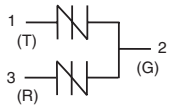
# Two-chip MicroCapacitance (MC) *SIDACtor*® Device

RoHS

Littelfuse




This two-chip MicroCapacitance *SIDACtor* design provides a through-hole technology protection solution. It is intended for telecom applications that do not require a balanced solution. For primary protection applications, devices with higher holding current and integrated failsafe options are available.

*SIDACtor* devices enable equipment to comply with various regulatory requirements including GR 1089, ITU K.20, K.21 and K.45, IEC 60950, UL 60950, and TIA-968-A (formerly known as FCC Part 68).

## Electrical Parameters

| Part Number * | $V_{DRM}$ Volts | $V_S$ Volts | $V_{DRM}$ Volts | $V_S$ Volts | $V_T$ Volts | $I_{DRM}$ µAmps | $I_S$ mAmps | $I_T$ Amps | $I_H$ mAmps |
|---|---|---|---|---|---|---|---|---|---|
| | Pins 1-2, 3-2 | | Pins 1-3 | | | | | | |
| **P0302AAMCL** | 6 | 25 | 12 | 50 | 4 | 5 | 800 | 2.2 | 50 |
| **P0602AAMCL** | 25 | 40 | 50 | 80 | 4 | 5 | 800 | 2.2 | 50 |

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|---|---|---|---|---|---|---|---|---|---|
| | Pins 1-2, 3-2 | | Pins 1-3 | | | | | | |
| **P0602ACMCL** | 25 | 40 | 50 | 80 | 4 | 5 | 800 | 2.2 | 50 |
| **P1402ACMCL** | 58 | 77 | 116 | 154 | 4 | 5 | 800 | 2.2 | 150 |
| **P1602ACMCL** | 65 | 95 | 130 | 190 | 4 | 5 | 800 | 2.2 | 150 |
| **P2202ACMCL** | 90 | 130 | 180 | 260 | 4 | 5 | 800 | 2.2 | 150 |
| **P2702ACMCL** | 120 | 160 | 240 | 320 | 4 | 5 | 800 | 2.2 | 150 |
| **P3002ACMCL** | 140 | 180 | 280 | 360 | 4 | 5 | 800 | 2.2 | 150 |
| **P3602ACMCL** | 170 | 220 | 340 | 440 | 4 | 5 | 800 | 2.2 | 150 |
| **P4202ACMCL** | 190 | 250 | 380 | 500 | 4 | 5 | 800 | 2.2 | 150 |
| **P4802ACMCL** | 220 | 300 | 440 | 600 | 4 | 5 | 800 | 2.2 | 150 |
| **P6002ACMCL** | 275 | 350 | 550 | 700 | 4 | 5 | 800 | 2.2 | 150 |

* **"L" in part number indicates RoHS compliance.** For non-RoHS compliant device, delete "L" from part number.
For surge ratings, see table below.

General Notes:
- All measurements are made at an ambient temperature of 25 °C. $I_{PP}$ applies to -40 °C through +85 °C temperature range.
- $I_{PP}$ is a repetitive surge rating and is guaranteed for the life of the product.
- Listed *SIDACtor* devices are bi-directional. All electrical parameters and surge ratings apply to forward and reverse polarities.
- $V_{DRM}$ is measured at $I_{DRM}$.
- $V_S$ is measured at 100 V/µs.
- Special voltage ($V_S$ and $V_{DRM}$) and holding current ($I_H$) requirements are available upon request.

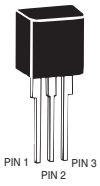
## Surge Ratings in Amps

| Series | $I_{PP}$ | | | | | | | | | $I_{TSM}$ | di/dt |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0.2x310 * 0.5x700 ** | 2x10 * 2x10 ** | 8x20 * 1.2x50 ** | 10x160 * 10x160 ** | 10x560 * 10x560 ** | 5x320 * 9x720 ** | 10x360 * 10x360 ** | 10x1000 * 10x1000 ** | 5x310 * 10x700 ** | 50 / 60 Hz | |
| | Amps | Amps | Amps | Amps | Amps | Amps | Amps | Amps | Amps | Amps | Amps/µs |
| A | 20 | 150 | 150 | 90 | 50 | 75 | 75 | 45 | 75 | 20 | 500 |
| C | 50 | 500 | 400 | 200 | 150 | 200 | 175 | 100 | 200 | 50 | 500 |

