PETERMANN-TECHNIK GmbH
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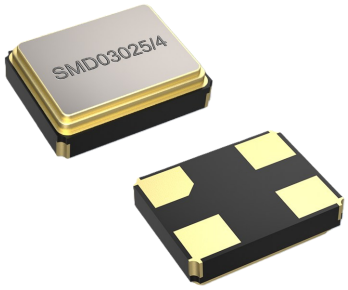
LOW ESR SMD MHz QUARTZ CRYSTAL

SERIES „SMD03025/4“ (3.2x2.5mm / 4pads)

FEATURES



+ Cheapest ceramic packaged low ESR MHz quartz crystal
+ High reliability for low cost
+ Standard operating temperature range of -40/+85°C to –40/+125°C
+ Excellent clock generator for CPU's, Wireless, Mobile Comm., IoT, IIoT, WIFI, Industrial, Telecom, Automotive, etc.
+ LRT-TECHNOLOGY Inside (LRT is our unique Low ESR Resonator-Technology)
+ Our top quality promise / depth of production:
  - Only use of crystal blanks from our in-house production, based on our unique LRT-Technology
  - Excellent product features guaranteed by multiple 100% tests and 100% end-test
  - 100% quality monitoring from crystal raw material to the end product
  - Excellent quality, performance and reliability is guaranteed.

GENERAL DATA

PARAMETERS	PRODUCT FEATURES AND CONDITIONS
SMD-CRYSTAL SERIES	SMD03025/4
NUMBER OF SOLDER PADS	4
FREQUENCY RANGE	8.0 ~ 285 MHz Fundamental
FREQUENCY TOLERANCES AT 25°C	±10 ppm ~ ±50 ppm
LOAD CAPACITANCE (C_L)	6 pF ~ 30 pF or series resonance (12 pF standard)
WORKING TEMPERATURE RANGES	0/+50°C ~ -40/+125°C
TEMPERATURE STABILITY	±8 ppm ~ ±50 ppm (see FREQUENCY STABILITY VS. TEMPERATURE table)
SHUNT CAPACITANCE (C_0)	2 pF max.
DRIVE LEVEL	100 µW typ. / 200 µW max. (500 µW available on request)
AGING	±2 ppm per year standard (±10 ppm max. after 10 years available on request)
INSULATION RESISTANCE	>500 MΩ DC/100V ±10%
STORAGE TEMPERATURE	-55°/+125°C
PRODUCT WEIGHT	0.027 g
MSL LEVEL	1
DELIVERY FORM	Tape and Reel (3.000 pcs per reel)
RoHS	Lead free and RoHS compliant
POP (EU)2019/1021	No POP substances
PFAS	No PFAS present
PROP 65	Compliant to PROP 65
TSCA	Compliant to TSCA
SELECT YOUR REQUIRED CRYSTAL (PRODUCT CONFIGURATOR)	REQUEST CRYSTAL SAMPLES (SAMPLE CONFIGURATOR)

Note:
1. LRT is optimized low ESR resonator design for fast and secure oscillation start-up
2. The reference temperature for all specified values and tests is +25°C.
3. Do not use cleaning baths operating at ultrasonic frequencies or ultrasonic welding processes.
4. Do not solder by hot air gun.

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FREQUENCY STABILITY VS. TEMPERATURE

	±8ppm	±10ppm	±15ppm	±20ppm	±30ppm	±50ppm
0°/+50°C	+	+	+	+	+	+
-10°/+60°C		+	+	+	+	+
0°/+70°C		+	+	+	+	+
-20°/+70°C		+	+	+	+	+
-40°/+85°C			+	+	+	+
-40°/+105°C					+	+
-40°/+125°C						+

ESR (EQUIVALENT SERIES RESISTANCE)

FREQUENCY IN MHz	VIBRATION MODE	ESR MAX. IN Ω
8 MHz	Fundamental	300
10 MHz	Fundamental	120
12 MHz	Fundamental	80
12.0 ~ 20.0 MHz	Fundamental	40
20.0 ~ 40.0 MHz	Fundamental	30
>40.0 MHz	Fundamental	25

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LIST OF STANDARD FREQUENCIES

