

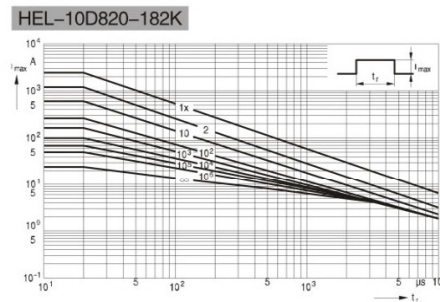
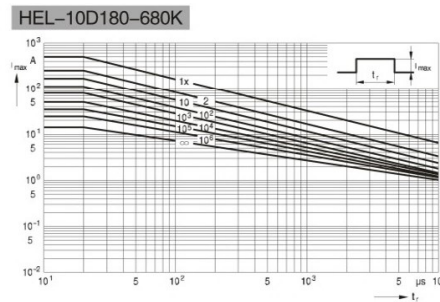
10D系列 HEL 压敏电阻 HEL VARISTOR WITH 10MM DIAMETER

| 型号规格<br>Part No. | 压敏电压<br>Varistor Voltage |             | 最大允许<br>使用电压<br>Maximum<br>Allowable<br>Voltage |                         | 最大限制<br>电压<br>Maximum<br>Clamping<br>Voltage |                    | 通流容量<br>Withstanding<br>Surge Current<br>(8/20 μs)<br>1 time |          | 静态功率<br>Rated<br>Wattage |              | 能量容量<br>Energy<br>(2ms) |  | 静态电容<br>(参考值)<br>Typical<br>Capacitance |
|------------------|--------------------------|-------------|---|-------------------------|--|--------------------|--|----------|--------------------------|--------------|-------------------------|--|---|
|                  | V <sub>1mA</sub><br>(V)  | AC<br>(V)   | DC<br>(V)                                       | V <sub>25A</sub><br>(V) | K<br>class<br>(A)                            | KJ<br>class<br>(A) | (W)  | K<br>(J) | KJ<br>(J)                | 1kHz<br>(PF) |                         |  |   |
| HEL-10D180       | 18                       | (16-20)     | 11  | 14                      | · 38   | 500                | 1000   | 0.05     | 1.6                      | 2.0          | 7,500                   |  |   |
| HEL-10D220       | 22                       | (20-24)     | 14  | 18                      | · 43   | 500                | 1000   | 0.05     | 2.0                      | 2.5          | 6,000                   |  |   |
| HEL-10D270       | 27                       | (24-30)     | 17  | 22                      | · 53   | 500                | 1000   | 0.05     | 2.4                      | 3.0          | 4,800                   |  |   |
| HEL-10D330       | 33                       | (30-36)     | 20  | 26                      | · 65   | 500                | 1000   | 0.05     | 3.0                      | 3.7          | 4,200                   |  |   |
| HEL-10D390       | 39                       | (35-43)     | 25  | 31                      | · 77   | 500                | 1000   | 0.05     | 3.5                      | 4.4          | 3,700                   |  |   |
| HEL-10D470       | 47                       | (42-52)     | 30  | 38                      | · 93   | 500                | 1000   | 0.05     | 4.2                      | 5.3          | 3,300                   |  |   |
| HEL-10D560       | 56                       | (50-62)     | 35  | 45                      | · 110  | 500                | 1000   | 0.05     | 5.0                      | 6.3          | 2,900                   |  |   |
| HEL-10D680       | 68                       | (61-75)     | 40  | 56                      | · 135  | 500                | 1000   | 0.05     | 6.1                      | 7.7          | 2,500                   |  |   |
| HEL-10D820       | 82                       | (74-90)     | 50  | 65                      | 135  | 2500               | 3500   | 0.4      | 7.4                      | 9.2          | 2,100                   |  |   |
| HEL-10D101       | 100                      | (90-110)    | 60  | 85                      | 165  | 2500               | 3500   | 0.4      | 9.0                      | 11.3         | 1,700                   |  |   |
| HEL-10D121       | 120                      | (108-132)   | 75  | 100                     | 200  | 2500               | 3500   | 0.4      | 10.8                     | 13.5         | 1,500                   |  |   |
| HEL-10D151       | 150                      | (135-165)   | 95  | 125                     | 250  | 2500               | 3500   | 0.4      | 13.5                     | 16.9         | 1,300                   |  |   |
| HEL-10D181       | 180                      | (162-198)   | 115   | 150                     | 300  | 2500               | 3500   | 0.4      | 16.2                     | 20.3         | 470                     |  |   |
| HEL-10D201       | 200                      | (180-220)   | 130   | 170                     | 340  | 2500               | 3500   | 0.4      | 18.0                     | 22.5         | 430                     |  |   |
| HEL-10D221       | 220                      | (198-242)   | 140   | 180                     | 360  | 2500               | 3500   | 0.4      | 19.8                     | 24.8         | 390                     |  |   |
| HEL-10D241       | 240                      | (216-264)   | 150   | 200                     | 395  | 2500               | 3500   | 0.4      | 21.6                     | 27.0         | 360                     |  |   |
