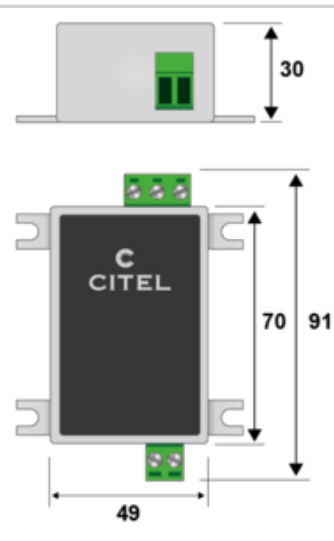
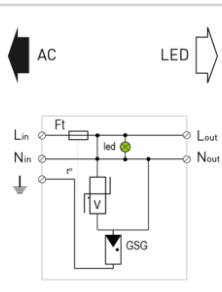


MLP1-230L-P/20K

Specially developed spd with combined protection for 2-phase power supply (control phase):

- Many variants available depending on application
- With screw terminals or cable wiring
- IP65 versions
- For protection class I or II application
- Developed for Uoc: 20 kV and I_{max}: 20 kA for highest outdoor requirements according to IEEE & ANSI
- Optical error signalling



|  | <table border="1"> <thead> <tr> <th colspan="2">Electrical Characteristics</th> </tr> </thead> <tbody> <tr> <td>SPD type</td> <td>2 (or 3)</td> </tr> <tr> <td>Network</td> <td>220-240 V Single-phase</td> </tr> <tr> <td>AC system</td> <td>TT-TN</td> </tr> <tr> <td>Nominal line voltage</td> <td>U_n 230-277 Vac</td> </tr> <tr> <td>Max. AC operating voltage</td> <td>U_c 320 Vac</td> </tr> <tr> <td>Max. frequency</td> <td>f max. 10 MHz</td> </tr> <tr> <td>Max. load current</td> <td>I_L 5 A</td> </tr> <tr> <td>Temporary Over Voltage (TOV) Characteristics - 5 sec. Without disconnection</td> <td>U_T 335 Vac withstand</td> </tr> <tr> <td>Temporary Over Voltage (TOV) Characteristics - 120 mn Without disconnection or with safety disconnection</td> <td>U_T 440 Vac disconnection</td> </tr> <tr> <td>Residual Current Leakage current to Ground</td> <td>I_{pe} None</td> </tr> <tr> <td>Follow current</td> <td>I_f None</td> </tr> <tr> <td>Nominal discharge current 15 x 8/20 μs impulses</td> <td>I_n 10 kA</td> </tr> <tr> <td>Max. discharge current max. withstand @ 8/20 μs by pole</td> <td>I_{max} 20 kA</td> </tr> <tr> <td>Total Maximum discharge current max. total withstand @ 8/20 μs</td> <td>I_{max Total} 20 kA</td> </tr> <tr> <td>Withstand on Combination waveform IEC 61643-11 Class III test: 1.2/50μs - 8/20μs</td> <td>U_{oc} 20 kV</td> </tr> <tr> <td>Withstand on overvoltages IEEE C62.41.1</td> <td>10 kV / 10 kA</td> </tr> <tr> <td>Protection mode(s)</td> <td>Common/Differential mode</td> </tr> <tr> <td>Protection level L/N @ I_n (8/20μs)</td> <td>U_{p L/N} 1.5 kV</td> </tr> <tr> <td>Protection level L/PE @ I_n (8/20μs)</td> <td>U_{p L/PE} 1.5 kV</td> </tr> <tr> <td>Protection level CM/DM @ I_n (8/20μs)</td> <td>U_{p mc /md} 1.5 kV / 1.5 kV</td> </tr> <tr> <td>Admissible short-circuit current</td> <td>I_{sc cr} 10 000 A</td> </tr> <tr> <th colspan="2">Mechanical Characteristics</th> </tr> <tr> <td>Technology</td> <td>MOV+GDT</td> </tr> <tr> <td>Connection to Network</td> <td>By screw terminal: 1.5mm² max.</td> </tr> <tr> <td>Mounting</td> <td>On plate</td> </tr> <tr> <td>Housing material</td> <td>Thermoplastic UL94 V-0</td> </tr> <tr> <td>Operating temperature</td> <td>T_u -40/+85°C</td> </tr> <tr> <td>Protection rating</td> <td>IP20</td> </tr> <tr> <td>Failsafe mode</td> <td>Disconnection and AC line cut-off</td> </tr> <tr> <td>Disconnection indicator</td> <td>LED green OFF and AC network cut-off</td> </tr> <tr> <td>Voltage/operating indicator</td> <td>Green Led ON</td> </tr> <tr> <td>Remote signaling of disconnection</td> <td>No</td> </tr> <tr> <td>Dimensions</td> <td>See diagram</td> </tr> <tr> <td>Weight</td> <td>0.086 kg</td> </tr> <tr> <th colspan="2">Disconnectors</th> </tr> <tr> <td>Thermal disconnector</td> <td>Internal</td> </tr> <tr> <td>Installation ground fault breaker</td> <td>Type 'S' or delayed</td> </tr> <tr> <th colspan="2">Standards</th> </tr> <tr> <td>Standards compliance</td> <td>IEC 61643-11 / EN 61643-11 / UL1449 ed.5</td> </tr> <tr> <td>Part number</td> <td>721213</td> </tr> </tbody> </table> | Electrical Characteristics | | SPD type | 2 (or 3) | Network | 220-240 V Single-phase | AC system | TT-TN | Nominal line voltage | U _n 230-277 Vac | Max. AC operating voltage | U _c 320 Vac | Max. frequency | f max. 10 MHz | Max. load current | I _L 5 A | Temporary Over Voltage (TOV) Characteristics - 5 sec. Without disconnection | U _T 335 Vac withstand | Temporary Over Voltage (TOV) Characteristics - 120 mn Without disconnection or with safety disconnection | U _T 440 Vac disconnection | Residual Current Leakage current to Ground | I _{pe} None | Follow current | I _f None | Nominal discharge current 15 x 8/20 μs impulses | I _n 10 kA | Max. discharge current max. withstand @ 8/20 μs by pole | I _{max} 20 kA | Total Maximum discharge current max. total withstand @ 8/20 μs | I _{max Total} 20 kA | Withstand on Combination waveform IEC 61643-11 Class III test: 1.2/50μs - 8/20μs | U _{oc} 20 kV | Withstand on overvoltages IEEE C62.41.1 | 10 kV / 10 kA | Protection mode(s) | Common/Differential mode | Protection level L/N @ I _n (8/20μs) | U _{p L/N} 1.5 kV | Protection level L/PE @ I _n (8/20μs) | U _{p L/PE} 1.5 kV | Protection level CM/DM @ I _n (8/20μs) | U _{p mc /md} 1.5 kV / 1.5 kV | Admissible short-circuit current | I _{sc cr} 10 000 A | Mechanical Characteristics | | Technology | MOV+GDT | Connection to Network | By screw terminal: 1.5mm ² max. | Mounting | On plate | Housing material | Thermoplastic UL94 V-0 | Operating temperature | T _u -40/+85°C | Protection rating | IP20 | Failsafe mode | Disconnection and AC line cut-off | Disconnection indicator | LED green OFF and AC network cut-off | Voltage/operating indicator | Green Led ON | Remote signaling of disconnection | No | Dimensions | See diagram | Weight | 0.086 kg | Disconnectors | | Thermal disconnector | Internal | Installation ground fault breaker | Type 'S' or delayed | Standards | | Standards compliance | IEC 61643-11 / EN 61643-11 / UL1449 ed.5 | Part number | 721213 |
