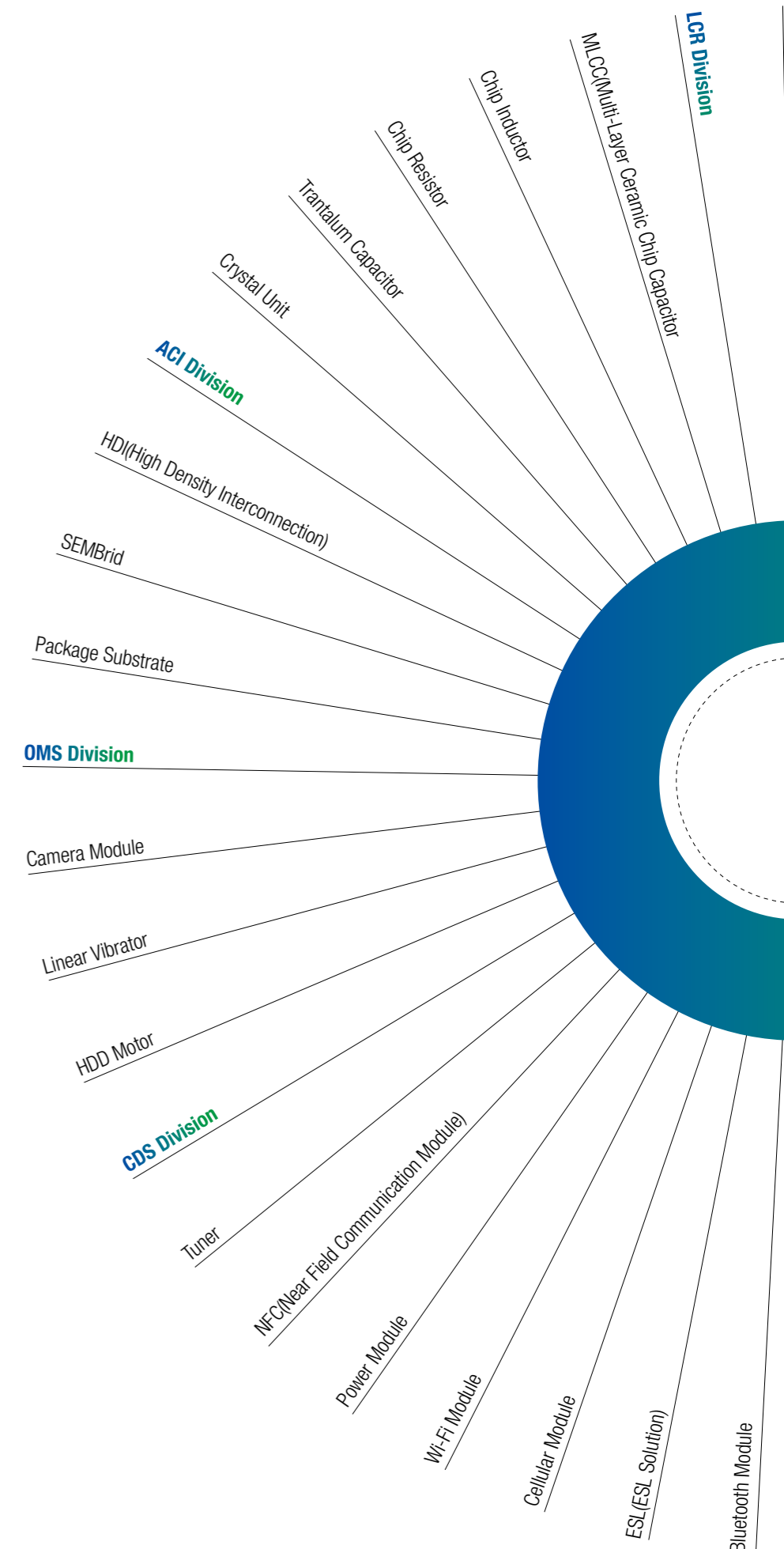


# 2012 Application Guide

SAMSUNG ELECTRO-MECHANICS



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# 2012 Application Guide

SAMSUNG ELECTRO-MECHANICS

# LCR Division

Linkage of Magnetic Flux Coil  
Capacitor  
Resistor

LCR division stands for Linkage of Magnetic Flux Coil, Capacitor and Resistor. Main products are passive components such as MLCC, Chip Resistors, Chip inductors, crystal unit and Solid tantalum. Premium MLCCs, designed to restrain the mechanical crack appearances and malfunctions, are suitable for applications requiring high reliability such as automotive and industrial applications.

## 1. MLCC (Multi-Layer Ceramic Chip Capacitor)

As a major passive component, MLCC is the most prevalent type of capacitor today which temporarily stores electrical charge and decouples the noise in electronic circuits its main body is made up of interleaved layers of dielectric and metal inner electrode which is usually nickel. The external electrodes or terminations provide physical and electrical connection of MLCC to printed circuit board or hybrid IC module



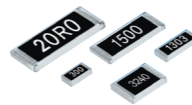
## 2. Chip Inductor

Chip inductor is a kind of SMD type passive component of inductance. It is made by thick film multi-layer process. It is mainly used for impedance matching of telecommunication devices, LC resonance circuits and elimination electromagnetic noise of digital devices.



## 3. Chip Resistor

Chip resistor is general passive components which are useful for controlling current and duration voltage in the circuit. Also it can be mounted on the surface of the PCB.



## 4. Tantalum Capacitor

Tantalum capacitors are designed with excellent performance characteristics for filtering, by-passing, coupling, blocking and R.C tuning circuit. They are used extensively in industrial, commercial, entertainment and medical electronic equipments.



## 5. Crystal Unit

Quartz crystal units are passive components used reverse-piezoelectricity. Samsung's crystal units are designed to be applicable for the requirement of high precision specification such as mobile devices.



# ACI Division

Advanced  
Circuit  
Interconnection

ACI division stands for Advanced Circuit Interconnection. Main products are HDI, RF-PCB, FCxGA and BGA. PCB (printed circuit board) is a device that provides electrical interconnections and a surface for mounting electronic components. Most PCBs are made from a flat rigid or flexible material layered between insulating and conductive element through which electrical currents travel.

## 1. HDI (High Density Interconnection)

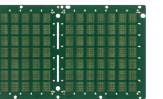
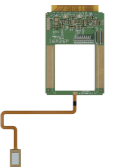
It refers to high-density PCBs created with fine pattern and pitch to exchange electrical signals between electrical components mounted onto a PCB

## 2. SEMBrid

SEMBrid is the acronym of "SEM" + "Hybrid", meaning multi-layer rigid-flex PCB manufactured by Samsung Electro-Mechanics

## 3. Package Substrate

Package substrate is a substitution technology of lead frame in chip packages. The sort of package substrates is UT-CSP, BOC, RF-Sip, FC-CSP and others. These products are used in Application processor, DRAM module, RF-Module, Flash memory, Main purpose is mobile phone.



# CDS Division

Circuit  
Drive  
Solution

CDS division stands for Circuit Drive Solution. Main products are digital tuners, network modules, power modules, and ubiquitous modules. We are continuing making an effort to boost sales of premium products, such as power module and network module products keep developing for customer diversification.

## 1. Power Module

The power module converts externally supplied electricity to the required output voltage for electronic products.

- SMPS for LED TV, LCD TV etc
- Adapter for Note PC, Tablet PC etc
- Power module for LED Lighting, Data Server



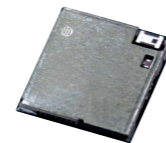
## 2. Tuner

The digital tuner is an essential component for the digital broadcasting industry. This front-end component is built into LCD TVs and other broadcasting receivers to select the right signals from broadcasters so that viewers can watch their desired channels.



## 3. NFC (Near Field Communication Module)

NFC module is device that enables wireless communication for unencrypted information exchanges in a short distance within 10 cm by using RFID technology.



## 4. Wi-Fi Module

The Wi-Fi module is a sophisticated device that enables personal computers, smart phone and other products to access the internet in real time. Samsung Electro-Mechanics is manufacturing a various combo module such as WLAN + BT



## 5. Cellular Module

The cellular module uses broadband frequencies for mobile phones to provide smart phones, tablet PCs and other handhelds with high-speed internet connectivity. This device is expected to be a requirement for operating in a mobile internet environment



## 6. ESL (ESL Solution)

S-Label Tag is a product that displays price electronically and it can display information customer's needs such as price, discount rate and sale signs on the tag. And it is capable of supporting a multi-mode which can display additional information such as producing center, manufacturer, inventory and sales volume for the store managers, A safety lock has been added to prevent theft of the tag, and various colors and designs are available for displaying store logos



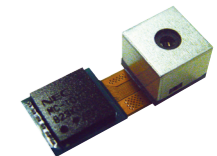
# OMS Division

Opto &  
Mechanics  
Solution

OMS division stands for Opto and Mechatronics Solution. Main Products are camera modules, precision, motors and HDD Motor. We are also expanding into camera modules specifically for smart phones and tablet PCs as well as new areas into the new markets automotive electronic system and sensing applications.

## 1. Camera Module

Camera modules, akin to an "electronic eye," transform images that pass through the lens into digital signals for taking pictures and recording video. SEM is working on exceptional camera modules for smart phones with high resolution solution, subminiature camera, auto focus, vibration compensation and high quality actuators/lens. The company is also expanding into camera modules specifically for smartphones and tablet PCs as well as new areas into the new markets, automotive electronic system and sensing applications



## 2. Linear Vibrator

Precision motors are built inside smartphones and game consoles to generate vibrations that convey messages such as silent alerts of incoming calls or text messages. With today's popular smartphones, the use of vibration is evolving to include haptic functions, which interface with the user through the sense of touch. In addition, R&D resources are being focused on the development of smaller, thinner, and more durable precision motors suitable for mobile applications.

