

xDSL Modem/Router

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xDSL Modem/Router

VISHAY components used for xDSL Modems/Routers include:

- Power IC Controllers
- Power MOSFETS
- Switching Diodes
- Schottky Diodes
- Capacitors
- Resistors
- Visible LEDs
- Inductors/EMI Filters
- Transient/Overvoltage Protection Devices
- ESD Protection Devices
- LDOs

Application Overview

xDSL Modem/Router Design is separated into two segments: Power and Peripheral. The Power Segment involves supplying hardware device power sources. The first step is to convert the working voltage to a usable range and stability by applying switching mode dc-to-dc Buck Converters with high efficiency and high current capability. Another voltage conversion is done for the the key power sources such as CPUs and DSPs. For the I/O parts and Memory Power, Low-Dropout Regulators or Linear Regulation is generally used as a solution because of their lower prices and simple circuitry. The Peripheral Segment can be regarded as a low-power segment. It includes USB Ports, External Connections, Wireless Transmission such as WLAN, and Control Lights. Some of these need similar functions such as ESD protection, current limiting, or load switching.

xDSL Modem/Router : DC/DC BUCK CONVERTER, Control

Current Sensing

Product Name	Status	Description	Features	Package	Q-Level
WSL1206		Power metal strip resistor	10mR 0.25W 1%	1206	

Feedback

Product Name	Status	Description	Features	Package	Q-Level
IL207AT		Optocoupleur, phototransistor output	Single channel	SOIC-8	
ILD207T		Optocoupleur, phototransistor output	Dual channel	DIP-8	

xDSL Modem/Router : DC/DC BUCK CONVERTER, Energy Storage

Shielded Power Inductors

Product Name	Status	Description	Features	Package	Q-Level
IHLP-2525-AH		High current, low profile inductors; low DCR; Shielded;	1 μ H 7A dcr = 17.5 mR	SMD 6.5x6.9x1.8mm	
IHLP2525CZ		High current, low profile inductors;	2.2 μ H 8A dcr=18mR	SMD 6.5x6.9x3.0mm	

xDSL Modem/Router : DC/DC BUCK CONVERTER, Input Filter

Capacitor

Product Name	Status	Description	Features	Package	Q-Level
VJ1812Y105KX		MLCC	1210 1 μ F 100V	1812	

xDSL Modem/Router : DC/DC BUCK CONVERTER, Switch

High Side

Product Name	Status	Description	Features	Package	Q-Level
Si4174DY	NEW	N-Channel 30-V (D-S) Mosfet	N-Channel; 30-V (D-S); rDS(on) = 0.0095 Ohm;	SMD SO-8	

Low Side

Product Name	Status	Description	Features	Package	Q-Level
Si4166DY	NEW	N-Channel 30-V (D-S) Mosfet	N-channel 30V rDSon= 0.0039 Ohm ID=30.5 A	SO-8	

xDSL Modem/Router : PERIPHERAL CIRCUITS, Control Lights

LED's

Product Name	Status	Description	Features	Package	Q-Level
TLM*10**		low illuminate, low current LED; 0603 package;	0603; luminous idensity 4-8mcd	SMD 0603	
TLM*11**		0603 package High illuminate LED	0603; luminous idensity 5-80mcd	SMD 0603	
TLMS1102		0603 package high illuminate LED	0603; red; luminous idensity <250mcd	SMD 0603	

xDSL Modem/Router : PERIPHERAL CIRCUITS, External Connections

ESD Protection

Product Name	Status	Description	Features	Package	Q-Level
GSOT03		single line esd protection	30kV ESD	sot23	
GSOT05		single line esd protection	30kV ESD	sot23	
VESD05A1B-02Z		single line esd protect	Small package	sod-923	
VESD12A1-02Z		Single-line ESD protection diodes	Small package	sod-923	

xDSL Modem/Router : PERIPHERAL CIRCUITS, USB Port

ESD Protection

Product Name	Status	Description	Features	Package	Q-Level
VBUS054B-HS3	NEW	4 line esd protect add power line protect zener diode;	low capacitance <1pF ,	LLP75	

xDSL Modem/Router : PERIPHERAL CIRCUITS, WLAN-Module

Load switch

Product Name	Status	Description	Features	Package	Q-Level
SI2301CDS		P-Channel 20V (D-S) Mosfet	VDS= 20V rDSon= 0.112 ohm ID= -3.1	TO-236 (SOT-23)	
SI2305CDS		P-Channel MOSFET, 1.8V(G-S) , -8V(D-	RDSon=65mOhm ID=-4.3A VGS=-1.8V	sot23	

xDSL Modem/Router : POWER SUPPLY, CPU/DSP Power Supply

Controller

Product Name	Status	Description	Features	Package	Q-Level
SIP12201	NEW	DC-DC controller ; wide range input voltage ; low output voltage(0.6v);	output current = 10A; ajustable;	SMD MLP33-6 PowerPAK	

