



INNOVATION POWER

RYCHIP Semiconductor Inc.



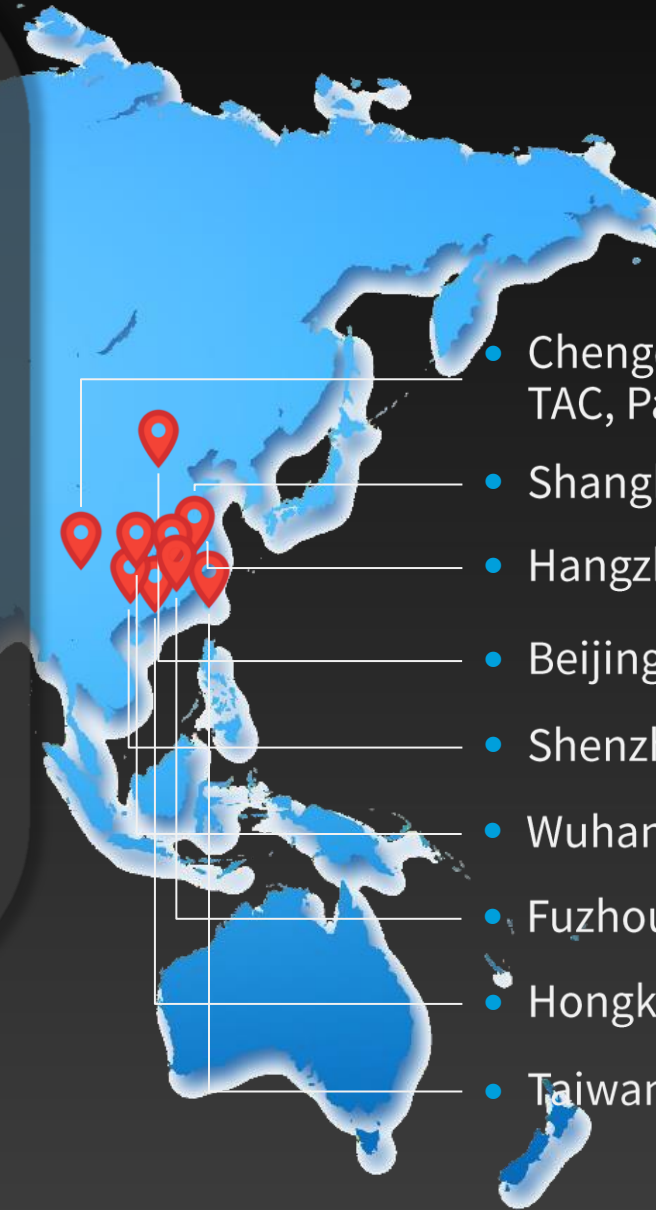
Company Introduction

Company Info

RYCHIP Semiconductor Inc. is located in Chengdu, China (Sichuan) Pilot Free Trade Zone. RYCHIP is a design company which is focusing on the R&D, operation, sales and service of analog power IC products. The core team consists of Linear, Maxim, MPS, MACOM and other international leading design team. The core product line is DC-DC converter series, also provide PMU series, LDO, current-limit protection series, li-ion and li-poly Battery Protection series, amplifier series, charger series, motor driver series and customized series.

RYCHIP established R&D center, System LAB in Chengdu, Shanghai, established TAC center in Chengdu, Shanghai and Shenzhen. There are more than 50 professional engineers serving in the team. Core team members have more than 15 years average industry experience. RYCHIP package factory will be completed in Q1 in 2020 at Chengdu.

RYCHIP established nine sales offices in Beijing, Shanghai, Shenzhen, Hangzhou, Wuhan, Chengdu, Fuzhou, Hong Kong, Taipei. RYCHIP is committed to provide high-quality, cost-effective, delivery-efficient analog power IC products and solutions for global customers. There are already more than hundreds of high-quality customers, such as Huawei, ZTE, Fiberhome, Dahua, Nokia-sbell, Skyworth, FOXCONN, T&W, Donzhi, TwoWing etc. the shipments of 2019 reach 1.1 billion pcs.