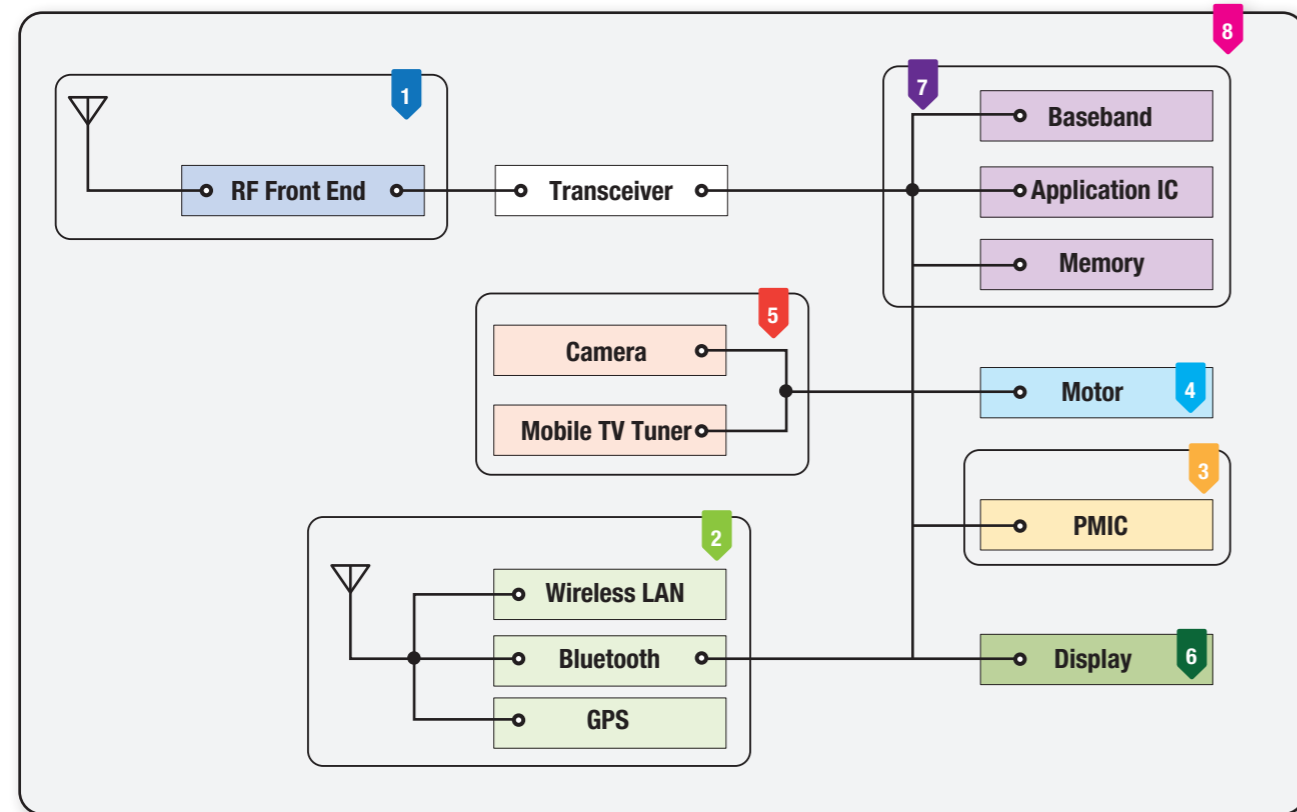
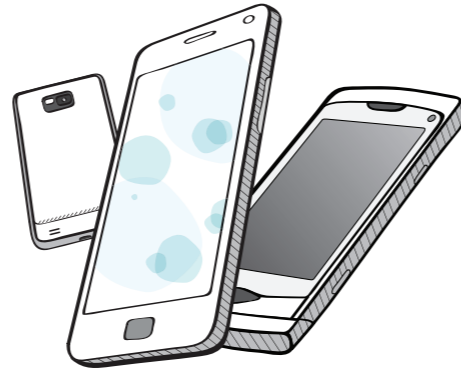


## 3. HDD Motor

Hard Disk Drive Motor revolves the disks installed in HDD of computers, while Optical Disc Drive Motor is used in CD and DVD players at rated speed.



# 1 Smart Phone / Feature Phone



## 1 RF Components

- In mold antenna
- MLCC
- Chip inductor
- Chip bead
- Crystal unit

## 2 Network

- WiFi+BT combo module
- Bluetooth module
- NFC module (Near field communication)

## 3 Power Control

- MLCC
- Tantalum capacitor
- Power inductor
- Chip bead
- Chip resistor
- Wireless power transfer
- Adapter

## 5 Multimedia

- Camera module
- Mobile tuner
- Optical navigation module

## 7 Chipset

- FCCSP
- RFSiP
- CSP(Ultra thin)
- Crystal unit

## 4 Motor

- Vibration motor
- Linear vibrator

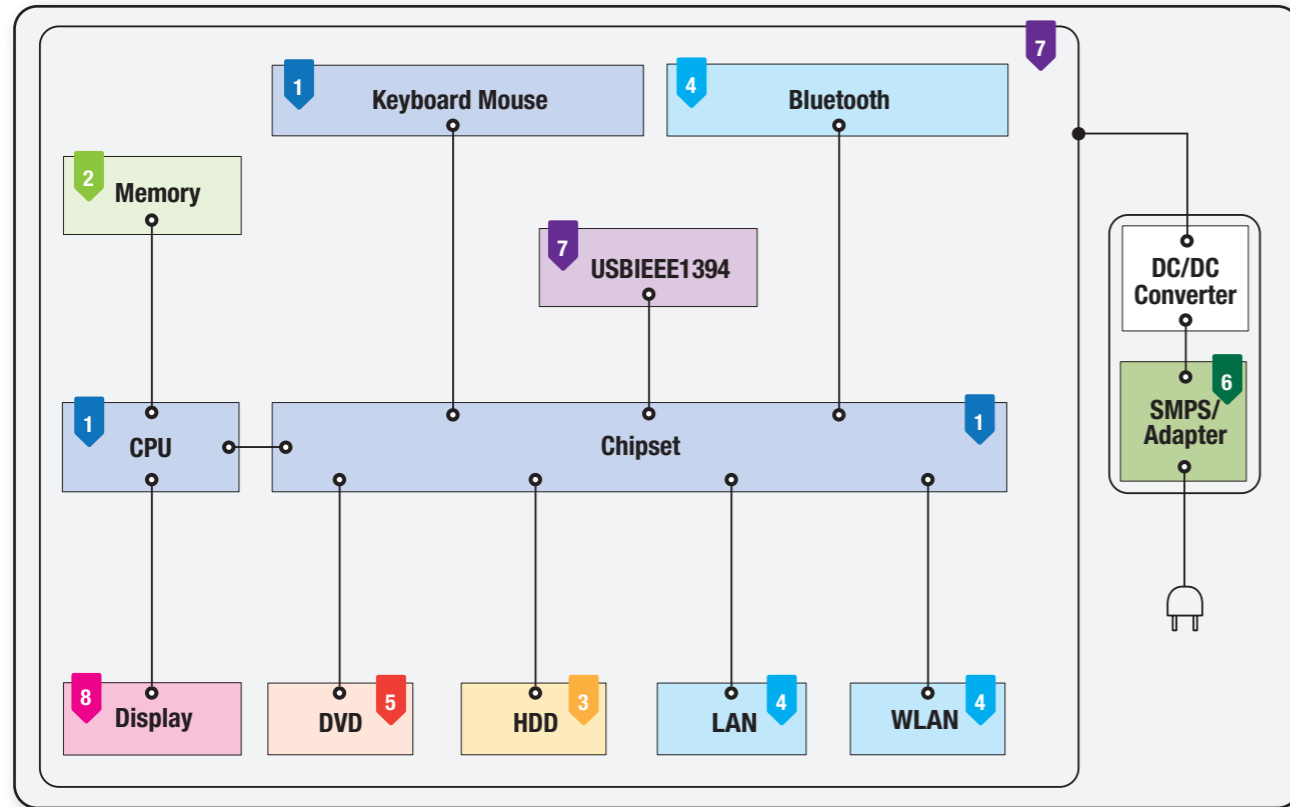
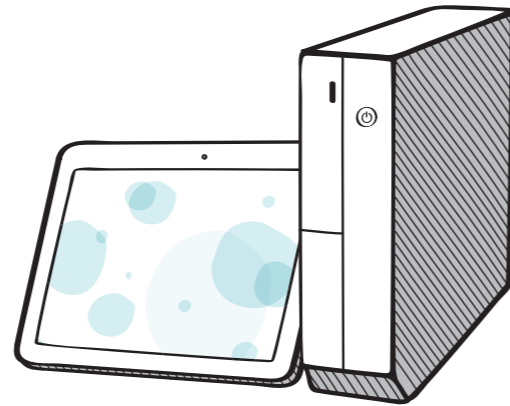
## 6 Display

- Rigid-flex

## 8 Main Board

- HDI
- HDI-flex
- MLCC
- Tantalum capacitor
- Power inductor
- Chip inductor
- Chip bead
- Chip resistor
- Crystal unit
- Hall IC

# 2 Desktop / Tablet Computer




## 1 Chipset

- CSP(Ultra thin) 
- FCCSP 
- MLCC 





## 2 Memory

- BOC 
- MLCC 
- Chip resistor 

## 3 HDD

- HDD Motor 

## 4 Network

- WiFi+BT combo module 
- WiMAX module 
- Cellular module 
- NFC (Near Field Communication) 








