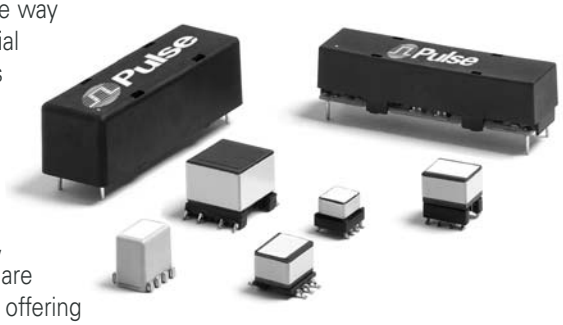
BROADBAND ACCESS: xDSL, HPN, CMCs

Pulse® A TECHNITROL COMPANY

Broadband has come a long way in the past few years. Pulse continues to lead the way with a broad range of components that enable twisted-pair copper, fiber and coaxial cable to deliver high-speed services to homes and businesses. Pulse components are also used in cable modems and the consumer electronics that provide home networking services.



Our high-performance transformers, inductors and splitter filter modules support ADSL, VDSL, G.SHDSL, VoIP, CO/CPE splitters, and home phoneline and power line networks. The transformers are designed to exceed ANSI and ETSI standards, and have excellent THD performance and small footprints. Surface mount models are available upon request. Our splitter/filter modules are part of the SMART™ family, offering convenient and cost-effective design solutions.

