PETERMANN TECHNIK
FREQUENCY CONTROLLED PRODUCTS
CRAFTED FOR EXCELLENCE

PETERMANN-TECHNIK GmbH
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SMD MHz QUARTZ CRYSTAL

SERIES „SMD03025/4“ (4 pad ceramic housing 3.2 x 2.5mm)

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, IoTT, WIFI, Industrial, 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 ~ 50 pF or series resonance
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						+

RESONANCE 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

LIST OF STANDARD FREQUENCIES

8.000 MHz	10.000 MHz	11.0592 MHz	12.000 MHz	12.288 MHz	12.800 MHz	13.000 MHz	13.346 MHz
13.52127 MHz	13.560 MHz	13.824 MHz	14.318 MHz	14.31818 MHz	14.7456 MHz	16.000 MHz	16.384 MHz
16.9344 MHz	18.432 MHz	19.200 MHz	20.000 MHz	20.736 MHz	22.1184 MHz	22.5792 MHz	24.000 MHz
24.576 MHz	25.000 MHz	25.000625 MHz	25.00075 MHz	26.000 MHz	27.000 MHz	27.120 MHz	27.600 MHz
28.6363 MHz	29.4912 MHz	30.000 MHz	32.000 MHz	32.768 MHz	33.000 MHz	36.000 MHz	36.864 MHz
37.400 MHz	38.400 MHz	40.000 MHz	48.000 MHz	49.152 MHz	50.000 MHz	52.000 MHz	54.000 MHz
55.46667 MHz	62.400 MHz	125.000 MHz	200.000 MHz				

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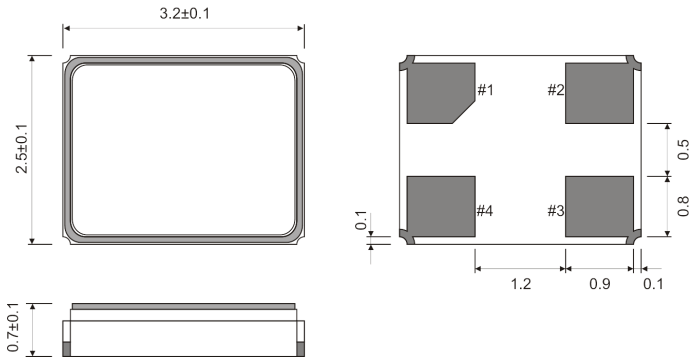
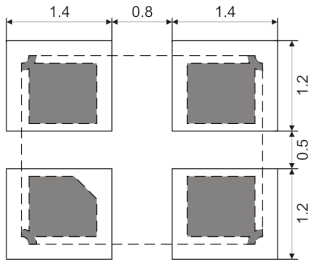
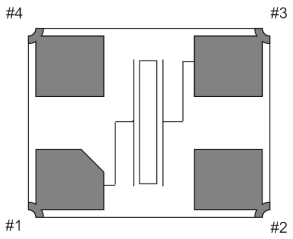
DIMENSIONS



Reference soldering pattern



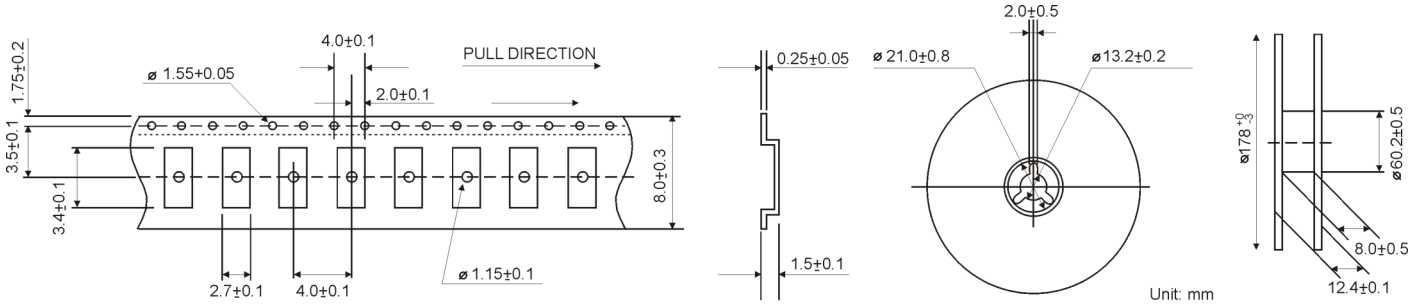
Internal connections (Top View)



PIN CONNECTION:
#1 & #3 connected to the quartz
#2 & #4 connected to the cover
#2 & #4 can be connected to ground

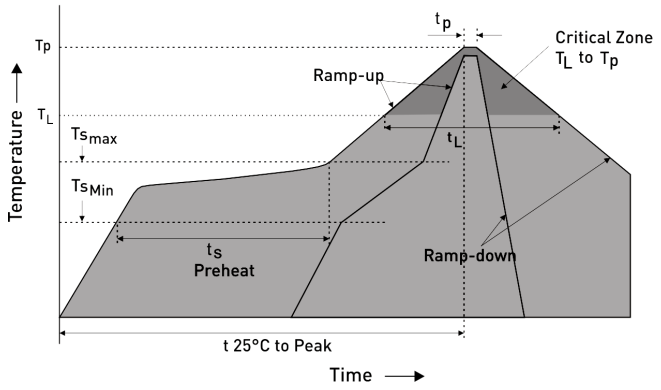
Unit: mm

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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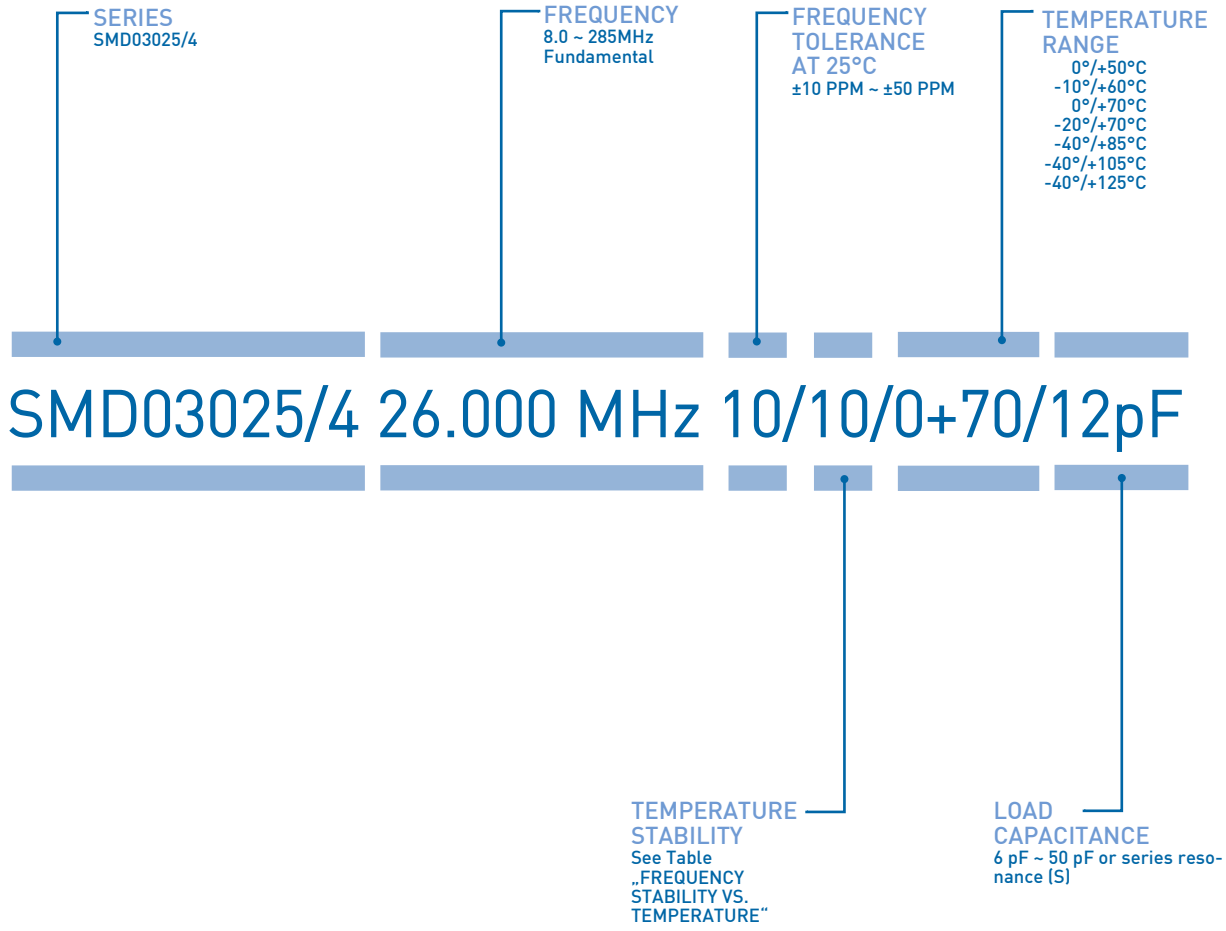
ORDERING INFORMATION



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

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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