-26	SM26F			
	CCMC	ABS25	ACT 200B	CM250C/ CM200C	GSX-200	SMQ32SL	QPM25A	CM200S	
	CCME	ABSM2	ACT 86E-SMX	CM309S	86SMX	MG3A	QPM2	CM309S	
	CCMG	AB308R							
	CCMJ	AB26TRJ	ACT J206SMX(S)	CMJ206T	MS1V				
	CCML	ABS09		CM415	CC5V	JTX410			
	CCMN	ABS13	ACT 711E				QV3R		
	Crystal Oscillator	COM25	ASD	ACT 9225		GXO-3201	JO22	QEO	OY
		COM32	ASE	ACT 9325		GXO-3301	JO32	QDO	
		COM53	ASF	ACT 9300		GXO-5331	JO53	QCUO	OV
COM75		ASL/ASV	ACT 9200	CSX-750F	GXO-U108	JO75	QCO	OC	
CO8		ACH	ACT SPXO-8		GXO-U100H		QHO	OH	
CO14		ACO	ACT SPXO-14		GXO-U100 F		QXO	OF	

Note: please contact TGS (sales@tgscrystals.com) for more cross reference part No.

Cross Reference Part No. List (part II)

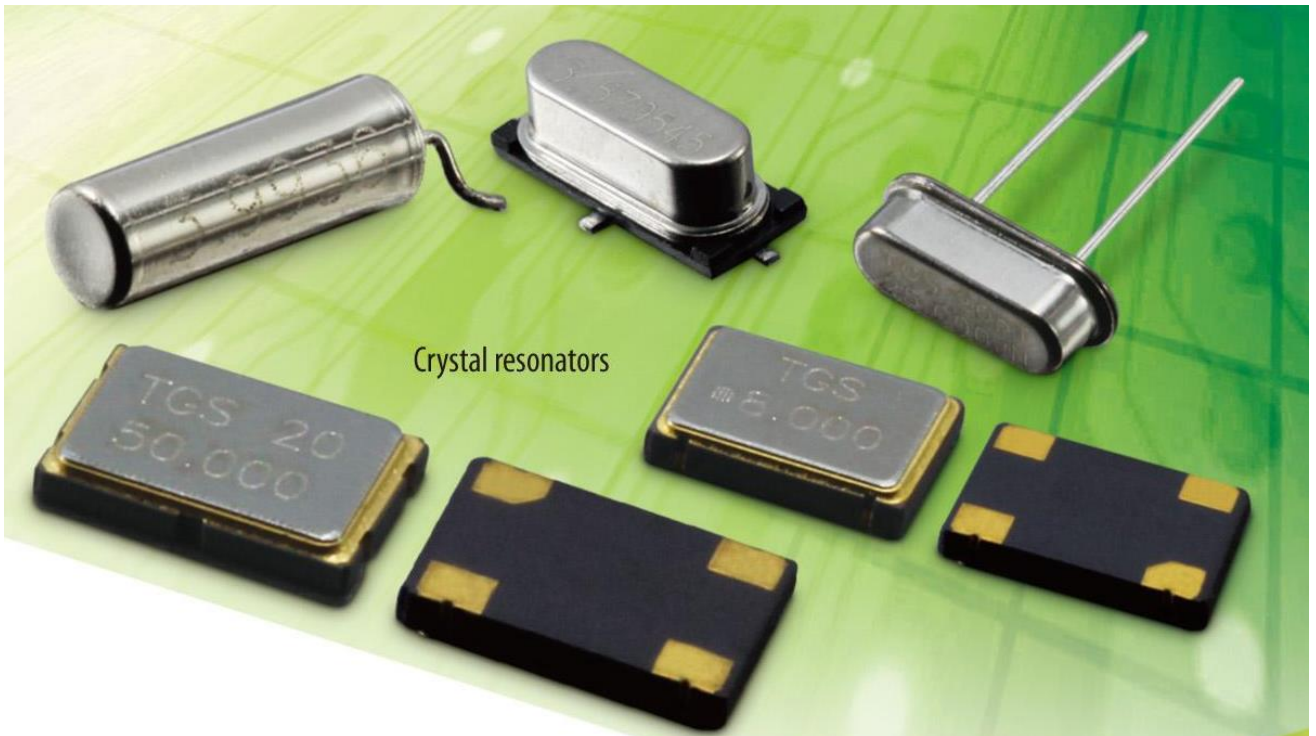
Products	TGS	Abracon	MEC	MMD	CTS	Raltron	
Crystals	CS	ABL	HUS	B	ATS	AS	
	CSS	ABL2	HUSL	E			
	CU	AB		A	MP		
	CA	ABU	UM1	U		UM-1	
	CB	ABU5	UM5			UM-5	
	CM11	ABM12		Z			
	CM21	ABM11		Y		R2016	
	CM25	AMB10	X22	X	425	R2520	
	CM32	AMB8	X32	T	403	RH100	
	CM53	AMB3B	MJ	J	405	H130B	
	CM63	ABMM3	MF	H	406	H10S	
	CM75	ABMM1	MQ	G	407	H13	
	CSM2	ABLS	M49	D	ATS-SM	AS-SMD	
	CSSM2	ABLS2	ML49	F			
	CSM3	ABL5G					
	CSM4	ABSM3A	MP4/MP5	N			
	CCA	AB26T	T26	TF206		R26	
	CCB	AB38T	T38	TF308		R38	
	CCD	AB308		TF310		RSA309	
	CCMB	AB26TRB		WC26G			
	CCMC	ABS25	SSG	WCSCMC		RSM200S	
	CCME	ABSM2		K	ATP-SM		
	CCMG	AB308R					
	CCML	ABS09	X4115	WC415		RT4115	
	CCMN	ABS13		WC146SM		RSE H14	
	CCMM	ASH7K	X3215	WC315	TF32		
	Oscillator	COM21	ASA/ASA1/ASA2		MXC		
		COM25	ASD/ASD1/ASD2	H22	MXH	625	
		COM32	ASE/ASE2/ASE3	H32	MSH	632	COM1
		COM53	ASF1/ASFL1/ASFL2	H53	MTH	636	COM/23/COM25
		COM75	ASL/ASV		MIH	CB3/CM3LV	CO43/CO46/CO47
		COMA75	ASV1				
COMB75		ASL1/ASV2					