ADSL PRODUCTS

ADSL Transformers

Part Number	Application*	Isolation Voltage (Vrms)	Turns Ratio Chip-Line	Inductance (µH ±10%)	Data Sheet
Analog Devices: AD20msp910/AD20msp918 ADSL Chipsets					
B2031	CO/CPE	1500	1:1	5000	B906
B2032[3]	CO/CPE	1500	1:1	5000	B906
B2104	CO/CPE	1500	1:1.27	2000	B950
B2105[3]	CO/CPE	1500	1:1.27	2000	B950
Analog Devices: AD20msp930 ADSL Chipset					
B2136	CO	1500	1:1.1	1750	B955
B2137[3]	CO	1500	1:1.1	1750	B955
B2162[3]	CO	1500	1:1.1	1750	B957
B2168[3]	ADSL/ISDN CO	1500	1:1	100	B955
B2188	ADSL/ISDN CO	1500	1:1	100	B955
Analog Devices: Eagle I & Eagle II					
BX2506J[3]	CPE	1500	1:2.29	1200	B840
Broadcom: BCM6410/20 - ADSL Bladerunner Chipsets					
BX2506J[3]	CPE	1500	1:2.29	1200	B840
BX2303WA[3]	ADSL/ISDN CO	1500	1:1.41	100	B811
BX2302WA[3]	CO	1500	1:1.41	410	B811
BX2619W[3]	CO	1500	1:2	420	B811
BX2644L[3]	CO	1599	1:2	420	B811
Broadcom: BCM6335 and BCM6345					
BX2483W[3]	CPE	1500	1:2	410	B847
Broadcom: BCM6335 and BCM6338					
BX2542L[3]	CPE	1500	1:4.25/1:1	400	B848
BX2606LNL[3]	ADSL/ISDN CPE	1500	1:4.25/1:1	100	B848
Centillium: CT-L50SC04/CT-L50ST81, CT-L21SC08/CT-L41SC04 ADSL Chipsets					
B2178[3]	CO	1500	1:1	450	B979
B2189[3]	CO/CPE	1500	1:1.8	450	B979
Centillium: CT-L21ST30, CT-L22Sx15/30, CT-L4xSx15/30, CT-L5/L6xSx81 ADSL Chipsets					
BX2353[3]	CPE	1500	1:2.13	5000	B999
BX2358[3]	CPE	1500	1:1	5000	B999
Centillium: Palladia CPT73X01 CPE ADSL Chipsets					
BX2460[3]	CPE	1500	1:2.5	5000	B828
BX2462[3]	CPE	1500	1:1	5000	B828
Centillium: Palladia 200 and Streetfighter 100 CPE ADSL Chipsets					
BX2580W[3]	CPE	1500	1:4	440	B856
BX2581WNL	ADSL/ISDN CPE	1500	1:4	80	B856
Centillium: CT-L53/63/73SC08 ADSL Chipsets					
BX2347	CO	1500	1:1	850	B994
BX2348[3]	CO	1500	1:1	850	B994
BX2380	CO	1500	1:1.8	850	B994
BX2349[3]	CO	1500	1:1.8	850	B994
Centillium: MAXIMUS ADSL Chipsets					
BX2349[3]	CO	1500	1:1.8	850	B994
BX2538L[3]	CO	1500	1:1.2	850	B839
Conexant: ADSL G7000 DMT Chipset					
BX2564W[3]	CO	1500	1:0.92	850	B867
B2139	CPE	1875	1:1	407	B958
Conexant: Titanium Forte ADSL Chipsets					
BX2367[3]	CO	1500	1:2	474	B997
BX2369JB/WA[3,5]	CO	1500	1:1.41	474	B991
BX2372JB/WA[3,5]	CO	1500	1:1.15	474	B991
Conexant: Jupiter, Saturn G16, G18, Octane ADSL Chipsets					
B2414JB[3,5]	CO	1500	1:0.95	750	B991
Conexant: Octane, G24 ADSL Chipsets with Intersil Drivers					
B2517JB[3]	CO	1500	1:0.95	760	B836
BX2485L[3]	CO	1500	1:0.9	1000	B836
BX2575L[3]	CO	1500	1:0.9	1000	B864
Conexant: Octane Plus ADSL Chipsets with Intersil Drivers					
BX2511L[3]	CO	1500	1:0.9	1000	B862
BX2512J[3]	CO	1500	1:0.9	1000	B862
Conexant: Octane, G24 ADSL Chipsets with Legerity Drivers					
BX2510W[3]	CO	1500	1:0.408	750	B855
BX2516W[3]	CO	1500	1:0.408	1100	B855
BX2572W[3]	ADSL/ISDN CO	1500	1:0.408	100	B854
Conexant: Viking and Café CPE ADSL Chipsets					
BX2577L[3]	CPE	1500	1:4/1:2	700	B841
Infineon: PEB22716 - GEMINAX ADSL Chipset					
BX2274J[3]	CO	1500	1.33:1	1400	B812
BX2569L[3]	CO	1500	1.31:1	1400	B895
Infineon: Amazon ADSL Chipset					
BX2913LNL[3]	CPE	1500	1:4.2/1:2	1400	B889
BX2917LNL[3]	ADSL/ISDN CPE	1500	1:3/6/1:1.85	200	B889
Itex: I80134, I90388, I90234, Apollo 1/2 (DMT/G.Lite) ADSL Chipsets					
B2064[3]	CPE	1500	1:1	480	B920
STMicroelectronics: DynaMiTe ADSL Chipset					
B2090[1]	CPE	500	1.65:2:1	7680[2]	B963
B2091[1]	CO	500	1.125:2:1.125	844[2]	B963
B2098	CPE	2000	1:1:1	441.5	B963
B2102	CO	2000	2:1	409.5	B963
STMicroelectronics: MTK 20140 ADSL Chipset					
B2068	CO	1500	1:2	410	B920
B2064[3]	CPE	1500	1:1	480	B920
STMicroelectronics: MTK 20140/150/450 ADSL Chipsets					
B2232[3]	CO/CPE	1500	1:2	409.5	B820
STMicroelectronics: MTK-20850 ADSL Chipsets					
BX2332[3]	CO	1500	1:1.41	900	B821
BX2285C[3]	CO	1500	1:1.41	900	B822
STMicroelectronics: ST70136/137/235 ADSL Chipsets					
B2323[3]	CPE	1500	1:1	480	B818
Texas Instruments: TNETD4000C ADSL Chipset					
B2132[3]	CO	1500	1:1.95	1500	B954

1. ***Hybrid*** *Transformer*
2. ***MIN***
3. ***To order*** *Tape & Reel SMT parts, add "T" suffix to the*
5. ***Alternative*** *footprint options on data sheet*

