

# Switch Mode Power Supply

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## Table of Contents

Adaptor, Buck Capacitance.....	3
Adaptor, EMI Filtering.....	4
Adaptor, Feedback Loop.....	5
Adaptor, Input Rectification.....	6
Adaptor, Output Filter.....	7
Adaptor, Output Rectification.....	8
Adaptor, PFC.....	9
Adaptor, PWM.....	10
Adaptor, Snubber.....	11
Desktop Power, Buck Capacitance.....	12
Desktop Power, EMI Filtering.....	13
Desktop Power, Feedback Loop.....	14
Desktop Power, Input Rectification.....	15
Desktop Power, Output Filter.....	16
Desktop Power, Output Rectification.....	17
Desktop Power, PFC.....	18
Desktop Power, PWM.....	19
Desktop Power, Snubber.....	20
Server Power, Buck Capacitance.....	21
Server Power, EMI Filtering.....	22
Server Power, Feedback Loop.....	23
Server Power, Input Rectification.....	24
Server Power, OringFET.....	25
Server Power, Output Filter.....	26
Server Power, Output Rectification.....	27
Server Power, PFC.....	28
Server Power, PWM.....	29
Server Power, Snubber.....	30

# Switch Mode Power Supply

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## VISHAY Components used for Switch Mode Power Supplies include:

- Power MOSFETS
- Controller ICs
- Optocouplers
- Schottky Diodes/Rectifiers
- Ultrafast Rectifiers
- TVS
- Bridge Rectifiers
- Zener Diodes
- Switching Diodes
- X/Y Capacitors
- Aluminum Electrolytic Capacitors
- High-Voltage Resistors
- NTC and PTC Thermistors
- Inductors/EMI Filters
- Secondary Protection Fuses

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## Application Overview

Switch Mode Power Supply (SMPS) applications generally involve power adaptors, desktop power, or server power. SMPS design is separated into primary and secondary sections due to isolation topology. The primary section involves EMI filtering, input rectification, and power factor correction (PFC) devices. The most important design concept is PFC to improve efficiency. Good performance of a PFC rectifier enables the power supply to operate efficiently under a light current load. Ultra-fast recovery time of the rectifier and low  $Q_g$  of the switching MOSFET are the most important factors associated with PFC. No matter what kind of topology is involved, PFC is the key not only to increasing efficiency, but also to improving thermal performance, especially for 80-plus SMPS. For EMI, film capacitors and ceramic disc capacitors are good for X-capacitor and Y-capacitor design, respectively. Regarding input rectifier devices, single-phase bridge rectifiers are the best solution, especially for power adaptors. The secondary section includes output rectifiers and filters. Trench MOS Schottky technology is a new technology that can replace planar technology as a non-synchronous rectifier solution. Its key feature is ultra-low forward voltage, or  $V_f$ . Trench MOS Schottky rectifiers work well as output rectifiers, especially in multi-output systems. In addition to providing good forward voltage performance at high ambient temperature, they also feature high current handling and voltage (up to 150 V) capabilities. Different solutions are based on different specifications.

## Switch Mode Power Supply : Adaptor, Buck Capacitance

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Snap-In Aluminum cap

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">152RMH</a>		Aluminum Capacitors; Radial; Miniature; High Voltage	1.0-220 $\mu$ F; Vr=200-450V; Temp. Range= -40 -+105°C; Life@105°C=3000h-4000h	TH / Radial 10x12 to 18x35mm	

## Switch Mode Power Supply : Adaptor, EMI Filtering

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### X-cap

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">339 series</a>		Interference Suppression Film Capacitors MKP Radial Potted Type	X2-Class; 0.001 to 4.7 $\mu$ F AC 275 V; DC 630V; Temp=-110°C;	TH / Radial 7.5-27.5mm Pitch Radial	UL EN CAS

### Y-cap

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">YY1</a>		Ceramic Disc Capacitors; Y-Capacitor; Safety Standard Approved Disc Capacitor;	C=10 pF to 4700 pF; (Y1):500 V (AC), 50 Hz; Temp=- 40 °C to + 125 °C;	TH / Radial 10mm Lead Pitch	
<a href="#">YY2</a>		Ceramic Disc Capacitors; Y-Capacitor; Safety Standard Approved Disc Capacitor;	C=10 pF to 0.01 $\mu$ F; (Y2):300 V (AC), 50 Hz; Temp=- 40 °C to + 125 °C;	TH / Radial 5-10mm Pitch	

## Switch Mode Power Supply : Adaptor, Feedback Loop

### OptoCoupler

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">SFH617A</a>		Optocoupler; Phototransistor Output; High Reliability;	VISO=5300VRMS; Tamb: -55 to +110°C; CTR:40 to 320%	TH / DIP DIP4	
<a href="#">SFH690CT</a>		Optocoupler; Phototransistor Output;	VISO=3750VRMS; Tamb: -55 to +100°C; CTR:50 to 400%	SMD SOP-4	CSA 93751 UL1577 BSI
<a href="#">TCET1104</a>		Optocoupler; Phototransistor Output; High Temperature Capable;	VISO=5000VRMS; Tamb: -40 to +100°C; CTR:50 to 600%	TH / DIP DIP4	
<a href="#">TCET1114</a>		Optocoupler; Phototransistor Output; High Temperature Capable;	VISO=5000VRMS; Tamb: -40 to +100°C; CTR:50 to 600%	TH / DIP DIP4	