## 5 DVD

- ODD Motor 

## 6 Power System

- Adapter 
- Server Power 

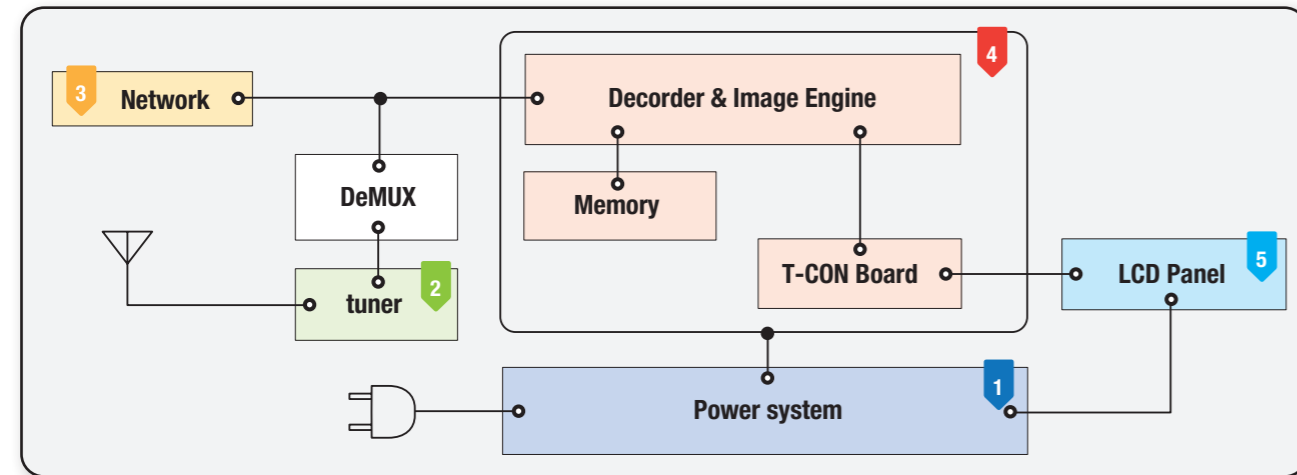
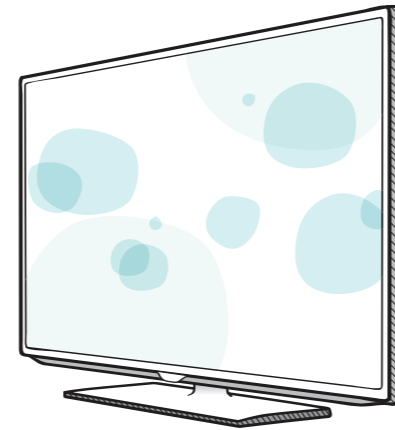
## 7 Main Board

- HDI 
- MLCC 
- Tantalum capacitor 
- Chip inductor 
- Chip bead 
- Chip resistor 
- Crystal unit 

## 8 Display

- Camera module 
- LED driver IC 
- Linear vibrator 

# 3 LCD TV (LED TV)



## 1 Power Control

- Super IP board
- SMPS(LCD)
- Inverter
- Power driver for LED TV
- LED Driver

## 3 Network

- WiFi module

## 5 LCD Panel

- LED driver IC

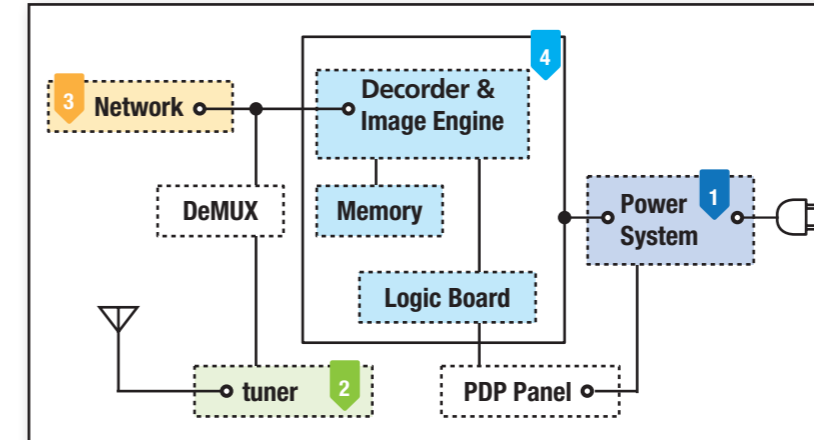
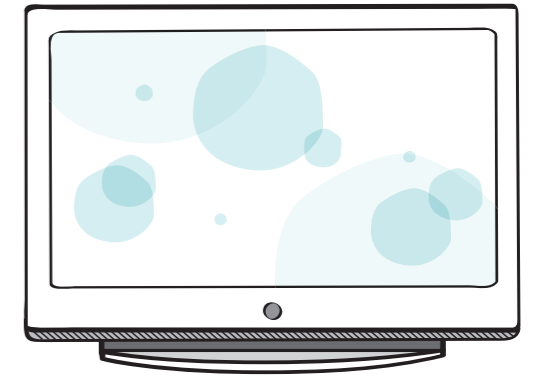
## 2 Tuner

- Digital tuner (Silicon tuner)
- Slim tuner for LED TV

## 4 Main Board

- PBGA
- FCBGA
- MLCC
- Chip inductor
- Chip bead
- Chip resistor

# 4 PDP TV



## 1 Power System

- SMPS

## 3 Network

- WiFi module

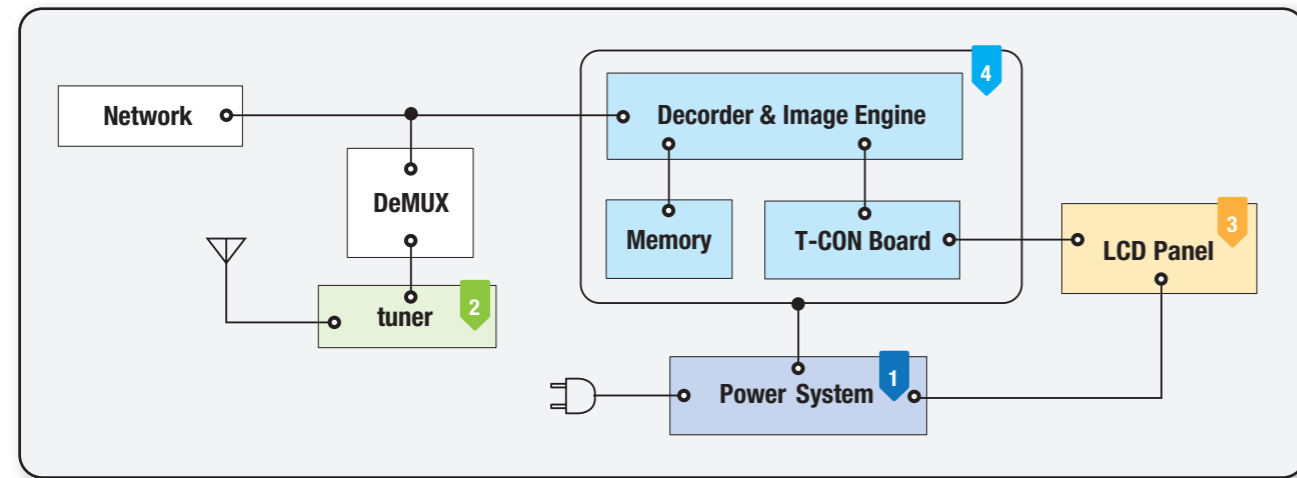
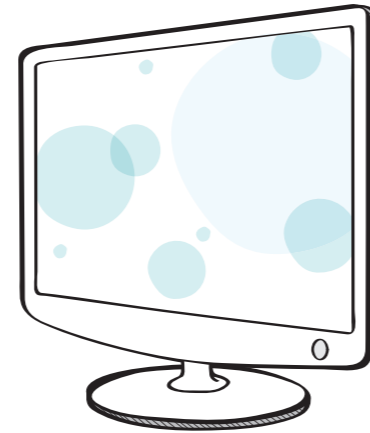
## 2 Tuner

- Digital tuner (Silicon tuner)