THT - Through Hole Package **SMT** - Surface Mount Package

* **CO** - Central Office, **CPE** - Customer Premises Equipment

BROADBAND ACCESS: xDSL, HPN, CMCs

ADSL Products *(continued)*

ADSL Transformers *(continued)*

Part Number	Application*	Isolation Voltage (Vrms)	Turns Ratio Chip-Line	Inductance (µH ±10%)	Data Sheet
Texas Instruments: TNETD4500x ADSL Chipset					
B2243[3]	CO	1500	1:2	400	B823
B2133[3]	ADSL/ISDN CO	1500	1:2	75	B823
Texas Instruments: AC5, AC6 Chipset					
B2205[3]	CO	1500	1:1.9	400[4]	B985
BX2375[3]	ADSL/ISDN CO	1500	1:1.9	92.5	B985
Texas Instruments: AC7 CO Chipset					
BX2513W[3]	CO	1500	1:1.11	400[4]	B873
Texas Instruments: AP5, AR5, and AU5 Chipsets					
BX2361[3]	CPE	1500	1:2	1500[4]	B988
BT2361[3]	CPE	1500	1:2	1500[4]	B806
BX2382[3]	CPE	1500	1:2	1500[4]	B988
Texas Instruments: AP7, AR7, and AU7 Chipsets					
BX2479H	CPE	1500	1:2	1500	B834
BX2479W[3]	CPE	1500	1:2	1500	B834
BX2243H	ADSL/ISDN CPE	1500	1:2	400	B834

***3. When** ordering Tape & Reel for SMT parts, add "T" suffix to the part number.*
4. ±5%

ADSL Inductors

Part Number	Inductance	DC Resistance (Ω Max 2 pair)	Isolation Voltage (Vrms)	Mounting	Data Sheet
Inductors for use in ADSL Filters					
B2023	6.0 mH ±5%	4.0	1500	THT	B902
B2024	4.0 mH ±5%	3.0	1500	THT	B902
B2025	3.0 mH ±5%	2.5	1500	THT	B902
B2026	10.0 mH ±5%	6.0	1500	THT	B902
B2086	4.0 mH ±10%	3.6	1500	SMT	B902
B2113	2.25 mH ±10%	2.25	500	THT	B902
B2114	1.425 mH ±10%	2.25	500	THT	B902
B2116	1.65 mH ±10%	2.25	500	THT	B902
B2117	1.35 mH ±10%	2.25	500	THT	B902
B2118	0.8 mH ±10%	2.0	500	THT	B902
B2184	91.0 µH ±7%	3.13	500	SMT	B843
B2198	74.06 µH ±7%	5.0	500	SMT	B843
BX2128	500 µH ±7%	12.0	500	SMT	B843
BX8082	140.0 µH ±7%	6.0	500	SMT	B843
Inductors for use with STMicroelectronics DynaMiTe Chipset					
B2061	282.5 µH ±5%	1.0	500	THT	B963
B2062	238.5 µH ±5%	0.76	500	THT	B963
B2099	500.5 µH ±10%	2.10	500	THT	B963
B2100	91.0 µH ±10%	0.85	500	THT	B963
B2101	96.0 µH ±5%	0.42	500	THT	B963
BX8115	500 µH ±7%	9.0	500	SMT	B843
BX8118	282 µH ±7%	9.0	500	SMT	B843
BX8153	5.0 µH ±7%	0.7	500	SMT	B843
BX8253W	185 µH ±7%	4.75	500	SMT	B843
BX8254W	110 µH ±7%	2.5	500	SMT	B843
Inductors for use with Centillium CT-L50SC04 Chipset					
B2208	170.0 µH ±7%	4.0	500	SMT	B843
B2209	300.0 µH ±7%	7.0	500	SMT	B843
B2210	455.0 µH ±7%	9.0	500	SMT	B843
Inductors for use with GlobespanVirata Chipset					
B2125A	50.0 µH ±7%	2.0	500	SMT	B843
B2126A	170.0 µH ±7%	6.5	500	SMT	B843
B2127A	340.0 µH ±7%	7.5	500	SMT	B843
B2155	205.0 µH ±7%	6.0	500	SMT	B843
BX8195	102.5 µH ±5%	6.0	500	SMT	B843
Inductors for use with Infineon IVD Chipset					
BX8027W	6.8 mH ±5%	5.0	500	SMT	B869
Inductors for use with Legerity CO Chipset					
B8101	7.0 mH ±10%	11.0	1000	THT	B804
B8102	9.35 mH ±10%	13.6	1000	THT	B804
B8103	4.0 mH ±10%	10.0	1000	SMT	B804
B8104	9.35 mH ±10%	32.0	1000	THT	B804

