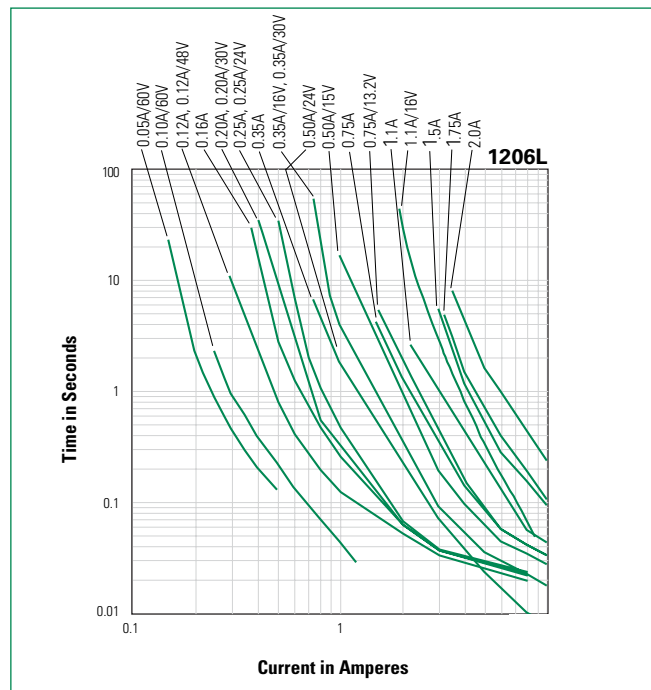


## Temperature Derating

| Ambient Operation Temperature |                  |       |       |       |       |       |       |       |       |
|-------------------------------|------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| -                             | -40°C            | -20°C | 0°C   | 20°C  | 40°C  | 50°C  | 60°C  | 70°C  | 85°C  |
| Part Number                   | Hold Current (A) |       |       |       |       |       |       |       |       |
| 1206L005/60                   | 0.076            | 0.068 | 0.060 | 0.050 | 0.043 | 0.039 | 0.034 | 0.030 | 0.023 |
| 1206L010/60                   | 0.15             | 0.14  | 0.12  | 0.10  | 0.083 | 0.074 | 0.065 | 0.056 | 0.042 |
| 1206L012/48                   | 0.18             | 0.16  | 0.14  | 0.125 | 0.10  | 0.09  | 0.08  | 0.07  | 0.05  |
| 1206L012                      | 0.18             | 0.16  | 0.14  | 0.125 | 0.10  | 0.09  | 0.08  | 0.07  | 0.05  |
| 1206L016                      | 0.22             | 0.20  | 0.18  | 0.16  | 0.14  | 0.12  | 0.10  | 0.09  | 0.08  |
| 1206L020/30                   | 0.28             | 0.25  | 0.23  | 0.20  | 0.17  | 0.15  | 0.14  | 0.12  | 0.09  |
| 1206L020                      | 0.28             | 0.25  | 0.23  | 0.20  | 0.17  | 0.15  | 0.14  | 0.12  | 0.09  |
| 1206L025/24                   | 0.37             | 0.33  | 0.29  | 0.25  | 0.22  | 0.20  | 0.17  | 0.15  | 0.12  |
| 1206L025                      | 0.37             | 0.33  | 0.29  | 0.25  | 0.22  | 0.20  | 0.17  | 0.15  | 0.12  |
| 1206L035                      | 0.50             | 0.45  | 0.40  | 0.35  | 0.30  | 0.27  | 0.24  | 0.21  | 0.15  |
| 1206L035/16                   | 0.50             | 0.45  | 0.40  | 0.35  | 0.30  | 0.27  | 0.24  | 0.21  | 0.15  |
| 1206L035/30                   | 0.50             | 0.45  | 0.40  | 0.35  | 0.30  | 0.27  | 0.24  | 0.21  | 0.15  |
| 1206L050                      | 0.71             | 0.64  | 0.57  | 0.50  | 0.42  | 0.39  | 0.35  | 0.31  | 0.25  |
| 1206L050/15                   | 0.71             | 0.64  | 0.57  | 0.50  | 0.42  | 0.39  | 0.35  | 0.31  | 0.25  |
| 1206L050/24                   | 0.71             | 0.64  | 0.57  | 0.50  | 0.42  | 0.39  | 0.35  | 0.31  | 0.25  |
| 1206L075/13.2                 | 1.14             | 1.04  | 0.88  | 0.75  | 0.65  | 0.59  | 0.54  | 0.49  | 0.41  |
| 1206L075/16                   | 1.14             | 1.01  | 0.88  | 0.75  | 0.65  | 0.59  | 0.54  | 0.49  | 0.41  |
| 1206L075TH                    | 1.14             | 1.01  | 0.88  | 0.75  | 0.65  | 0.59  | 0.54  | 0.49  | 0.41  |
| 1206L110TH                    | 1.64             | 1.46  | 1.30  | 1.10  | 0.92  | 0.83  | 0.80  | 0.65  | 0.52  |
| 1206L110/16                   | 1.64             | 1.46  | 1.30  | 1.10  | 0.92  | 0.83  | 0.80  | 0.65  | 0.52  |
| 1206L150TH                    | 2.20             | 1.99  | 1.77  | 1.50  | 1.34  | 1.23  | 1.10  | 1.01  | 0.84  |
| 1206L175                      | 2.50             | 2.25  | 2.00  | 1.75  | 1.55  | 1.45  | 1.35  | 1.25  | 1.10  |
| 1206L200                      | 2.60             | 2.44  | 2.35  | 2.00  | 1.78  | 1.67  | 1.50  | 1.45  | 1.10  |

