Engineering/Process Change Notice

ECN/PCN No.: 3735

For Manufacturer		
Product Description: Quartz Crystal Clock Oscillator XO (SPXO) HCMOS/TTL (CMOS) **5.0Vdc** J-Lead 9.8mm x 14.0mm Plastic Surface Mount (SMD)	**Abracon Part Number / Part Series:** EH14	☒ Series ☐ Part Number
Affected Revision: F	**New Revision:** N/A, EOL	**Application**: ☐ Safety ☒ Non-Safety
Prior to Change: N/A, EOL		
After Change: N/A, EOL		
Cause/Reason for Change: Discontinuation of standard product series.		

Change Plan		
Effective Date: 01/29/2021	**Additional Remarks:** N/A	
Change Declaration: N/A, EOL		
Issued Date: 01/29/2021	**Issued By:** *Brooke Cushman* Product Engineer	**Issued Department:** Engineering
Approval: *Thomas Culhane* Engineering Director	**Approval:** *Reuben Quintanilla* Quality Director	**Approval:** *Ying Huang* Purchasing Director

For Abracon EOL only		
Last Time Buy (if applicable): NO LAST TIME BUY	**Alternate Part Number / Part Series:** ASL, ASL1, & ASL2	
Additional Approval: *N/A*	**Additional Approval:** *N/A*	**Additional Approval:** *N/A*

Affected Part Numbers

EH1400SJETTE-26.000M
EH1400SJETTS-1.000M
EH1400SJETTS-1.000M TR
EH1400SJETTS-1.100M
EH1400SJETTS-1.600M
EH1400SJETTS-11.0592M TR
EH1400SJETTS-12.000M TR
EH1400SJETTS-16.000M
EH1400SJETTS-16.000M TR
EH1400SJETTS-16.670M TR
EH1400SJETTS-18.432M
EH1400SJETTS-18.432M TR
EH1400SJETTS-19.6608M
EH1400SJETTS-2.4576MTR
EH1400SJETTS-24.576M

EH1400SJETTS-24.576M TR
EH1400SJETTS-25.000M
EH1400SJETTS-25.000M TR
EH1400SJETTS-26.000M
EH1400SJETTS-32.000M
EH1400SJETTS-32.000M TR
EH1400SJETTS-32.768M
EH1400SJETTS-32.768M TR
EH1400SJETTS-4.000M
EH1400SJETTS-4.000M TR
EH1400SJETTS-40.000M
EH1400SJETTS-48.000M
EH1400SJETTS-48.000M TR
EH1400SJETTS-5.000M
EH1400SJETTS-5.000M TR
EH1400SJETTS-5.0688M
EH1400SJETTS-50.000M
EH1400SJETTS-50.000M TR
EH1400SJETTS-64.000M
EH1400SJETTS-64.000M TR
EH1400SJETTS-7.3728M TR
EH1400SJETTS-70.656M
EH1400SJETTS-70.656M TR
EH1400SJETTTS-1.000M
EH1400SJETTTS-1.8432M
EH1400SJETTTS-1.8432M TR
EH1400SJETTTS-13.4218M
EH1400SJETTTS-13.4218M TR
EH1400SJETTTS-16.000M TR
EH1400SJETTTS-16.667M
EH1400SJETTTS-16.670M
EH1400SJETTTS-16.670M TR
EH1400SJETTTS-20.000M
EH1400SJETTTS-3.600M
EH1400SJETTTS-32.000M
EH1400SJETTTS-32.000M TR
EH1400SJETTTS-36.000M
EH1400SJETTTS-36.000M TR
EH1400SJETTTS-4.000M TR
EH1400SJETTTS-40.000M
EH1400SJETTTS-8.000M
EH1400SJTS-10.000M TR
EH1400SJTS-16.000M
EH1400SJTS-16.000M TR
EH1400SJTS-16.384M
EH1400SJTS-16.666667M TR
EH1400SJTS-18.000M
EH1400SJTS-2.048M
EH1400SJTS-2.048M TR
EH1400SJTS-25.177M
EH1400SJTS-3.6864M
EH1400SJTS-3.6864M TR
EH1400SJTS-32.000M
EH1400SJTS-39.3216M