* Current waveform in µs
** Voltage waveform in µs

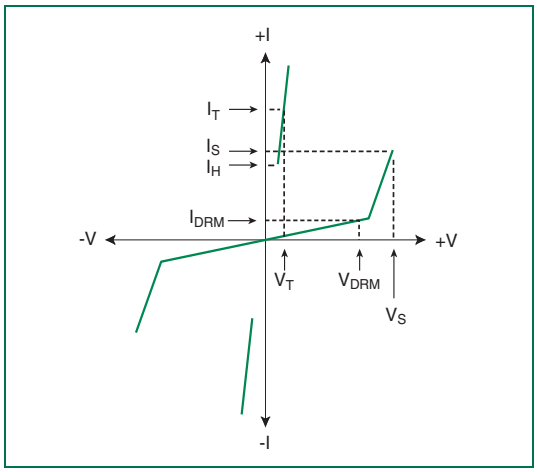
## Thermal Considerations

| Package | Symbol | Parameter | Value | Unit |
|---|---|---|---|---|
| Modified TO-220   | $T_J$ | Operating Junction Temperature Range | -40 to +150 | °C |
| | $T_S$ | Storage Temperature Range | -65 to +150 | °C |
| | $R_{\theta JA}$ | Thermal Resistance: Junction to Ambient | 50 | °C/W |

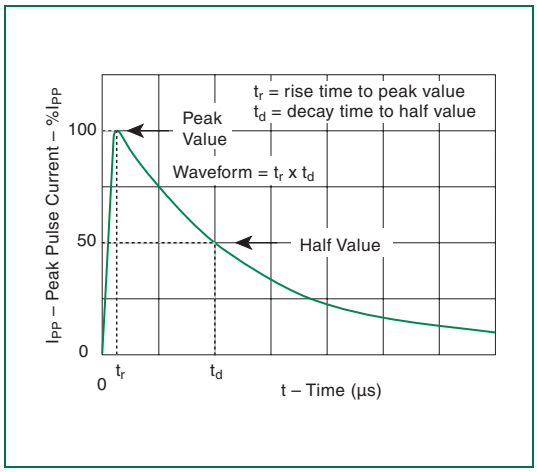
## Capacitance Values

| Part Number | pF Pin 1-2 / 3-2 Tip-Ground, Ring-Ground | | pF Pin 1-3 Tip-Ring | |
|---|---|---|---|---|
| | MIN | MAX | MIN | MAX |
| **P0302AAMCL** | 25 | 55 | 15 | 35 |
| **P0602AAMCL** | 15 | 35 | 10 | 20 |
| **P0602ACMCL** | 25 | 45 | 10 | 25 |
| **P1402ACMCL** | 40 | 60 | 20 | 35 |
| **P1602ACMCL** | 35 | 55 | 20 | 35 |
| **P2202ACMCL** | 45 | 70 | 25 | 40 |
| **P2702ACMCL** | 40 | 60 | 20 | 35 |
| **P3002ACMCL** | 35 | 55 | 20 | 35 |
| **P3602ACMCL** | 35 | 50 | 15 | 30 |
| **P4202ACMCL** | 30 | 50 | 15 | 30 |
| **P4802ACMCL** | 30 | 45 | 15 | 30 |
| **P6002ACMCL** | 30 | 45 | 15 | 25 |

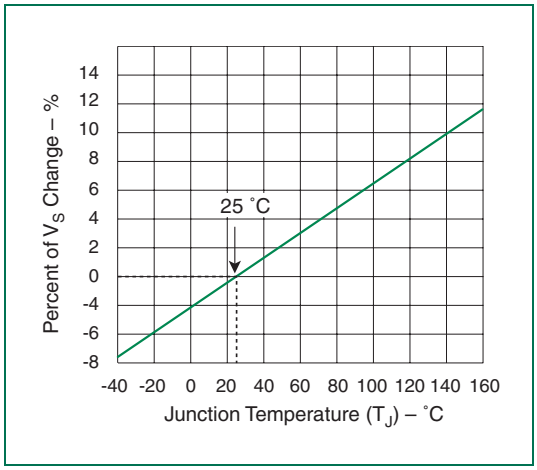
Note: Off-state capacitance ($C_O$) is measured at 1 MHz with a 2 V bias.



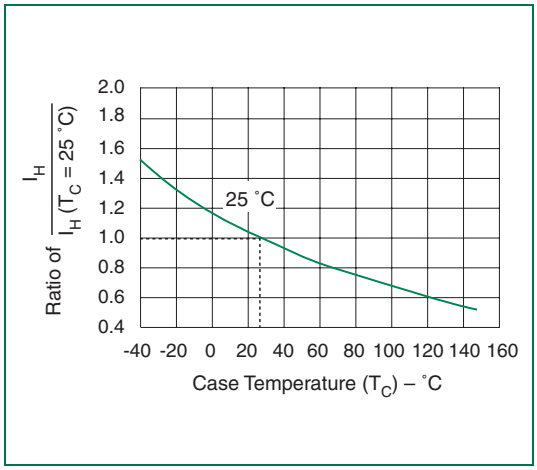

V-I Characteristics




$t_r$ x $t_d$ Pulse Waveform




Normalized $V_S$ Change versus Junction Temperature




Normalized DC Holding Current versus Case Temperature