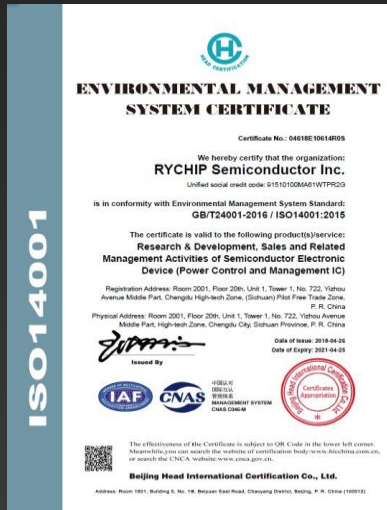
- Chengdu HQ, R&D, LAB, Sales, TAC, Package Factory
- Shanghai R&D, LAB, Sales, TAC
- Hangzhou Sales & FAE
- Beijing Sales & FAE
- Shenzhen LAB, Sales, TAC
- Wuhan Sales & FAE
- Fuzhou Sales & FAE
- Hongkong Sales
- Taiwan Sales & FAE

Certification

RYCHIP plan to invest 30 million USD for building package factory and lab. Package capacity will be reach 400KK pcs per month. Phrase 1 have finished at march 2020, it can provide 100KK capacity monthly.



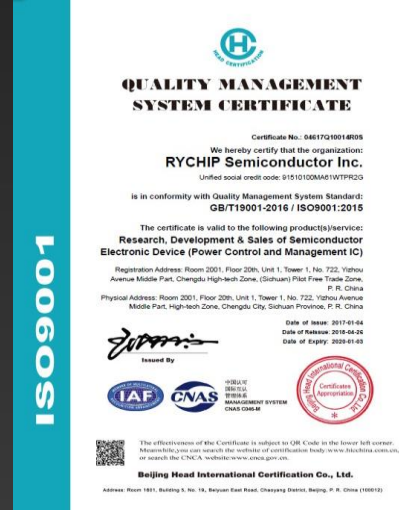
Trademark Registration Certificate



ISO14001










GB/T28001-2011
OHSAS18001:2007



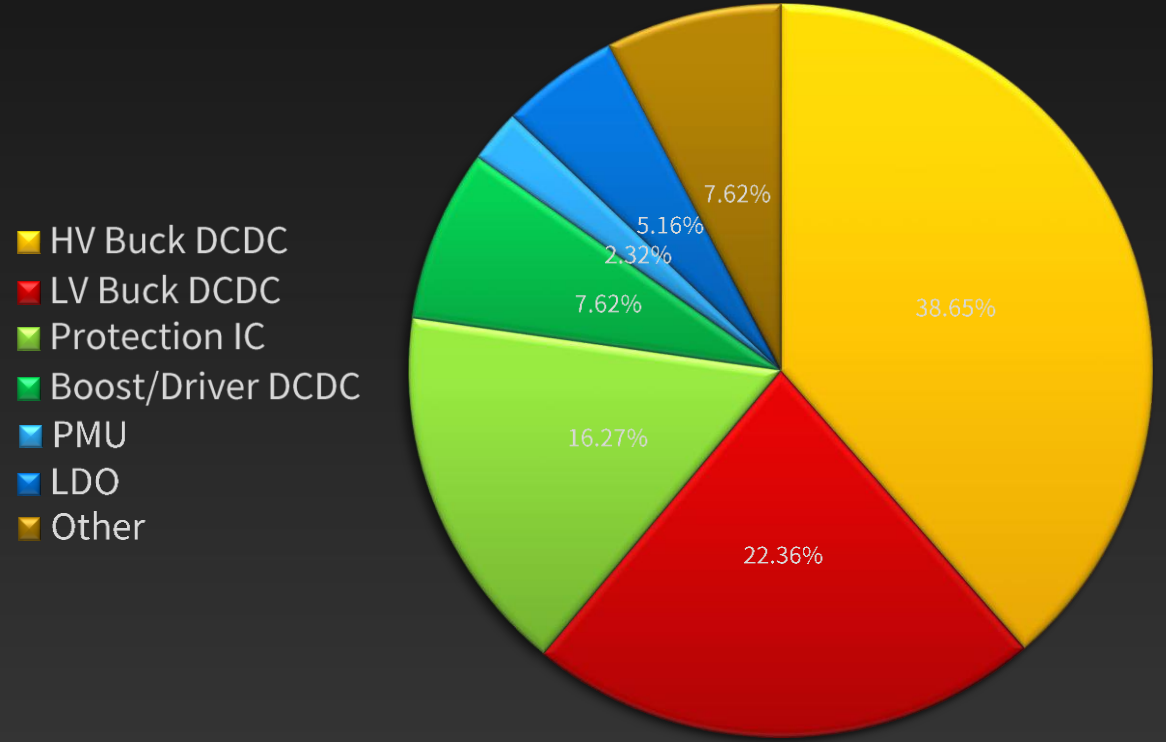
ISO9001



PRC Business license

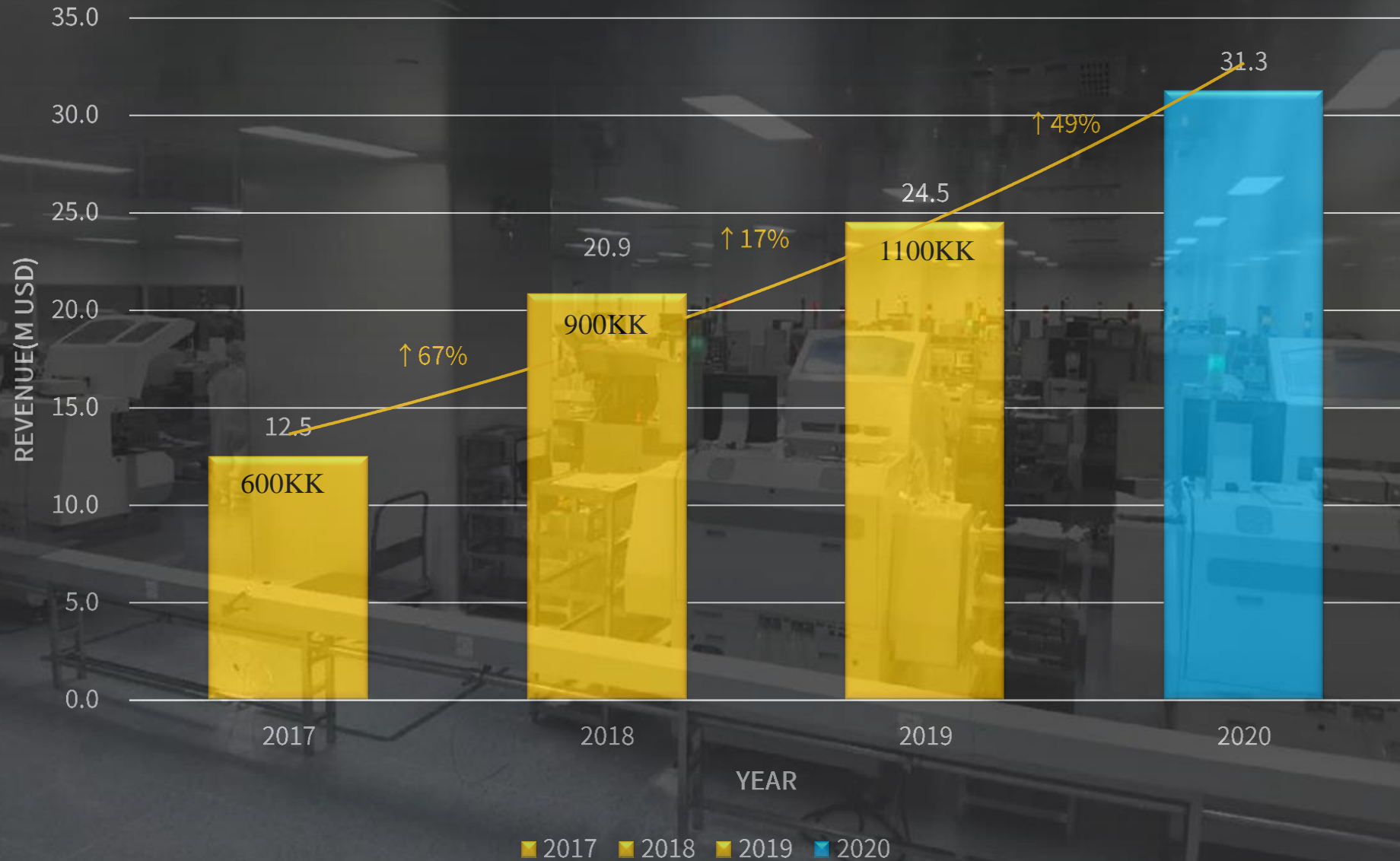
	Networks & Telecom	48%
	IPC/CCTV & DVR	17%
	Li-poly Battery Protection	16%
	TV & Monitor	6%
	SSD	5%
	Others	5%
	LED	3%