### Switch Diode

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">1N4007</a>		General Purpose Plastic Rectifier	IF(AV):1.0 A; VRRM:= 50V-1000V; IFSM=30A; VF=1.1 V;	TH / Axial DO-204AL (DO-41)	

### Zener Diode

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">BZX384</a>		Small Signal Zener Diodes	Vz = 2.4V to 75V; Ptot = 200mW; Tj max= 150°C;	SMD SOD323 Plastic Case	
<a href="#">TLZ</a>		Small Signal Zener Diodes	Vz: = 2.4V to 56V Ptot = 500mW; Tj max = 175°C	SMD SOD80 MiniMELF	
<a href="#">TZX</a>		Small Signal Zener Diodes	Vz: = 2.4V to 36V Ptot = 500mW; Tj max = 175°C	TH / Axial DO-35 Glass Case	

## Switch Mode Power Supply : Adaptor, Input Rectification

### Bridge Rectifier

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">DF06MA</a>		Single-Phase Bridge Rectifiers; Miniature; Glass Passivated;	IF(av)=1A; Vf=1.1V; Vrrm=50V-1000V; Ifsm=30A Tj max= 150°C;	TH / DIP DFM	
<a href="#">GBL06</a>		Single-Phase Bridge Rectifiers; Glass Passivated;	IF(av)=4A; Vf=1V; Vrrm=50V-1000V; Ifsm=150A Tjmax=150°C;	TH / SIP GBL	
<a href="#">GBLA06</a>		Single-Phase Bridge Rectifiers; Glass Passivated;	IF(av)=4A; Vf=1V; Vrrm=50V-1000V; Ifsm=120A Tjmax=150°C;	TH / SIP GBL	
<a href="#">GBU6J</a>		Single-Phase Bridge Rectifiers; Glass Passivated;	IF(av)=6A; Vf=1V; Vrrm=50V-1000V; Ifsm=175A Tjmax=150°C;	TH / SIP GBU	
<a href="#">GBU8J</a>		Single-Phase Bridge Rectifiers; Glass Passivated;	IF(av)=8A; Vf=1V; Vrrm=50V-1000V; Ifsm=200A Tjmax=150°C;	TH / SIP GBU	
<a href="#">VS-2KBP06M</a>		Single-Phase Bridge Rectifier; Glass Passivated; Tjmax=165°C;	IF(AV): = 2A; VRRM:= 50V-1000V; IFSM=60A; Vf=1.1V;	TH / SIP KBPM	

## Switch Mode Power Supply : Adaptor, Output Filter

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### Aluminum cap

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">038RSU</a>		Aluminum Capacitors; Radial; Standard Miniature;	0.1-22,000 $\mu$ F; 6.3-100 V; Temp. Range= -40-85°C; Life at 85°C=3500h	TH / Radial max 18x40mm	
<a href="#">136RVI</a>		Aluminum Capacitors; Radial; Very Low Impedance;	22...10000 $\mu$ F Life@105°C = 10000h	TH / Radial 10x12 to 18x35mm	

## Switch Mode Power Supply : Adaptor, Output Rectification

### Low Voltage MOSFETs

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">SUP40N10-30</a>		N-Channel 100-V (D-S) 175 °C MOSFET	Vdss=100V; ID=40A; rDS(on)=0.030Ω Qg=35nC;	TH / Radial TO-220AB	
<a href="#">SUP90N10-8m8P</a>	NEW	N-Channel 100-V (D-S) 175 °C MOSFET	Vdss=100V; ID=90A; rDS(on)=0.008Ω	TH / Radial TO-220AB	