Dual MOSFETs

Product Name	Status	Description	Features	Package	Q-Level
Si4214DDY		Dual N-Channel 30-V (D-S) MOSFET	rDS(on) = 0.0195 Ohm; Qgd=7.1nC	SMD SO-8	
Si4830CDY		Dual N-Channel; 30-V (D-S) Mosfet plus Schottky Diode	rDS(on) = 0.020 Ohm; Qgd=7.3nC	SMD SO-8	
Si4834BDY		Dual N-Ch. mosfet plus Schottky diode;	N-Channel; 30-V (D-S); rDS(on) = 0.022 Ohm; Qgd=2.5nC	SMD SO-8	
Si4914DY		Dual N-Ch. MOSFET plus Schottky diode,	N-Channel; 30-V (D-S); rDS(on) = 0.022 Ohm; Qgd=2.3nC	SMD SO-8	
Si7270DP	NEW	Dual N-Channel; 30-V (D-S) MOSFET	TrenchFET rDS(on) = 0.021 Ohm; Qgd= 6.6	SMD PPAK SO-8	

High Sid MOSFETs

Product Name	Status	Description	Features	Package	Q-Level
Si4178DY	NEW	N-Channel 30-V (D-S) Mosfet	TrenchFET RDS(on)= 0.021 Ohm Qgd= 3.7nC	SO-8	

High Side MOSFETs

Product Name	Status	Description	Features	Package	Q-Level
Si4134DY		N-Channel; 30-V (D-S) Mosfet	rDS(on) = 0.014 Ohm; Qgd=7.3nC	SMD SO-8	
Si4162DY		N-Channel 30V-(D-S) MOSFET	N-Channel; 30-V (D-S); rDS(on) = 0.0079 Ohm; Qg=8.8 nC	SMD SO-8	
Si4174DY	NEW	N-Channel; 30-V (D-S) Mosfet	TrenchFET rDS(on) = 0.0095 Ohm; Qgd= 8nC	SMD SO-8	
Si4174DY	NEW	N-Channel 30-V (D-S) Mosfet Extr.Low Switching Loss	TrenchFET rDS(on) = 0.0095 Ohm; Qgd= 8nC	SMD SO-8	
Si4178DY	NEW	N-Channel 30-V (D-S) Mosfet	rDS(on) = 0.021 Ohm; Qgd=3.7nC	SMD SO-8	
Si4684DY		N-Ch. Reduced Qg, Fast Switching WFET; Extr.Low Switching Loss	N-Channel; 30-V (D-S); rDS(on) = 0.0094 Ohm; Qgd=2.8nC	SMD SO-8	
Si4686DY	NEW	N-Ch. Reduced Qg, Fast Switching WFET; Extr.Low Switching Loss	N-Channel; 30-V (D-S); rDS(on) = 0.0095 Ohm; Qgd=2.8nC	SMD SO-8	
Si4812BDY		N-Ch. Reduced Qg, Fast Switching MOSFET	N-Channel; 30-V (D-S); rDS(on) = 0.021 Ohm; Qgd=2.1nC	SMD SO-8	
Si7230DN		N-Ch. Reduced Qg, Fast Switching MOSFET smaller package;	N-Channel; 30-V (D-S); rDS(on) = 0.016 Ohm; Qgd=4.3nC	SMD PowerPAK 1212	
SiR172DP		N-Channel 30-V (D-S);MOSFET;	TrenchFET rDS(on) = 0.0089 Ohm; Qgd=9.8nC	SMD PPAK SO-8	

Product Name	Status	Description	Features	Package	Q-Level
SiR462DP		N-Channel; 30-V (D-S) MOSFET	rDS(on) = 0.0079 Ohm; Qg=8.8nC	SMD PPAK SO-8	
SiS402DN		N-Channel; 30-V (D-S) MOSFET	rDS(on) = 0.006 Ohm; Qgd=12nC	SMD PPAK 1212-8	
SiS412DN	NEW	N-Channel; 30-V (D-S) MOSFET;	rDS(on) = 0.024 Ohm; Qgd=3.8nC	SMD PPAK 1212-8	