## 4 Main Board

- PBGA
- FCBGA
- MLCC
- Chip inductor
- Chip bead
- Chip resistor

# 5 LCD Monitor



## 1 Power System



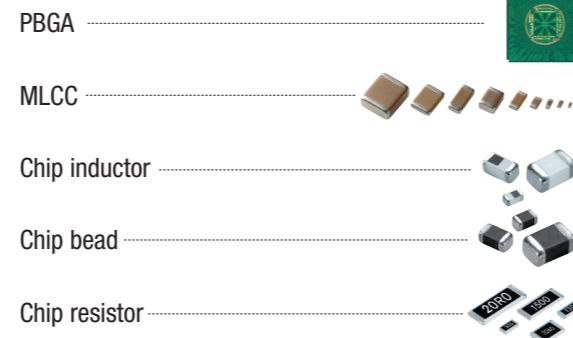
## 2 Tuner



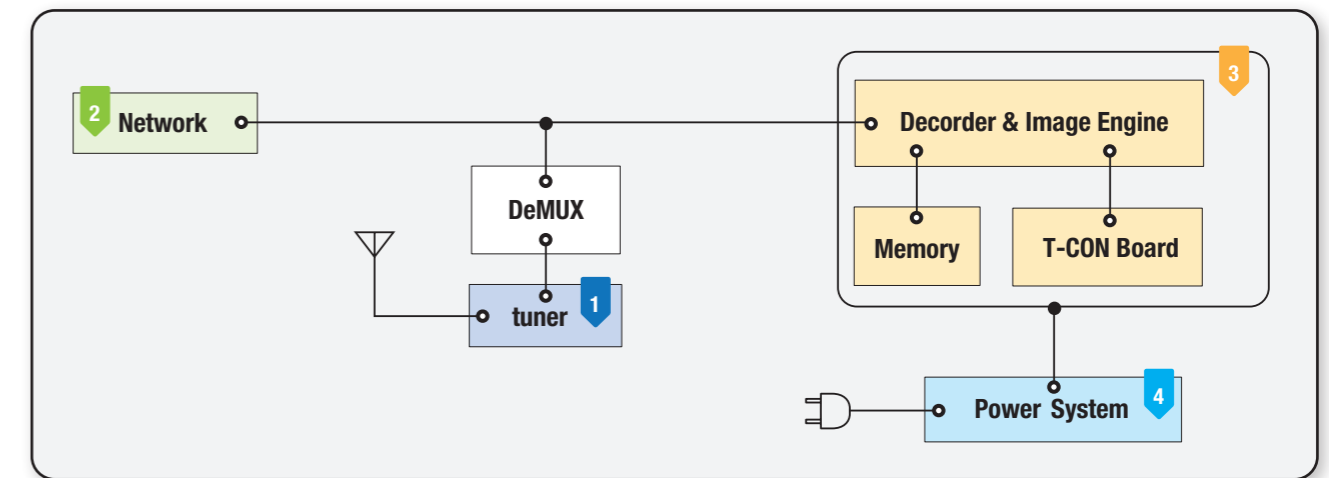
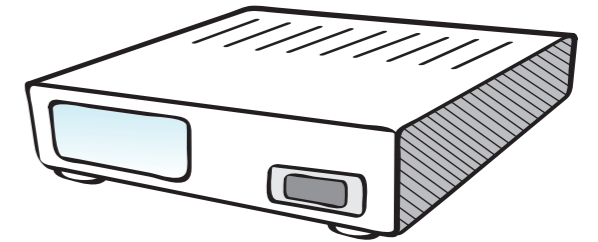
## 3 LCD Panel



## 4 Main Board



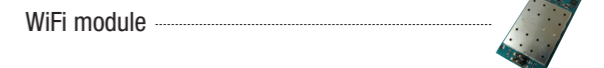
# 6 Set-top Box



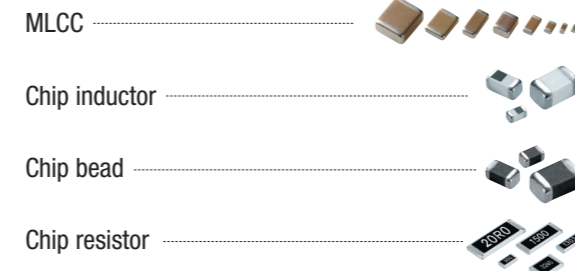
## 1 Tuner



## 2 Network



## 3 Main Board

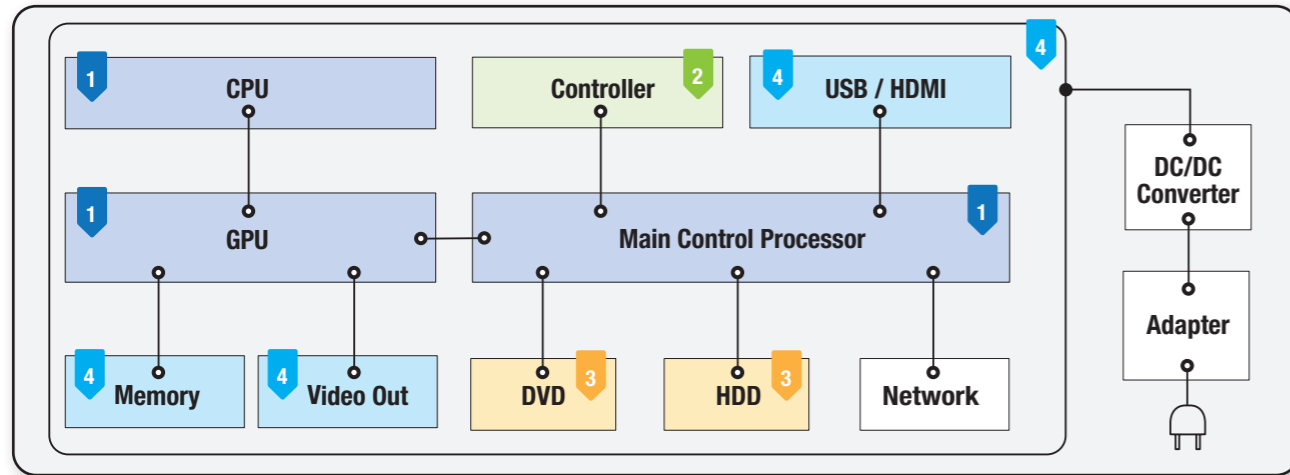
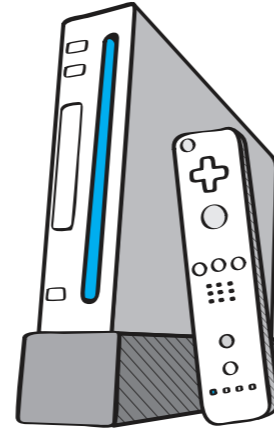


## 4 Power System





# 7 Game Console



## 1 Chipset

- FCBGA
- PBGA
- MLCC

## 2 Controller

- Vibration motor
- Camera module

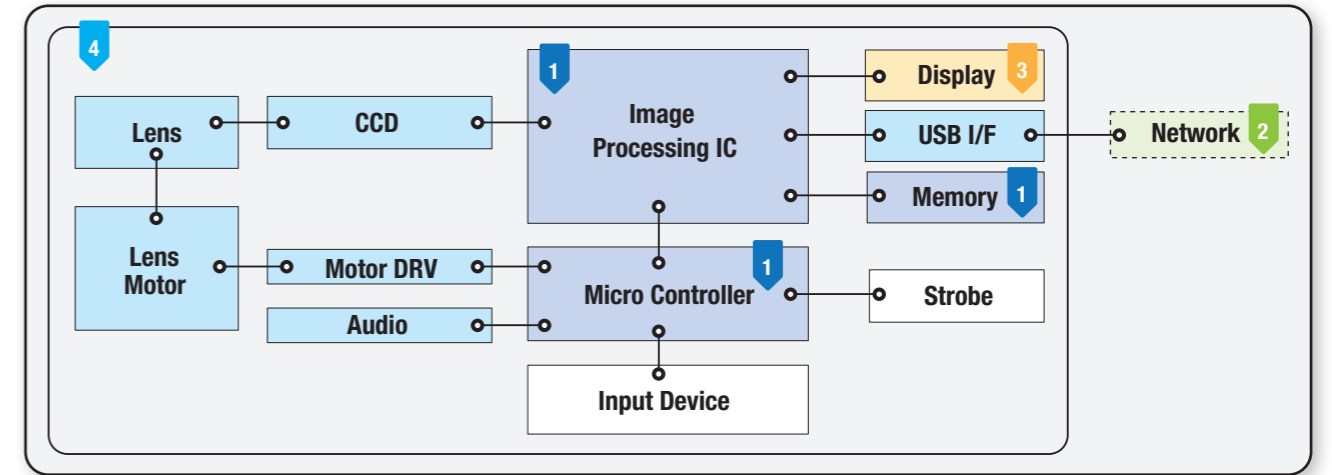
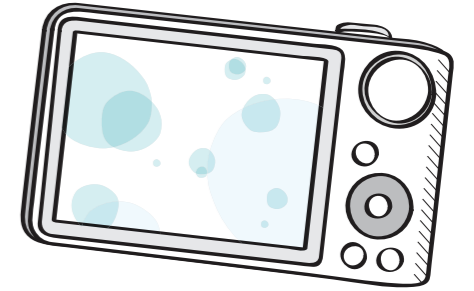
## 3 DVD - HDD

- HDD Motor
- MLCC
- PDIC

## 4 Main Board

- HDI
- BOC
- MLCC
- Tantalum capacitor
- Chip inductor
- Chip bead
- Chip resistor
- Crystal unit

# 8 Digital Still Camera



## 1 Chipset

- CSP
- FCCSP

## 2 Network

- WiFi+BT combo module

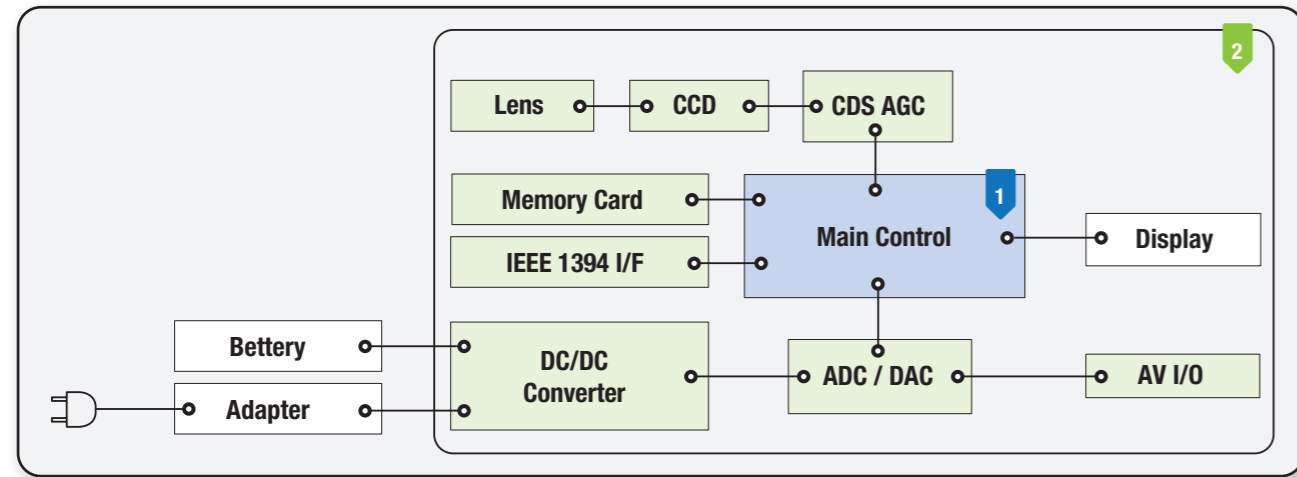
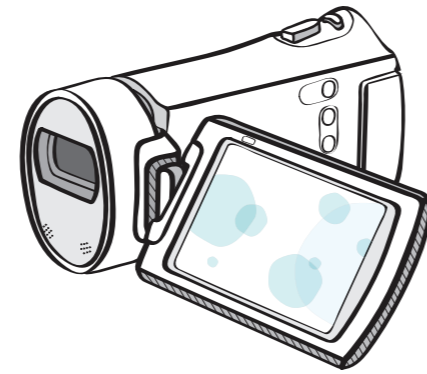
## 3 Display

