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POL Power

Vishay components used for point-of-load solutions may include:

- Power MOSFETs
- Diodes and Rectifiers
- Controller ICs
- Capacitors
- Resistors
- Inductors
- Shunt Resistors

Application Overview

Non-isolated point-of-load converters are generally used in intermediate bus architectures to step down the bus voltage. This multi-stage power conversion is widely implemented in telecom, computer, and consumer appliances. The POL modules or on-board POL circuits can be placed close to the payload, thereby adding flexibility to the design.

POL Power : BOOTSTRAP, Capacitors

Multilayer Ceramic Chip Capacitors

| Product Name | Status | Description | Features | Package | Q-Level |
|----------------|--------|----------------|------------|------------------|---------|
| X7R Dielectric | | X7R upto 6.5uF | upto 6.5uF | SMD 0402-3640 | |

POL Power : BOOTSTRAP, Diodes

Schottky

| Product Name | Status | Description | Features | Package | Q-Level |
|-----------------|--------|--|----------------------|--------------------|---------|
| IR0530CSPTRPbF | | FlipKY - Schottky Diode | 0.5A, 30V, Vf=0.33V | SMD CSP 1.2x0.9 | |
| IR05H40CSPTRPbF | | FlipKY - Schottky Diode | 0.5A, 40V, Vf=0.42V | SMD CSP 1.2x0.9 | |
| MSS1P3L | | Surface Mount Schottky Barrier Rectifier | 1A, 30V, Vf=0.35V | SMD MicroSMP | |
| MSS1P4 | | Surface Mount Schottky Barrier Rectifier | 1A, 40V, Vf=0.41V | SMD MicroSMP | |
| SL03 | | Small Signal Schottky Diode | 1.1A, 30V, Vf=0.395V | SMD SMF | |
| SL04 | | Small Signal Schottky Diode | 1.1A, 40V, Vf=0.45V | SMD SMF | |

POL Power : CONTROLLERS, Buck Controller

Buck Controller

| Product Name | Status | Description | Features | Package | Q-Level |
|--------------|--------|---|-----------------------------------|-----------------------------|---------|
| SiP12201A | | 26-V, 500-kHz Synchronous Step Down Controller | 4.2-26Vin, 0.6-20Vout, Iout=10A | SMD MLP33-10 | |
| SiP12202 | | Synchronous Step Down Controller | 2.7-5.5Vin, 0.6-5.5Vout, Iout=10A | SMD MLP33-10 | |
| SiP12205 | | 300 kHz N-Channel FET Synchronous PWM Buck Controller | 5.5-26Vin, 0.6-20Vout, Iout=10A | SMD PowerPAK MLP33-10 | |

POL Power : CONTROLLERS, Current Sense Resistors

Current Sense Resistors

| Product Name | Status | Description | Features | Package | Q-Level |
|--------------|--------|---|---|------------------|---------|
| WSL | | Power Metal Strip® Resistors, SMD, Low Value (down to 0.001 Ω) | R= 0.001 Ω ...0.500 Ω Low TCR $\leq\pm 75$ ppm | SMD 0603-2816 | |

POL Power : HIGH-SIDE SWITCH, Diodes

Schottky

| Product Name | Status | Description | Features | Package | Q-Level |
|--------------|--------|--|-------------------|-----------------|---------|
| MSS2P3 | | Surface Mount Schottky Barrier Rectifier | 2A, 30V, Vf=0.47V | SMD MicroSMP | |
| SS3P3 | | Surface Mount Schottky Barrier Rectifier High Current Density | 3A, 30V, Vf=0.43V | SMD SMP | |