| HEL-10D271       | 270                      | (243-297)   | 175   | 225                     | 455  | 2500               | 3500   | 0.4      | 24.3                     | 30.4         | 330                     |  |   |
| HEL-10D301       | 300                      | (270-330)   | 195   | 250                     | 505  | 2500               | 3500   | 0.4      | 27.0                     | 33.8         | 290                     |  |   |
| HEL-10D331       | 330                      | (297-363)   | 210   | 275                     | 550  | 2500               | 3500   | 0.4      | 29.7                     | 37.1         | 280                     |  |   |
| HEL-10D361       | 360                      | (324-396)   | 230   | 300                     | 595  | 2500               | 3500   | 0.4      | 32.4                     | 40.5         | 260                     |  |   |
| HEL-10D391       | 390                      | (351-429)   | 250   | 320                     | 650  | 2500               | 3500   | 0.4      | 35.1                     | 43.9         | 240                     |  |   |
| HEL-10D431       | 430                      | (387-473)   | 275   | 350                     | 710  | 2500               | 3500   | 0.4      | 38.7                     | 48.4         | 220                     |  |   |
| HEL-10D471       | 470                      | (423-517)   | 300   | 385                     | 775  | 2500               | 3500   | 0.4      | 42.3                     | 52.9         | 190                     |  |   |
| HEL-10D511       | 510                      | (459-561)   | 320   | 418                     | 842  | 2500               | 3500   | 0.4      | 42.3                     | 52.9         | 180                     |  |   |
| HEL-10D561       | 560                      | (504-616)   | 350   | 460                     | 920  | 2500               | 3500   | 0.4      | 42.3                     | 52.9         | 180                     |  |   |
| HEL-10D621       | 620                      | (558-682)   | 385   | 505                     | 1,025  | 2500               | 3500   | 0.4      | 42.3                     | 52.9         | 160                     |  |   |
| HEL-10D681       | 680                      | (612-748)   | 420   | 560                     | 1,120  | 2500               | 3500   | 0.4      | 42.3                     | 52.9         | 140                     |  |   |
| HEL-10D751       | 750                      | (675-825)   | 460   | 615                     | 1,240  | 2500               | 3500   | 0.4      | 42.3                     | 52.9         | 130                     |  |   |
| HEL-10D781       | 780                      | (702-858)   | 485   | 640                     | 1,290  | 2500               | 3500   | 0.4      | 42.3                     | 52.9         | 130                     |  |   |
| HEL-10D821       | 820                      | (738-902)   | 510   | 670                     | 1,355  | 2500               | 3500   | 0.4      | 44.3                     | 55.4         | 130                     |  |   |
| HEL-10D911       | 910                      | (819-1001)  | 550   | 745                     | 1,500  | 2500               | 3500   | 0.4      | 49.1                     | 61.4         | 120                     |  |   |
| HEL-10D951       | 950                      | (855-1045)  | 580   | 780                     | 1,570  | 2500               | 3500   | 0.4      | 51.3                     | 64.1         | 110                     |  |   |
| HEL-10D102       | 1000                     | (900-1100)  | 625   | 825                     | 1,650  | 2500               | 3500   | 0.4      | 54.0                     | 67.5         | 100                     |  |   |
| HEL-10D112       | 1100                     | (990-1210)  | 680   | 895                     | 1,815  | 2500               | 3500   | 0.4      | 59.4                     | 74.3         | 90                      |  |   |
| HEL-10D152       | 1500                     | (1350-1650) | 900   | 1220                    | 2,475  | 2500               | 3500   | 0.4      | 80.0                     | 100.0        | 80                      |  |   |
| HEL-10D182       | 1800                     | (1620-1980) | 1000  | 1465                    | 2,970  | 2500               | 3500   | 0.4      | 97.2                     | 121.5        | 60                      |  |   |