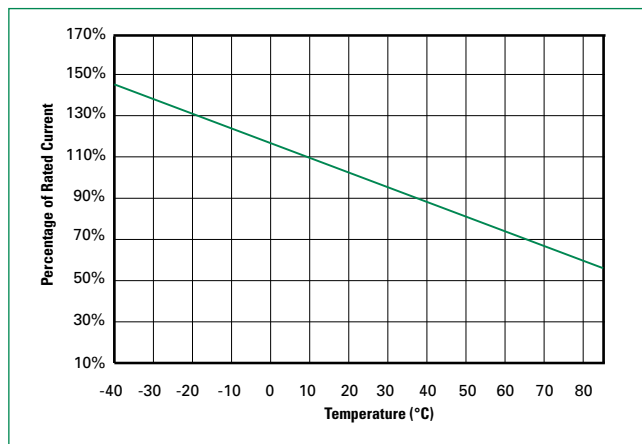
**Notes:** The temperature derating data is only for reference, please contact Littelfuse technical support for detail temperature derating information.

## Average Time Current Curves



The average time current curves and Temperature Derating curve performance is affected by a number of variables, and these curves provided as guidance only. Customer must verify the performance in their application.

## Temperature Derating Curve



## Additional Information



**Datasheet**



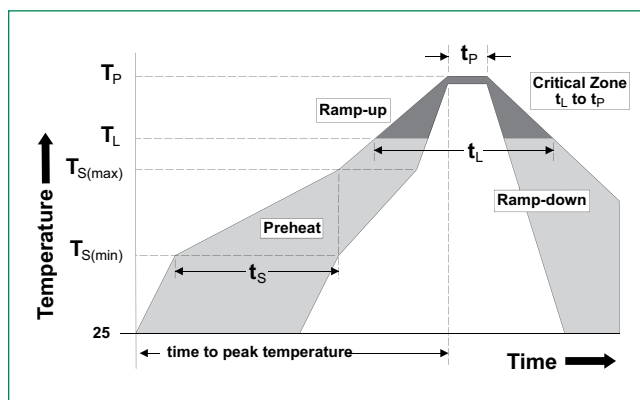
**Resources**



**Samples**

## Soldering Parameters

|                                                                           |                                                  |                         |
|---------------------------------------------------------------------------|--------------------------------------------------|-------------------------|
| <b>Profile Feature</b>                                                    |                                                  | Pb-Free Assembly        |
| <b>Average Ramp-Up Rate (<math>T_{S(max)}</math> to <math>T_p</math>)</b> |                                                  | 3°C/second max          |
| <b>Pre Heat:</b>                                                          | <b>Temperature Min (<math>T_{s(min)}</math>)</b> | 150°C                   |
|                                                                           | <b>Temperature Max (<math>T_{s(max)}</math>)</b> | 200°C                   |
|                                                                           | <b>Time (Min to Max) (<math>t_s</math>)</b>      | 60 – 180 secs           |
| <b>Time Maintained Above:</b>                                             | <b>Temperature (<math>T_L</math>)</b>            | 217°C                   |
|                                                                           | <b>Temperature (<math>t_L</math>)</b>            | 60 – 150 seconds        |
| <b>Peak / Classification Temperature (<math>T_p</math>)</b>               |                                                  | 260 <sup>+0/-5</sup> °C |
| <b>Time within 5°C of actual peak Temperature (<math>t_p</math>)</b>      |                                                  | 20 – 40 seconds         |
| <b>Ramp-down Rate</b>                                                     |                                                  | 6°C/second max          |