Products Summary in 2019 (Revenue)



Products & Applications

Revenue 2017-2020



Supply Chain



PMIC 180KK/M Capacity in 2019



QFN/DFN



QFN/DFN
FC SOT563/SOT238/SOT236



SOT235/SOT236
SOT89/SOP8/ESOP8/CPC5



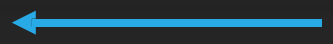
SOT233/SOT235/SOT236

Supply Chain





KS
CONNX Elite



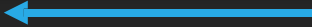
ASM
iHAWK Xtreme



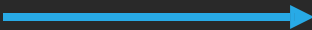
Innovation



Molding



Trim form



Quality



IP & Foundry

5-10V/1-10A LV COT BUCK - CMOS

20V/2-10A COT BUCK - BCD

30V/1-8A COT BUCK -BCD

40-100V/1-10A COT & Current Mode BUCK – BCD

Low IQ & Noise BUCK - CMOS

Low Noise & High Precision OPA - CMOS

HV & LV Sys. Boost – BCD

5W-100W BLDC driver –BCD

5-50W LED driver-BCD

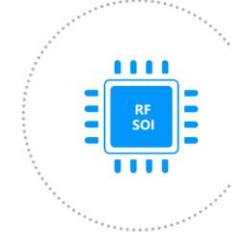
FEM(PA/LNA/Switch)-SiGe

FEM(PA/LNA/Switch)-GaAs/HBT

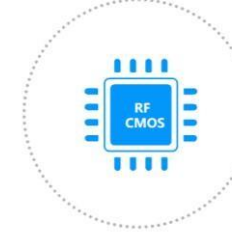
FEM(PA/LNA/Switch)-RF CMOS/RF SOI



SiGe PA



RF SOI



RF CMOS

PMIC Foundry



BCD technology 12V-80V
(Bipolar-CMOS-Complementary DMOS)



130nm&180nm BCD Process , Small die size, Low R_{DS(on)}



CMOS technology 3.3V 5V 7V



GLOBAL FOUNDRIES
130nm, 180nm SOI
350nm SiGe



WIN SEMICONDUCTORS
HBT C3 GaAs



Hua Hong Semiconductor
200nm SOI

RF Foundry

BCD 12-40V LDMOS

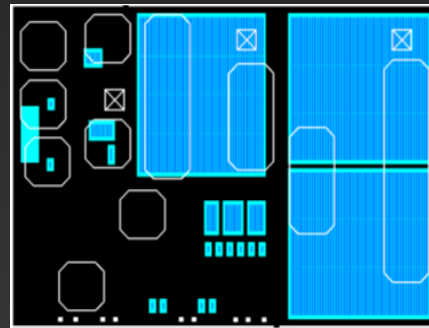


Standard Process: 25 layers
RYCHIP Process: **21** layers

Die Area (MP165X 2A)