Low Side MOSFETs

Product Name	Status	Description	Features	Package	Q-Level
Si4156DY		N-Channel 30-V (D-S) MOSFET	rDS(on) = 0.006 Ohm;	SMD SO-8	
Si4160DY	NEW	N-Channel 30-V (D-S) MOSFET	N-Channel; 30-V (D-S); rDS(on) = 0.0049 Ohm;	SMD SO-8	
Si4162DY		N-Channel 30-V (D-S) MOSFET	TrenchFET rDS(on) = 0.0079 Ohm; Qg=18nC	SMD SO-8	
Si4164DY	NEW	N-Channel 30V(D-S) MOSFET	TrenchFET rDS(on) = 0.0032 ohm Qgd= 26.5nC	SMD SO-8	
Si4174DY	NEW	N-Channel 30-V (D-S) Mosfet	N-Channel; 30-V (D-S); rDS(on) = 0.0095 Ohm; Qgd=8 nC	SMD SO-8	
Si4178DY	NEW	N-Channel 30-V (D-S) Mosfet	N-Channel; 30V-(D-S) rDS(on)=0.021 ohm ID= 12a	SO-8	
Si4634DY		N-Channel MOSFET; Reduced Rds; Extr.Low Switching Loss	N-Channel; 30-V (D-S); rDS(on) = 0.0067 Ohm;	SMD SO-8	
Si4686DY		N-Ch. Reduced Qg, Fast Switching WFET; Extr.Low Switching Loss	N-Channel; 30-V (D-S); rDS(on) = 0.0095 Ohm; Qgd=2.8nC	SMD SO-8	
Si4800BDY		N-Channel MOSFET; Reduced Rds;	N-CH,30V,Rds on=0.03Ohm,	SO-8	
Si4812BDY		N-Channel Reduced Rds	N-Channel; 30-V (D-S); rDS(on) = 0.016 Ohm;	SMD SO-8	
Si7114ADN	NEW	N-Channel 30-V (D-S) Mosfet	rDS(on) = 0.0075 Ohm; Qgd=12nC	SMD PPAK 1212-8	
Si7634BDP		N-Channel MOSFET;Reduced Rds	N-Channel; 30-V (D-S); rDS(on) = 0.0052 Ohm;	SMD PPAK SO-8	
Si7716ADN	NEW	N-Channel 30-V (D-S) Mosfet	TrenchFET Gen III rDS(on) = 0.0135 Ohm; Qgd=7.3nC	SMD PPAK 1212-8	
SiR466DP	NEW	N-Channel 30-V (D-S) MOSFET	TrenchFET rDS(on) = 0.0035 Ohm; Qgd= 21.5nC	SMD PPAK SO-8	
SiR818DP		N-Channel 30-V (D-S) Mosfet	rDS(on) = 0.0028 Ohm; Qgd = 30.5nC	SMD PPAK SO-8	
SiS402DN		N-Channe; 30-V (D-S) Mosfet	rDS(on) = 0.006 Ohm; Qgd=12nC	SMD PPAK 1212-8	
SiS412DN	NEW	N-Channel 30-V (D-S) Mosfet Ex	rDS(on) = 0.024 Ohm; Qgd=3.8nC	SMD PPAK 1212-8	

Resistors

Product Name	Status	Description	Features	Package	Q-Level
WSL0805		small resistance, high power	1/8 W POWER; R=0.01 to 0.2 Ohm;	SMD 0805	
WSL2010-18		small resistance, high power	2010 size, Up to 1w power	SMD 2010	
WSL2512-18		small resistance, high power	2512 size, up to 2w POWER	SMD 2512	

Schottky Diodes

Product Name	Status	Description	Features	Package	Q-Level
B140		low VF , low leakage current.	10A; 40V;	SMD SMA	
B240A		low VF , low leakage current.	20A; 40V;	SMD SMA	
B340A		low VF , low leakage current.	30A,40V;	SMD SMA	
SS1P4		Schottky Diodes; low leakage current; small Package;	10,40V	SMP	
SS2P4		Schottky Diodes; low VF; low leakage current; small Package;	20A,40V	SMP	
SS3P4		Schottky Diodes; low VF; low leakage current; small Package;	30A, 40V	SMP	

Shielded Power Inductors

Product Name	Status	Description	Features	Package	Q-Level
IHLP1616-01	NEW	High current, low profile inductor low DCR; Shielded;	Rated current up to 11A.	SMD	
IHLP2525CZ-01		High current, low profile inductors; low DCR; Shielded;	Rated current up to 25A,	SMD	
IHLP4040DZ-01		High current, low profile inductors; low DCR; Shielded;	up to 100uH; IDC up to 40A;	SMD	
IHLP4040DZ-11		High current, low profile inductors; low DCR; Shielded;	up to 100uH; IDC up to 40A;	SMD	

Switching Diode

Product Name	Status	Description	Features	Package	Q-Level
1N4148WS-V		Small signal fast switching diodes;	500mA current, Vf=1.0 V; Vrrm=75 V;	SMD SOD-323	
BAT54A-V		Small Signal Schottky Diodes; Single & Dual;	rated current 200mA; VR 30v, Vf=0.32	SMD SOT-23	
BAT54W-V		Small Signal Schottky Diode; Single;	rated current 200mA; VR 30v, Vf=0.32	SMD SOD123	
BAV99-V		Small Signal Fast Switching Diodes;	rated current 50 mA; Vrrm 70 V;	SMD SOT-23	

xDSL Modem/Router : POWER SUPPLY, I/O or Memory Power

LDO

Product Name	Status	Description	Features	Package	Q-Level
SI9185		very low dropout LDO	500MA,	MLP33	

Signal MOSFET

Product Name	Status	Description	Features	Package	Q-Level
2N7002K		N-Ch; 60V (DS) MOSFET; add ESD protect function	60v (DS); Small current	SMD SOT-23	