POL Power : HIGH-SIDE SWITCH, Gate Drivers

N+P Channel MOSFETs

| Product Name | Status | Description | Features | Package | Q-Level |
|--------------|--------|------------------------------------|---|----------------------------|---------|
| Si3586DV | | N- and P-Channel 20-V (D-S) MOSFET | n-ch:RDS(on)=0.070Ω@2.5V p-ch:RDS(on)=0.116Ω@-2.5V Qg<5nC | SMD TSOP-6 | |
| Si5504BDC | | N- and P-Channel 30-V (D-S) MOSFET | n-CH:RDS(on)=0.100Ω@4.5V p-CH:RDS(on)=0.235Ω@-4.5V Qg<2.2nC | SMD 1206-8 ChipFET | |
| SiA513DJ | | N- and P-Channel 20-V (D-S) MOSFET | n-ch:RDS(on)=0.092Ω@2.5V p-ch:RDS(on)=0.185Ω@-2.5V Qg<3.5nC | SMD PowerPAK SC-70-6 | |

POL Power : HIGH-SIDE SWITCH, N-Channel MOSFET

MOSFETs

| Product Name | Status | Description | Features | Package | Q-Level |
|--------------|--------|-----------------------------|--|---------------------------|---------|
| Si4386DY | | N-Channel 30-V (D-S) MOSFET | RDS(on)=0.007Ω@10V; RDS(on)=0.0095Ω@4.5V; Qg=11nC | SMD SO-8 | |
| Si4634DY | | N-Channel 30-V (D-S) MOSFET | RDS(on)=0.0052Ω@10V; RDS(on)=0.0067Ω@4.5V; Qg=21.5nC | SMD SO-8 | |
| Si4660DY | | N-Channel 25-V (D-S) MOSFET | RDS(on)=0.0058Ω@10V; RDS(on)=0.007Ω@4.5V; Qg=17nC | SMD SO-8 | |
| Si7110DN | | N-Channel 20-V (D-S) MOSFET | RDS(on)=0.0053Ω@10V; RDS(on)=0.078Ω@4.5V; Qg=14nC | SMD PowerPAK 1212-8 | |
| Si7114DN | | N-Channel 30-V (D-S) MOSFET | RDS(on)=0.0075Ω@10V; RDS(on)=0.010Ω@4.5V; Qg=12.5nC | SMD PowerPAK 1212-8 | |
| Si7686DP | | N-Channel 30-V (D-S) MOSFET | RDS(on)=0.0095Ω@10V; RDS(on)=0.014Ω@4.5V; Qg=9.2nC | SMD PowerPAK SO-8 | |
| Si7804DN | | N-Channel 30-V (D-S) MOSFET | RDS(on)=0.0185Ω@10V; RDS(on)=0.030Ω@4.5V; Qg=8.7nC | SMD PowerPAK 1212-8 | |
| SiE822DF | | N-Channel 20-V (D-S) MOSFET | RDS(on)=0.0034Ω@10V; RDS(on)=0.0055Ω@4.5V; Qg=24nC | SMD PolarPAK | |
| SiE844DF | | N-Channel 30-V (D-S) MOSFET | RDS(on)=0.007Ω@10V; RDS(on)=0.010Ω@4.5V; Qg=13.1nC | SMD PolarPAK | |
| SiR402DP | | N-Channel 30-V (D-S) MOSFET | RDS(on)=0.006Ω@10V; RDS(on)=0.008Ω@4.5V; Qg=14nC | SMD PowerPAK SO-8 | |
| SiR462DP | | N-Channel 30-V (D-S) MOSFET | RDS(on)=0.0079Ω@10V; RDS(on)=0.0095Ω@4.5V; Qg=8.8nC | SMD PowerPAK SO-8 | |
| SiR892DP | | N-Channel 25-V (D-S) MOSFET | RDS(on)=0.0032Ω@10V; RDS(on)=0.0042Ω@4.5V; Qg=20nC | SMD PowerPAK SO-8 | |