### Schottky

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">V20100C</a>		Trench MOS Barrier Schottky Rectifier; DUAL; High-Voltage	IF(AV)=2 x 10A; VF=0.58V; Vrrm=100V; Tj max.=150 °C;	TH / Radial TO-220AB; TO-262AA	
<a href="#">V20100C</a>		Trench MOS Barrier Schottky Rectifier; DUAL; High-Voltage	IF(AV)=2 x 10A; VF=0.58V; Vrrm=100V; Tj max.=150 °C;	SMD TO-263AB D2PAK	
<a href="#">V20100SG</a>		Trench MOS Barrier Schottky Rectifier; High-Voltage	IF(AV)=20 A; VF=0.75V; Vrrm=100V; Tj max.=150 °C;	TH / Radial TO-220AB; TO-262AA	
<a href="#">V20120C</a>	NEW	Trench MOS Barrier Schottky Rectifier; DUAL; High-Voltage	IF(AV)=2 x 10A; VF=0.61V; Vrrm=120V; Tj max.=150 °C;	TH / Radial TO-220AB	
<a href="#">V20120SG</a>		Trench MOS Barrier Schottky Rectifier; High-Voltage	IF(AV)=20 A; VF=0.77V; Vrrm=120V; Tj max.=150 °C;	TH / Radial TO-220AB; ITO-220AB	
<a href="#">V30100C</a>		Trench MOS Barrier Schottky Rectifier; DUAL; High-Voltage	IF(AV)=2 x 15A; VF=0.627V; Vrrm=100V; Tj max.=150 °C;	TH / Radial TO-220AB	
<a href="#">V30100SG</a>		Trench MOS Barrier Schottky Rectifier; High-Voltage	IF(AV)=30 A; VF=0.757V; Vrrm=100V; Tj max.=150 °C;	TH / Radial (I)TO-220AB TO-262AA	
<a href="#">V30100SG</a>		Trench MOS Barrier Schottky Rectifier; High-Voltage	IF(AV)=30 A; VF=0.757V; Vrrm=100V; Tj max.=150 °C;	SMD TO-263AB D2PAK	
<a href="#">V30120C</a>	NEW	Trench MOS Barrier Schottky Rectifier; High-Voltage	IF(AV)=30 A; VF=0.7V; Vrrm=120V; Tj max.=150 °C;	TH / Radial TO-220AB; TO-262AA	
<a href="#">V30120SG</a>	NEW	Trench MOS Barrier Schottky Rectifier; High-Voltage	IF(AV)=30 A; VF=0.712V; Vrrm=120V; Tj max.=150 °C;	TH / Radial (I)TO-220AB TO-262AA	
<a href="#">V30120SG</a>	NEW	Trench MOS Barrier Schottky Rectifier; High-Voltage	IF(AV)=30 A; VF=0.712V; Vrrm=120V; Tj max.=150 °C;	SMD TO-263AB D2PAK	
<a href="#">V40100G</a>		Trench MOS Barrier Schottky Rectifier; DUAL; High-Voltage	IF(AV)=2 x 20A; VF=0.67V; VRRM=100 V; Tj max.=150 °C;	TH / Radial TO-220AB; TO-262AA	
<a href="#">V40100G</a>		Trench MOS Barrier Schottky Rectifier; DUAL; High-Voltage	IF(AV)=2 x 20A; VF=0.67V; VRRM=100 V; Tj max.=150 °C;	SMD TO-263AB D2PAK	
<a href="#">V40120C</a>	NEW	Trench MOS Barrier Schottky Rectifier; DUAL; High-Voltage	IF(AV)=2 x 20A; VF=0.630V; VRRM=120 V; Tj max.=150 °C;	TH / Radial TO-220AB; TO-262AA	
<a href="#">V40120C</a>	NEW	Trench MOS Barrier Schottky Rectifier; DUAL; High-Voltage	IF(AV)=2 x 20A; VF=0.630V; VRRM=120 V; Tj max.=150 °C;	SMD TO-263AB D2PAK	



## Switch Mode Power Supply : Adaptor, PFC

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### 600V Ultra Fast Diode

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">MUR460</a>		Ultrafast Plastic Rectifier	IF(av)=4A; Vf=1.05V; Vrrm=400V to 600V; Trr=50ns; Tj max.=175 °C;	TH / Axial DO-201AD	

### General Rectifier

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">1N5406</a>		General-purpose Plastic Rectifier; Tj max = 150 °C;	IF(AV): = 3A; VRRM:= 50V-1000V; IFSM=200A;Vf=1.2V;	TH / Axial DO-201AD	

### High Voltage Resistor

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">VR25</a>		High Ohmic/High Voltage Resistors	High pulse loading cap.; Small size	TH / Axial 0207 A5;A2;A1;R5;N4	

## Switch Mode Power Supply : Adaptor, PWM

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### High Voltage MOSFETs

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">IRFBE30PBF</a>		SMPS MOSFET; HEXFET® Power MOSFET; Fast Switching; Low r(DS)on; Cost effe.; Low thermal resistance;	Vdss=900V; ID=3.6A; rDS(on)=3.7Ω; Qg=78nC;	TH / Radial TO-220AB	
<a href="#">IRFBF30PBF</a>		SMPS MOSFET; HEXFET® Power MOSFET; Fast Switching; Low r(DS)on; Cost effe.; Low thermal resistance;	Vdss=800V; ID=4.1A; rDS(on)=35Ω; Qg=78nC;	TH / Radial TO-220AB	

## Switch Mode Power Supply : Adaptor, Snubber

### Switch Diode

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">1N4007</a>		General Purpose Plastic Rectifier	IF(AV):1.0 A; VRRM:= 50V-1000V; IFSM=30A; VF=1.1 V;	TH / Axial DO-204AL (DO-41)	
<a href="#">1N5408</a>		General-purpose Plastic Rectifier; Tj max = 150 °C;	IF(AV): = 3A; VRRM:= 50V-1000V; IFSM=200A;Vf=1.2V;	TH / Axial DO-201AD	
<a href="#">BYV26EGP</a>		Glass Passivated Ultrafast Rectifier	IF(AV):1.0 A; VF:1.3 V; Vrrm=800V/1000V;Ifsm=30A Trr = 75nS; Tjmax=175°C;	TH / Axial DO-204AC (DO-15)	
<a href="#">RS1PD</a>		Fast Switching Rectifier High Current Density; SMD; Glass Passivated;	IF(AV):1.0 A; VF:1.3 V; VRRM:100V-600V; IFSM:30A; Trr:=150-250ns;	SMD DO-220AA (SMP)	