THT - Through Hole Package **SMT** - Surface Mount Package

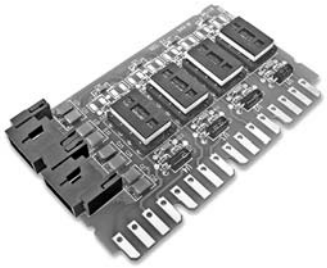
ADSL Products *(continued)*

ADSL Inductors *(continued)*

Part Number	Inductance	DC Resistance (Ω Max 2 pair)	Isolation Voltage (Vrms)	Mounting	Data Sheet
Inductors for use with Legerity CO Chipset *(continued)*					
B8106	7.0 mH ±10%	14.1	1000	THT	B804
B8176	4.0 mH ±10%	10.0	1000	THT	B804
B8107	9.35 mH ±10%	26	1000	THT	B804
BX8266L	32 mH ±10%	15	600	SMD	B804
BX8267L	16 mH min	15	600	SMD	B804

Central Office (CO*) Splitters for Telecom Applications

Central Office DSL Splitter Circuits



Our comprehensive library of CO splitter designs can be customized for various types of installations, including DSLAMs, rack-mount cards, cross-connect blocks, and main distribution frame (MDF) cards.

- Innovative, high-density designs are as much as ***three times smaller*** than typical designs.
- Delivers more channels on smaller cards
- Scalable capacity from single-line to 96-lines
- Customized solutions can be developed quickly, saving OEMs time and development costs
- VDSL versions support TelcoTV and IPTV applications

For assistance with a custom design, please e-mail Pulse's Telecom Division at *prodinfo_telecom@pulseeng.com.*

SMART™ Series: xDSL Low Pass Filter Modules for CO or CPE*

Part Number	Standard-Applications[2]	Note/ Comment	Data Sheet
B8041	ETSI 600 Ohms-ADSL/POTS	—	B881
B8042	ETSI Ann B-ADSL/ISDN 2B1Q	—	B815
B8045	ETSI Ann B-ADSL/POTS/ISDN 4B3T	relaxed spec	B816
B8046	UK Complex BT SIN-346-ADSL/POTS	relaxed spec	B810
B8047	ETSI Complex option A-ADSL/POTS	relaxed spec	B813
B8049	ETSI Complex option A-ADSL/POTS	compliant	B826
B8049E	ETSI Complex option A-ADSL/POTS	compliant/low profile	B882
B8120	ANSI-ADSL/POTS	—	B827
B8120A	ANSI-ADSL/POTS	w/signature circuit	B827
B8216	UK Complex BT SIN-346-ADSL/POTS	w/protections (K20 basic)	B883
B8245	ETSI Ann B - ADSL/POTS/ISDN 4B3T	compliant	B879
B8546	UK Complex BT SIN-346-ADSL/POTS	compliant	B884
B8549	ETSI Complex option A-ADSL/POTS	compliant/low height	B885
BX8214	ANSI-ADSL/POTS	low profile	B878
BX8214V	ANSI-ADSL/VDSL/POTS	VDSL compliant/low profile	B886
BX8270	ITU G992.1-ADSL/POTS + VoIP	CPE for Korea/Asia	B872
BX8296	ANSI-ADSL/POTS + VoIP	CPE for North America	B871

***1. Contact** Pulse for custom CO splitter or MDF boards.*
***2. All** modules are ADSL2+ compatible.*

* **CO** - Central Office, **CPE** - Customer Premises Equipment

BROADBAND ACCESS: xDSL, HPN, CMCs

HDSL/HDSL2/G.SHDSL PRODUCTS

HDSL Transformers

Part Number	Matched to:	Turns Ratio Chip-Line (±3%)	Inductance Line Side	Data Sheet
Mindspeed Chipsets				
PE-69300	BT8921/BT8970	1CT:1:1	3.0	B901
PE-69301	BT8921/BT8970	1CT:1:1	2.0	B901
B1006	BT8921/BT8970	1CT:1:1	2.0	B901
B1007	BT8921/BT8970	1CT:1:1	3.0	B901
B1017	BT8921/BT8970	1:2CS	3.0	B978
B1018	BT8921/BT8970	1CT:2CS	2.0	B978
B1020A	RS8973	1:2CS	2.0	B978
B1028	BT8921/BT8970	1CT:2CS	2.0	B978
B1040A	RS8973	1:2CS	2.0	B978
B1075	RS8973	1CT:2CS	2.0	B978