POL Power : HIGH-SIDE SWITCH, P-Channel MOSFET

MOSFETs

| Product Name | Status | Description | Features | Package | Q-Level |
|--------------|--------|-----------------------------|--|---------------------------|---------|
| Si4425BDY | | P-Channel 30-V (D-S) MOSFET | RDS(on)=0.012Ω@-10V; RDS(on)=0.019Ω@-4.5V; Qg=32nC | SMD SO-8 | |
| Si4835DDY | | P-Channel 30-V (D-S) MOSFET | RDS(on)=0.018Ω@-10V; RDS(on)=0.030Ω@-4.5V; Qg=22nC | SMD SO-8 | |
| Si7421DN | | P-Channel 30-V (D-S) MOSFET | RDS(on)=0.025Ω@-10V; RDS(on)=0.043Ω@-4.5V; Qg=13nC | SMD PowerPAK 1212-8 | |
| Si7423DN | | P-Channel 30-V (D-S) MOSFET | RDS(on)=0.018Ω@-10V; RDS(on)=0.030Ω@-4.5V; Qg=20nC | SMD PowrPAK 1212-8 | |
| Si7483ADP | | P-Channel 30-V (D-S) MOSFET | RDS(on)=0.0057Ω@-10V; RDS(on)=0.0095Ω@-4.5V; Qg=45nC | SMD PowerPAK SO-8 | |

POL Power : HIGH-SIDE SWITCH, SkyFET®

SkyFET

| Product Name | Status | Description | Features | Package | Q-Level |
|--------------|--------|---|---|-----------------|---------|
| Si4642DY | | N-Channel 30-V (D-S) MOSFET with Schottky Diode | RDS(on)=0.00375Ω@10V; RDS(on)=0.0047Ω@4.5V; Qg=35.7nC | SMD SO-8 | |
| SiE726DF | | N-Channel 30-V (D-S) MOSFET with Schottky Diode | RDS(on)=0.0024Ω@10V; RDS(on)=0.0033Ω@4.5V; Qg=50nC | SMD PolarPAK | |

POL Power : INPUT, Capacitors

Multilayer Ceramic Chip Capacitors

| Product Name | Status | Description | Features | Package | Q-Level |
|----------------|--------|---------------|---------------------|------------------|---------|
| Y5V Dielectric | | Y5V upto 22uF | 6.3-100V, 0.01-22uF | SMD 0402-1206 | |

Tantalum Capacitors

| Product Name | Status | Description | Features | Package | Q-Level |
|--------------|--------|---|-------------------|----------------------------------|---------|
| 594D | | Tantalum Chip Capacitors TANTAMOUNT®, Conformal Coated, Maximum CV, Low ESR | 4-50V, 1-1500uF | SMD B, C, D, R -case | |
| TR3 | | Tantalum Chip Capacitors TANTAMOUNT®, Low ESR, Molded Case | 4-50V, 0.47-680uF | SMD A, B, C, D, E, V -case | |

POL Power : LOW-SIDE SWITCH, Diodes

Schottky

| Product Name | Status | Description | Features | Package | Q-Level |
|--------------|--------|--|--------------------|-----------------|---------|
| MSS2P3 | | Surface Mount Schottky Barrier Rectifier | 2A, 30V, Vf=0.47V | SMD MicroSMP | |
| SS3P3 | | Surface Mount Schottky Barrier Rectifier High Current Density | 3A, 30V, Vf=0.43V | SMD SMP | |
| SS5P3 | | Surface Mount Schottky Barrier Rectifier High Current Density | 5A, 30V, Vf=0.403V | SMD SMPC | |

POL Power : LOW-SIDE SWITCH, Gate Drivers

N+P Channel MOSFETs

| Product Name | Status | Description | Features | Package | Q-Level |
|--------------|--------|------------------------------------|---|----------------------------|---------|
| Si3586DV | | N- and P-Channel 20-V (D-S) MOSFET | n-ch:RDS(on)=0.070Ω@2.5V p-ch:RDS(on)=0.116Ω@-2.5V Qg<5nC | SMD TSOP-6 | |
| Si5504BDC | | N- and P-Channel 30-V (D-S) MOSFET | n-CH:RDS(on)=0.100Ω@4.5V p-CH:RDS(on)=0.235Ω@-4.5V Qg<2.2nC | SMD 1206-8 ChipFET | |
| SiA513DJ | | N- and P-Channel 20-V (D-S) MOSFET | n-ch:RDS(on)=0.092Ω@2.5V p-ch:RDS(on)=0.185Ω@-2.5V Qg<3.5nC | SMD PowerPAK SC-70-6 | |