### TVS

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">1.5KE</a>		TRANSZORB® Transient Voltage Suppressors Tj max = 175°C	V(BR) Unidirec.:6.8-540V V(BR) Bidirec.:6.8-440V; PPPM:1500W; PD:6.5W	TH / Axial 1.5KE	
<a href="#">P4KE</a>		TRANSZORB® Transient Voltage Suppressors Tj max:175 °C;	V(BR)Unidirec.:6.8V-540V; V(BR) Bidirec.:6.8V-440V PPPM:=400W; PD:= 1W;	TH / Axial DO-204AL (DO-41)	
<a href="#">P6KE</a>		TRANSZORB® Transient Voltage Suppressors Tj max:175 °C;	V(BR)Unidirec.:6.8V-540V; V(BR) Bidirec.:6.8V-440V PPPM:=600W; PD:= 5W;	TH / Axial DO-204AC (DO-15)	

## Switch Mode Power Supply : Desktop Power, Buck Capacitance

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### Snapin Aluminum cap

Product Name	Status	Description	Features	Package	Q-Level
094 series	NEW	Aluminum Capacitors; Snap-in; Power Miniaturized; Long-Life;	47-680 $\mu$ F; Vr=400V/450V; Temp. Range= -25 --+105°C; Life at 105°C=2000h	TH / Snap-In 22x25 to 35x50mm	

## Switch Mode Power Supply : Desktop Power, EMI Filtering

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### X-cap

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">339 series</a>		Interference Suppression Film Capacitors MKP Radial Potted Type	X2-Class; 0.001 to 4.7 $\mu$ F AC 275 V; DC 630V; Temp=110°C;	TH / Radial 7.5 to 27.5mm lead pitch	

### Y-cap

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">YY1</a>		Ceramic Disc Capacitors; Y-Capacitor; Safety Standard Approved Disc Capacitor;	C=10 pF to 4700 pF; (Y1):500 V (AC), 50 Hz; Temp=- 40 °C to + 125 °C;	TH / Radial 10mm Lead Pitch	
<a href="#">YY2</a>		Ceramic Disc Capacitors; Y-Capacitor; Safety Standard Approved Disc Capacitor;	C=10 pF to 0.01 $\mu$ F; (Y2):300 V (AC), 50 Hz; Temp=- 40 °C to + 125 °C;	TH / Radial 5-10mm Pitch	

## Switch Mode Power Supply : Desktop Power, Feedback Loop

### OptoCoupler

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">SFH617A</a>		Optocoupler; Phototransistor Output; High Reliability;	VISO=5300VRMS; Tamb: -55 to +110°C; CTR:40 to 320%	TH / DIP DIP4	
<a href="#">SFH690CT</a>		Optocoupler; Phototransistor Output;	VISO=3750VRMS; Tamb: -55 to +100°C; CTR:50 to 400%	SMD SOP-4	CSA 93751 UL1577 BSI
<a href="#">TCET1104</a>		Optocoupler; Phototransistor Output; High Temperature Capable;	VISO=5000VRMS; Tamb: -40 to +100°C; CTR:50 to 600%	TH / DIP DIP4	
<a href="#">TCET1114</a>		Optocoupler; Phototransistor Output; High Temperature Capable;	VISO=5000VRMS; Tamb: -40 to +100°C; CTR:50 to 600%	TH / DIP DIP4	

### Switch Diode

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">1N4007</a>		General Purpose Plastic Rectifier	IF(AV):1.0 A; VRRM:= 50V-1000V; IFSM=30A; VF=1.1 V;	TH / Axial DO-204AL (DO-41)	

### Zener Diode

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">BZX384</a>		Small Signal Zener Diodes	Vz = 2.4V to 75V; Ptot = 200mW; Tj max= 150°C;	SMD SOD323 Plastic Case	
<a href="#">TLZ</a>		Small Signal Zener Diodes	Vz: = 2.4V to 56V Ptot = 500mW; Tj max = 175°C	SMD SOD80 MiniMELF	
<a href="#">TZX</a>		Small Signal Zener Diodes	Vz: = 2.4V to 36V Ptot = 500mW; Tj max = 175°C	TH / Axial DO-35 Glass Case	

## Switch Mode Power Supply : Desktop Power, Input Rectification

### Bridge Rectifier

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">BU1006</a>	NEW	Single-Phase Bridge Rectifier; High Current Density;	IF(av)=10A; Vf=0.88V; Vrrm=600V-1000V;Ifsm=120A Tjmax=150°C;	TH / SIP BU	UL 1557 E309391
<a href="#">BU1506</a>	NEW	Single-Phase Bridge Rectifier; High Current Density;	IF(av)=15A; Vf=0.87V; Vrrm=600V-1000V;Ifsm=200A Tjmax=150°C;	TH / SIP BU	UL 1557 E309391
<a href="#">GBU6J</a>		Single-Phase Bridge Rectifiers; Glass Passivated;	IF(av)=6A; Vf=1V; Vrrm=50V-1000V;Ifsm=175A Tjmax=150°C;	TH / SIP GBU	
<a href="#">GBU8J</a>		Single-Phase Bridge Rectifiers; Glass Passivated;	IF(av)=8A; Vf=1V; Vrrm=50V-1000V;Ifsm=200A Tjmax=150°C;	TH / SIP GBU	

## Switch Mode Power Supply : Desktop Power, Output Filter

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### Aluminum cap

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">038RSU</a>		Aluminum Capacitors; Radial; Standard Miniature;	0.1-22,000 $\mu$ F; 6.3-100 V; Temp. Range= -40-85°C; Life at 85°C=3500h	TH / Radial max 18x40mm	
<a href="#">136RVI</a>		Aluminum Capacitors; Radial; Very Low Impedance;	22...10000 $\mu$ F Temp. Range= -55 --+105°C; Life@105°C = 10000h	TH / Radial 10x12 to 18x35mm	