HDSL2/G.SHDSL Transformers

Part Number	Matched to:	Turns Ratio Chip-Line (±3%)	Inductance Line Side	Data Sheet
Infineon Chipsets				
B1093	PEB22622 PEF22623/24622 PEB22622	3.2:1:1	3.00	B993
B1063	PEF22623/24622	3.2:1:1	3.00	B993
BX1196L	Socrates	4.5:1	3.00	B888
B1194W	PEB22622 PEF22623/24622	3.2:1:1	3.00	B835
Conexant Chipsets				
B1053	G2237	1CT:2.2CS[1]	3.00	B966
B1074B	Orion	1:5.4	3.00	B803

VDSL PRODUCTS

Hybrid Transformers

Part Number	Insertion Loss (dB MAX) 100kHz - 20MHz	Insertion Loss (dB MAX) 300kHz - 30MHz	Isolation Voltage (Vrms)	Impedance (Ω) TX	Impedance (Ω) RX	Data Sheet
Infineon: 2-band, 4-band and 10Base-S Chipsets						
BX4036 (120Ω)	0.50 to 2	—	1500	40	270	B808
Broadcom: BCM 6010 Chipset				**Turns Ratios**		
B4008	—	0.50	2000	2:1	1:1	B925
B4025	—	0.50	2000	2:1	1:1	B925
BX4030[1]	—	0.70	2500	2:1	1:1	B984

*1. **BX4030** is an extended bandwith version tested up to 30MHz.*

Line Transformers

Part Number	Inductance (µH ±10%)	Isolation Voltage (Vrms)	Turns Ratio TX	Turns Ratio RX	Data Sheet
General Use					
B4004	—	1500	1CT:1CS	—	B975
B4006	—	3000	1:1	—	B975
B4023	—	3000	1:1CT	—	B975
Broadcom: BCM 6315 Chipset					
B4020	190	3000	1CT:1CT	—	B981
B4021	190	1500	1CT:1CT	—	B981
BX4055	190	1500	1:1	—	B981
BX4056	190	1500	1:1.16	—	B981
Broadcom: VDSL2 BCM 6505 Chipset					
BX4157L	420	1500	1:2	—	B894
BX4167L	100	1500	1:2	—	B894
Conexant: VDSL2 Accelity Chipset					
BX4131W	800	1500	2:1	—	B877
BX4120L	800	1500	1.1:1	—	B877
Ikanos: SmartLeap Chipset					
BX4052W[1]	1.30	1500	3:1	—	B831
BX4082W[1]	1.30	1500	3:1	—	B831
Ikanos: VDSL Chipset					
BX4154L	340	1500	1.5:1	—	B887
BX4185L	340	1500	1.5:1	—	B887
BX4187L	100	1500	1.5:1	—	B887
Infineon: VDSL5000i and 6000i CO/CPE Chipsets					
BX4102W	2000	1500	4:3	—	B874
BX4104W	770	1500	1:1.16	—	B875
BX4107	800	1500	4:3	—	B876
Infineon: VDSL2 Chipsets					
BX4175WNL	270	1500	4:3	—	B875
Metalink: VDSL Chipset					
B4033	1000	1500	1:3	2:3	B998
B4034	1600	1500	1:3.5	2:3.5	B998

NOTE: CO - Central Office**, CPE -** Customer Premises Equipment

Line Transformers *(continued)*

Part Number	Inductance (µH ±10%)	Isolation Voltage (Vrms)	Turns Ratio TX	Turns Ratio RX	Data Sheet
Metalink: MTV9141 Chipset					
B4064	1130	1500	1:3.6	2:3.6	B846
Metalink: MTV9142 Chipset					
BX4081W	280	1500	1:3	2:3.6	B846
Texas Instruments TNETD8000 Chipset					
B4020	190	3000	1CT:1CT	—	B981
B4021	190	1500	1CT:1CT	—	B981

*1. **BX4052W** supplementary insulation; **BX4082W** operational insulation per IEC 950 250 Vrms*