- Linear vibrator

## 4 Main Board

- HDI
- MLCC
- Tantalum capacitor
- Chip inductor
- Power inductor
- Chip bead
- Chip resistor
- Crystal unit

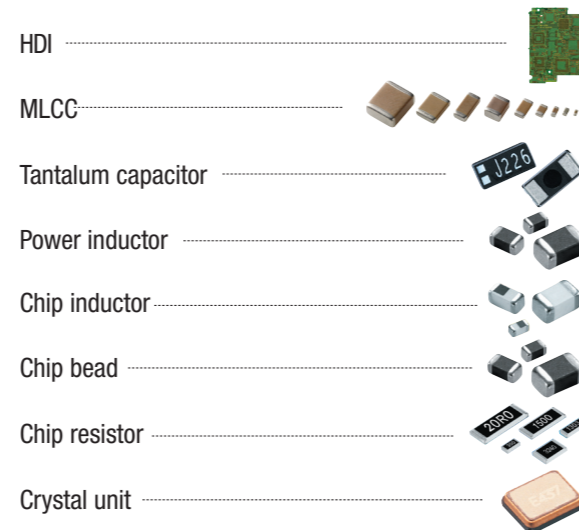
# 9 Digital Video Camcorder



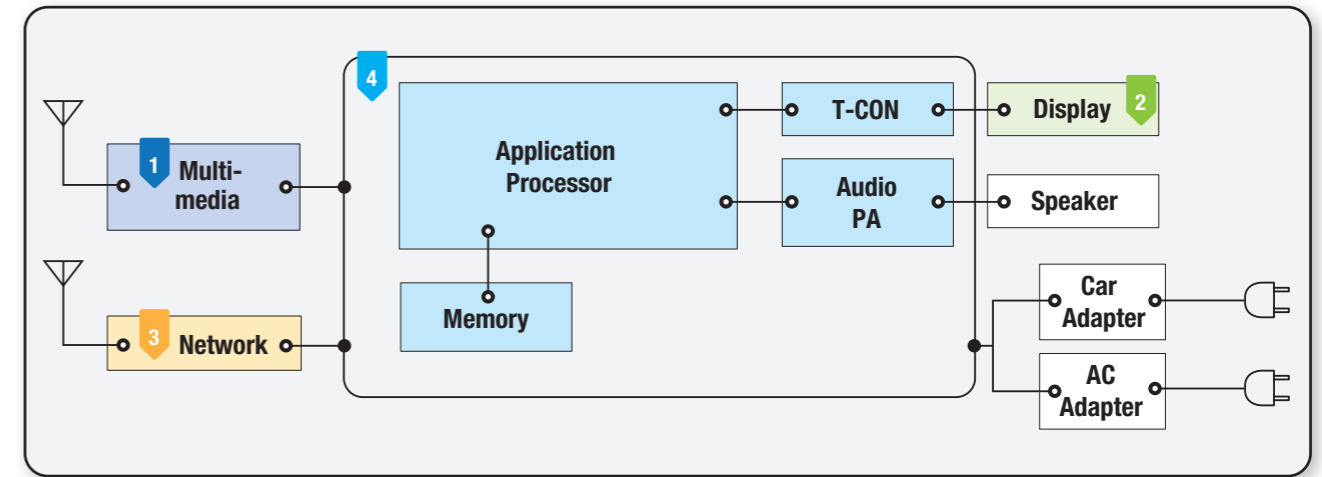
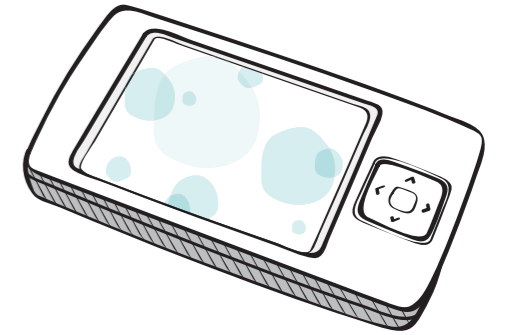
## 1 Chipset



## 2 Main Board



# 10 Navigation



## 1 Multimedia



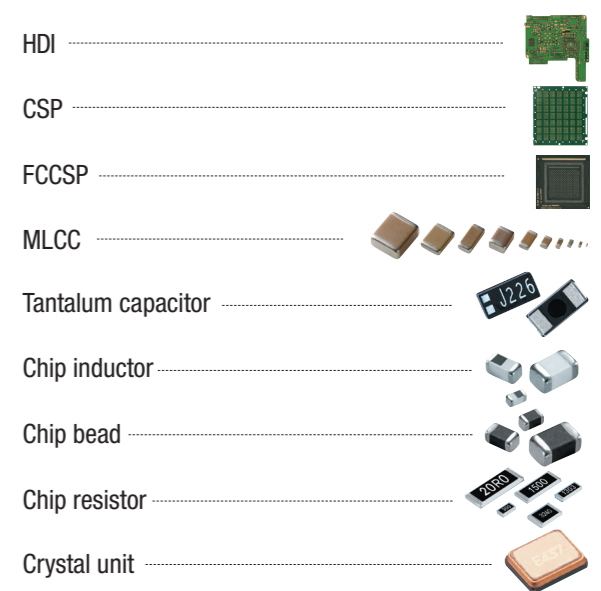
## 2 Display



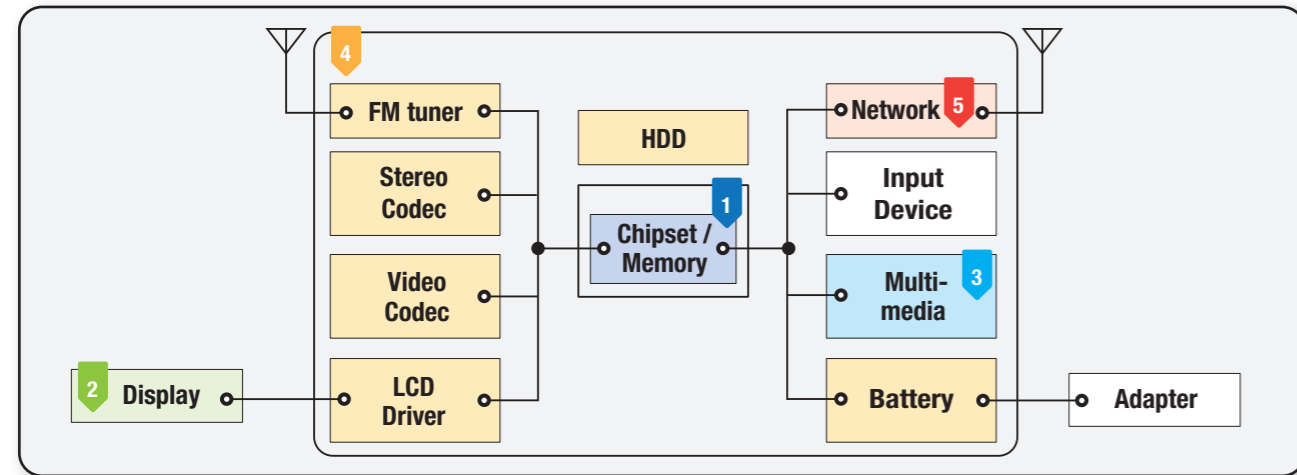
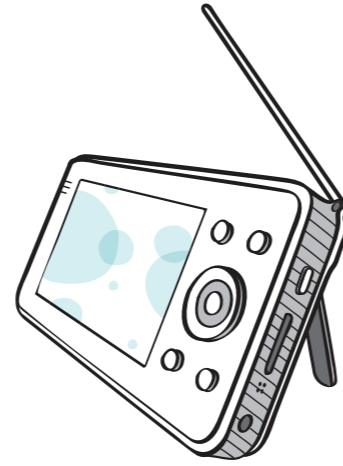
## 3 Network