Note: please contact TGS (sales@tgscrystals.com) for more cross reference part No.

Cross Reference Part No. List (part III)

Products	TGS Equivalent	IQD	MtronPTI	Precision Device, Inc.(PDI)	QT QYARZTECHNIK	TXC	
Crystals	CM11						
	CM21	CFPX-188				8Y	
	CM25	CFPX-181		CX		8Z	
	CM32	IQXC-32	M1253	C3		7M	
	CM53	CFPX-104	M1325	C5		7B	
	CM63		PP	C6	QTCC-6X3.5		
	CM75	14SMX	PM	C7	QTCC-7X5		
	CS	HC49/4H	ATS-49			9B	
	CSS						
	CSM2	HC49/4HSMX	ATSM-49	L4		9C	
	CSSM2	IQXC-33		L3			
	CSM3						
	CSM4	87SMX	PTX				
	CA	UM1	UM-1	U1	QTCC-UM1		
	CB		UM-5		QTCC-UM5		
	CCA			T6			
	CCB			T8			
	CCD		ATS-1	T9			
	CCMB	CFPX-56					
	CCMC	85SMX	SX1555-R				
	CCME	86SMX	SX2060				
	CCMG						
	CCMI						
	CCMK						
	CCML					9HT9	
	CCMN	CFPX-155					
	CCMP						
	Oscillator	COM25			OC2		8W
		COM32		M2532	OC3	XO-3.5X2.5	7X
		COM53		M3L/M5L	OC5	XO-5X3.2	7C
		COM75		M1/M2	OC7	XO-7X5	7W
		CO8		M3A	O08	QTXO-DIL8	
CO14			K1100F		QTXO-DIL14		

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