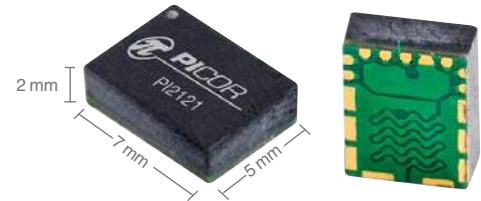


### PI2121 / PI2123 / PI2125 Features

- Combines a high-speed ORing MOSFET controller and a very low on-state resistance MOSFET
- Integrated high-performance MOSFET  
PI2121: 8 V, 24 A, 1.5 mΩ  
PI2123: 15 V, 15 A, 3 mΩ  
PI2125: 30 V, 12 A, 5.5 mΩ
- Very small, high-density fully-optimized solution providing simple PCB layout with 50% space savings
- Fast dynamic response to power source failures, with 160 ns reverse current turn-off delay time
- Accurate sensing capability to indicate system fault conditions
- Programmable under and overvoltage functions
- Overtemperature fault detection
- Adjustable reverse current blanking timer
- Master/Slave I/O for paralleling
- Active low fault flag output

### PI2121 / PI2123 / PI2125



5 mm x 7 mm x 2 mm  
17-Lead Thermally Enhanced LGA

### Product Description

The Cool-ORing™ PI2121/3/5 are complete full-function Active ORing solutions with a high-speed ORing MOSFET controller and a very low on-state resistance MOSFET designed for use in redundant power system architectures. The PI2121/3/5 Cool-ORing solutions are offered in an extremely small, thermally enhanced 5mm x 7mm LGA package and can be used in low voltage ( $\leq 5$  V bus,  $\leq 9.6$  V bus and  $\leq 12$  V bus respectively) high side Active ORing applications. The PI2121/3/5 enable extremely low power loss with fast dynamic response to fault conditions, critical for high-availability systems. A master/slave feature allows the paralleling of PI2121/3/5 solutions for high-current, Active ORing requirements.

The PI2121/3/5 provide very high efficiency and low power loss during steady state operation, while achieving high-speed turn-off of the internal MOSFET during input power source fault conditions, that cause reverse current flow. The PI2121/3/5 provide an active low fault flag

output to the system during excessive forward current, light load, reverse current, overvoltage, undervoltage and overtemperature fault conditions. A temperature sensing function indicates a fault if the maximum junction temperature exceeds 160°C. The undervoltage and overvoltage thresholds are programmable via an external resistor divider.

### Applications

- N+1 redundant power systems
- Servers and high-end computing
- High-side Active ORing:  
PI2121  $\leq 5$  V bus  
PI2123  $\leq 9.6$  V bus  
PI2125  $\leq 12$  V bus
- High current Active ORing in master/slave configuration

### Part Numbering

Part Number	Package	Voltage Rating	Current Handling	Target Application	Internal MOSFET On-State Resistance	Bias Supply	Turn-off Delay Time	Shipment Packaging
PI2121-00-LGIZ	5x7 mm	8 V (max)	24 A (max)	$\leq 5$ V Bus	1.5 mΩ (typ)	4.5 V – 13.2 V	160 ns (typ.)	Tape and Reel
PI2123-00-LGIZ	17-pin LGA	15 V (max)	15 A (max)	$\leq 9.6$ V Bus	3 mΩ (typ)			
PI2125-00-LGIZ		30 V (max)	12 A (max)	$\leq 12$ V Bus	5.5 mΩ (typ)			

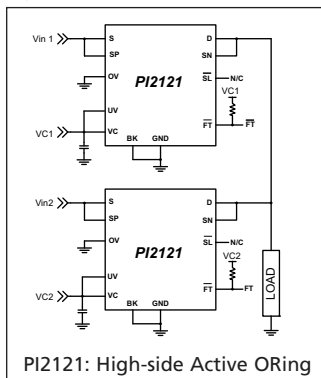
#### Evaluation Boards

PI2121-EVAL1 PI2121 Evaluation Board configured for a high-side ground referenced application

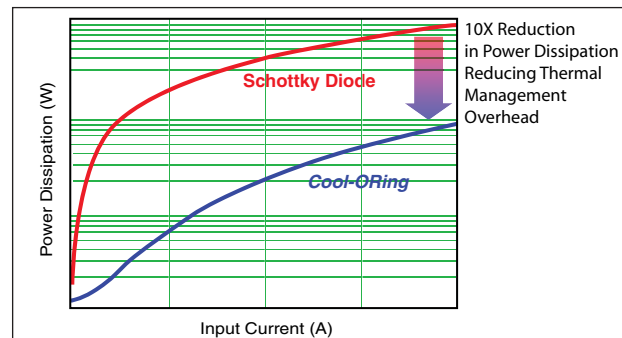
PI2125-EVAL2 PI2125 Evaluation Board configured for a high-side floating application

NOTE: Both PI2121-EVAL1 and PI2125-EVAL2 are compatible with the PI2123 solution.

### Typical Application



### PI2121/PI2123/PI2125 Performance



Power Dissipation comparison between Picor's Cool-ORing solutions versus industry standard Schottky diode solutions