8.0000 MHz	8.1920 MHz	9.2160 MHz	9.9000 MHz	10.0000 MHz	10.2400 MHz	10.3680 MHz	11.0592 MHz
11.2896 MHz	12.0000 MHz	12.0028 MHz	12.2880 MHz	12.2890 MHz	12.5000 MHz	12.8000 MHz	12.9024 MHz
13.0000 MHz	13.1433 MHz	13.225625 MHz	13.25311 MHz	13.3330 MHz	13.3460 MHz	13.4000 MHz	13.4055 MHz
13.5000 MHz	13.50765 MHz	13.52127 MHz	13.52313 MHz	13.525313 MHz	13.54856 MHz	13.5531 MHz	13.5600 MHz
13.575625 MHz	13.8240 MHz	14.0000 MHz	14.3016 MHz	14.31818 MHz	14.7400 MHz	14.7456 MHz	16.0000 MHz
16.3676 MHz	16.3840 MHz	16.6600 MHz	16.8000 MHz	16.9344 MHz	18.0000 MHz	18.4320 MHz	18.9375 MHz
19.069928 MHz	19.2000 MHz	19.3536 MHz	19.4400 MHz	19.9680 MHz	20.0000 MHz	20.2500 MHz	20.4000 MHz
20.4800 MHz	20.7360 MHz	20.9450 MHz	21.2289 MHz	21.948717 MHz	22.0000 MHz	22.1184 MHz	22.5792 MHz
24.0000 MHz	24.3050 MHz	24.545452 MHz	24.5760 MHz	24.701111 MHz	25.0000 MHz	25.4000 MHz	25.6000 MHz
26.0000 MHz	26.04166 MHz	26.2982 MHz	26.6000 MHz	26.6900 MHz	26.9984 MHz	27.0000 MHz	27.1200 MHz
27.13438 MHz	27.1412 MHz	27.6000 MHz	28.2240 MHz	28.3220 MHz	28.3750 MHz	28.6363 MHz	29.4912 MHz
30.0000 MHz	30.0400 MHz	30.4000 MHz	31.2500 MHz	32.0000 MHz	32.2500 MHz	32.7680 MHz	33.0000 MHz
33.3330 MHz	33.8688 MHz	36.0000 MHz	36.4800 MHz	36.8640 MHz	37.0500 MHz	37.40000 MHz	38.4000 MHz
39.0000 MHz	39.0625 MHz	40.0000 MHz	40.5000 MHz	41.0000 MHz	41.6000 MHz	41.6660 MHz	44.0000 MHz
44.53125 MHz	44.5450 MHz	44.8450 MHz	45.0000 MHz	48.0000 MHz	49.1520 MHz	50.0000 MHz	50.3000 MHz
52.0000 MHz	52.0830 MHz	54.0000 MHz	55.46667 MHz	62.4000 MHz	71.2500 MHz	74.2500 MHz	75.0000 MHz

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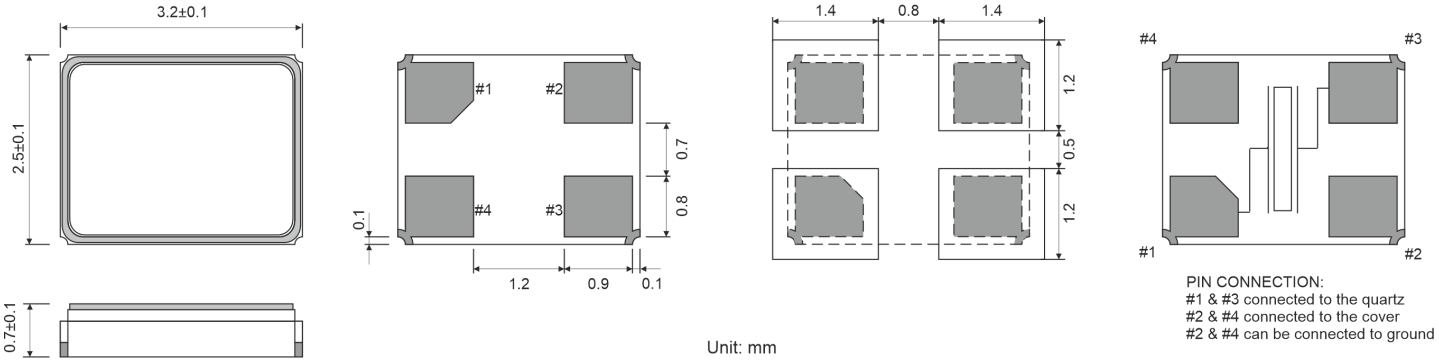
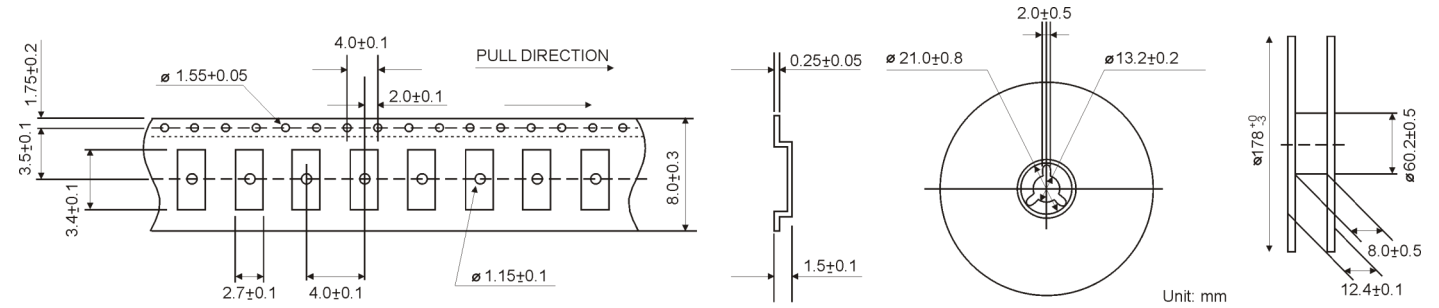
DIMENSIONS



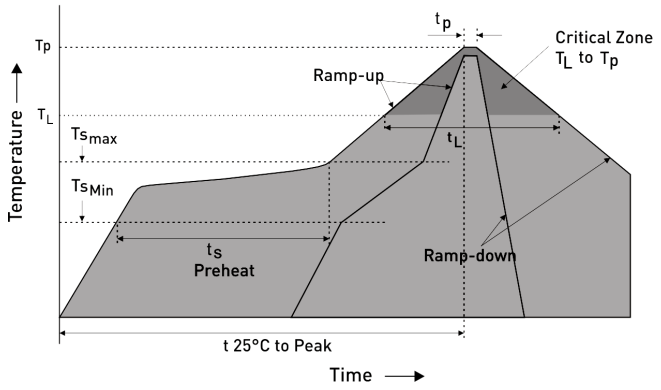
Unit: mm

REEL SPECIFICATION



Unit: mm

REFLOW SOLDER PROFILE



IPC/JEDEC Standard	IPC/JEDEC J-STD-020
Moisture Sensitivity Level	Level 1
TS MAX to TL (Ramp-up Rate)	3°C/second Maximum
Preheat	
- Temperature Minimum (TS MIN)	150°C
- Temperature Typical (TS TYP)	175°C
- Temperature Maximum (TS MAX)	200°C
- Time (tS)	60 - 180 Seconds
Ramp-up Rate (TL to TP)	3°C/second Maximum
Time Maintained Above:	
- Temperature (TL)	217°C
- Time (TL)	60 - 150 Seconds
Peak Temperature (TP)	260°C Maximum
Target Peak Temperature (TP Target)	255°C
Time within 5°C of actual peak (tP)	20 - 40 seconds
Max. Number of Reflow Cycles	2
Ramp-down Rate	6°C/second Maximum
Time 25°C to Peak Temperature (t)	8 minutes Maximum

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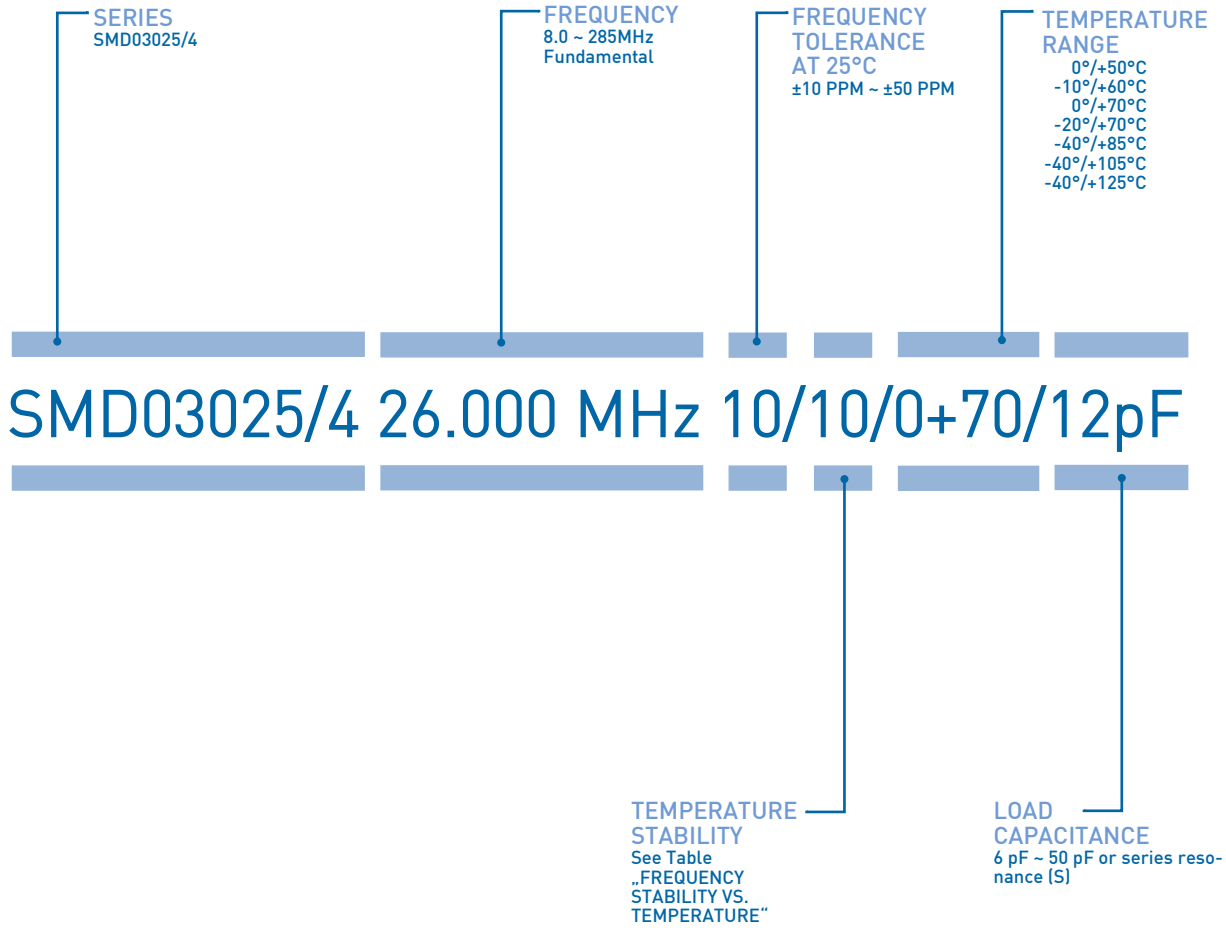
ORDERING INFORMATION



EXAMPLE: SMD03025/4 26.000 MHz 10/10/0+70/12pF

PLEASE INDICATE YOUR REQUIRED PARAMETERS

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REVISION HISTORY

REVISION	RELEASE DATE	AMENDMENTS SUMMARY
00	MARCH 2015	+ Initial Data Sheet (SPEC 01/REV.00)
01	DECEMBER 2016	+ Revised load capacitance, shunt capacitance and drive level
02	DECEMBER 2017	+ Revised housing height
03	AUGUST 2023	+ Revised Frequency Range + Revised Shunt Capacitance + Revised Aging + Revised Frequency Stability vs. Temperature Table + Added list of Standard Frequencies
04	DECEMBER 2025	+ Material declaration added + Data Sheet Design updated in our new style
05	AUGUST 2026	+ Added New Standard Frequencies

PREMIUM QUALITY BY PETERMANN-TECHNIK

DMSZ certified according to ISO 9001 QM 00886

OUR COMPANY IS CERTIFIED ACCORDING TO ISO 9001:2015 AND 14001:2015

THIS IS FOR YOU TO ENSURE THAT THE PRINCIPLES OF QUALITY MANAGEMENT ARE FULLY IMPLEMENTED IN OUR QM-SYSTEM AND QUALITY CONTROL METHODS .

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