| <b>Time 25°C to peak Temperature (<math>T_p</math>)</b>                   |                                                  | 8 minutes Max.          |



- All temperature refer to topside of the package, measured on the package body surface
- If reflow temperature exceeds the recommended profile, devices may not meet the performance requirements
- Recommended reflow methods: IR, vapor phase oven, hot air oven,  $N_2$  environment for lead
- Recommended maximum paste thickness is 0.25mm (0.010inch)
- Devices can be cleaned using standard industry methods and solvents
- Devices can be reworked using the standard industry practices

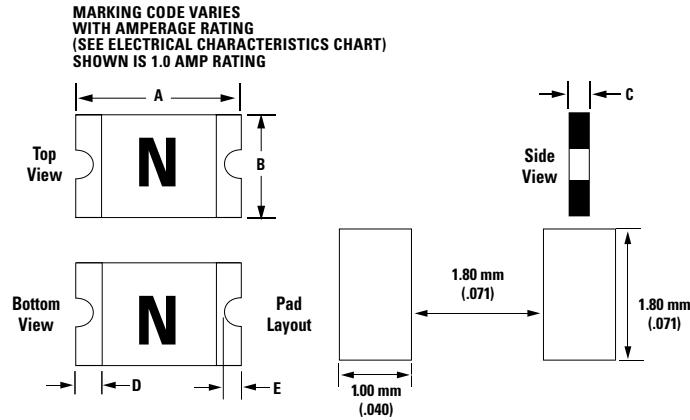
## Physical Specifications

|                           |                                                              |
|---------------------------|--------------------------------------------------------------|
| <b>Terminal Material</b>  | Solder-Plated Copper (Solder Material: Matte Tin (Sn))       |
| <b>Lead Solderability</b> | Meets EIA Specification RS186-9E, ANSI/J-STD-002 Category 3. |

## Environmental Specifications

|                                                            |                                                                                   |
|------------------------------------------------------------|-----------------------------------------------------------------------------------|
| <b>Operating/Storage Temperature</b>                       | -40°C to +85°C                                                                    |
| <b>Maximum Device Surface Temperature in Tripped State</b> | 125°C                                                                             |
| <b>Passive Aging</b>                                       | +85°C, 1000 hours<br>-/+5% typical resistance change                              |
| <b>Humidity Aging</b>                                      | +85°C, 85%, R.H., 1000 hours<br>-/+5% typical resistance change                   |
| <b>Thermal Shock</b>                                       | MIL-STD-202, Method 107<br>+85°C/-40°C 20 times<br>-30% typical resistance change |
| <b>Solvent Resistance</b>                                  | MIL-STD-202, Method 215<br>No change                                              |
| <b>Vibration</b>                                           | MIL-STD-883, Method 2007, Condition A<br>No change                                |
| <b>Moisture Sensivity Level</b>                            | Level 1, J-STD-020                                                                |