• The clamping voltage from 180K to 680K is tested with current 5A,  
Note: The energy (10/1000 μs) is about 1.4 times of energy (2ms).  
• 180K至680K最大限制电压测试电流是5A。  
注: 10/1000 μs的能量耐量值约为2ms能量耐量值的1.4倍

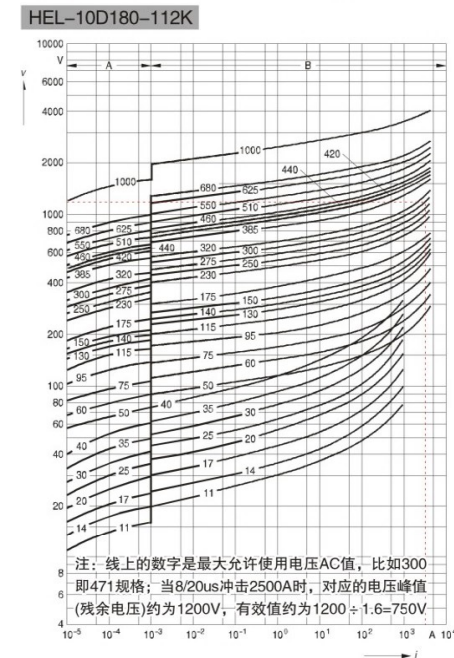
降额曲线图 Derating curves

横轴是冲击时间即浪涌波形宽度，纵轴是冲击电流峰值，  
线上的数字是冲击次数；  
Maximum surge current  $I_{max} = f(t_r, \text{pulse train})$



伏安特性图 v/i characteristics

A区是泄漏电流区，A = Leakage current,  
B区是冲击电流与限制电压对应区  
B = Protection level for worst-case varistor tolerances



注：线上的数字是最大允许使用电压AC值，比如300  
即471规格；当8/20us冲击2500A时，对应的电压峰值  
(残余电压)约为1200V，有效值约为1200 ÷ 1.6=750V

产品尺寸 DIMENSION

单位Unit: mm

| 产品外型<br>Product Shape | 系列<br>Series | 压敏电压<br>Varistor Voltage | 厚度<br>Tmax |
|-----------------------|--------------|--------------------------|------------|
|                       | 10D          | 18V-39V                  | 6.5        |
|                       |              | 47V-68V                  | 7.0        |
|                       |              | 82V-150V                 | 7.5        |
|                       |              | 180V-270V                | 8.0        |
|                       |              | 330V-390V                | 8.5        |
|                       |              | 430V-560V                | 9.0        |
|                       |              | 620V-780V                | 9.5        |
|                       |              | 820V-1200V               | 10.0       |
|                       |              | 1300V-1500V              | 10.5       |
|                       |              | 1600V-1800V              | 11.0       |

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