EH1400SJTS-4.000M TR
EH1400SJTS-4.9152M
EH1400SJTS-40.000M
EH1400SJTS-48.000M
EH1400SJTS-50.000M
EH1400SJTS-7.3728M TR
EH1400SJTS-7.680M
EH1400SJTTS-39.3216M
EH1400SJTTS-39.3216M TR
EH1400SJTTS-4.9152M
EH1400SJTTS-4.9152M TR
EH1420SJETTS-5.000M TR
EH1420SJETTTS-16.000M TR
EH1420SJETTTS-4.000M TR
EH1425SJETTS-100.000M
EH1425SJETTS-16.000M
EH1425SJETTS-20.000M
EH1425SJETTS-24.576M
EH1425SJETTS-24.576M TR
EH1425SJETTTS-16.000M TR
EH1425SJETTTS-19.6608M
EH1425SJETTTS-4.000M TR
EH1425SJTS-19.6608M
EH1425SJTS-19.6608M TR
EH1445SJETTS-12.000M
EH1445SJETTS-12.000M TR
EH1445SJETTS-64.000M
EH1445SJETTTS-16.000M
EH1445SJETTTS-16.000M TR
EH1445SJETTTS-2.304M
EH1445SJETTTS-4.000M TR
EH1445SJETTTS-64.000M
EH1445SJETTTS-64.000M TR
EH1445SJETTTS-8.1920M
EH1445SJTS-1.000M
EH1445SJTS-1.000M TR
EH1445SJTS-1.96608M
EH1445SJTS-12.000M TR
EH1445SJTS-76.800M
EH1445SJTS-76.800M TR
EH1445SJTTS-29.800M TR

REGULATORY COMPLIANCE

Lead Free COMPLIANT | EU RoHS 2011/65 + 2015/863 COMPLIANT | China RoHS COMPLIANT | REACH SVHC COMPLIANT | DRC CONFLICT FREE

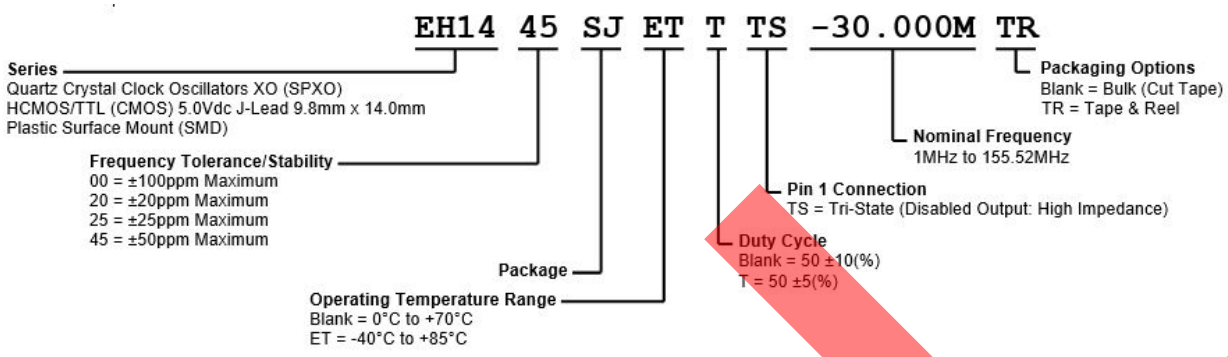
ITEM DESCRIPTION

Quartz Crystal Clock Oscillators XO (SPXO) HCMOS/TTL (CMOS) 5.0Vdc J-Lead 9.8mm x 14.0mm Plastic Surface Mount (SMD)

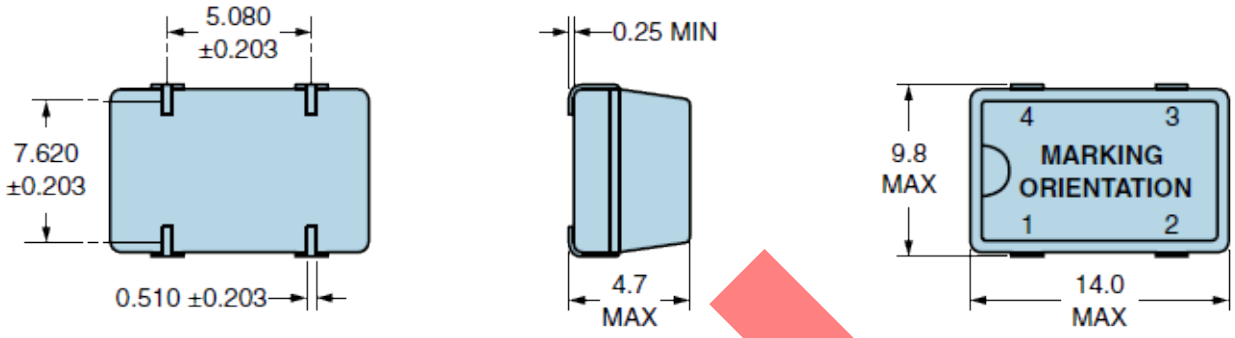
ELECTRICAL SPECIFICATIONS

Nominal Frequency	1MHz to 155.52MHz
Frequency Tolerance/Stability	Inclusive of all conditions: Calibration Tolerance at 25°C, Frequency Stability over the Operating Temperature Range, Supply Voltage Change, Output Load Change, First Year Aging at 25°C, Shock, and Vibration ±100ppm Maximum ±20ppm Maximum ±25ppm Maximum ±50ppm Maximum
Aging at 25°C	±5ppm/Year Maximum
Operating Temperature Range	0°C to +70°C -40°C to +85°C
Supply Voltage	5.0Vdc ±10%
Input Current	No Load 50mA Maximum
Output Voltage Logic High (VOh)	2.4Vdc Minimum with TTL Load, Vdd-0.4Vdc Minimum with HCMOS Load, IOH = -16mA
Output Voltage Logic Low (VOl)	0.4Vdc Maximum with TTL Load, 0.5Vdc Maximum with HCMOS Load, IOL = +16mA
Rise/Fall Time	Measured at 0.8Vdc to 2.0Vdc with TTL Load; Measured at 20% to 80% of waveform with HCMOS Load 6nSec Maximum over Nominal Frequency of 1MHz to 70MHz 4nSec Maximum over Nominal Frequency of 70.000001MHz to 155.52MHz
Duty Cycle	50 ±10(%) (Measured at 1.4Vdc with TTL Load or at 50% of waveform with HCMOS Load over Nominal Frequency range of 1MHz to 70MHz; Measured at 50% of waveform over Nominal Frequency range of 70.000001MHz to 155.52MHz) 50 ±5(%) (Measured at 50% of waveform with TTL Load or with HCMOS Load)
Load Drive Capability	10TTL Load or 50pF HCMOS Load Maximum over Nominal Frequency of 1MHz to 70MHz 5TTL Load or 15pF HCMOS Load Maximum over Nominal Frequency of 70.000001MHz to 155.52MHz
Output Logic Type	CMOS
Pin 1 Connection	Tri-State (Disabled Output: High Impedance)
Tri-State Input Voltage (Vih and Vil)	+2.2Vdc Minimum to enable output, +0.8Vdc Maximum to disable output (High Impedance), No Connect to enable output.
Absolute Clock Jitter	±250pSec Maximum, ±100pSec Typical
One Sigma Clock Period Jitter	±50pSec Maximum, ±30pSec Typical
Start Up Time	10mSec Maximum
Storage Temperature Range	-55°C to +125°C

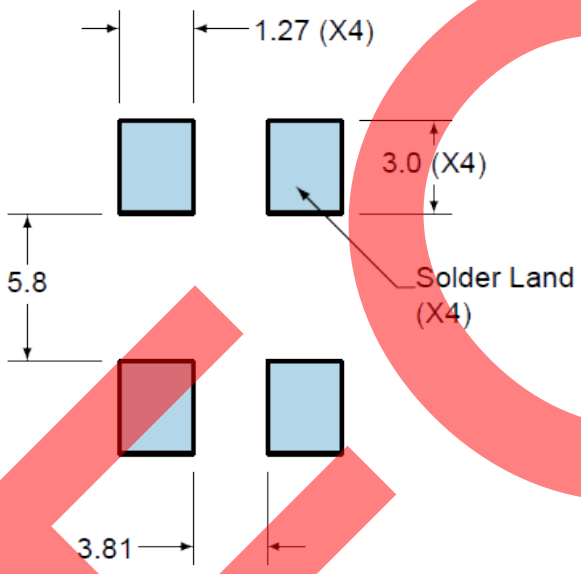
PART NUMBERING GUIDE



MECHANICAL DIMENSIONS



SUGGESTED SOLDER PAD LAYOUT

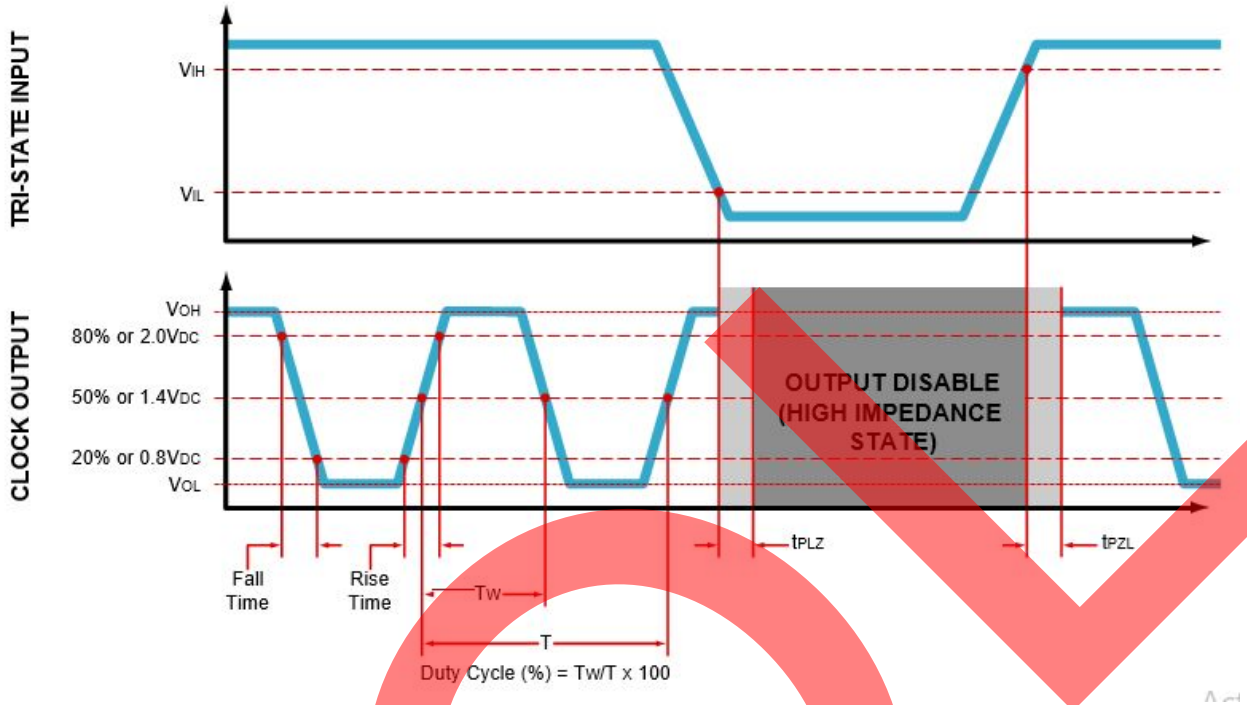


PIN	CONNECTION
1	Tri-State
2	Ground
3	Output
4	Supply Voltage

All Tolerances are ±0.1

All Dimensions in Millimeters

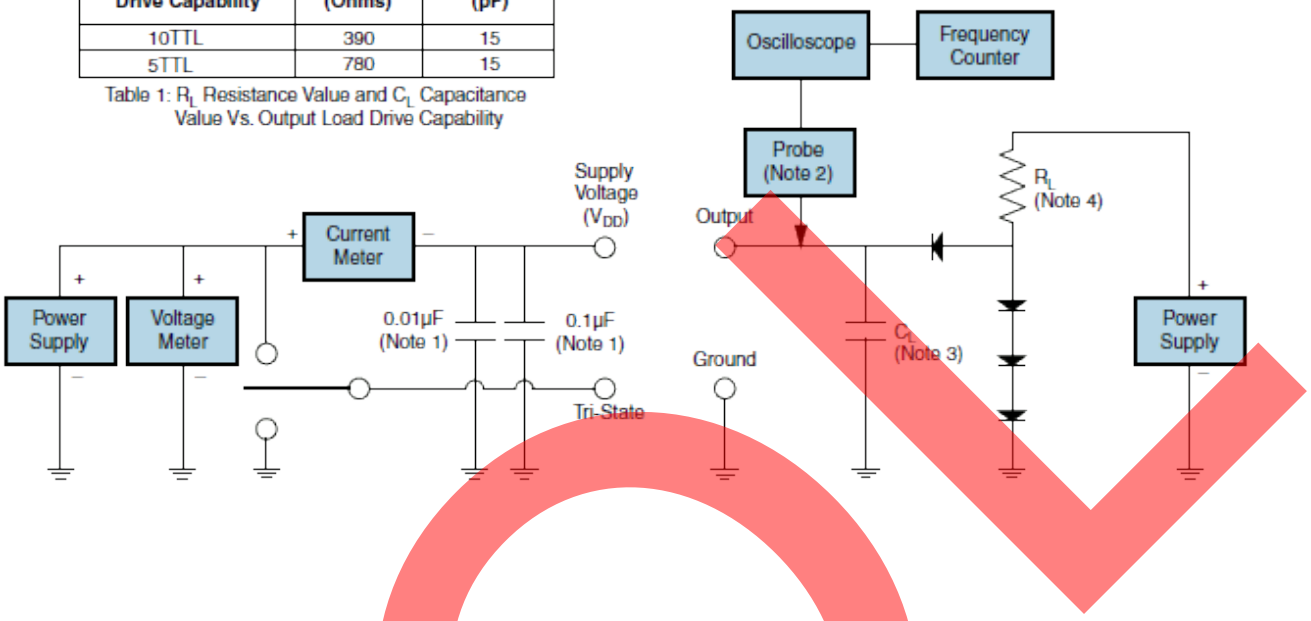
OUTPUT WAVEFORM & TIMING DIAGRAM



TEST CIRCUIT FOR TTL OUTPUT

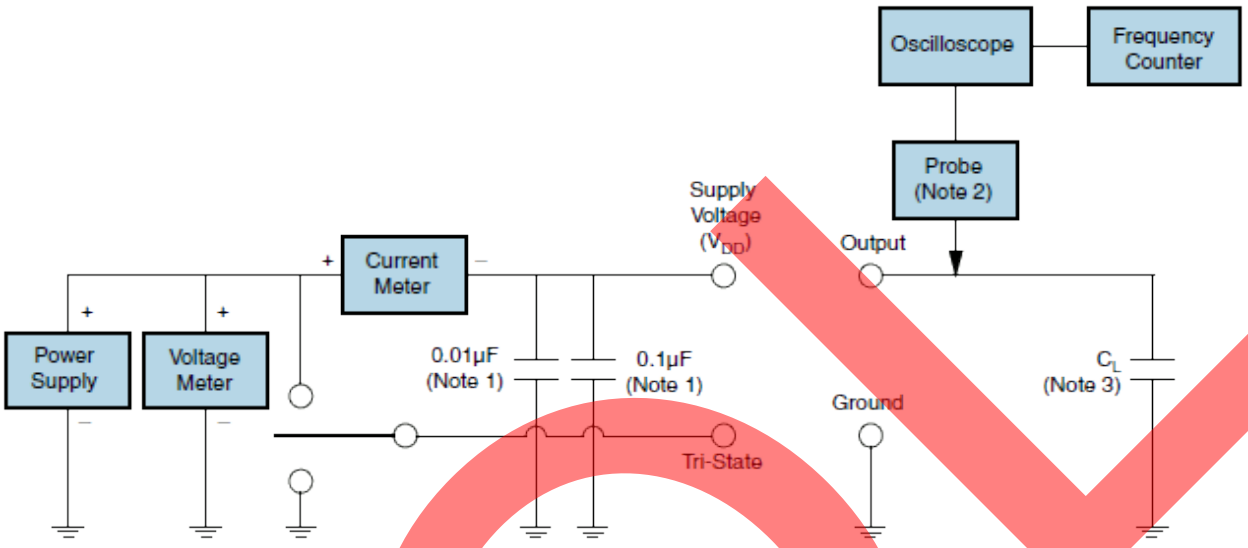
Output Load Drive Capability	R_L Value (Ohms)	C_L Value (pF)
10TTL	390	15
5TTL	780	15

Table 1: R_L Resistance Value and C_L Capacitance Value Vs. Output Load Drive Capability



Note 1: An external 0.1µF low frequency tantalum bypass capacitor in parallel with a 0.01µF high frequency Ceramic bypass capacitor close to the package ground and V_{DD} pin is required.
Note 2: A low input capacitance (<12pF), 10X Attentuation Factor, High Impedance (>10Mohms), and High Bandwidth (>300MHz) passive probe is recommended.
Note 3: Capacitance value C_L includes sum of all probe and fixture capacitance.
Note 4: Resistance value R_L is shown in Table I. See applicable specification sheet for â€˜Load Drive Capabilityâ€™.
Note 5: All diodes are MMBD7000, MMBD914, or equivalent.