POL Power : LOW-SIDE SWITCH, N-Channel MOSFET

MOSFETs

| Product Name | Status | Description | Features | Package | Q-Level |
|--------------|--------|-----------------------------|---|---------------------------|---------|
| Si4378DY | | N-Channel 20-V (D-S) MOSFET | RDS(on)=0.0027 Ω @4.5V; RDS(on)=0.0042 Ω @2.5V; Qg=55nC | SMD SO-8 | |
| Si4398DY | | N-Channel 20-V (D-S) MOSFET | RDS(on)=0.0028 Ω @4.5V; RDS(on)=0.0042 Ω @2.5V; Qg=34nC | SMD SO-8 | |
| Si7108DN | | N-Channel 20-V (D-S) MOSFET | RDS(on)=0.0049 Ω @10V; RDS(on)=0.0061 Ω @4.5V; Qg=20nC | SMD PowerPAK 1212-8 | |
| Si7192DP | | N-Channel 30-V (D-S) MOSFET | RDS(on)=0.0019 Ω @10V; RDS(on)=0.00225 Ω @4.5V; Qg=43.5nC | SMD PowerPAK SO-8 | |
| Si7866ADP | | N-Channel 20-V (D-S) MOSFET | RDS(on)=0.0024 Ω @10V; RDS(on)=0.0030 Ω @4.5V; Qg=39nC | SMD PowerPAK SO-8 | |
| SiE808DF | | N-Channel 20-V (D-S) MOSFET | RDS(on)=0.0016 Ω @10V; RDS(on)=0.0025 Ω @4.5V; Qg=46nC | SMD PolarPAK | |
| SiE810DF | | N-Channel 20-V (D-S) MOSFET | RDS(on)=0.0014 Ω @10V; RDS(on)=0.0016 Ω @4.5V; Qg=90nC | SMD PolarPAK | |
| SiR890DP | | N-Channel 20-V (D-S) MOSFET | RDS(on)=0.0029 Ω @10V; RDS(on)=0.0040 Ω @4.5V; Qg=20nC | SMD PowerPAK SO-8 | |

POL Power : LOW-SIDE SWITCH, SkyFET®

SkyFET

| Product Name | Status | Description | Features | Package | Q-Level |
|--------------|--------|---|---|-----------------|---------|
| Si4642DY | | N-Channel 30-V (D-S) MOSFET with Schottky Diode | RDS(on)=0.00375Ω@10V; RDS(on)=0.0047Ω@4.5V; Qg=35.7nC | SMD SO-8 | |
| SiE726DF | | N-Channel 30-V (D-S) MOSFET with Schottky Diode | RDS(on)=0.0024Ω@10V; RDS(on)=0.0033Ω@4.5V; Qg=50nC | SMD PolarPAK | |

POL Power : OUTPUT, Capacitors

Multilayer Ceramic Chip Capacitors

| Product Name | Status | Description | Features | Package | Q-Level |
|----------------|--------|---------------|---------------------|------------------|---------|
| Y5V Dielectric | | Y5V upto 22uF | 6.3-100V, 0.01-22uF | SMD 0402-1206 | |

Tantalum Capacitors

| Product Name | Status | Description | Features | Package | Q-Level |
|--------------|--------|---|-------------------|----------------------------------|---------|
| 594D | | Tantalum Chip Capacitors TANTAMOUNT®, Conformal Coated, Maximum CV, Low ESR | 4-50V, 1-1500uF | SMD B, C, D, R-case | |
| TR3 | | Tantalum Chip Capacitors TANTAMOUNT®, Low ESR, Molded Case | 4-50V, 0.47-680uF | SMD A, B, C, D, E, V -case | |

POL Power : OUTPUT, Power Inductors

Power Inductors

| Product Name | Status | Description | Features | Package | Q-Level |
|---------------------|---------------|-------------------------------|-------------------------------|------------------|----------------|
| IHLP series | | Surface-Mount Power Inductors | 0.047-100uH; up to 60 Amps | SMD 1616-5050 | |