## Dimensions



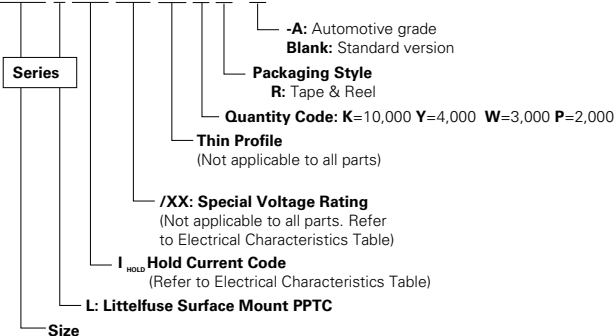
| Part Number   | A      |      |      |      | B      |      |      |      | C      |      |      |      | D      |      |      |      | E      |       |      |      |
|---------------|--------|------|------|------|--------|------|------|------|--------|------|------|------|--------|------|------|------|--------|-------|------|------|
|               | Inches |      | mm   |      | Inches |      | mm   |      | Inches |      | mm   |      | Inches |      | mm   |      | Inches |       | mm   |      |
|               | Min    | Max  | Min  | Max  | Min    | Max  | Min  | Max  | Min    | Max  | Min  | Max  | Min    | Max  | Min  | Max  | Min    | Max   | Min  | Max  |
| 1206L005/60   |        |      |      |      |        |      |      |      | 0.03   | 0.05 | 0.65 | 1.25 |        |      |      |      |        |       |      |      |
| 1206L010/60   |        |      |      |      |        |      |      |      | 0.03   | 0.05 | 0.65 | 1.25 |        |      |      |      |        |       |      |      |
| 1206L012/48   |        |      |      |      |        |      |      |      | 0.03   | 0.05 | 0.65 | 1.25 |        |      |      |      |        |       |      |      |
| 1206L012      |        |      |      |      |        |      |      |      | 0.03   | 0.06 | 0.65 | 1.45 |        |      |      |      |        |       |      |      |
| 1206L016      |        |      |      |      |        |      |      |      | 0.03   | 0.06 | 0.65 | 1.45 |        |      |      |      |        |       |      |      |
| 1206L020/30   |        |      |      |      |        |      |      |      | 0.02   | 0.04 | 0.50 | 1.00 |        |      |      |      |        |       |      |      |
| 1206L020      |        |      |      |      |        |      |      |      | 0.02   | 0.04 | 0.50 | 1.00 |        |      |      |      |        |       |      |      |
| 1206L025/24   |        |      |      |      |        |      |      |      | 0.02   | 0.04 | 0.50 | 1.00 |        |      |      |      |        |       |      |      |
| 1206L025      |        |      |      |      |        |      |      |      | 0.02   | 0.04 | 0.5  | 1.00 |        |      |      |      |        |       |      |      |
| 1206L035      |        |      |      |      |        |      |      |      | 0.02   | 0.03 | 0.45 | 0.75 |        |      |      |      |        |       |      |      |
| 1206L035/16   |        |      |      |      |        |      |      |      | 0.02   | 0.03 | 0.45 | 0.75 |        |      |      |      |        |       |      |      |
| 1206L035/30   | 0.12   | 0.13 | 3.00 | 3.40 | 0.06   | 0.07 | 1.50 | 1.80 | 0.02   | 0.04 | 0.50 | 1.00 | 0.01   | 0.03 | 0.25 | 0.75 | 0.002  | 0.018 | 0.05 | 0.45 |
| 1206L050      |        |      |      |      |        |      |      |      | 0.02   | 0.03 | 0.45 | 0.75 |        |      |      |      |        |       |      |      |
| 1206L050/15   |        |      |      |      |        |      |      |      | 0.02   | 0.03 | 0.45 | 0.75 |        |      |      |      |        |       |      |      |
| 1206L050/24   |        |      |      |      |        |      |      |      | 0.03   | 0.05 | 0.75 | 1.25 |        |      |      |      |        |       |      |      |
| 1206L075/13.2 |        |      |      |      |        |      |      |      | 0.03   | 0.05 | 0.75 | 1.25 |        |      |      |      |        |       |      |      |
| 1206L075/16   |        |      |      |      |        |      |      |      | 0.03   | 0.05 | 0.75 | 1.25 |        |      |      |      |        |       |      |      |
| 1206L075TH    |        |      |      |      |        |      |      |      | 0.02   | 0.03 | 0.40 | 0.75 |        |      |      |      |        |       |      |      |
| 1206L110TH    |        |      |      |      |        |      |      |      | 0.01   | 0.02 | 0.30 | 0.60 |        |      |      |      |        |       |      |      |
| 1206L110/16   |        |      |      |      |        |      |      |      | 0.03   | 0.05 | 0.75 | 1.25 |        |      |      |      |        |       |      |      |
| 1206L150TH    |        |      |      |      |        |      |      |      | 0.02   | 0.04 | 0.50 | 1.00 |        |      |      |      |        |       |      |      |
| 1206L175      |        |      |      |      |        |      |      |      | 0.03   | 0.08 | 0.80 | 1.80 |        |      |      |      |        |       |      |      |
| 1206L200      |        |      |      |      |        |      |      |      | 0.03   | 0.07 | 0.80 | 1.60 |        |      |      |      |        |       |      |      |