## 4 Main Board



# 11 Portable Multimedia Player



## 1 Chipset / Memory

- CSP
- FCCSP

## 3 Multimedia

- Camera module

## 5 Network

- WiFi+BT combo module

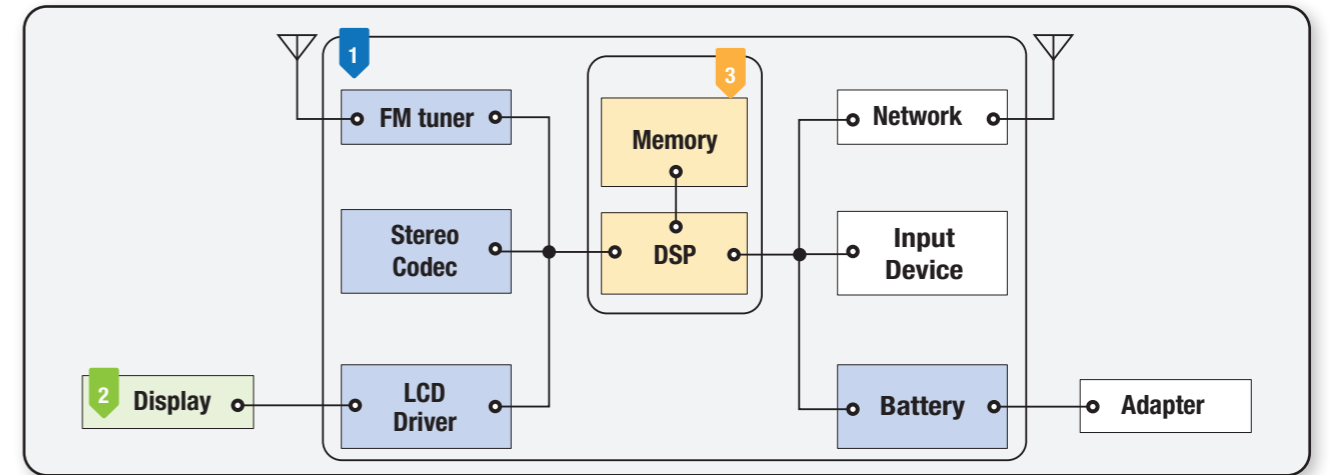
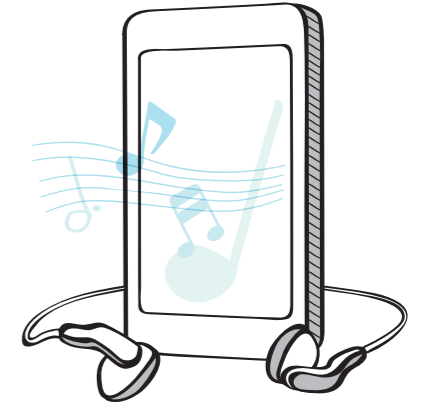
## 2 Display

- Linear vibrator

## 4 Main Board

- HDI
- MLCC
- Tantalum capacitor
- Power inductor
- Chip inductor
- Chip bead
- Chip resistor
- Crystal unit

# 12 MP3 Player



## 1 Main Board

- MLCC
- Tantalum capacitor
- Power inductor
- Chip inductor
- Chip bead
- Chip resistor
- Crystal unit

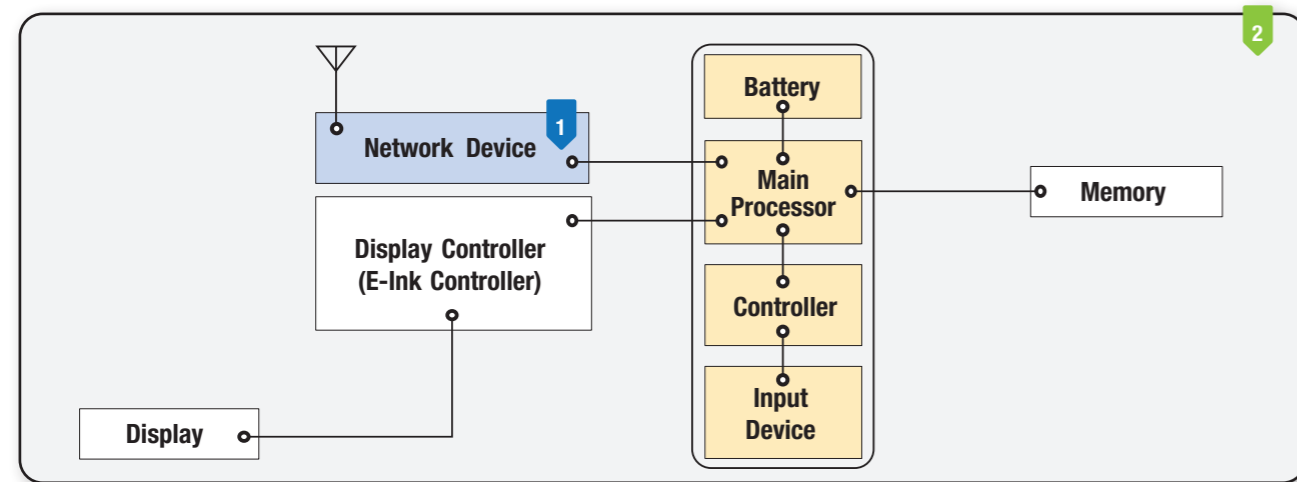
## 2 Display

- Linear vibrator

## 3 Chipset / Memory

- CSP

# 13 e-Book



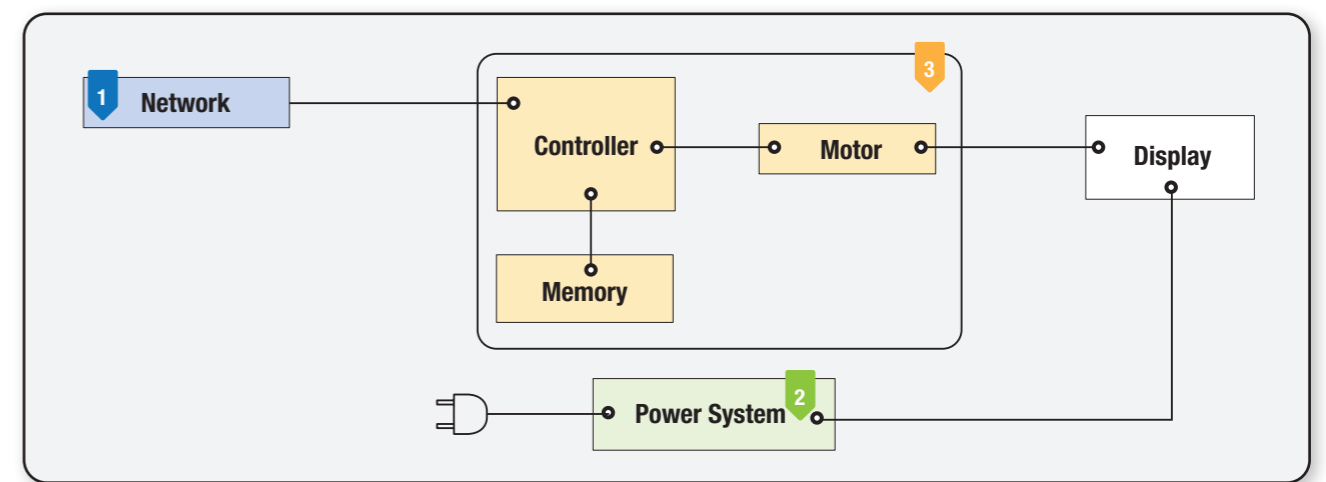
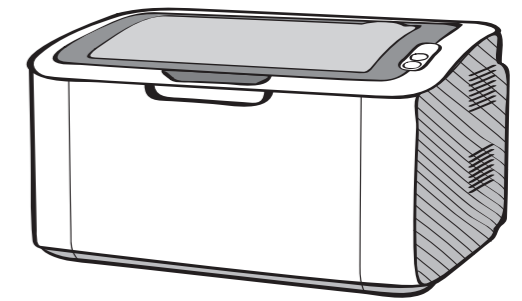
## 1 Network

WiFi+BT combo module

## 2 Main Board

- HDI
- CSP
- FCCSP
- MLCC
- Tantalum capacitor
- Chip resistor
- Crystal unit

# 14 Laser Printer



## 1 Network

WiFi module

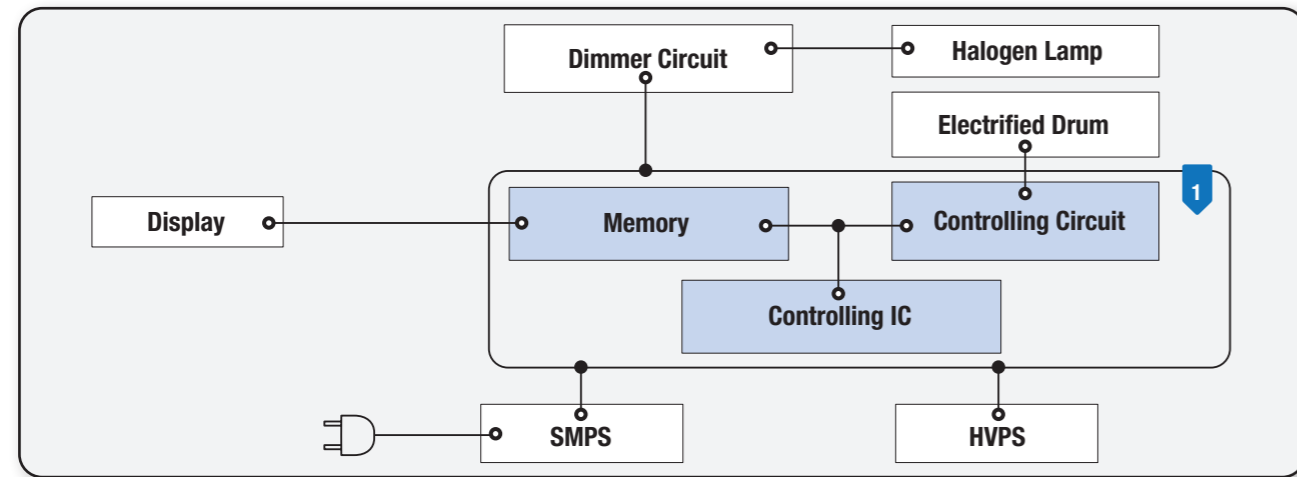
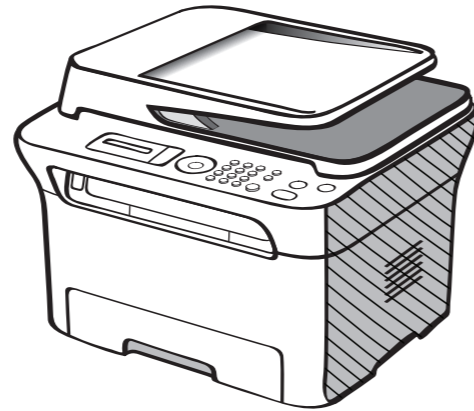
## 2 Power System