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|--------------------------|-------------------|------|---------------|-----------------------------------|-------------------------|--------------------------------------|-----------------------------|--------------|-----------------------------------|----|------------|-------------|--------|----------|---------------|--|----------------------|----------|-----------------------------------|---------------------|-----------|--|----------------------|------------------------------------------|-------------|---------------|
| Electrical Characteristics | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SPD type | 2 (or 3) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Network | 220-240 V Single-phase | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AC system | TT-TN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Nominal line voltage | U _n 230-277 Vac | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Max. AC operating voltage | U _c 320 Vac | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Max. frequency | f max. 10 MHz | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Max. load current | I _L 5 A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Temporary Over Voltage (TOV) Characteristics - 5 sec. Without disconnection | U _T 335 Vac withstand | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Temporary Over Voltage (TOV) Characteristics - 120 mn Without disconnection or with safety disconnection | U _T 440 Vac disconnection | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Residual Current Leakage current to Ground | I _{pe} None | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Follow current | I _f None | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Nominal discharge current 15 x 8/20 μs impulses | I _n 10 kA | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Max. discharge current max. withstand @ 8/20 μs by pole | I _{max} 20 kA | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Maximum discharge current max. total withstand @ 8/20 μs | I _{max Total} 20 kA | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Withstand on Combination waveform IEC 61643-11 Class III test: 1.2/50μs - 8/20μs | U _{oc} 20 kV | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Withstand on overvoltages IEEE C62.41.1 | 10 kV / 10 kA | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Protection mode(s) | Common/Differential mode | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Protection level L/N @ I _n (8/20μs) | U _{p L/N} 1.5 kV | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Protection level L/PE @ I _n (8/20μs) | U _{p L/PE} 1.5 kV | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Protection level CM/DM @ I _n (8/20μs) | U _{p mc /md} 1.5 kV / 1.5 kV | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Admissible short-circuit current | I _{sc cr} 10 000 A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mechanical Characteristics | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Technology | MOV+GDT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Connection to Network | By screw terminal: 1.5mm ² max. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mounting | On plate | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Housing material | Thermoplastic UL94 V-0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Operating temperature | T _u -40/+85°C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Protection rating | IP20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Failsafe mode | Disconnection and AC line cut-off | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Disconnection indicator | LED green OFF and AC network cut-off | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Voltage/operating indicator | Green Led ON | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Remote signaling of disconnection | No | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Dimensions | See diagram | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Weight | 0.086 kg | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Disconnectors | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Thermal disconnector | Internal | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Installation ground fault breaker | Type 'S' or delayed | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Standards | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Standards compliance | IEC 61643-11 / EN 61643-11 / UL1449 ed.5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Part number | 721213 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |