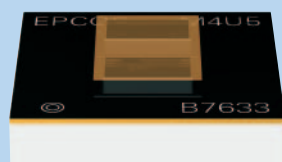
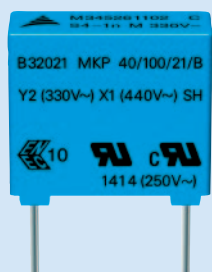


EPCOS Application Guide 2013

Communications

Electronic Components for Mobile Applications and DSL Appliances



EPCOS Components for Mobile Applications and DSL Appliances



Mobile communications is one of the world's leading growth markets. As LTE mobile communication services (4G) are being rolled out around the world, smartphones must support even more frequency bands in addition to bands for existing 2G and 3G networks, driving the need for further miniaturized components. With state-of-the-art SAW filters, duplexers, RF modules, etc., the EPCOS portfolio offers key technologies, products and solutions for mobile telephone and telecommunications equipment manufacturers.

Digital subscriber line (DSL) technology has emerged as the preferred broadband technology for high-speed Internet access. While ADSL is currently the most popular variant, newer DSL services such as VDSL2 are now being introduced that over shorter distances offer data rates high enough to support high-definition TV.

EPCOS offers a comprehensive range of electronic components for every virtually DSL application, including power supplies, line cards and modems, splitters and WLAN routers.

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EPCOS Components for Mobile Applications and DSL Appliances

Special Features



Aluminum Electrolytic Capacitors

- Ultra-compact design
- High ripple current capability
- Long useful life
- High reliability

EMC Components and Modules

Feedthrough components

- Current range 16 A to 500 A
- High attenuation up to the GHz range
- Solderless technology
- Windings in MKP technology
- Various connecting technologies
- Customer-specific solutions upon request

Filters

- High insertion loss up to the GHz range
- Optimized for high ambient temperatures
- Compact design

Power distribution modules

- Combining EMC power line protection with added functions such as overvoltage protection, switches, breakers

Ferrites

- For SMPS and chargers (generally recommended materials: N87, N97, N95, N96, N92, N49 and PC47)
- For splitters at CO or CPE: material N45
- For signal transformers in linecards or modems: material T38 and T57
- Other materials are suitable depending on transformer design
- Wide range of accessories for ferrites

Film Capacitors

- High resonant frequency
- Parameters stability over voltage, frequency and temperature
- Low ESR (dissipation factor)
- High dv/dt (peak current)
- Voltage surge pulse capability
- Safety due to self-healing property
- For high-pass filtering and EMI suppression

Inductors

SIMID

- High current handling capability
- Narrow L tolerances
- Very good RF characteristics and filtering
- Suppression of EMI
- Suitable for lead-free soldering profiles acc. to JEDEC J-STD 020D

Data line chokes

- Very low stray inductance
- Very good symmetry features
- Suppression of asymmetrical interference coupled onto lines, whereas data signals up to several MHz can pass unhindered
- Suitable for lead-free soldering profiles acc. to JEDEC J-STD 020D

Power inductors, high current chokes

- High current handling capability
- Energy storage in DC/DC converters
- Suppression of electromagnetic interference
- Suitable for lead-free soldering profiles acc. to JEDEC J-STD 020D

EPCOS Components for Mobile Applications and DSL Appliances

Special Features



Line filters

- High current handling capability
- High temperature stability
- Suppression of asymmetrical and symmetrical interference coupled onto lines
- High-frequency parts of the symmetrical data signal are sufficiently minimized

Modules

- FEM Quad-band GSM, 5-band WCDMA/LTE
- FEMi4D Quad-band GSM, 4-band WCDMA/LTE duplexer integrated plus 4 bands from aux. ports
- FEMi5D Quad-band GSM, 4-band WCDMA and 4 band LTE 5 duplexer are integrated
- Single feed antenna tuner
- Low control voltage
- Low current consumption
- Compact size

MEMS products

Analog and digital microphones

- High dynamic range
- Compact size

Barometric pressure sensors

- Low noise
- Compact size

NTC Thermistors

- Wide range of resistances and tolerances
- High measuring accuracy and high reliability
- Very good aging stability in high-temperature environments

PTC Thermistors

- Limit temperature sensing
- Telecom line protection against excessive currents

SAW Components

- CDMA/WCDMA duplexers
- GSM filters
- WLAN and bluetooth filters
- Frontend band reject filter and bandpass filter for mobile TV
- For base stations

Surge Arresters

2-electrode arresters

- Protection of coaxial interface
- Applicable to high frequencies
- Low breakdown voltage

3-electrode arresters

- Protection of 2 Mbit/s interface
- Low breakdown voltage

Transformers

- Very low THD
- Excellent longitudinal balance (VDSL)
- Compact design
- Transformers for SMPS

Varistors

Multilayer varistors

- Wide range of resistances and tolerances
- High measuring accuracy and high reliability
- Very good aging stability in high-temperature environments

Disk, strap, block varistors

- High surge current handling capability
- Wide operating voltage range
- High energy absorption

EPCOS Components for Mobile Applications and DSL Appliances

Overview									
	Mobile applications					DSL applications			
	Base stations	Chargers	Cordless phones	Smartphones, mobile phones, PDAs, Tablet PCs	Reception tuners (TV, DAB, Radio, GPS)	Power supplies	Line card, modems (Central office, CPE)	WLAN	Splitters
Aluminum electrolytic capacitors									
Snap-in	•								
EMC components and modules									
Feedthrough capacitors, feedthrough filters	•					•			
2-line filters, 4-line filters	•								
Power distribution modules	•								
Ferrites									
E, EFD, ELP, EP, EPX, ER, EQ cores	•	•				•	•		•
RM cores	•	•							•
Film capacitors (medium power)									
X2/X1 for EMI suppression	•	•				•			
Y2/Y1 for EMI suppression	•	•				•			
MKT for general use, coupling, decoupling	•	•				•	•	•	•
MKP for DC link/DC filtering	•	•				•			
MKP for general use, resonant, switching	•	•				•			
MKP for power factor correction	•	•				•			
Inductors									
Data line chokes							•		•
High current chokes	•								
Power inductors	•		•	•		•	•	•	
Powerline chokes	•	•			•				
SIMID 0603			•	•	•				
SIMID 0805 ... 2220	•		•						
SIMID 1210 ... 2220	•					•	•	•	
Modules									
Antenna tuner D7005				• ¹⁾					
DivFEM M318				• ¹⁾					
FEM D5040				• ¹⁾					
FEMiD M309, D5058				• ¹⁾					
MEMS products									
Analog and digital microphones			•	•					
Pressure sensors				•					
NTC thermistors									
Inrush current limiters	•	•	•			•	•		
V*, S8*, M89	•		•	•	•	•	•	•	

¹⁾ For mobile phones and in case PDA is equipped with mobile phone functionality

EPCOS Components for Mobile Applications and DSL Appliances

Overview									
	Mobile applications					DSL applications			
	Base stations	Chargers	Cordless phones	Smartphones, mobile phones, PDAs, Tablet PCs	Reception tuners (TV, DAB, Radio, GPS)	Power supplies	Line card, modems (Central office, CPE)	WLAN	Splitters
PTC thermistors									
Limit temperature sensors	•			•		•			
Telecom line protection	•						•		•
SAW components									
2in1 filters (Rx, Tx)				•					
CDMA, WCDMA/LTE duplexers				•					
Diversity filters				•					
IF filters, RF filters	•								
Single filters (Rx, Tx)				•					
Surge arresters									
A8, N8, M5	•						•	•	
ES							•		•
EHV						•			•
LN8	•					•			
S20, S30, S50, S80	•						•	•	•
T2, T3, T8, T9	•						•		•
Transformers									
Current sense/Flyback/Gate-drive transformers		•				•			
EF12.6 to EF25; ER7.5 to ER14.5	•	•				• ²⁾			• ²⁾
EHP19 to EHP26	•								
EP5 to EP13						•			• ²⁾
EPX5 to EPX9; TP module							•		
RM4 to RM8	•								• ²⁾
Varistors									
B32 ... B80	•								
CU varistors	•								
ESD/EMI filters			•	•					
High surge current	•	•				•	•		
Standard/CC ³⁾	•		•	•	•		•	•	•
High speed (HS)	•		•	•	•				
Radio frequency (RF)			•	•	•				
Low clamping voltage			•	•	•				
LS40 ... LS42	•								
Q14, Q20						•			
S05 ... S20		•				•			

²⁾ Customized products upon request

³⁾ Controlled capacitance

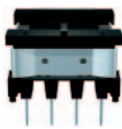
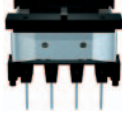
EPCOS Components for Mobile Applications and DSL Appliances



Characteristics				
Series		Technical data	Features	Ordering code/type
Aluminum electrolytic capacitors				
Snap-in		Low voltage V _R : 10 ... 100 V DC C _R : 820 ... 68000 µF High voltage V _R : 200 ... 500 V DC C _R : 39 ... 3300 µF	Useful life up to 5000 h at +125 °C, compact design, high reliability Useful life up to 5000 h at +105 °C, ultra-compact design, high reliability	B41231 B41252 B41605 B43305 B43640 B43644
EMC components and modules				
1-line filters		V _R : 75 ... 600 V AC / V DC I _R : 16 ... 500 A	MKP technology (dry, self-healing)	B85121
Feedthrough capacitors		Feedthrough capacitors C _R : 0.00125 ... 4.7 µF	Solderless production technology	B85321
Feedthrough filters		Feedthrough filters C _R : 0.0025 ... 2 × 4.7 µF	Terminals as axial leads, screw connectors, soldering tags or tab connectors Metal case, polyurethane potting (UL94 V-0)	
2-line filters		V _R : up to 250 V AC I _R : up to 300 A	Optimized for high ambient temperatures High insertion loss up to the GHz range Compact design	B84132A ... (customer-specific design)
4-line filters		V _R : up to 520 V AC I _R : up to 300 A		B84134A ... (customer-specific design)
Power distribution modules		V _R : up to 48 V DC I _R : up to 300 A up to 520 V AC	Compact space saving module integrating several power distribution functions in a base station cabinet	Upon request

EPCOS Components for Mobile Applications and DSL Appliances



Characteristics				
Series		Technical data	Features	Ordering code/type
Ferrites				
E cores		Material: N27, N30, N41, N45, N72, N87, T38, T46, 69 ... 9700 nH A _L :	E cores are available in a wide variety of sizes E cores are supplied in single units	E5 ... E80
EFD cores		Material: N49, N87, N97 A _L : 100 ... 2150 nH		EFD10 ... EFD30
ELP cores		Material: N49, N87, N92, N97 A _L : 800 ... 12500 nH		ELP14 ... ELP64
ER cores		Material: N27, N49, N72, N87, N92, N97, T38 A _L : 125 ... 6400 nH		ER9.5 ... ER54
EQ cores		Material: N49, N87, N92, N97 A _L : 1320 ... 4800 nH		EQ13 ... EQ30
RM cores		Material: K1, M33, N22, N30, N41, N45, N48, N49, N87, N97, T35, T38, T66 A _L : 16 ... 16000 nH	RM cores are ideal for low-loss, high stable filter coils RM4 to RM14 cores are specified acc. to IEC 60431 RM cores are supplied in sets	RM4 ... RM14
		Material: N49, N87, N92, T38 A _L : 950 ... 11500 nH		RM4LP ... RM14LP
SMD			Low-profile cores are supplied in sets Low-profile cores are acc. to IEC 61860	
For signal transformers in line cards or modems				
EP cores		Material: T38, T57, T66, N45 A _L : 63 ... 8500 nH	Low hysteresis loss coefficient Low THD	EP5 ... EP13
EPX cores		Material: T38, T57, T66, N45 A _L : 63 ... 10500 nH		EPX7 ... EPX10
SMD				
For splitters at CO or CPE				
RM cores		Material: N45 A _L : 1700 ... 3500 nH	High saturation flux density Excellent basic DC performance	RM4 ... RM6
E cores		Material: N45 A _L : 950 ... 1400 nH		E13 ... E16
				
Planar cores for SMPS				
ELP cores		Material: N49, N92, N97 A _L : 800 ... 5700 nH	Low losses (N49, N97) High saturation flux density (N92)	ELP14 ... ELP32
ER cores		Material: N49, N92, N97 A _L : 1500 ... 5000 nH		ER18 ... ER32
EQ cores		Material: N49, N92, N97 A _L : 1320 ... 4500 nH		EQ13 ... EQ30

EPCOS Components for Mobile Applications and DSL Appliances



Characteristics				
Series		Technical data	Features	Ordering code/type
Film capacitors				
X2/X1 capacitors		X2 V_{RMS} : 305 V AC C_R : 10 nF ... 45 μ F	X2 (2500 V) class for interference suppression and EMC X1 (4000 V) class for interference suppression and EMC Approved acc. to international standards Across the line connection	B32921 ... B32926
		X1 V_{RMS} : 330 V AC C_R : 10 nF ... 6.8 μ F		B32911 ... B32916
Y2/Y1 capacitors		Y2 V_{RMS} : 300 V AC C_R : 1 nF ... 1 μ F	Y2 (5000 V) class for interference suppression and EMC Y1 (8000 V) class for interference suppression and EMC Approved acc. to international standards Line to ground connection	B32021 ... B32026
		Y1 V_{RMS} : 250 V AC C_R : 1 ... 10 nF		B81123
MKT for general use		V_R : 63 ... 630 V DC V_{RMS} : 40 ... 400 V AC C_R : 1 nF ... 220 μ F	General purpose e.g. blocking, coupling, decoupling, bypassing High-reliable DC link capacitors for low voltage power supplies B32559S for xDSL applications Operating temperature up to +125 °C Service life 200 000 h at $1.0 \cdot V_R$, +70 °C	B32520 ... B32529
				B32559C...
				B32559S...
MKP for DC link/ DC filtering		V_R : 450 ... 1300 V DC C_R : 1.5 ... 200 μ F	Heavy duty DC link/bus capacitors for power supplies High density of capacitance per volume (B3277x) High RMS current capability (B3267x) Operating temperature up to +105 °C Service life 100 000 h at $1.0 \cdot V_R$, +70 °C High mechanical stability due to 4-pin terminals	B32774 ... B32778
		V_R : 450 ... 1050 V DC C_R : 0.47 ... 60 μ F		B32674 ... B32678
MKP for general use, resonant, switching		V_R : 250 ... 2000 V DC C_R : 1 nF ... 8.2 μ F	For snubbing, resonant and switching B3267xL for high frequency AC loads and pulses Operating temperature up to +105 °C Possibility of AC and/or DC operation High dv/dt and RMS current capability Lead spacing 10 ... 37.5 mm	B32651 ... B32656
				B32671L...
				B32672L...
MKP for power factor correction		V_R : 450 ... 630 V DC C_R : 0.01 ... 2.2 μ F	Operating temperature up to +125 °C Specially designed for PFC stage Lead spacing 10 ... 22.5 mm B3267xP: Very compact design and small dimensions	B32671Z ...
				B32673Z...
				B32671P ... B32673P...

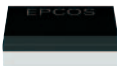
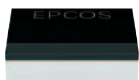
EPCOS Components for Mobile Applications and DSL Appliances



Characteristics				
Series		Technical data	Features	Ordering code/type
Inductors				
Data line chokes, leaded		L_R : 5 μ H ... 4.7 mH I_R : up to 1.2 A	Very low stray inductance Very good symmetry features	B82796C...
Data line chokes SMD		L_R : 5 μ H ... 68 mH I_R : up to 1.2 A	Miniaturized types ACT45B and B82789 in size 1812 Very low stray inductance Very good symmetry features	B82787... (ACT45B) B82789C... B82792C... B82793C... B82794C...
High current chokes, helically wound SMD		L_R : 0.5 ... 3.9 μ H I_R : 12 ... 25 A L_R : 0.44 ... 10 μ H I_R : 24 ... 71 A	Low-profile High saturation current Low DC resistance High DC bias capability	B82559A...A013 B82559A...A025
Power inductors SMD		L_R : 0.82 ... 1000 μ H I_R : up to 11 A	Shielded and unshielded versions Low DC resistance	B82462 B82464 B8247...
Powerline chokes SMD		L_R : 0.1 ... 12 mH I_R : up to 2 A	Low-profile Automatic assembly possible	B82720S...
Powerline chokes, leaded		L_R : 0.1 ... 47 mH I_R : up to 2 A	Miniaturized version High resonant frequency owing to special winding technique and omission of potting (B82791)	B82720A... B82720K... B82791G2... B82791H2...
SIMID 0603-C SMD		L_R : 1.0 ... 220 nH I_R : 110 ... 1800 mA Case size: 0603	Copper plated ceramic core Laser cut winding Epoxy coated	B82496C...
SIMID 0805-F SMD		L_R : 2.7 ... 6800 nH I_R : 80 ... 1000 mA Case size: 0805	Cubic coil with ceramic or ferrite core Epoxy molded flat top for vacuum pickup Winding ends welded to the terminals	B82498F...
SIMID 1210-H SMD		L_R : 1.0 ... 680 μ H I_R : 61 ... 1270 mA Case size: 1210	Ferrite drum core Laser welded winding Flame retardant molding	B82422H...
SIMID 1812-T/C SMD		L_R : 1 ... 1000 μ H I_R : 55 ... 1300 mA Case size: 1812		B82432C... B82432T...
SIMID 2220 SMD		L_R : 1 μ H ... 10 mH I_R : 25 ... 3510 mA Case size: 2220		B82442...

EPCOS Components for Mobile Applications and DSL Appliances



Characteristics													
Series		Technical data	Features	Ordering code/type									
Modules				SMD									
Single feed antenna tuner D7005		Average current consumption: < 1 mA Package size: 5 × 5 × 1 mm P _{in,max} = +36 dBm Supported frequency range: 700 ... 2700 MHz Typical performance data: <table><tr><td>VSWR in</td><td>VSWR tuned</td><td>loss</td></tr><tr><td>6:1</td><td>< 2.5 : 1</td><td>~ 2.0 dB</td></tr><tr><td>1:1</td><td>< 1.5 : 1</td><td>~ 0.8 dB</td></tr></table>	VSWR in	VSWR tuned	loss	6:1	< 2.5 : 1	~ 2.0 dB	1:1	< 1.5 : 1	~ 0.8 dB	Closed loop tuner, improves both TRP and TIS. Built-in control loop detects and corrects user interaction effects Low implementation effort, stand-alone implementation On-board microcontroller, with preprogrammed algorithms Supports all protocols, GSM(EDGE), (W)CDMA, LTE Enabling small form-factor antennas	Upon request
VSWR in	VSWR tuned	loss											
6:1	< 2.5 : 1	~ 2.0 dB											
1:1	< 1.5 : 1	~ 0.8 dB											
Diversity front-end module (DivFEM) M318		Typ. insertion loss: 0.7 ... 3.7 dB (dep. band) Typ. VSWR: 1.5 : 1 Typ. Tx suppression: > 45 dB Max. input power: 13 dBm Package size: 3.5 × 3.2 × 1.0 mm	Supports 5 WCDMA/LTE bands (I, II, IV, V, VIII) and 4 other LTE bands from additional aux. ports Integrates WCDMA/LTE Rx SAW filters for bands I, II, IV, V, VIII, the switch and the decoder Integrated 4 kV ESD protection	Upon request									
Front-end module (FEM) D5040		Typ. insertion loss: 0.9 ... 3.3 dB (dep. band) Typ. VSWR: 1.5 : 1 Harmonic attenuation: > 30 dB Max. input power: 35 dBm Package size: 3.5 × 3.2 × 1.2 mm	Supports 4 GSM bands (850/900/1800/1900) and 5 WCDMA/LTE bands Integrates GSM 900/1800/1900 filters,Tx low pass filter, the switch and the decoder Integrated 8 kV ESD protection	B30...D5040...									
Front-end module with 4 integrated duplexers (FEMiD) M309		Typ. insertion loss: 0.4 ... 4.5 dB (dep. band) Typ. VSWR: 1.5 : 1 Typ. isolation: > 55/50 dB (Tx/Rx) Harmonic attenuation: > 30 dB Max. input power: 30 dBm Package size: 6.0 × 4.0 × 1.0 mm	Supports 4 GSM bands (800/900/1800/1900), 4 WCDMA/LTE bands (I, II, V, VIII) and 4 other bands from additional aux. ports Integrates all GSM filters, Tx low pass filter, the switch and the decoder Integrates WCDMA DPX band I & II & V & VIII Integrated 4 kV ESD protection	Upon request									
Front-end module with 5 integrated duplexers (FEMiD) D5058		Typ. insertion loss: 1.2 ... 3.8 dB (dep. band) Typ. VSWR: 1.5 : 1 Typ. isolation: 55/50 dB (Tx/Rx) Typ. harmonic attenuation: > 30 dB Max. input power: 35 dBm Package size: 8.0 × 4.95 × 1.0 mm	Supports 4 GSM bands (850/900/1800/1900), 4 WCDMA bands (I, II, IV, V) and 4 LTE bands (II, IV, V, XVII) Integrates duplexers for bands I, II, IV, V, XVII Integrates all GSM filters, Tx low pass filter, the switch and the decoder Integrated 4 kV ESD protection	B30...D5058...									

EPCOS Components for Mobile Applications and DSL Appliances



Characteristics				
Series		Technical data	Features	Ordering code/type
MEMS products				<u>SMD</u>
Analog and digital microphones		Up to 65 dB SNR < 5% THD up to 128 dB SPL	Analog or digital Very small size Excellent EMI shielding Very high PSR Omnidirectional Top or bottom hole	Upon request
Pressure sensors		300 ... 1100 hPa 16 bit SPI clock up to 20 MHz I ² C clock up to 3.4 MHz	Factory calibrated I ² C and SPI interface Very high PSR Very small size High accuracy Low noise	Upon request
NTC thermistors				
Inrush current limiters		Rated resistance at +25 °C: 1 ... 80 Ω I _{max} : up to 20 A V _{RMS} : 265 V	Limiting of inrush current in external power supplies Taped versions for automatic processing UL approval (E69802) available High accuracy and easy mounting	B57***S****M...
S153				B57211P...
S235				B57213P...
S236				
S237				
S238				
P11				
P13				
S364		Temperature range: -55 ... +125 °C Rated resistance at +25 °C: 47 Ω ... 680 kΩ Resistance tolerance: ±1 ... ±5% Case sizes: 0402/0603/0805	Wide range of resistances and tolerances Multilayer SMD NTC with inner electrodes High resistance stability during soldering (change < 1%) Very good aging stability in high-temperature environment	B572**V...
V2				
<u>SMD</u>				
V3		Temperature range: -55 ... +125 °C Rated resistance at +25 °C: 47 Ω ... 680 kΩ Resistance tolerance: ±1 ... ±5% Case sizes: 0402/0603/0805	Wide range of resistances and tolerances Multilayer SMD NTC with inner electrodes High resistance stability during soldering (change < 1%) Very good aging stability in high-temperature environment	B573**V...
<u>SMD</u>				
V4				B574**V...
<u>SMD</u>		Temperature range: -55 ... +125 °C Rated resistance at +25 °C: 2 ... 100 kΩ Resistance tolerance: ±1 ... ±5%	High accuracy in resistance (> ±1%) and B value (> ±0.3%) UL approval (E69802) Tape and reel packaging upon request Improved resistance against humidity (S864)	B5786*S...
S86				
S87				
M89		Temperature range: -40 ... +125 °C Rated resistance at +25 °C: 1 ... 470 kΩ Resistance tolerance: ±5, ±10%	Lead spacing 2.5 and 5 mm Tape and reel packaging	B5789*S...
			Lead spacing 2.5 and 5 mm Tape and reel packaging Cost-effective	B5789*M...

EPCOS Components for Mobile Applications and DSL Appliances



Characteristics								
Series		Technical data		Features	Ordering code/type			
PTC thermistors					SMD			
Limit temperature sensors		V _{max} :	32 V	Qualified to AEC-Q200 Lead-free tinned terminations	B59421A...			
		Rated resistance:	470 Ω		B59641A...			
		Case size:	0402, 0603, 0805		B59721A...			
		Temperature tolerance:	±5 °C					
Telecom line protection		Rated current:	Rated resistance:	Two matched PTCs in one SMD housing Housing material to UL94-VO Compliant with ITU-T standard	B59510T1120A062			
		180 mA	10 Ω		B59525T1120A062			
		130 mA	25 Ω		B59535T1120A262			
		110 mA	35 Ω		B59550T1120A262			
		90 mA	50 Ω		B59735T1120A062			
		110 mA	35 Ω		B59750T1120A062			
		90 mA	50 Ω		B59810T1120A062			
		180 mA	10 Ω		B59825T1120A062			
		130 mA	25 Ω		B59835T1120A062			
		110 mA	35 Ω		B59850T1120A062			
		90 mA	50 Ω		B59875T1120A062			
		70 mA	75 Ω					
		SAW components					SMD	
		Rx 2in1 filters			CDMA 850/1900 Rx	1.8 × 1.4 mm	50/100 Ω unbalanced/ balanced ports	B39...B9519...
GSM 850/900	standard			1.8 × 1.4 mm	50/150 Ω unbalanced/ balanced ports	B39...B9503...		
	input diplexed					B39...B9515...		
	output diplexed					B39...B9509...		
GSM 1800/1900	standard			1.8 × 1.4 mm		B39...B9507...		
	input diplexed					B39...B9514...		
		output diplexed			B39...B9508...			
		GSM 900/1800			B39...B9501...			
		GSM 850/1900			B39...B9505...			
Tx 2in1 filters		CDMA 850/1900 Tx	1.8 × 1.4 mm	50/50 Ω unbalanced ports	B39...B9518...			

EPCOS Components for Mobile Applications and DSL Appliances



Characteristics					
Series		Technical data		Features	Ordering code/type
SAW components					SMD
CDMA/WCDMA duplexers		CDMA Cell	2.5 × 2.0 mm 2.0 × 1.6 mm	100 Ω balanced ports 100 Ω balanced ports	B39...B7671... B39...B8553...
		WCDMA band 1	2.5 × 2.0 mm 2.0 × 1.6 mm	50 Ω unbalanced ports	B39...B7697... B39...B8550...
		WCDMA band 1	2.5 × 2.0 mm 2.0 × 1.6 mm	100 Ω balanced ports Rx	B39...B7965... B39...B8558...
		WCDMA band 2	2.5 × 2.0 mm 2.0 × 1.6 mm	50 Ω unbalanced ports	B39...B7950... –
		WCDMA band 2	2.5 × 2.0 mm 2.0 × 1.6 mm	100 Ω balanced ports Rx	B39...B7955... B39...B8078...
		WCDMA band 3	2.5 × 2.0 mm 2.0 × 1.6 mm	50 Ω unbalanced ports	– –
		WCDMA band 3	2.5 × 2.0 mm 2.0 × 1.6 mm	100 Ω balanced ports Rx	B39...B7968... B39...B8088...
		WCDMA band 4	2.5 × 2.0 mm 2.0 × 1.6 mm	50 Ω unbalanced ports	B39...B7699... LJ37
		WCDMA band 4	2.5 × 2.0 mm 2.0 × 1.6 mm	100 Ω balanced ports Rx	B39...B7959... B39...B8563...
		WCDMA band 5	2.5 × 2.0 mm 2.0 × 1.6 mm	50 Ω unbalanced ports	B39...B7669... LU35
		WCDMA band 5	2.5 × 2.0 mm 2.0 × 1.6 mm	100 Ω balanced ports Rx	B39...B7671... B39...B8553...
		WCDMA band 7	2.5 × 2.0 mm 2.0 × 1.6 mm	50 Ω unbalanced ports	– LS57
		WCDMA band 7	2.5 × 2.0 mm 2.0 × 1.6 mm	100 Ω balanced ports Rx	B39...B7966... B39...B8089...
		WCDMA band 8	2.5 × 2.0 mm 2.0 × 1.6 mm	50 Ω unbalanced ports	B39...B7675... –
		WCDMA band 8	2.5 × 2.0 mm 2.0 × 1.6 mm	100 Ω balanced ports Rx	B39...B7953... B39...B8072...
		WCDMA band 13	2.5 × 2.0 mm 2.0 × 1.6 mm	50 Ω unbalanced ports	B39...B7678... –
		WCDMA band 13	2.5 × 2.0 mm 2.0 × 1.6 mm	100 Ω balanced ports Rx	B39...B7677... AI55
		WCDMA band 17	2.5 × 2.0 mm 2.0 × 1.6 mm	50 Ω unbalanced ports	– –
		WCDMA band 17	2.5 × 2.0 mm 2.0 × 1.6 mm	100 Ω balanced ports Rx	B39...B7924... B39...B8566...
		WCDMA band 20	2.5 × 2.0 mm 2.0 × 1.6 mm	50 Ω unbalanced ports	– –
		WCDMA band 20	2.5 × 2.0 mm 2.0 × 1.6 mm	100 Ω balanced ports Rx	B39...B7679... B39...B8091...

EPCOS Components for Mobile Applications and DSL Appliances



Characteristics							
Series		Technical data		Features	Ordering code/type		
SAW components					SMD		
Diversity Rx single filters		WCDMA/LTE band 1/4	1.4 × 1.1 mm	50/50 Ω unbalanced ports	B39...B9451...		
			1.4 × 1.1 mm	50/100 Ω balanced ports	B39...B9469...		
		WCDMA/LTE band 2	1.4 × 1.1 mm	50/50 Ω unbalanced ports	B39...B9477...		
			1.4 × 1.1 mm	50/100 Ω balanced ports	B39...B9470...		
		WCDMA/LTE band 3	1.4 × 1.1 mm	–	–		
			1.4 × 1.1 mm	50/100 Ω balanced ports	B39...B9473...		
		WCDMA/LTE band 5/6	1.4 × 1.1 mm	50/50 Ω unbalanced ports	B39...B9439...		
			1.4 × 1.1 mm	50/100 Ω balanced ports	B39...B9456...		
		WCDMA/LTE band 7	1.4 × 1.1 mm	–	–		
			1.4 × 1.1 mm	50/100 Ω balanced ports	B39...B9478...		
IF filters		GSM-Rx	13.3 × 6.5 mm	Low insertion attenuation	B39171B5216H510		
		Clean-up	7.0 × 5.0 mm	Low amplitude ripple and group delay ripple	B39491B5217H310		
		WCDMA / LTE	7.0 × 5.0 mm	Very steep skirts offering high nearby selectivity	B39171B5220H810		
		TD-LTE	7.0 × 5.0 mm		B39151B5239H810		
		WiMAX	7.0 × 5.0 mm	Unbalanced or balanced operation possible	B39251B5230H310		
		RF filters		CDMA 450	3.0 × 3.0 mm	Very low insertion loss	B39451B5061U410
				CDMA cellular	3.0 × 3.0 mm	Low amplitude ripple	B39831B5008U410
				GSM 850	3.0 × 3.0 mm	No matching network required at 50 Ω	B39841B4180U410
				GSM 900	3.0 × 3.0 mm		B39901B4130U410
				GSM 1800	3.0 × 3.0 mm	Unbalanced or balanced operation possible	B39182B4142U410
CDMA PCS	3.0 × 3.0 mm			B39202B4150U410			
GSM 1900	3.0 × 3.0 mm			B39192B4143U410			
TD-LTE	3.0 × 3.0 mm			B39242B5133U410			
WCDMA	3.0 × 3.0 mm			B39202B5064U410			

EPCOS Components for Mobile Applications and DSL Appliances



Characteristics				
Series	Technical data	Features	Ordering code/type	
SAW components				SMD
RF filter in CSSP3 package		Passband for ISDB-T 1-seg: 470 ~ 710 MHz High rejection of mobile phone band: 815/830 ... 845 MHz, 898 ... 925 MHz Size: 1.4 × 1.1 mm	Suitable for ISDBT 1-seg Mobile TV standard	AF10
		Passband for DVB-H, SBTVD, UHF-band: 470 ~ 750 MHz High rejection of mobile phone band: 824 ... 849 MHz, 880 ... 915 MHz Size: 1.4 × 1.1 mm	Suitable for DVB-H, SBTVD, UHF-band Mobile TV standard	B39...B8745...
		Passband for DVB-H/T 470 ~ 790 MHz High rejection of mobile phone band: 832 ... 862 MHz, 880 ... 915 MHz Size: 1.4 × 1.1 mm	Suitable for DVB-H/T Mobile TV standard	B39901B8746P810
		Passband for DVB-H/T: 470 ~ 798 MHz High rejection of mobile phone band: 880 ... 915 MHz Size: 1.4 × 1.1 mm	Suitable for DVB-H/T Mobile TV standard	LX38
		Passband for SBTVD, UHF-band: 470 ~ 752/806 MHz High rejection of mobile phone band: 824 ... 849 MHz, 880 ... 915 MHz Size: 1.4 × 1.1 mm	Suitable for SBTVD, UHF-band Mobile TV standard	B39...B8743...
		Passband for T-DMB: 1452 ~ 1492 MHz High rejection of mobile phone band: 824 ... 849 MHz, 880 ... 915 MHz Size: 1.4 × 1.1 mm	Suitable for T-DMB Mobile TV standard	B39152B8755M410
		Passband for DVB-SH: 2170 ~ 2200 MHz High rejection of mobile phone band: 824 ... 849 MHz, 880 ... 915 MHz Size: 1.4 × 1.1 mm	Suitable for DVB-SH Mobile TV standard	B39...B8757...

EPCOS Components for Mobile Applications and DSL Appliances



Characteristics					
Series	Technical data		Features	Ordering code/type	
SAW components				SMD	
RF filter in SMD ceramic package		Passband for ISDB-T 1-seg: 470 ~ 710 MHz High rejection of mobile phone band: 718 ... 748 MHz Size: 3 × 3 mm	Suitable for ISDB-T 1-seg Mobile TV standard	AF58	
		Passband for ISDB-T 1-seg: 470 ~ 710 MHz High rejection of mobile phone band: 815 ... 830 MHz, 830 ... 845 MHz Size: 3 × 3 mm	Suitable for ISDB-T 1-seg Mobile TV standard	B39901B1671B510	
		Passband for DVB-H/T: 470 ~ 790 MHz High rejection of mobile phone band: 832 ... 862 MHz, 880 ... 915 MHz Size: 3 × 3 mm	Suitable for DVB-H/T Mobile TV standard	B39901B1670B510	
		Passband for CMMB: 470 ~ 798 MHz High rejection of mobile phone band: 824 ... 849 MHz Size: 3 × 3 mm	Suitable for CMMB Mobile TV standard	B39...B1673...	
		Passband for SBTVB: 470 ~ 806 MHz High rejection of mobile phone band: 824 ... 849 MHz, 880 ... 915 MHz Size: 3 × 3 mm	Suitable for SBTVB Mobile TV standard	B39...B1674...	
		Passband for CMMB, CTTB and DVB-H/T: 470 ~ 862 MHz High rejection of mobile phone band: 880 ... 915 MHz Size: 3 × 3 mm	Suitable for CMMB, CTTB, DVB-H/T Mobile TV standard	B39...B1672...	
		Rx single filters		GSM 900	1.4 × 1.1 mm
1.4 × 1.1 mm	50/150 Ω unbalanced/ balanced ports				B39941B9401K610
1.1 × 0.9 mm	50 Ω unbalanced ports				B39...B9858...
1.1 × 1.9 mm	50/150 Ω unbalanced/ balanced ports				B39...B9853...
GSM 1800	1.4 × 1.1 mm			50/100 Ω unbalanced/ balanced ports	B39...B9448...
	1.4 × 1.1 mm			50/150 Ω unbalanced/ balanced ports	B39182B9402K610
	1.1 × 0.9 mm			50 Ω unbalanced ports	LX94
	1.1 × 0.9 mm			50/150 Ω unbalanced/ balanced ports	B39...B9855...

EPCOS Components for Mobile Applications and DSL Appliances



Characteristics					
Series		Technical data		Features	Ordering code/type
SAW components					
Rx single filters		GSM 1900	1.4 × 1.1 mm	50/100 Ω unbalanced/ balanced ports	–
			1.4 × 1.1 mm	50/150 Ω unbalanced/ balanced ports	B39202B9403K610
			1.1 × 0.9 mm	50 Ω unbalanced ports	–
			1.1 × 0.9 mm	50/150 Ω unbalanced/ balanced ports	B39...B9854...
		GSM 850	1.4 × 1.1 mm	50/100 Ω unbalanced/ balanced ports	B39...B9422...
			1.4 × 1.1 mm	50/150 Ω unbalanced/ balanced ports	B39...B9400...
			1.1 × 0.9 mm	50 Ω unbalanced ports	B39...B9857...
			1.1 × 0.9 mm	50/150 Ω unbalanced/ balanced ports	B39...B9851...
Tx single filters		GSM 850	1.4 × 1.1 mm	50 Ω unbalanced ports	B39...B9425...
		GSM 900	1.4 × 1.1 mm	50 Ω unbalanced ports	B39...B9431...
		WCDMA/LTE band 1	1.4 × 1.1 mm	50/200 Ω unbalanced/ balanced ports	B39202B9409K610
			1.4 × 1.1 mm	50 Ω unbalanced ports	B39202B9414M410
		WCDMA/LTE band 2	1.4 × 1.1 mm	50/200 Ω unbalanced/ balanced ports	B39...B9428...
			1.4 × 1.1 mm	50 Ω unbalanced ports	B39...B9459...
		WCDMA/LTE band 3	1.4 × 1.1 mm	50/200 Ω unbalanced/ balanced ports	–
			1.4 × 1.1 mm	50 Ω unbalanced ports	B39...B9489...
		WCDMA/LTE band 4	1.4 × 1.1 mm	50/200 Ω unbalanced/ balanced ports	B39...B9452...
			1.4 × 1.1 mm	50 Ω unbalanced ports	B39...B9443...
		WCDMA/LTE band 5/6	1.4 × 1.1 mm	50/200 Ω unbalanced/ balanced ports	B39...B9426...
			1.4 × 1.1 mm	50 Ω unbalanced ports	B39...B9425...
		WCDMA/LTE band 7	1.4 × 1.1 mm	50/200 Ω unbalanced/ balanced ports	–
			1.4 × 1.1 mm	50 Ω unbalanced ports	B39...B9495...
		WCDMA/LTE band 8	1.4 × 1.1 mm	50/200 Ω unbalanced/ balanced ports	–
			1.4 × 1.1 mm	50 Ω unbalanced ports	B39...B9442...
		WCDMA/LTE band 13	1.4 × 1.1 mm	50/200 Ω unbalanced/ balanced ports	–
			1.4 × 1.1 mm	50 Ω unbalanced ports	B39...B9475...
		WCDMA/LTE band 17	1.4 × 1.1 mm	50/200 Ω unbalanced/ balanced ports	–
			1.4 × 1.1 mm	50 Ω unbalanced ports	B39...B9493...
		WCDMA/LTE band 20	1.4 × 1.1 mm	50/200 Ω unbalanced/ balanced ports	–
			1.4 × 1.1 mm	50 Ω unbalanced ports	B39...B9485...

EPCOS Components for Mobile Applications and DSL Appliances



Characteristics				
Series		Technical data	Features	Ordering code/type
Surge arresters				
A80 ... SMD SMD		V_{sdCN} 75, 90 V $C < 1.5$ pF Nominal impulse discharge current (8/20 μ s): 20 kA	Very high current rating Fast response time Very low capacitance	B88069X1630... B88069X6350...
A80		Nominal alternating discharge current (50 Hz, 1 s): 20 A	High insulation resistance SMD, leaded and unleaded types	B88069X1410...
A81				B88069X3840... B88069X3881...
N80		V_{sdCN} 75, 90 V $C < 1.5$ pF Nominal impulse discharge current (8/20 μ s): 10 kA	Very high current rating Fast response time Very low capacitance	B88069X4890...
N81		Nominal alternating discharge current (50 Hz, 1 s): 10 A	High insulation resistance Leaded and unleaded types	B88069X4880...
M50 ... SMD SMD		V_{sdCN} 75, 90 V $C < 1$ pF Nominal impulse discharge current (8/20 μ s): 5 kA	Compact size High current rating Fast response time	B88069X1640...
M51		Nominal alternating discharge current (50 Hz, 1 s): 5 A	Very low capacitance High insulation resistance SMD and leaded types	B88069X5020... B88069X6131...
ES150XSMD		V_{sdCN} 150 V; $C < 1$ pF; 2.5 kA	Very low capacitance and leakage current	B88069X6381T902
ES300XSMD		V_{sdCN} 300 V; $C < 1$ pF; 2.5 kA	Very high discharge current	B88069X4211T902
ES350XSMD		V_{sdCN} 350 V; $C < 1$ pF; 2.5 kA		B88069X4911T902
ES400XSMD		V_{sdCN} 400 V; $C < 1$ pF; 2.5 kA		B88069X5591T902
ES1200XSMD		V_{sdCN} 1200 V; $C < 1$ pF; 2.0 kA		B88069X5641T902
EHV		V_{sdCN} 2500 ... 4500 V $C < 1$ pF 2.5 kA	Protection of basic or reinforced insulation High breakdown voltage Very low capacitance and leakage current	B88069X1386... B88069X1793...
LN8		DC operating voltage 24 ... 60 V Nominal impulse discharge current (8/20 μ s): 10 kA	Stacked surge arrester Follow current eliminating	B88069X1883T152 B88069X1003T152

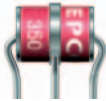
EPCOS Components for Mobile Applications and DSL Appliances



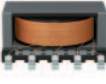
Characteristics				
Series		Technical data	Features	Ordering code/type
Surge arresters				
S20 <u>SMD</u>		V_{sdcN} 200 V $C < 1$ pF Nominal impulse discharge current (8/20 μ s): 0.5 kA	SMD design	B88069X9731T303
S30 <u>SMD</u>		V_{sdcN} 90 V ... 420 V $C < 1$ pF Nominal impulse discharge current (8/20 μ s): 2 kA	SMD design	B88069X1023T203 B88069X6071T203 B88069X5211T203
S50 <u>SMD</u>		V_{sdcN} 90 V $C < 1$ pF Nominal impulse discharge current (8/20 μ s): 5 kA	SMD design	B88069X1923T902
S80 <u>SMD</u>		V_{sdcN} 90 V $C < 1.5$ pF Nominal impulse discharge current (8/20 μ s): 10 kA	SMD design	B88069X1673T602
T20		V_{sdcN} 90, 230 V $C < 1.5$ pF Nominal impulse discharge current (8/20 μ s): 20 kA Nominal alternating discharge current (50 Hz, 1 s): 10 A	Very high current rating Fast response time Stable performance over lifetime Very low capacitance High insulation resistance SMD, leaded and unleaded types	B88069X3651... B88069X8710...
T23				B88069X8740...
T2 ... F	 		Failsafe type	B88069X8080... B88069X8680... B88069X8720... B88069X8750...
T30			High current rating Fast response time Very low capacitance High insulation resistance	B88069X2430... B88069X3010... B88069X3030... B88069X3060...
T33		V_{sdcN} 90, 230 V $C < 1.5$ pF Nominal impulse discharge current (8/20 μ s): 10 kA Nominal alternating discharge current (50 Hz, 1 s): 10 A		B88069X2271... B88069X9800...
T3 ... F			Failsafe type	B88069X4771... B88069X9550...

EPCOS Components for Mobile Applications and DSL Appliances



Characteristics				
Series		Technical data	Features	Ordering code/type
Surge arresters				
T80		V_{sdcN} 90, 230 V $C < 1.5$ pF Nominal impulse discharge current (8/20 μ s): 10 kA Nominal alternating discharge current (50 Hz, 1 s): 10 A	High current rating Fast response time Very low capacitance High insulation resistance	B88069X5930...
T83				B88069X8360...
T8 ... F				B88069X9380...
			Failsafe type	B88069X8300...
				B88069X8910...
				B88069X6281...
				B88069X8350...
				B88069X8380...
				B88069X8430...
				B88069X8870...
				B88069X9420...
T90		V_{sdcN} 90, 230 V $C < 1.5$ pF Nominal impulse discharge current (8/20 μ s): 5 kA Nominal alternating discharge current (50 Hz, 1 s): 5 A	Compact size Very low capacitance High insulation resistance	B88069X2331...
<u>SMD</u>				B88069X6680...
T90 ... F			Failsafe SMD type	B88069X4051...
<u>SMD</u>				B88069X6690...



Characteristics			
Series		Technical data	Ordering code/type
Transformers			
Current sense EE4.2 ... EE12.6		EPCOS designs complete solutions that perfectly match customer specifications	Upon request
Flyback EFD			
Gate-drive EP5			
ER9.5 ... EHP26			
RM5 ... RM8			

EPCOS Components for Mobile Applications and DSL Appliances



Characteristics

IC manufacturer	IC name	IC number	Type	Mounting	Inductance	Turn ratio	Ordering code/type
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Transformers

To minimize the expense of development and testing, EPCOS evaluates its interface transformers in cooperation with leading IC manufacturers. Transformers matching the various semiconductor chips are listed in this table.

ADSL

Alcatel			MKT-20140	EP13	PTH	0.40 mH	2:2:1:1	B78421P1486A005
Alcatel			MTC 20850 EBC 05 EL	EP7	SMD	0.45 mH	1:2:2:1	B78417A1747A003
AnalogDevice			20 MSP 910	EP13	PTH	5.00 mH	1:1:1:1	B78421P1482A005
Broadcom		Bladerunner	BCM6410/6420 BCM6411/6421	EP7	SMD	0.43 mH	2:2:1:1	B78417A1761A003
Broadcom		Bladerunner	BCM6410/6420 BCM6411/6421	EP7	SMD	0.10 mH	2:2:1:1	B78417A1762A003
Broadcom		Bladerunner	BCM6410/6420 BCM6411/6421	EP7	SMD	0.42 mH	1.41:1	B78417A1763A003
Broadcom		Bladerunner	BCM6410/6420 BCM6411/6421	EP7	SMD	0.10 mH	1.41:1	B78417A1764A003
Broadcom		Bladerunner	BCM6410/6420 BCM6411/6421	EP5XL	SMD	0.42 mH	1.41:1	B78416A1829A003
Broadcom		Bladerunner	BCM6410/6420 BCM6411/6421	EP5XL	SMD	0.10 mH	1.41:1	B78416A1850A003
Broadcom		Bladerunner	BCM6411/6421	EP7	SMD	0.42 mH	1:1:1:1	B78417A1988A003
Broadcom		Bladerunner	BCM6411/6421	EP7	SMD	0.10 mH	1:1:1:1	B78417A1993A003
Globespan Virata		Viking/Atlas	G7000 DTM/ Pots CPE	EP13	SMD	0.44 mH	1:1.6:1.6:1	B78421A6603A003
Conexant		G24/Octane	EL1528 EL1532	EP7	SMD	1.0 mH	1:1.11	B78417A1939A003
Infineon		GEMINAX	PEB4565 PEB3558 PEB22716 PEB22720	EP13	SMD	20.0 mH	1:1	B78421A1639A003
Infineon		GEMINAX MAX	PEB4565 PEB3558 PEB22716 PEB22720	EP7	SMD	1.44 mH	1.33:1.33: 1:1	B78417A1698A003
Infineon		GEMINAX		EP7	SMD	6.80 mH	1:1	B78417A1706A003
Infineon		GEMINAX		EP7	SMD	2.80 mH	1:1	B78417A1744A003
Infineon		GEMINAX		EP7	SMD	0.44 mH	1:1	B78417A1822A003
Infineon		GEMINAX		EP7	SMD	6.79 mH	1:1	B78417A1838A003
Infineon		GEMINAX		EP7	SMD	0.34 mH	1.33:1.33: 1:1	B78417A1847A003
Infineon		GEMINAX MAX		EP7	SMD	0.082 mH	1.33:1.33: 1:1	B78417A1851A003
Infineon		AMAZON	CPE, Annex A	EP13	SMD	1.4 mH	1:1:2:2: 4.15:4.15	B78421A1928A003
Infineon		AMAZON	CPE, Annex B	EP13	SMD	0.2 mH	1:1:1.9: 1.9:3.8:3.8	B78421A1905A003

EPCOS Components for Mobile Applications and DSL Appliances



Characteristics								
IC manufacturer		IC name	IC number	Type	Mounting	Inductance	Turn ratio	Ordering code/type
Transformers								
To minimize the expense of development and testing, EPCOS evaluates its interface transformers in cooperation with leading IC manufacturers. Transformers matching the various semiconductor chips are listed in this table.								
ADSL								
Infineon		GEMINAX PRO AL4	Annex A PEF55016 PEF55304A	EP7	SMD	1.4 mH	2.6:2.6:1:1	B78417A1911A003
Infineon		GEMINAX MAX & PRO S MAX	PEF55801 PEB4561 PEB35512 PEF3324 PEF3314	TP modul	SMD	6.8 mH	1:1	B78551A1908A003
Infineon		GEMINAX MAX Annex B	PEB4565 PEB3558 PEB22716 PEB22720	EP5XL	SMD	0.082 mH	1.33:1.33:1:1	B78416A1932A003
Infineon		GEMINAX MAX Annex A		EP5XL	SMD	1.4 mH	1.32:1.32:1:1	B78416A1921A003
Infineon		DANUBE	CPE, Annex A	EP13	SMD	1.4 mH	1:1:0.24:0.24:1:1	B78421A1946A003
LANTIQ		VINAX™ A8 V3	PEF88208, Annex B	EP7	SMD	0.47 mH	1.41:1	B78417A2145A003
LANTIQ		VINAX™ A8 V3	PEF88208, Annex A	EP7	SMD	0.47 mH	1.25:1	B78417A2134A003
Infineon		DANUBE	CPE, Annex B	EP13	SMD	0.2 mH	1:1:0.26:0.26:1:1	B78421A1947A003
Texas Instruments			TNET D3000R	EP13	SMD	1.50 mH	1:1.44	B78421A1704A003
Texas Instruments		AC6	AC6	EP7	SMD	0.40 mH	1.93:1.93:1:1	B78417A1765A003

EPCOS Components for Mobile Applications and DSL Appliances



Characteristics

IC manufacturer	IC name	IC number	Type	Mounting	Inductance	Turn ratio	Ordering code/type
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Transformers

To minimize the expense of development and testing, EPCOS evaluates its interface transformers in cooperation with leading IC manufacturers. Transformers matching the various semiconductor chips are listed in this table.

SHDL

Metalink		MtS141 AFE	MtS141 AFE	EP13	PTH	2.70 mH	1.8:1	B78421P1705A005
Infineon		SDFE-x, Socrates-16bis, Socrates-xe Socrates-xu	PEF21624 - PEF24628	EPX 9/9/9	SMD	3.01 mH	4.5:1	B78417A1960A003
Infineon		SDFE-x, Socrates-16bis, Socrates-xe Socrates-xu	PEF21624 - PEF24628	EP13	PTH	3.02 mH	4.5:1	B78421P1853A005
Infineon		SDFE-x, Socrates-16bis, Socrates-xe Socrates-xu	PEF21624 - PEF24628	EP13	SMD	3.02 mH	4.5:1	B78421A1852A003
Infineon		SDFE-x, Socrates-16bis, Socrates-xe Socrates-xu	PEF21624 - PEF24628	EPX 9/9/9	SMD	3.00 mH	4.5:1	B78418A1974A003
Metalink		Socrates, Socrates-4 Socrates-u	PEB22622, PEB22623, PEB24622	EP13	SMD	3.02 mH	1.62:1.62: 1:1	B78421A1801A003

VDSL

Infineon		VINAX PEF 88102	Annex A, F (25 kHz ... 30 MHz) CO	EP7	SMD	0.47 mH	4:3	B78417A1973A003
Infineon		VINAX PEF 88102	Annex F (138 kHz ... 30 MHz) CO	EP5XL	SMD	0.082 mH	4:3	B78416A1944A003
Infineon		VINAX PEB 83000	Annex B (138 kHz ... 17 MHz) CPE	EP7	SMD	0.27 mH	4:3	B78417A1937A003
Infineon		VINAX PEB 83000	Annex A, F (25 kHz ... 30 MHz) CPE	EP7	SMD	0.47 mH	4:3	B78417A1967A003
Infineon		VINAX	Annex B (138 kHz ... 17 MHz) CO	EP7	SMD	0.27 mH	4:3	B78417A1982A003
Broadcom			BCM6505/6510 Annex A	EP7	SMD	0.43 mH	2:2:1:1	B78417A1907A003
Broadcom			BCM6505/6510 Annex B	EP7	SMD	0.1 mH	2:2:1:1	B78417A1959A003
Conexant		Accelity	VDSL/VDSL2 Annex A	EP7	SMD	0.8 mH	1:2	B78417A7325A003
Ikanos			Ikanos CO2	EP7	SMD	0.22 mH	3:1	B78421A1860A003

EPCOS Components for Mobile Applications and DSL Appliances



Characteristics					
Series		Technical data		Features	Ordering code/type
Varistors					
B32		Operating voltage V_{RMS} : 75 ... 1100 V	I_{max} 8/20 μ s: 25 kA	Disk shaped varistor element potted in plastic housing Housing and potting flame retardant to UL94 V-0 Screw terminals	B72232B...
B40			I_{max} 8/20 μ s: 40 kA		B72240B...
B60			I_{max} 8/20 μ s: 70 kA		B72260B...
B80			I_{max} 8/20 μ s: 100 kA		B72280B...
CU varistors <u>SMD</u>		Single 3225/4032/4948	High energy absorption: W_{max} : 0.3 ... 82 J (2 ms) Max. operating voltage: V_{RMS} : 14 ... 385	ESD capability acc. to IEC 61000-4-2 Operation temperature up to +85 °C Response time < 0.5 ns	B72650M... B72660M... B72670M...
ESD/EMI filters <u>SMD</u>		Dual array 0405 (Audio filter)	High attenuation: -20 ... -60 dB V_R : 5.5 V DC $V_{CLAMP max.}$: 30 V	RoHS compatible, lead- free	B72762F...
High Surge <u>SMD</u>		Single 2220	V_R : 65 V DC C_R : 3000 pF $I_{SURGE max.}$: 4500 A		B72540T...
Standard/CC/ HS/RF <u>SMD</u>		Single 0402, 0603 Dual array 0405 Quad array 0508	V_R : 5.5 ... 22 V DC C_R : 0.6 ... 53 pF $V_{CLAMP max.}$: 19 ... 300 V		B72500T... B72590T... B72714A... B72762A...
Low clamping <u>SMD</u>		Single 0201	V_R : 5.5 V DC C_R : 3 ... 15 pF $V_{CLAMP max.}$: 22 ... 66 V		B72440P...
LS40		Operating voltage V_{RMS} : 130 ... 750 V	I_{max} 8/20 μ s: 40 kA	High surge current ratings up to 65 kA High energy ratings (2 ms) up to 1650 J Bent or straight terminals possible	B72240L...
LS41			I_{max} 8/20 μ s: 50 kA		B72241L...
LS42			I_{max} 8/20 μ s: 65 kA		B72242L...
LS40-E7		Operating voltage V_{RMS} : 130 ... 460 V	I_{max} 10/350 μ s: 6.5 kA I_{max} 8/20 μ s: 40 kA	Strap varistors designed acc. to requirements of IEC61643-1 class1	Upon request
Q14		Operating voltage V_R : 130 ... 680 V	I_{max} : 8 kA (8/20 μ s)	Rectangular disk 14 mm Max. load capacity with reduced height Radial leads	B72214Q...
Q20		Operating voltage V_R : 130 ... 680 V	I_{max} : 15 kA (8/20 μ s)	Rectangular disk 20 mm Max. load capacity with reduced height Radial leads	B72220Q...
S05		Operating voltage V_{RMS} : 11 ... 1100 V	I_{max} 8/20 μ s: up to 800 A	High surge current ratings up to 12 kA High energy ratings (2 ms) up to 595 J For high energy absorption	B72205S...
S07			I_{max} 8/20 μ s: up to 1750 A		B72207S...
S10			I_{max} 8/20 μ s: up to 3.5 kA		B72210S...
S14			I_{max} 8/20 μ s: up to 6 kA		B72214S...
S20			I_{max} 8/20 μ s: up to 12 kA		B72220S...

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