## Switch Mode Power Supply : Desktop Power, Output Rectification

### Low Voltage MOSFETs

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">SUP90N08-4m8P</a>	NEW	N-Channel 75-V (D-S) MOSFET	Vdss=75V; ID=90A; rDS(on)=0.0048Ω Qg=105nC;	TH / Radial TO-220AB	
<a href="#">SUP90N10-8m8P</a>	NEW	N-Channel 100-V (D-S) 175 °C MOSFET	Vdss=100V; ID=90A; rDS(on)=0.008Ω	TH / Radial TO-220AB	

### Schottky

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">M30L40C</a>	NEW	Dual Common-Cathode Schottky Rectifier	IF(AV)=2 x 15A;VF=0.413V; VRRM=40 V; Tj max.=150 °C;	TH / Radial TO-220AB	
<a href="#">M30L45C</a>	NEW	Dual Common-Cathode Schottky Rectifier	IF(AV)=2 x 15A;VF=0.413V; VRRM=45 V; Tj max.=150 °C;	TH / Radial TO-220AB	
<a href="#">M6045P</a>		Dual Common-Cathode Schottky Rectifier	IF(AV)=2x30A;VF=0.51-0.56 VRRM=35 to 60 V; Tj max.=150 °C;	TH / Radial TO-247AD	
<a href="#">V20100C</a>		Trench MOS Barrier Schottky Rectifier; DUAL; High-Voltage	IF(AV)=2 x 10A; VF=0.58V; Vrrm=100V; Tj max.=150 °C;	TH / Radial TO-220AB; TO-262AA	
<a href="#">V20100C</a>		Trench MOS Barrier Schottky Rectifier; DUAL; High-Voltage	IF(AV)=2 x 10A; VF=0.58V; Vrrm=100V; Tj max.=150 °C;	SMD TO-263AB D2PAK	
<a href="#">V30100C</a>		Trench MOS Barrier Schottky Rectifier; DUAL; High-Voltage	IF(AV)=2 x 15A;VF=0.627V; Vrrm=100V; Tj max.=150 °C;	TH / Radial TO-220AB	

## Switch Mode Power Supply : Desktop Power, PFC

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### 600V Ultra Fast Diode

Product Name	Status	Description	Features	Package	Q-Level
UH15JT	NEW	High Voltage Ultrafast Rectifier	IF(av)=15A; Vf=1.4V; Vrrm=600V;Trr=30nS; Tj max.=175 °C;	TH / Radial TO-220AC	
UH15JT	NEW	High Voltage Ultrafast Rectifier	IF(av)=15A; Vf=1.4V; Vrrm=600V;Trr=30nS; Tj max.=175 °C;	SMD TO-263AB D2PAK	

### General Rectifier

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">1N5406</a>		General-purpose Plastic Rectifier; Tj max = 150 °C;	IF(AV): = 3A; VRRM:= 50V-1000V; IFSM=200A;Vf=1.2V;	TH / Axial DO-201AD	

### High Voltage Resistor

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">VR25</a>		High Ohmic/High Voltage Resistors	High pulse loading cap.; Small size	TH / Axial 0207 A5;A2;A1;R5;N4	

## Switch Mode Power Supply : Desktop Power, PWM

### High Voltage MOSFETs

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">IRFB17N50LPBF</a>	NEW	SMPS MOSFET; HEXFET® Power MOSFET; Low Qg results in Simple Drive Requirem. Low Soft Diode Recovery; ZVS and HF-Circ	Vdss=500V; Qg=1309nC; ID=16A; rDS(on)=0.28Ω; Low Trr=170ns	TH / Radial TO-220AB	
<a href="#">IRFB20N50KPBF</a>	NEW	SMPS MOSFET; HEXFET® Power MOSFET; Low Qg results in Simple Drive Requirem. Low RDS(on)	Vdss=500V; ID=20A; rDS(on)=0.21Ω; Qg=110nC;	TH / Radial TO-220AB	
<a href="#">IRFBE30PBF</a>		SMPS MOSFET; HEXFET® Power MOSFET; Fast Switching; Low r(DS)on; Cost effe.; Low thermal resistance;	Vdss=900V; ID=3.6A; rDS(on)=3.7Ω; Qg=78nC;	TH / Radial TO-220AB	
<a href="#">IRFBF30PBF</a>		SMPS MOSFET; HEXFET® Power MOSFET; Fast Switching; Low r(DS)on; Cost effe.; Low thermal resistance;	Vdss=800V; ID=4.1A; rDS(on)=35Ω; Qg=78nC;	TH / Radial TO-220AB	

## Switch Mode Power Supply : Desktop Power, Snubber

### Switch Diode

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">1N4007</a>		General Purpose Plastic Rectifier	IF(AV):1.0 A; VRRM:= 50V-1000V; IFSM=30A; VF=1.1 V;	TH / Axial DO-204AL (DO-41)	
<a href="#">1N5408</a>		General-purpose Plastic Rectifier; Tj max = 150 °C;	IF(AV): = 3A; VRRM:= 50V-1000V; IFSM=200A;Vf=1.2V;	TH / Axial DO-201AD	
<a href="#">BYV26EGP</a>		Glass Passivated Ultrafast Rectifier	IF(AV):1.0 A; VF:1.3 V; Vrrm=800V/1000V;Ifsm=30A Trr = 75nS; Tjmax=175°C;	TH / Axial DO-204AC (DO-15)	
<a href="#">RS1PD</a>	NEW	Fast Switching Rectifier High Current Density; SMD; Glass Passivated;	IF(AV):1.0 A; VF:1.3 V; VRRM:100V-600V; IFSM:30A; Trr:=150-250ns;	SMD DO-220AA (SMP)	