TEST CIRCUIT FOR CMOS OUTPUT



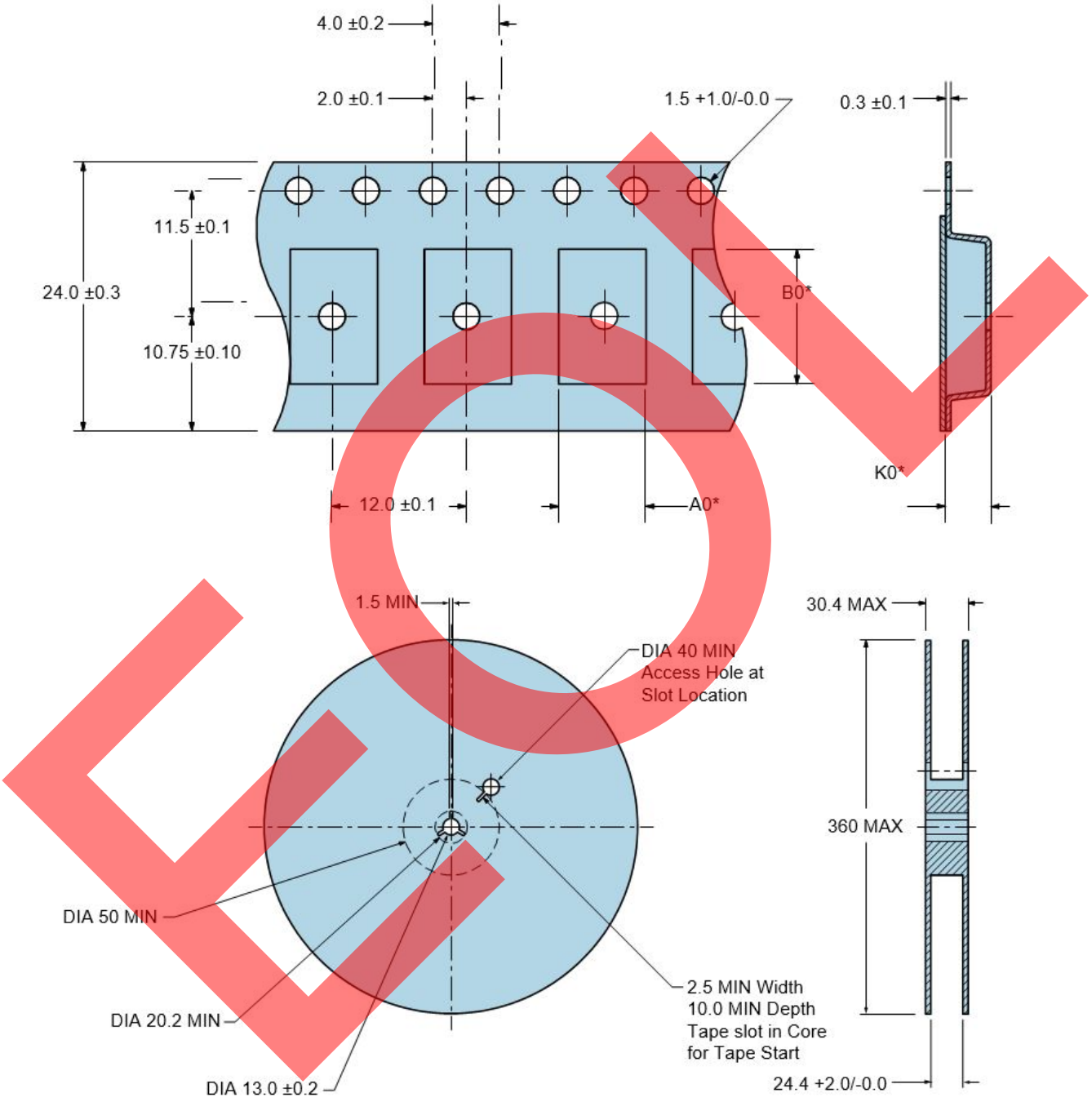
Note 1: An external 0.1µF low frequency tantalum bypass capacitor in parallel with a 0.01µF high frequency ceramic bypass Capacitor close to the package ground pin is required.
Note 2: A low input capacitance (<12pF), 10X Attentuation Factor, High Impedance (>10Mohms), and High bandwidth (>300MHz) Passive probe is recommended.
Note 3: Capacitance value includes sum of all probe and fixture capacitance. See applicable specification sheet for 'Load Drive Capability'.

