

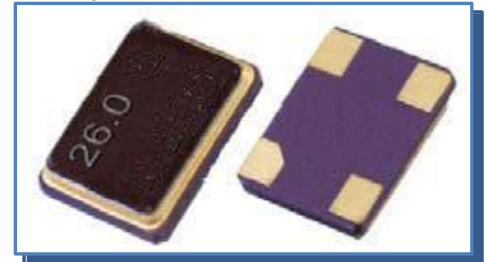


JE PRODUCT FAMILY

Surface Mount Microprocessor Crystal 2.5 x 2.0

Features

- Compact Design
- High Accuracy
- Excellent for High Density Surface Mounting



❖ Specifications

Parameter		Value
Frequency Range		16.000 to 55.000 MHz
Mode of Oscillation	Fundamental	16.000 to 55.000 MHz
Frequency Tolerance at 25°C		±50 ppm Standard (±10 & ±20 ppm available)
Frequency Stability over Temperature		±50 ppm Standard (±10 & ±20 ppm available)
Operating Temperature Range		-20°C to +70°C Standard ¹ -40°C to +85°C Extended ¹
Storage Temperature Range		-40°C to +85°C
Aging		±3 ppm per Year maximum
Load Capacitance		8 pF to 32 pF or Series
Equivalent Series Resistance		See Table 1
Shunt Capacitance		7.0 pF maximum
Drive Level		100 µW Typ., 500 µW Max
Shock Resistance		±5 ppm Maximum 75 cm Drop Test in 3 axes onto a hardwood surface

Table 1

Frequency (MHz)	Mode	MAX ESR (Ohms)
10.000 to 18.999	FUND	90
19.000 to 24.999	FUND	80
25.000 to 31.999	FUND	60
32.000 to 55.000	FUND	50

¹ NOTE: NOT ALL STABILITIES ARE AVAILABLE FOR ALL OPERATING TEMPERATURES

❖ Environmental

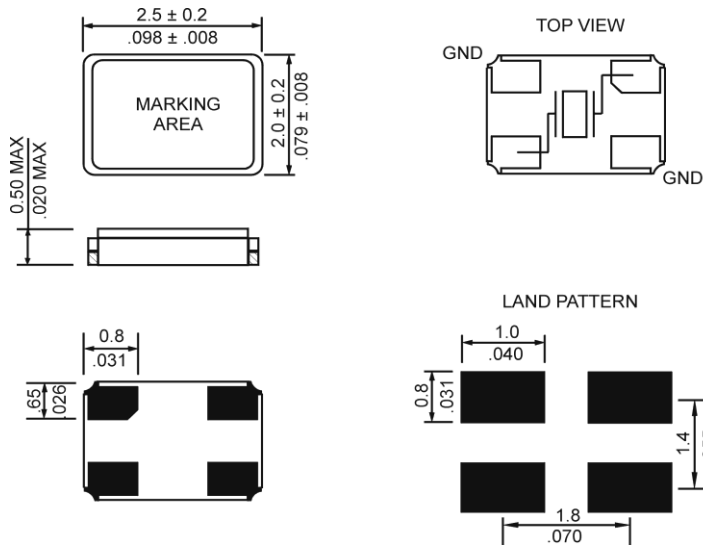
Parameter	Value
Moisture Sensitivity Level	1
RoHS	6/6 Complaint & Lead Free
REACH SVHC	Compliant
Halogen Free	Compliant
ESD Classification Level	N/A
Termination Finish	Au
Unit Weight (grams)	0.013

RS, Professionally Approved Products, gives you professional quality parts across all products categories. Our range has been testified by engineers as giving comparable quality to that of the leading brands without paying a premium price.

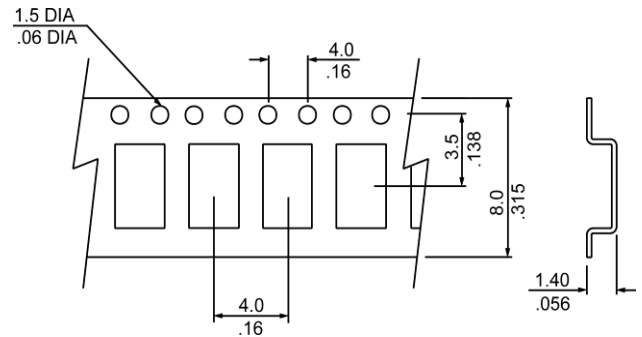


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❖ Mechanical Specification



❖ Carrier Tape Dimension



NOTE: REFER TO EIA-481 FOR DIMENSIONS

❖ Packaging

178 mm Reel Diameter
8 mm Tape Width, 4 mm Pitch
Quantity: 3000 pcs per Reel

In accordance with EIA-481

❖ Part Numbering

JE	-	24.000	-	18	-	XXXX
Product Family		Frequency (MHz)		Load Capacitance (pF)		1) Tolerance, 2) Stability, 3) Mode, 4) Temperature
				16 to 32 pF or S for Series		Tolerance: E=±10 ppm, H=±15 ppm, D=±20ppm, A=± 25 ppm, F=±30 ppm, B=±50 ppm (standard)
						Stability: E=±10 ppm, H=±15 ppm, D=±20ppm, A=± 25 ppm, F=±30 ppm, B=±50 ppm (standard)
						Mode: blank = Fundamental, 3=3 rd Overtone
						Temperature range: blank standard, E=Extended