### WARNING

- Users shall independently assess the suitability of these devices for each of their applications
- Operation of these devices beyond the stated maximum ratings could result in damage to the devices and lead to electrical arcing and/or fire
- These devices are intended to protect against the effects of temporary over-current or over-temperature conditions and are not intended to perform as protective devices where such conditions are expected to be repetitive or prolonged in duration
- Exposure to silicon-based oils, solvents, electrolytes, acids, and similar materials can adversely affect the performance of these PPTC devices
- These devices undergo thermal expansion under fault conditions, and thus shall be provided with adequate space and be protected against mechanical stresses
- Circuits with inductance may generate a voltage (L di/dt) above the rated voltage of the PPTC device.

## Part Ordering Number System

**1206 L 380 /12 TH Y R - A**



### Packaging Options

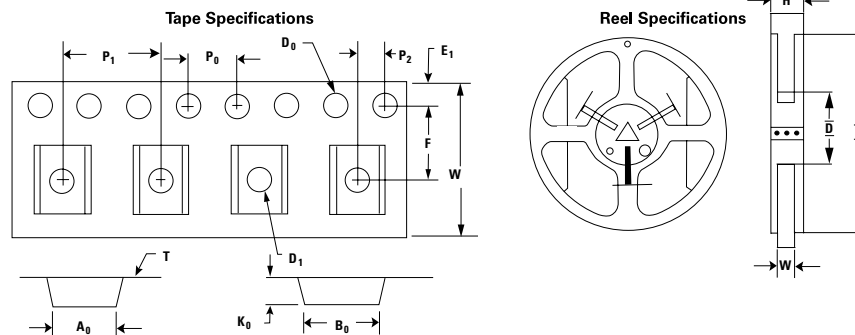
| Part Number   | Ordering Number  | Halogen Free | I <sub>hold</sub> (A) | I <sub>hold</sub> Code | Packaging Option | Quantity | Quantity/Pack Code |
|---------------|------------------|--------------|-----------------------|------------------------|------------------|----------|--------------------|
| 1206L005/60   | 1206L005/60VVR   | Yes          | 0.05                  | 050                    | Tape and Reel    | 3000     | WR                 |
| 1206L010/60   | 1206L010/60VVR   |              | 0.10                  | 100                    |                  | 3000     | WR                 |
| 1206L012/48   | 1206L012/48VVR   |              | 0.12                  | 012                    |                  | 3,000    | WR                 |
| 1206L012      | 1206L012VVR      |              | 0.125                 | 012                    |                  | 3000     | WR                 |
| 1206L016      | 1206L016VVR      |              | 0.16                  | 016                    |                  | 3000     | WR                 |
| 1206L020/30   | 1206L020/30YR    |              | 0.20                  | 020                    |                  | 4,000    | YR                 |
| 1206L020      | 1206L020YR       |              | 0.20                  | 020                    |                  | 4000     | YR                 |
| 1206L025/24   | 1206L025/24YR    |              | 0.25                  | 025                    |                  | 4,000    | YR                 |
| 1206L025      | 1206L025YR       |              | 0.25                  | 025                    |                  | 4000     | YR                 |
| 1206L035      | 1206L035YR       |              | 0.35                  | 035                    |                  | 4000     | YR                 |
| 1206L035/16   | 1206L035/16YR    |              | 0.35                  | 035                    |                  | 4000     | YR                 |
| 1206L035/30   | 1206L035/30VVR   |              | 0.35                  | 350                    |                  | 3000     | WR                 |
| 1206L050      | 1206L050YR       |              | 0.50                  | 050                    |                  | 4000     | YR                 |
| 1206L050/15   | 1206L050/15YR    |              | 0.50                  | 050                    |                  | 4000     | YR                 |
| 1206L050/24   | 1206L050/24VVR   |              | 0.50                  | 500                    |                  | 3000     | WR                 |
| 1206L075/13.2 | 1206L075/13.2VVR |              | 0.75                  | 075                    |                  | 3000     | WR                 |
| 1206L075/16   | 1206L075/16VVR   |              | 0.75                  | 075                    |                  | 3,000    | WR                 |
| 1206L075TH    | 1206L075THYR     |              | 0.75                  | 075                    |                  | 4000     | YR                 |
| 1206L110TH    | 1206L110THYR     |              | 1.10                  | 110                    |                  | 4000     | YR                 |
| 1206L110/16   | 1206L110/16VVR   |              | 1.10                  | 110                    |                  | 3000     | WR                 |
| 1206L150TH    | 1206L150THVVR    |              | 1.50                  | 150                    |                  | 3000     | WR                 |
| 1206L175      | 1206L175PR       |              | 1.75                  | 175                    |                  | 2000     | PR                 |
| 1206L200      | 1206L200PR       |              | 2.00                  | 200                    |                  | 2000     | PR                 |

