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MICROPROCESSOR CRYSTAL UNITS

SERIES A, B, C

HC-49/U, HC-51/U, AND UM-1

- EXCELLENT CLOCK SIGNAL GENERATOR FOR CPU's
- WIDE FREQUENCY RANGE
- INDUSTRY STANDARD PACKAGES

SPECIFICATIONS

FEATURES

FREQUENCY RANGE		100.00 KHz TO 300.00 MHz					
	A: HC-49/U	1.00 MHz TO 300.00 MHz					
HOLDER TYPES	B: HC-51/U	100.00 KHz TO 4.00 MHz					
	C: UM-1	8.00 MHz TO 300.00 MHz					
FREQUENCY TOLERANCE AT 25 °C	;	±30 PPM TYPICAL ±50 PPM MAXIMUM					
FREQUENCY STABILITY OVER TEM	IPERATURE	±50 PPM TYPICAL ±100 PPM MAXIMUM					
ODEDATING TEMPEDATURE DANG		-20 °C TO +70 °C STANDARD					
OPERATING TEMPERATURE RANGE		-40° C TO +85 °C EXTENDED					
STORAGE TEMPERATURE RANGE		-55 °C TO +125 °C					
AGING		±5 PPM PER YEAR MAXIMUM					
LOAD CAPACITANCE		10 TO 32 pF 0R SERIES					
SHUNT CAPACITANCE		7 pF MAXIMUM					
EQUIVALENT SERIES RESISTANCE	E(ESR)	SEE PAGE 11					
DRIVE LEVEL		0.1 mW TYPICAL 1 mW MAXIMUM					
SHOCK RESISTANCE		± 5 PPM MAXIMUM 75 cm DROP TEST IN 3 AXES ONTO A HARD SURFACE OR 1000 g's x 0.5 ms x $\frac{1}{2}$ SINEWAVE IN 3 AXES					



FREQUENCY RANGE AND MODE OF OSCILLATION BY HOLDER TYPE

HOLDER TYPE	FUNDAMENTAL (FUND)	THIRD OVERTONE (3OT)	FIFTH OVERTONE (5OT)	SEVENTH OVERTONE (7OT)	NINTH OVERTONE (9OT)
TYPE A: HC-49/U	1.00 MHz TO 65.00 MHz	20.00 MHz TO 90.00 MHz	60.00 MHz TO 130.00 MHz	125.00 MHz TO 200.00 MHz	180.00 MHz TO 300.00 MHz
TYPE B: HC-51/U	100.00 KHz TO 4.00 MHz				
TYPE C: UM-1	8.00 MHz TO 65.00 MHz	25.00 MHz TO 90.00 MHz	60.00 MHz TO 130.00 MHz	125.00 MHz TO 200.00 MHz	180.00 MHz TO 300.00 MHz

PART NUMBERING SYSTEM

HOLD	HOLDER TYPE FREQUENCY			LOAD CAPACITANCE		MODE			EXTENDED TEMPERATURE	
A B C	HC-49/U HC-51/U UM-1	-	IN MHz	-	10 TO 32pF FOR PARALLEL S FOR SERIES		F 3OT 5OT 7OT 9OT	FUNDAMENTAL THIRD OVERTONE FIFTH OVERTONE SEVENTH OVERTONE NINTH OVERTONE	1	EXT

MECHANICAL OPTIONS								TAPE AND REEL
THREE PIN BASE		THIRD LEAD (TOP OF HOUSING)		SPACER		SLEEVE	-	TR
3PIN 3RD			SP		SL			

† FUNDAMENTAL MODE NOT NEEDED IN PART NUMBER

EXAMPLE: A-4.000-S

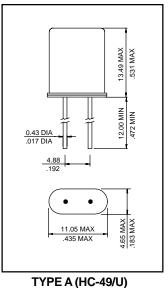
A-3.579545-18-EXT-3PIN-SP-SL-TR

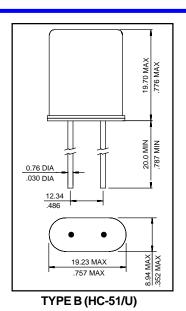
C-65.000-S-30T



OUTLINE DRAWINGS FOR MICROPROCESSOR CRYSTALS



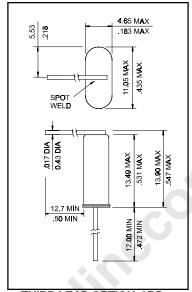




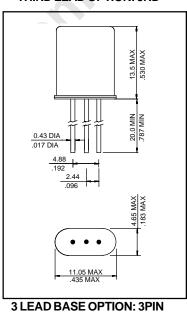
8.00 MAX 12.00 MIN 3.76 3.30 MAX .130 MAX 7 90 MAX