### TVS

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">1.5KE</a>		TRANSZORB® Transient Voltage Suppressors Tj max = 175°C	V(BR) Unidirec.:6.8-540V V(BR) Bidirec.:6.8-440V; PPPM:1500W; PD:6.5W	TH / Axial 1.5KE	
<a href="#">P4KE</a>		TRANSZORB® Transient Voltage Suppressors Tj max:175 °C;	V(BR)Unidirec.:6.8V-540V; V(BR) Bidirec.:6.8V-440V PPPM:=400W; PD:= 1W;	TH / Axial DO-204AL (DO-41)	
<a href="#">P6KE</a>		TRANSZORB® Transient Voltage Suppressors Tj max:175 °C;	V(BR)Unidirec.:6.8V-540V; V(BR) Bidirec.:6.8V-440V PPPM:=600W; PD:= 5W;	TH / Axial DO-204AC (DO-15)	

## Switch Mode Power Supply : Server Power, Buck Capacitance

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### Snapin Aluminum cap

Product Name	Status	Description	Features	Package	Q-Level
094 series	NEW	Aluminum Capacitors; Snap-in; Power Miniaturized; Long-Life;	47-680 $\mu$ F; Vr=400V/450V; Temp. Range= -25 --+105°C; Life at 105°C=2000h	TH / Snap-In 22x25 to 35x50mm	

## Switch Mode Power Supply : Server Power, EMI Filtering

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### X-cap

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">339 series</a>		Interference Suppression Film Capacitors MKP Radial Potted Type	X2-Class; 0.001 to 4.7 $\mu$ F AC 275 V; DC 630V; Temp=110°C;	TH / Radial 7.5 to 27.5mm lead pitch	

### Y-cap

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">YY1</a>		Ceramic Disc Capacitors; Y-Capacitor; Safety Standard Approved Disc Capacitor;	C=10 pF to 4700 pF; (Y1):500 V (AC), 50 Hz; Temp=- 40 °C to + 125 °C;	TH / Radial 10mm Lead Pitch	
<a href="#">YY2</a>		Ceramic Disc Capacitors; Y-Capacitor; Safety Standard Approved Disc Capacitor;	C=10 pF to 0.01 $\mu$ F; (Y2):300 V (AC), 50 Hz; Temp=- 40 °C to + 125 °C;	TH / Radial 5-10mm Pitch	

## Switch Mode Power Supply : Server Power, Feedback Loop

### OptoCoupler

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">SFH617A</a>		Optocoupler; Phototransistor Output; High Reliability;	VISO=5300VRMS; Tamb: -55 to +110°C; CTR:40 to 320%	TH / DIP DIP4	
<a href="#">SFH690CT</a>		Optocoupler; Phototransistor Output;	VISO=3750VRMS; Tamb: -55 to +100°C; CTR:50 to 400%	SMD SOP-4	CSA 93751 UL1577 BSI
<a href="#">TCET1104</a>		Optocoupler; Phototransistor Output; High Temperature Capable;	VISO=5000VRMS; Tamb: -40 to +100°C; CTR:50 to 600%	TH / DIP DIP4	
<a href="#">TCET1114</a>		Optocoupler; Phototransistor Output; High Temperature Capable;	VISO=5000VRMS; Tamb: -40 to +100°C; CTR:50 to 600%	TH / DIP DIP4	

### Switch Diode

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">1N4007</a>		General-purpose Plastic Rectifier; Tj max = 150 °C;	IF(AV):1.0 A; VRRM:= 50V-1000V; IFSM=30A; VF=1.1 V;	TH / Axial DO-204AL (DO-41)	

### Zener Diode

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">BZX384</a>		Small Signal Zener Diodes	Vz = 2.4V to 75V; Ptot = 200mW; Tj max= 150°C;	SMD SOD323 Plastic Case	
<a href="#">TLZ</a>		Small Signal Zener Diodes	Vz: = 2.4V to 56V Ptot = 500mW; Tj max = 175°C	SMD SOD80 MiniMELF	
<a href="#">TZX</a>		Small Signal Zener Diodes	Vz: = 2.4V to 36V Ptot = 500mW; Tj max = 175°C	TH / Axial DO-35 Glass Case	