TAPE & REEL DIMENSIONS

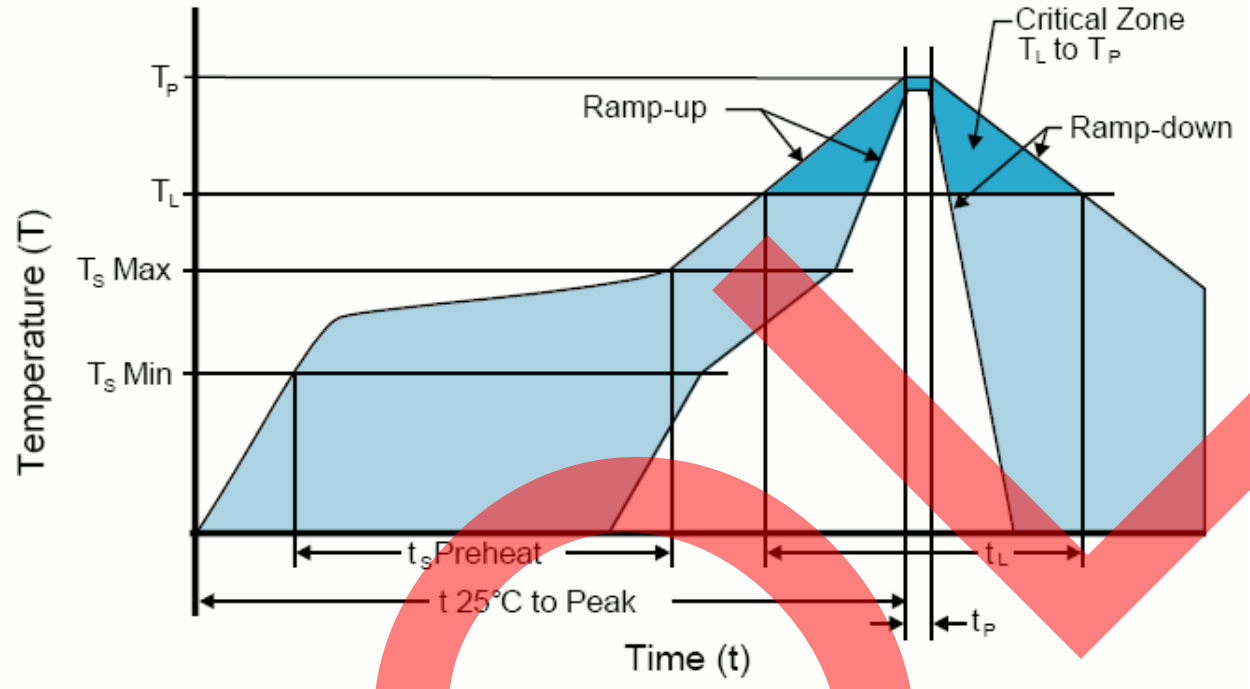
Quantity per Reel: 500 Units

All Dimensions in Millimeters

Compliant to EIA-481



RECOMMENDED SOLDER REFLOW METHOD



LOW TEMPERATURE INFRARED/CONVECTION	
T_S MAX to T_L (Ramp-up Rate)	5°C/Second Maximum
Preheat **- Temperature Minimum (T_S MIN)** **- Temperature Typical (T_S TYP)** **- Temperature Maximum(T_S MAX)** **- Time (t_S)**	 N/A 150°C N/A 60 - 120 Seconds
Ramp-up Rate (T_L to T_P)	5°C/Second Maximum
Time Maintained Above: **- Temperature (T_L)** **- Time (t_L)**	 150°C 200 Seconds Maximum
Peak Temperature (T_P)	240°C Maximum
Target Peak Temperature (T_P Target)	240°C Maximum 2 Times / 230°C Maximum 1 Time
Time within 5°C of actual peak (t_P)	10 Seconds Maximum 2 Times / 80 Seconds Maximum 1 Time
Ramp-down Rate	5°C/Second Maximum
Time 25°C to Peak Temperature (t)	N/A
Moisture Sensitivity Level	Level 1
Additional Notes	Temperatures shown are applied to body of device.

Low Temperature Manual Soldering

185°C Maximum for 10 Seconds Maximum, 2 times Maximum. (Temperatures shown are applied to body of device.)

High Temperature Manual Soldering

260°C Maximum for 5 Seconds Maximum, 2 times Maximum. (Temperatures shown are applied to body of device.)

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