### Tape and Reel Specifications

| Tape Specifications: EIA-481-1 (mm) |                                                                               |                                                     |                                                                                  |                                                                          |                      |
|-------------------------------------|-------------------------------------------------------------------------------|-----------------------------------------------------|----------------------------------------------------------------------------------|--------------------------------------------------------------------------|----------------------|
| Value                               | Packaging Code "YR"                                                           |                                                     | Packaging Code "WR"                                                              |                                                                          | Packaging Code "PR"  |
|                                     | 1206L020<br>1206L020/30<br>1206L025<br>1206L025/24<br>1206L035<br>1206L035/16 | 1206L050<br>1206L050/15<br>1206L075TH<br>1206L110TH | 1206L005/60<br>1206L010/60<br>1206L012<br>1206L012/48<br>1206L016<br>1206L035/30 | 1206L050/24<br>1206L075/13.2<br>1206L075/16<br>1206L110/16<br>1206L150TH | 1206L175<br>1206L200 |
| W                                   | 8.20+/-0.10/-0.30                                                             |                                                     | 8.15+/-0.15/-0.30                                                                |                                                                          | 8.20+/-0.10/-0.30    |
| F                                   | 3.50+/-0.05                                                                   |                                                     | 3.50+/-0.05                                                                      |                                                                          | 3.50+/-0.05          |
| E <sub>1</sub>                      | 1.75+/-0.10                                                                   |                                                     | 1.75+/-0.10                                                                      |                                                                          | 1.75+/-0.10          |
| D <sub>0</sub>                      | 1.55+/-0.05                                                                   |                                                     | 1.55+/-0.05                                                                      |                                                                          | 1.55+/-0.05          |
| D <sub>1</sub>                      | 1.00+/-0.10                                                                   |                                                     | 1.00+/-0.10                                                                      |                                                                          | 1.00+/-0.10          |
| P <sub>0</sub>                      | 4.00+/-0.10                                                                   |                                                     | 4.00+/-0.10                                                                      |                                                                          | 4.00+/-0.10          |
| P <sub>1</sub>                      | 4.00+/-0.10                                                                   |                                                     | 4.00+/-0.10                                                                      |                                                                          | 4.00+/-0.10          |
| P <sub>2</sub>                      | 2.00+/-0.05                                                                   |                                                     | 2.00+/-0.05                                                                      |                                                                          | 2.00+/-0.05          |
| A <sub>0</sub>                      | 1.95+/-0.10                                                                   |                                                     | 1.92+/-0.10                                                                      |                                                                          | 1.95+/-0.10          |
| B <sub>0</sub>                      | 3.65+/-0.10                                                                   |                                                     | 3.65+/-0.10                                                                      |                                                                          | 3.65+/-0.10          |
| T                                   | 0.20+/-0.10                                                                   |                                                     | 0.25+/-0.10                                                                      |                                                                          | 0.25+/-0.10          |
| K <sub>0</sub>                      | 0.87+/-0.10                                                                   |                                                     | 1.30+/-0.10                                                                      |                                                                          | 1.70+/-0.10          |
| Leader min.                         | 390                                                                           |                                                     | 390                                                                              |                                                                          | 390                  |
| Trailer min.                        | 160                                                                           |                                                     | 160                                                                              |                                                                          | 160                  |

#### Reel Dimensions: EIA-481-1 (mm)

|   |             |
|---|-------------|
| C | Ø178+/-1.0  |
| D | Ø60.2+/-0.5 |
| H | 11.0+/-0.5  |
| W | 9.0+/-1.5   |



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