SMPS








## 3 Main Board

- PBGA
- MLCC
- Tantalum capacitor
- Chip inductor
- Chip bead
- Chip resistor

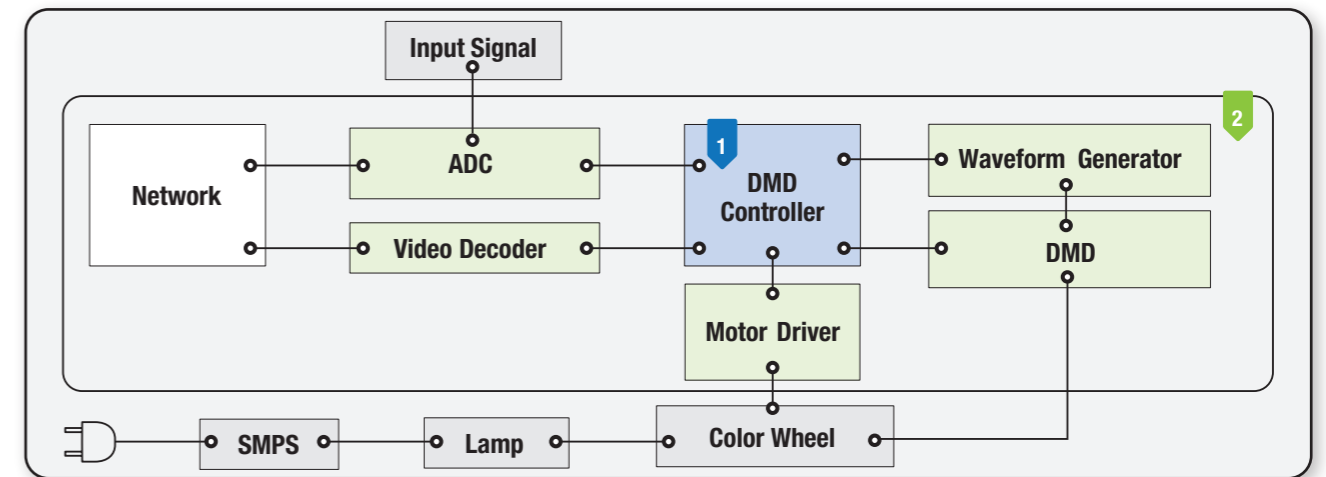
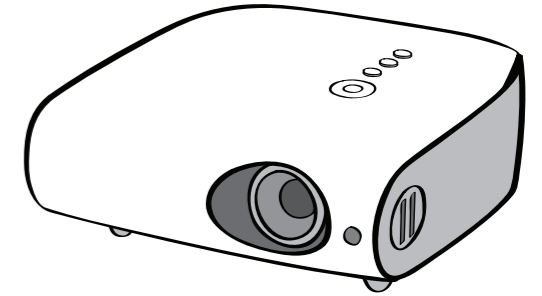
# 15 Copy Machine



## 1 Main Board

- HDI 
- PBGA 
- MLCC 
- Tantalum capacitor 
- Chip inductor 
- Chip bead 
- Chip resistor 







# 16 Projector



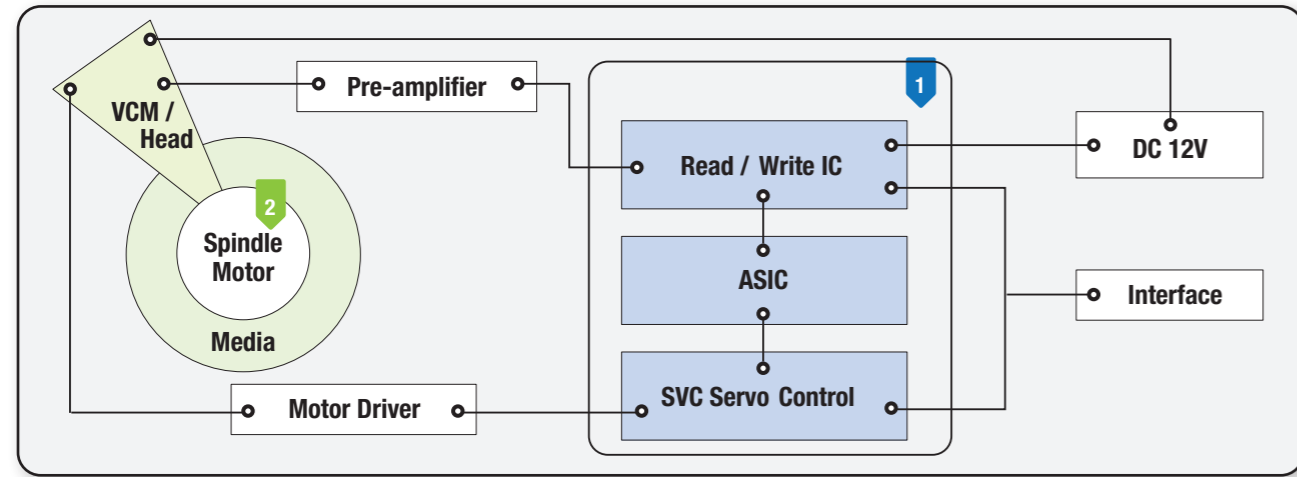
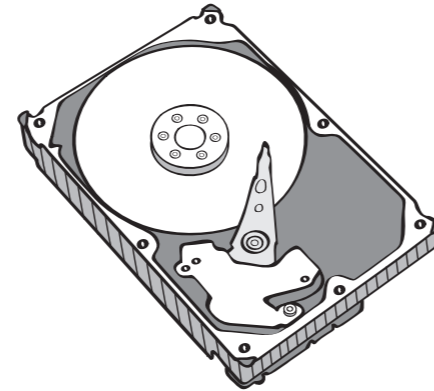
## 1 DMD(Digital Micromirror Device) Controller

- PBGA 

## 2 Main Board

- HDI 
- MLCC 
- Tantalum capacitor 
- Chip inductor 
- Chip bead 
- Chip resistor 

# 17 Hard Disk Drive



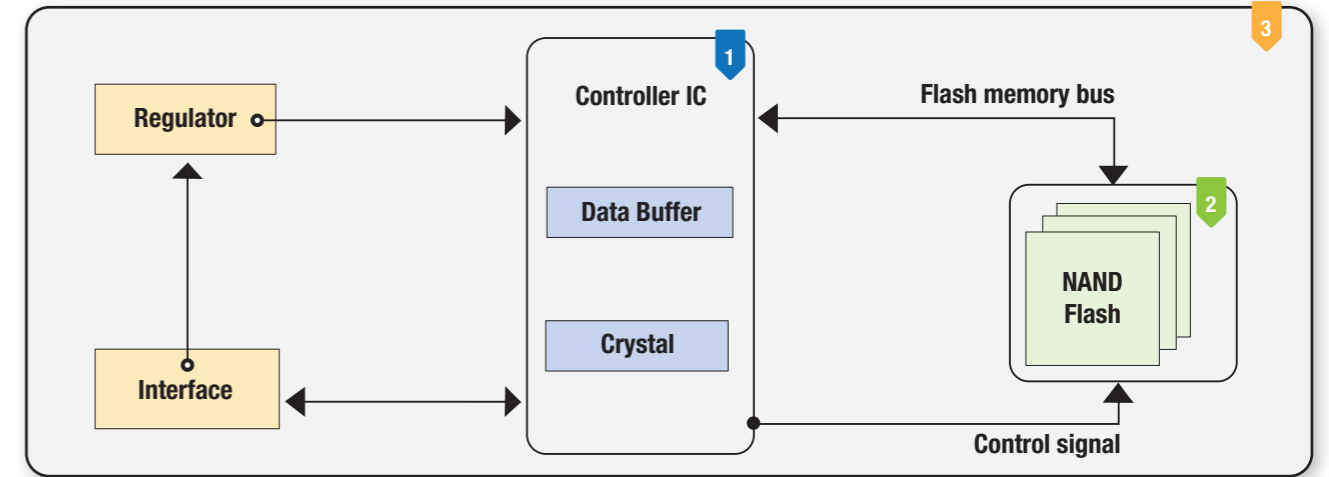
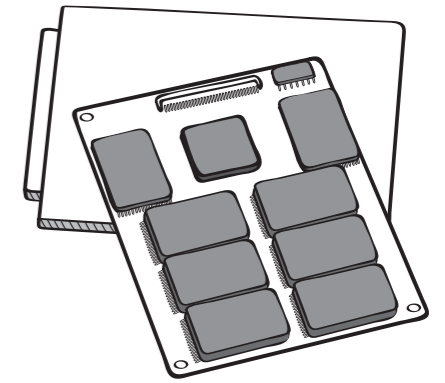
## 1 Main Board

- MLCC
- Tantalum capacitor
- Chip inductor
- Chip bead
- Chip resistor
- Crystal unit
- EMI filter
- CSP

## 2 Disk Enclosure

- HDD motor

# 18 Solid State Drive



## 1 Controller IC

- CSP
- MLCC
- Power inductor
- Chip inductor
- Chip bead
- Chip resistor
- Crystal unit

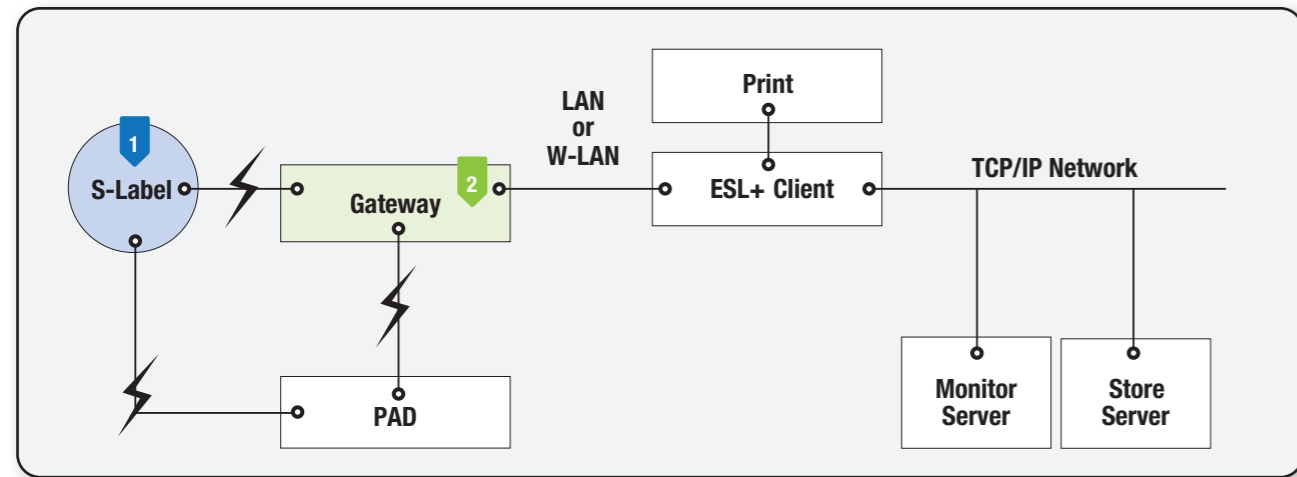
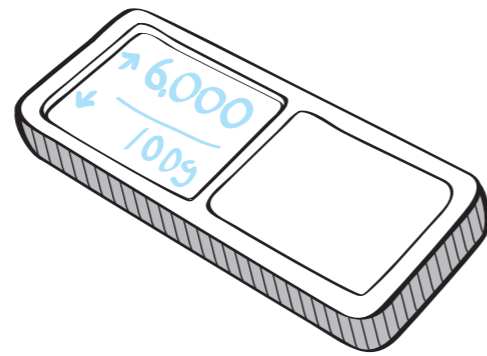
## 2 Memory

- CSP
- MLCC
- Chip resistor




## 3 Regulator

- HDI
- MLCC
- Chip resistor


# 19 Electronic Shelf Label



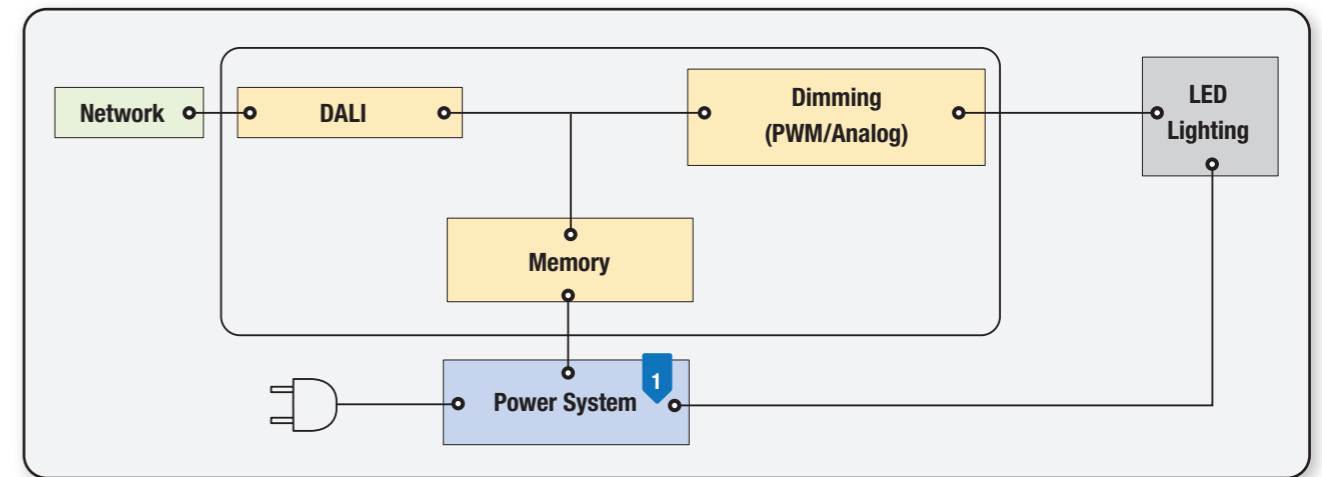
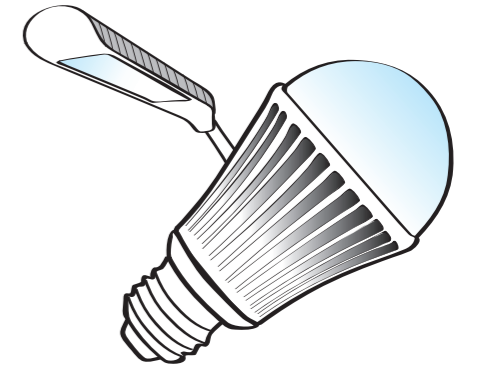
## 1 S-Label

- EPD Type ESL Tag ..... 
- TN LCD Type ESL Tag ..... 
- Active Matrix Tag ..... 






## 2 Gateway

- Gateway ..... 

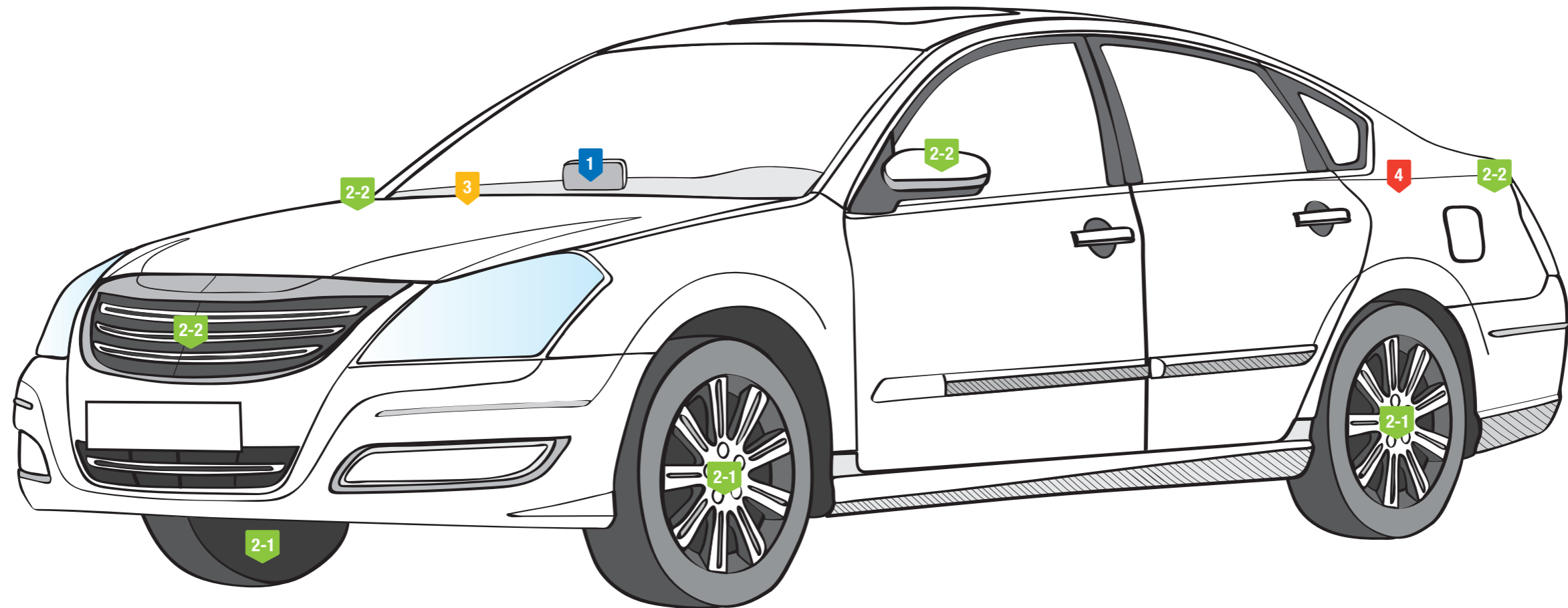
# 20 LED Lighting



## 1 Power System

- SMPS**
- Bulb ..... 
- Down Light ..... 
- L-Tube ..... 
- Flat Panel Light ..... 
- Street Light ..... 

# 21 Automotive



## 1 Information, Comfort

MLCC 


## 2 Safety

2-1. TPMS(Tire Pressure Monitoring System) 


2-2. Camera Module   
- SVM : Side View Monitoring  
- NVC : Night Vision Camera  
- RVC : Rear View Camera

## 3 Car Connectivity

### Telematics System

Bluetooth Module   
WiFi Module   
Cellular Module 

## 4 xEV Powertrain

On-Board Charger 



MEMO

MEMO

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# Head Office & Worksites (Korea)

## Head office & Sales Dept.

206, Cheomdansaneop Road, Yeongtong-Gu, Suwon City,  
Kyeonggi Province 443-743, Korea  
Tel: 031-210-5114  
Fax: 031-210-6363

## Daejeon Plant

581, Myeonghah-ri, Dong-myeon, Yeongi-gun, Chungnam Province  
339-860, Korea  
Tel: 041-861-1214  
Fax: 041-861-1333

## Busan Plant

114, Noksansaneopjung Road, Gangseo-gu,  
Busan 618-270, Korea  
Tel: 051-970-7114, 8114  
Fax: 051-970-8702

## Seoul office

21st Fl, Samsung Seocho-Tower 1320-10, Seocho 2-dong, Seocho-gu, Seoul 137-857, Korea  
Tel: 02-2255-2840~49  
Fax: 02-2-2255-2850

# Global Network

## Production

### Manufacturing Sites

#### Dongguan Samsung Electro-Mechanics Co., Ltd.(DSEM)

Hengkeng Management Area,  
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