EXAMPLE: JE-24.000-12-BB

Surface Mount Microprocessor Crystal, 2.5 X 2.0 mm, 24.000 MHz, 18 pF load Capacitance, standard tolerance (±50 ppm) and stability (±50 ppm), Fundamental mode, standard Temperature range -20°C to +70°C

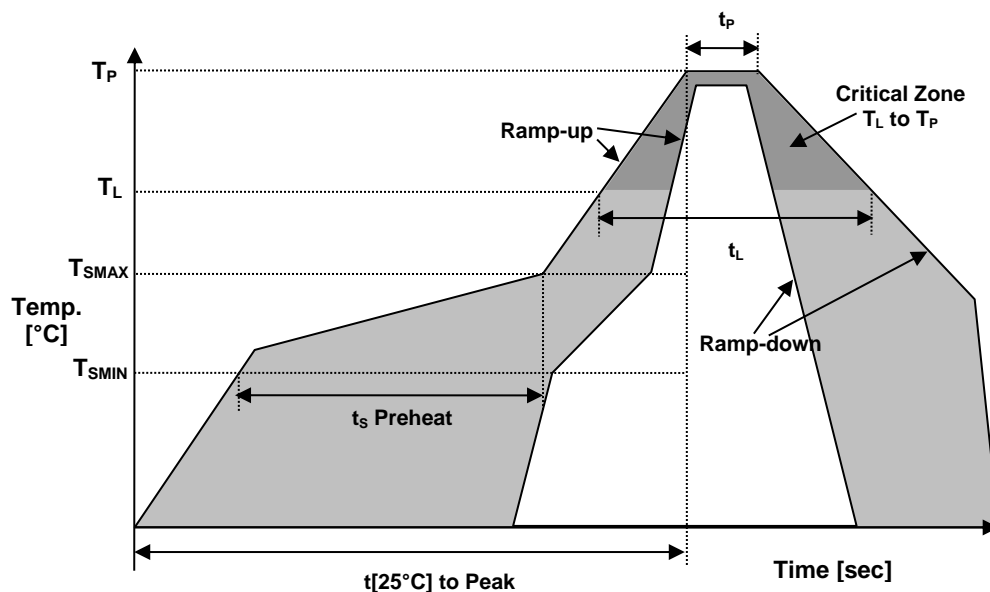
EXAMPLE: JE-8.000-10-DBE

Surface Mount Microprocessor Crystal, 2.5 X 2.0 mm, 8.000 MHz, 10 pF load Capacitance, tolerance (±20 ppm), stability (±50 ppm), Fundamental mode, Extended Temperature range -40°C to +85°C



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Reflow Profile



Reflow Profile (Reference IPC/JEDEC J-STD-020)		
Temperature Min Preheat	T_{SMIN}	150°C
Temperature Max Preheat	T_{SMAX}	200°C
Time (T_{SMIN} to T_{SMAX})	t_s	60 – 180 sec.
Temperature	T_L	217°C
Peak Temperature	T_P	260°C
Ramp-Up Rate	R_{UP}	3°C / sec. max
Ramp-Down Rate	R_{DOWN}	6°C / sec. max
Time within 5°C of Peak Temperature	T_P	10 sec.
Time $t[25^\circ\text{C}]$ to Peak Temperature	$t[25^\circ\text{C}]$ to Peak	480 sec.
Time	T_L	60 – 150 sec.

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● MARKING

RFF.FF

xxLyw

FF.FF – Frequency in MHz
 x – Internal Production ID code
 L – Load Capacitance Code
 y – Year code
 w – Week code

LOAD CAPACITANCE CODE			
CODE	C _L (pF)	CODE	C _L (pF)
A	20	J	12
B	18	K	10
C	16	M	14
D	30	N	15
F	12.5	P	13
G	32	8	8
H	22	9	9

YEAR CODE	
Year	Code
2011	1
2012	2
2013	3
2014	4
2015	5
2016	6
2017	7
2018	8
2019	9
2020	0

ALPHA WEEK CODE					
Week	Code	Week	Code	Week	Code
1	a	19	s	37	K
2	b	20	t	38	L
3	c	21	u	39	M
4	d	22	v	40	N
5	e	23	w	41	O
6	f	24	x	42	P
7	g	25	y	43	Q
8	h	26	z	44	R
9	i	27	A	45	S
10	j	28	B	46	T
11	k	29	C	47	U
12	l	30	D	48	V
13	m	31	E	49	W
14	n	32	F	50	X
15	o	33	G	51	Y
16	p	34	H	52	Z
17	q	35	I		
18	r	36	J		

● APPROVAL

DRAWN BY	FP, 28 March 2017
APPROVED BY	FP, 28 March 2017
REVISION	A, Initial Release