Filter Solutions

Part Number	Passband Frequency	Insertion Loss (dB MAX)	Return Loss (dB MIN)	Impedence (Ω) TX	Impedence (Ω) RX	Data Sheet
Infineon: PEB2281X Chipset - ISDN Splitter LPF						
B4010	20 kHz–120 kHz	0.4	20	150	150	B931
Digital Phone Splitter LPF						
B4031	10 kHz–600 kHz	1.0	12	150	150	B987
Bandpass Filter & Hybrid Transformers						
B4011 (135Ω)	900 kHz–7.9 MHz	0.5	10	40	270	B931
B4014 (100Ω)	900 kHz–7.9 MHz	0.5	10	40	270	B931
B4032 (120Ω)	900 kHz–7.9 MHz	0.8	10	40	270	B987
Filters, Transmit & Receive						
B4012	4.5 MHz–7.9 MHz	0.8	12	—	270	B931
B4013	900 kHz–3.3 MHz	0.8	12	—	270	B931
B4015[1]	4.5 MHz–7.9 MHz	0.8	12	—	270	B931
B4016[1]	900 kHz–3.0 MHz	1.2	12	—	270	B931
B4017	900 kHz–3.0 MHz	0.8	10	40	—	B931
B4018	4.5 MHz–7.9 MHz	0.8	10	40	—	B931
Quadport CO Filter Modules for 2-band, 10Base-S Infineon Chipsets[3]						
BX4037[2]	1 MHz–7.9 MHz	1.5	12	40	270	B809
BX4038[2]	1 MHz–7.9 MHz	1.5	12	40	270	B809
Single Port CPE Filter Modules for PEB22811/12/22 Infineon Chipsets[4]						
BX4039[5]	1 MHz–7.9 MHz	1.0	12	40	270	B819
BX4040[5]	1 MHz–7.9 MHz	1.0	12	40	270	B819
Quadport CO Filter Modules for 4-band Plan 998 Infineon Chipsets[3]						
BX4041A	0.9 MHz–11.9 MHz	—	12	40	270	B832
BX4044	0.9 MHz–11.9 MHz	—	12	40	270	B832
Single Port CPE Filter Modules for 4-band Plan 998 Infineon Chipsets[3]						
BX4042	0.13 MHz–11.9 MHz	—	12	40	270	B833
BX4045	0.13 MHz–11.9 MHz	—	12	40	270	B833

1. ***High** performance*
2. ***BX4037** for ADSL over ISDN, **BX4038** for Smartphone applications*
3. ***Including** HPF splitter, hybrid transformer, TX & RX separation filters and common mode chokes*
4. ***Including** HPF splitter, hybrid transformer, TX & RX separation filters*
5. ***BX4039** for over ISDN, **BX4040** for Smartphone applications*

BROADBAND ACCESS: xDSL, HPN, CMCs

HOME NETWORKING PRODUCTS

Filters

Part Number	Primary Application	Secondary Application	Isolation Voltage	Data Sheet
All 1M8 Home Phoneline Networking Chipsets				
B6003	HPNA [1]	—	2000	B916
B6003L	HPNA [1]	—	2000	B960
Conexant: CX24611 Integrated HomePNA 2.0 device				
BX6034	HPNA [1]	—	2000	B996
CopperGate HPNA3 Chipset				
B6105NL	HPNA3	—	1500	B891
Entropic: c.LINK™				
C6039	MoCA [2]	—	—	C250

*1. **HPNA™** - **H**ome **P**honeline **N**etworking **A**lliance*
*2. **MoCA®** - **M**ultimedia **o**ver **C**oax **A**lliance*

Transformers

Part Number	Application	Turns Ratio	Inductance (µH MIN)	Isolation Voltage (Vrms)	Data Sheet
ST5382	HPNA [1]	1:1	120	2000	ST5382
B6014	HPNA [1]	1:1	40	1500	B971
B6080	HomePlug [2]	1:1	250	2000	B805

*1. **HPNA™** - **H**ome **P**honeline **N**etworking **A**lliance*
*2. **HomePlug®** Powerline Alliance*

COMMON MODE CHOKES

For ADSL/VDSL [1]

Part Number	Common Mode Attenuation (dB TYP)			Isolation Voltage (Vrms)	Data Sheet
	500 kHz	1 MHz	10 MHz		
B2005	45	47	43	1500	B902
B2013	45	47	43	1500	B902
BX8213	45	47	43	500	B829
B4001 [1]	45	49	35	1500	B912
B4003 [1]	45	49	35	1500	B912
BX4053 [2]	45	49	35	1500	B912
	30 kHz	**1 MHz**	**2 MHz**		
BX8191	30	51	45	1500	B824
BX8192 [2]	30	51	45	1500	B824

*1. **To reduce** common mode noise from AM or HAM radio* *2. **Dual***

THT - Through Hole Package **SMT** - Surface Mount Package