## Switch Mode Power Supply : Server Power, Input Rectification

### Bridge Rectifier

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">BU1506</a>	NEW	Single-Phase Bridge Rectifier; High Current Density;	IF(av)=15A; Vf=0.87V; Vrrm=600V-1000V;Ifsm=200A Tjmax=150°C;	TH / SIP BU	UL 1557 E309391
<a href="#">BU1508</a>	NEW	Single-Phase Bridge Rectifier; High Current Density;	IF(av)=15A; Vf=0.87V; Vrrm=600V-1000V;Ifsm=200A Tjmax=150°C;	TH / SIP BU	UL 1557 E309391
<a href="#">BU2506</a>	NEW	Single-Phase Bridge Rectifier; High Current Density;	IF(av)=25A; Vf=0.87V; Vrrm=600V-800V;Ifsm=300A Tjmax=150°C;	TH / SIP BU	UL 1557 E309391
<a href="#">BU2508</a>	NEW	Single-Phase Bridge Rectifier; High Current Density;	IF(av)=25A; Vf=0.87V; Vrrm=600V-800V;Ifsm=300A Tjmax=150°C;	TH / SIP BU	UL 1557 E309391
<a href="#">GSIB1560</a>		Single-Phase Bridge Rectifiers; Single In-Line;	IF(av)=15A; Vf=0.95V; Vrrm=200V-800V;Ifsm=300A Tjmax=150°C;	TH / SIP GSIB-5S	
<a href="#">GSIB1580</a>		Single-Phase Bridge Rectifiers; Single In-Line;	IF(av)=15A; Vf=0.95V; Vrrm=200V-800V;Ifsm=300A Tjmax=150°C;	TH / SIP GSIB-5S	
<a href="#">GSIB2560</a>		Single-Phase Bridge Rectifiers; Single In-Line;	IF(av)=25A; Vf=1V; Vrrm=200V-800V;Ifsm=350A Tjmax=150°C;	TH / SIP GSIB-5S	
<a href="#">GSIB2580</a>		Single-Phase Bridge Rectifiers; Single In-Line;	IF(av)=25A; Vf=1V; Vrrm=200V-800V;Ifsm=350A Tjmax=150°C;	TH / SIP GSIB-5S	



## Switch Mode Power Supply : Server Power, OringFET

### Low Voltage MOSFETs

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">Si4398DY</a>		N-Ch. Reduced Qg, Fast Switching WFET	Vdss=20V; ID=25A; rDS(on)=0.0028Ω Qg=34nC;	SMD SO-8	
<a href="#">Si4438DY</a>		N-Channel 30-V (D-S) MOSFET	Vdss=30V; ID=36A; rDS(on)=0.0027Ω Qg=41nC;	SMD SO-8	
<a href="#">Si7658DP</a>	NEW	N-Channel 30-V (D-S) MOSFET	Vdss=30V; ID=60A; rDS(on)=0.0024Ω Qg=48.5nC;	SMD PowerPAK SO-8	
<a href="#">Si7866ADP</a>		N-Channel 20-V (D-S) MOSFET	Vdss=20V; ID=40A; rDS(on)=0.0024Ω Qg=39nC;	SMD PowerPAK SO-8	
<a href="#">SiE808DF</a>	NEW	N-Channel 20-V (D-S) MOSFET	Vdss=20V; ID=220A; rDS(on)=0.0016Ω Qg=46nC;	SMD PolarPAK	
<a href="#">SUM110N04-2M3L</a>		N-Channel 40-V (D-S) 175°C MOSFET	Vdss=40V; ID=110A; rDS(on)=0.0023Ω Qg=240nC;	SMD TO-263AB D2PAK	

## Switch Mode Power Supply : Server Power, Output Filter

### Aluminum cap

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">038RSU</a>		Aluminum Capacitors; Radial; Standard Miniature;	0.1-22,000 $\mu$ F; 6.3-100 V; Temp. Range= -40-85°C; Life at 85°C=3500h	TH / Radial max 18x40mm	
<a href="#">136RVI</a>		Aluminum Capacitors; Radial; Very Low Impedance;	22-10 000 $\mu$ F; Vr=10-100V; Life@105°C=10,000h	TH / Radial 10x12 to 18x35mm	
<a href="#">146CTI</a>		Aluminum Capacitors; SMD (Chip); low impedance, high temperature	22...4700 $\mu$ F, Life@125°C = 6000h	SMD max 18x18x21	AEC Q200
<a href="#">146RTI</a>		Aluminum Capacitors; Radial; low impedance, high temperature	68...6800 $\mu$ F, Life@125°C = 6000h	TH / Radial 10x12 to 18x35	AEC Q200

## Switch Mode Power Supply : Server Power, Output Rectification

### Low Voltage MOSFETs

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">SUP90N08-4m8P</a>	NEW	N-Channel 75-V (D-S) MOSFET	Vdss=75V; ID=90A; rDS(on)=0.0048Ω Qg=105nC;	TH / Radial TO-220AB	
<a href="#">SUP90N10-8m8P</a>	NEW	N-Channel 100-V (D-S) 175 °C MOSFET	Vdss=100V; ID=90A; rDS(on)=0.008Ω	TH / Radial TO-220AB	

### Schottky

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">M30L45C</a>	NEW	Dual Common-Cathode Schottky Rectifier	IF(AV)=2 x 15A;VF=0.413V; VRRM=40 V; Tj max.=150 °C;	TH / Radial TO-220AB	
<a href="#">M6045P</a>		Dual Common-Cathode Schottky Rectifier	IF(AV)=2x30A;VF=0.51-0.56 VRRM=35 to 60 V; Tj max.=150 °C;	TH / Radial TO-24	
<a href="#">V30100C</a>		Trench MOS Barrier Schottky Rectifier; DUAL; High-Voltage	IF(AV)=2 x 15A;VF=0.627V; Vrrm=100V; Tj max.=150 °C;	TH / Radial TO-220AB	

## Switch Mode Power Supply : Server Power, PFC

### 600V Ultra Fast Diode

Product Name	Status	Description	Features	Package	Q-Level
UH15JT	NEW	High Voltage Ultrafast Rectifier	IF(av)=15A; Vf=1.4V; Vrrm=600V;Trr=30nS; Tj max.=175 °C;	TH / Radial TO-220AC	
UH15JT	NEW	High Voltage Ultrafast Rectifier	IF(av)=15A; Vf=1.4V; Vrrm=600V;Trr=30nS; Tj max.=175 °C;	SMD TO-263AB D2PAK	

### General Rectifier

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">1N5406</a>		General-purpose Plastic Rectifier; Tj max = 150 °C;	IF(AV): = 3A; VRRM:= 50V-1000V; IFSM=200A;Vf=1.2V;	TH / Axial DO-201AD	

### High Voltage MOSFETs

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">IRFPS40N60KPBF</a>	NEW	SMPS MOSFET; HEXFET® Power MOSFET; Low Qg results in Simple Drive Requirem. Low rDS(on); for hard prim. Switch / PFC	Vdss=600V; ID=40A; rDS(on)=0.110Ω; Qg=330nC	TH / Radial Super TO-247AC	

### High Voltage Resistor

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">VR25</a>		High Ohmic/High Voltage Resistors	High pulse loading cap.; Small size	TH / Axial 0207 A5;A2;A1;R5;N4	

## Switch Mode Power Supply : Server Power, PWM

### High Voltage MOSFETs

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">IRFB20N50KPBF</a>	NEW	SMPS MOSFET; HEXFET® Power MOSFET; Low Qg results in Simple Drive Requirem. Low RDS(on)	Vdss=500V; ID=20A; rDS(on)=0.21Ω; Qg=110nC;	TH / Radial TO-220AB	
<a href="#">IRFPS38N60LPBF</a>	NEW	SMPS MOSFET; HEXFET® Power MOSFET; Low Qg results in Simple Drive Requirem. Low Soft Diode Recovery; ZVS and HF-Circ	Vdss=600V; ID=38A; rDS(on)=0.120Ω; Low Trr=170ns; Qg=320nC;	TH / Radial Super TO-247AC	
<a href="#">IRFPS40N50LPBF</a>	NEW	SMPS MOSFET; HEXFET® Power MOSFET; Low Qg results in Simple Drive Requirem. Low Soft Diode Recovery; ZVS and HF-Circ	Vdss=500V; ID=46A; rDS(on)=0.087Ω; Low Trr=170ns; Qg=380nC;	TH / Radial Super TO-247AC	
<a href="#">IRFPS40N60KPBF</a>	NEW	SMPS MOSFET; HEXFET® Power MOSFET; Low Qg results in Simple Drive Requirem. Low rDS(on); for hard prim. Switch / PFC	Vdss=600V; ID=40A; rDS(on)=0.110Ω; Qg=330nC	TH / Radial Super TO-247AC	
<a href="#">IRFPS43N50KPBF</a>	NEW	SMPS MOSFET; HEXFET® Power MOSFET; Low Qg results in Simple Drive Requirem. Low rDS(on); for hard Switched / HF-Sw.	Vdss=500V; ID=47A; rDS(on)=0.087Ω; Qg=350nC	TH / Radial Super TO-247AC	

## Switch Mode Power Supply : Server Power, Snubber

### Switch Diode

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">1N4007</a>		General Purpose Plastic Rectifier	IF(AV):1.0 A; VRRM:= 50V-1000V; IFSM=30A; VF=1.1 V;	TH / Axial DO-204AL (DO-41)	
<a href="#">1N5408</a>		General-purpose Plastic Rectifier; Tj max = 150 °C;	IF(AV): = 3A; VRRM:= 50V-1000V; IFSM=200A;Vf=1.2V;	TH / Axial DO-201AD	
<a href="#">BYV26EGP</a>		Glass Passivated Ultrafast Rectifier	IF(AV):1.0 A; VF:1.3 V; Vrrm=800V/1000V;Ifsm=30A Trr = 75nS; Tjmax=175°C;	TH / Axial DO-204AC (DO-15)	
<a href="#">RS1PD</a>	NEW	Fast Switching Rectifier High Current Density; SMD; Glass Passivated;	IF(AV):1.0 A; VF:1.3 V; VRRM:100V-600V; IFSM:30A; Trr:=150-250ns;	SMD DO-220AA (SMP)	

### TVS

Product Name	Status	Description	Features	Package	Q-Level
<a href="#">1.5KE</a>		TRANSZORB® Transient Voltage Suppressors Tj max = 175°C	V(BR) Unidirec.:6.8-540V V(BR) Bidirec.:6.8-440V; PPPM:1500W; PD:6.5W	TH / Axial 1.5KE	
<a href="#">P4KE</a>		TRANSZORB® Transient Voltage Suppressors Tj max:175 °C;	V(BR)Unidirec.:6.8V-540V; V(BR) Bidirec.:6.8V-440V PPPM:=400W; PD:= 1W;	TH / Axial DO-204AL (DO-41)	
<a href="#">P6KE</a>		TRANSZORB® Transient Voltage Suppressors Tj max:175 °C;	V(BR)Unidirec.:6.8V-540V; V(BR) Bidirec.:6.8V-440V PPPM:=600W; PD:= 5W;	TH / Axial DO-204AC (DO-15)	