TYPE C (UM-1)

PACKAGE OPTIONS

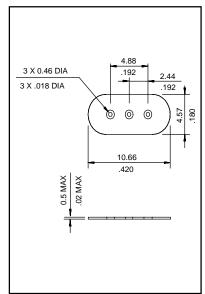






13.49 MAX .531 MAX TRANSPARENT PLASTIC 12.00 MIN .472 MIN 0.43 DIA .017 DIA 4.75 MAX .187 MAX TRANSPARENT PLASTIC SLEEVING 11.05 MAX .435 MAX

PLASTIC SLEEVE OPTION: SL



PLASTIC SPACER OPTION: SP

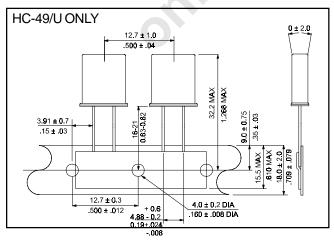


EQUIVALENT SERIES RESISTANCE VERSUS FREQUENCY AND PACKAGE

FREQUENCY	Н	OLDER TYPE		ESR			
MHz	110 54/11 "5"	110 40/11"4"	11844 0	""		"0"	
1.000	HC-51/U "B"		UM-1 "C"	"B"	"A"	"C"	
1.000	В	A		700	700		
1.843	В	A		600	700		
2.000	В	Α		500	500		
2.097152	В	Α		500	500		
2.4576	В	Α		400	400		
3.000	В	Α		150	200		
3.2768	В	Α		150	180		
3.579545	В	Α		120	180		
3.600	В	Α		100	160		
3.6864	В	Α		100	140		
4.000	В	Α		50	80		
4.096		Α			80		
4.194304		Α			80		
4.433619		Α			80		
4.9152		Α			60		
5.000		Α			60		
5.0688		Α			60		
5.185		Α			60		
5.7143		Α			50		
5.9904	1	Α			50		
6.000	1	Α			50		
6.144	1	Α			40		
6.400	1	А			40		
6.5536	İ	А			40		
7.000	İ	Α			30		
7.15909	i	Α			30		
7.3728		A			30		
8.000	1	А			30		
9.216		Α			30		
9.8304		A			30		
10.000	i	A	С	Ī	25	50	
10.738635		A	C	İ	25	50	
11.000		A	C	İ	25	50	
11.050		A	C	İ	25	50	

FREQUENCY	Н	OLDER TYPE	ESR					
MHz				"B" "A" "C"				
	HC-51/U "B"	HC-49/U "A"	UM-1 "C"	"B"				
11.059		A	С		25	50		
12.000		Α	С		25	40		
12.288		Α	С		25	40		
13.5168		Α	С		25	40		
14.31818		Α	С		25	35		
14.7456		Α	С		25	35		
15.000		Α	С		25	35		
16.000		Α	С		25	30		
16.384		Α	С		25	35		
17.360		Α	С		25	30		
18.000		Α	С		20	25		
18.432		Α	С		20	30		
19.354		Α	С		20	30		
19.6608		Α	С		20	30		
20.000		Α	С		20	30		
22.1184		Α	С		20	25		
23.400		Α	С		20	25		
24.000	'	Α	С		20	25		
24.576		Α	С		30	25		
25.000	1.60	Α	С		30	20		
27.000		Α	С		30	20		
30.000		Α	С		30	20		
32.000		Α	С		30	60		
36.000		А	C		30	60		
40.000		А	C		30	50		
48.000		A	C		30	50		
60.000		Α	C		30	40		
70.000		A	Č		30	40		
80.000		Α	C		30	40		
90.000		A	Č		40	40		
100.000		A	C		40	100		
150.000		A	C		50	70		
200.000		A	C		100	120		
300,000		Δ	C		150	180		

CARRIER TAPE DIMENSIONS



PACKAGING

370 mm REEL DIAMETER, 18 mm TAPE WIDTH, 12.7 mm PITCH, QUANTITY 1000 PIECES PER REEL