Low Resistance PPTC
Application Note

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Introduction

Low resistance PPTC (SMDL) is a specific series under PPTC, as it can provide lower resistance. Certified by UL, TÜV, and compliant with ROHS, it allows a higher hold current device in a smaller factor and lower profile as compared to a standard PPTC. It offers ultra-low internal resistance while maintaining the high-level electrical characteristics and performance of standard PPTC products.

Product Overview

The size range covers from 0402 to 2920. These components are ideal for:

- **USB**
- **Smartphones**
- **Digital cameras and video cameras**
- **Li-ion / Li-Polymer battery packs**
- **Computer peripherals**
- **Game consoles**

Thanks to their advanced design, low resistance PPTC delivers:

- Small size 0402
- Fast response to fault currents
- Lowest hold current at 0.1A

Key Features

The low resistance PPTC incorporates a specific characteristic in broader applications:

- **Low resistance**
  Lowest at 0.001Ω, which makes it fit into wider fields.

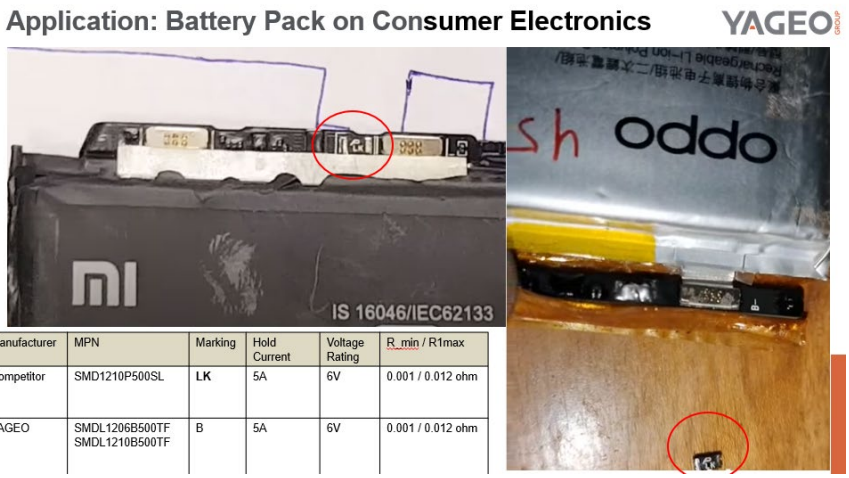
YAGEO's SMDL is an evolution of the established **low resistance PPTC series**, tailored to meet the industry's increasing demand for communication products, harsh current, and resistance environment performance.

Application Use Cases for SMDL Series

The **YAGEO Group SMDL series** addresses these needs by delivering superior performance in **communication applications**, particularly where **current** and **resistance** are critical.

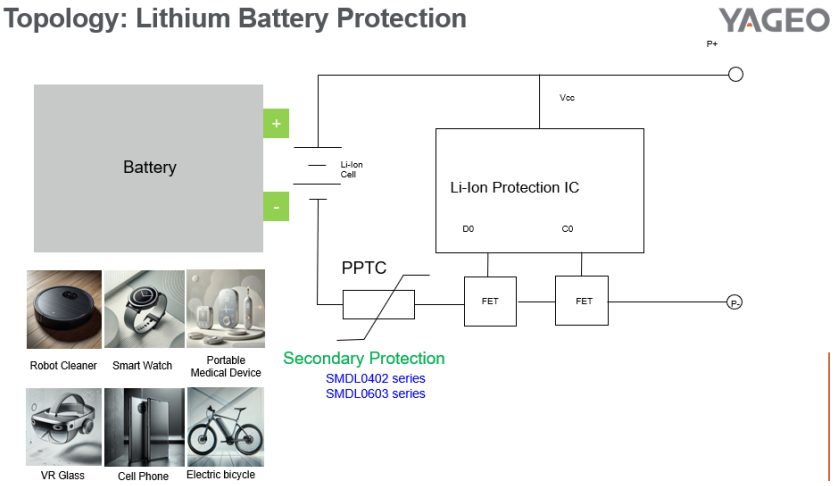
Typical applications include smartphone battery and I/O ports.

SMDL Application – Battery Pack on Consumer Electronics

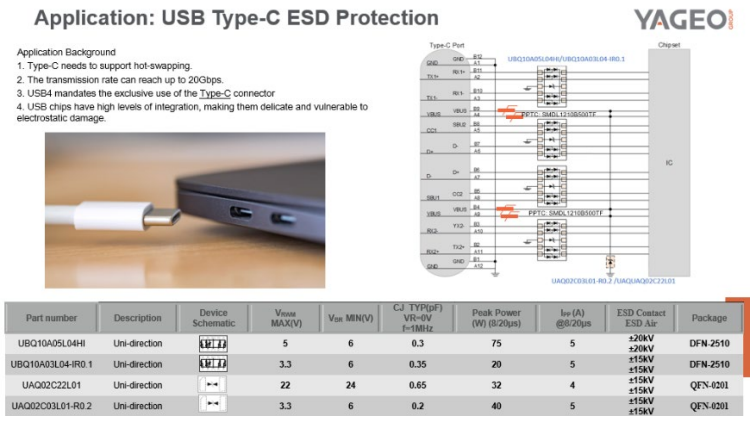


Manufacturer	MPN	Marking	Hold Current	Voltage Rating	R_min / R1max
Competitor	SMD1210P500SL	LK	5A	6V	0.001 / 0.012 ohm
YAGEO	SMDL1206B500TF SMDL1210B500TF	B	5A	6V	0.001 / 0.012 ohm

SMDL Application – Lithium Battery Protection



SMDL Application- Type-C port



Part number	Description	Device Schematic	V_{RWM} MAX(V)	V_{BR} MIN(V)	CJ TYP(pF) VR=0V f=1MHz	Peak Power (W) (8/20μs)	I_{PP} (A) @8/20μs	ESD Contact ESD Air	Package
UBQ10A05L04HI	Uni-direction		5	6	0.3	75	5	±20kV ±20kV	DFN-2510
UBQ10A03L04-IR0.1	Uni-direction		3.3	6	0.35	20	5	±15kV ±15kV	DFN-2510
UAQ02C22L01	Uni-direction		22	24	0.65	32	4	±15kV ±15kV	QFN-0201
UAQ02C03L01-R0.2	Uni-direction		3.3	6	0.2	40	5	±15kV ±15kV	QFN-0201

Conclusion

The SMDL series enlarges the usage of PPTC in communication and battery applications. With extended resistance capability and superior reliability, the SMDL delivers the confidence to build safer, more efficient, and longer-lasting phone battery and I/O port environments.