MPS: 1030um*750um
Qty. : 33200pcs



RYCHIP: 905um*640um
Qty:43300pcs

Design &
Process
Competition -
BCD

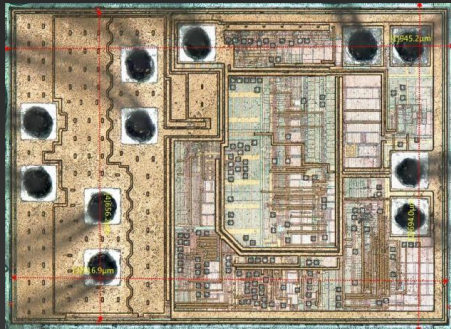
CMOS 6V DMOS



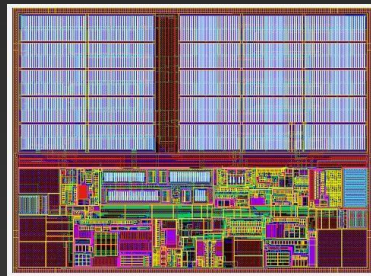
Standard Process: 18 layers

RYCHIP Process: **16** layers

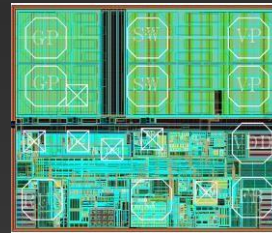
Die Area (SY8088 / RY3408 / RY3408S)



SY: 915um*650um
Qty. : 42300pcs



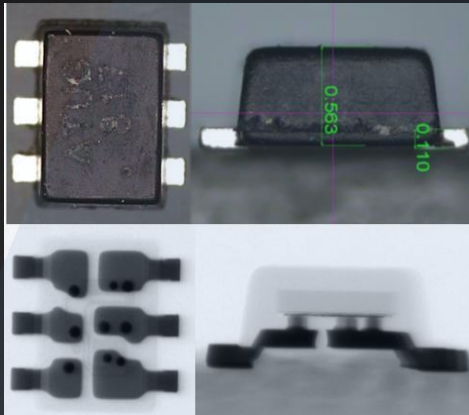
RYCHIP: 680um*500um
Qty. :69000pcs



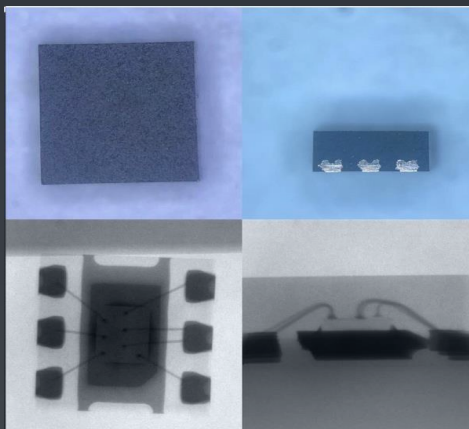
RYCHIP: 510um*430um
Qty. :98000pcs

Design &
Process
Competition -
CMOS

Package Competition



Package	Technology	Cost	Heat dispersion	Package Factory
SOT563	Flip-chip	High	Normal	2



RYCHIP PATENT

Package	Technology	Cost	Heat dispersion	Package Factory
SON763	Wire-bonding	Low	Good	>10



Product and Solution



DCDC Series

PMU Series

Smart LED driver

RF Series

OPA Series

Motor Driver

Protection IC

PoE Series

Charger Series

Single Channel DC-DC Converter

- V_{IN} 5V~100V
- I_{OUT} 1A~10A
- V_{FB} 0.6/0.8/0.76/0.925V
- F_{sw} 200KHz~6MHz
- PSM/Force-PWM
- Build-in SS/OVP/OCP
- Current mode/ECOT mode

Step up DC-DC Converter

- V_{OUT} 2.5-24V
- V_{IN} 2.5-24V
- I_{IN} 2A/4A
- Boost/LNB

LCD/LED/OLED PWR/Driver

- 4-8 Series WLED Driver
- AMOLED Power PMIC
- 30V/1.5A SYN LED/IR Driver
- 30-40V/0.8-1.2A ASY LED/IR Driver
- 60V/1.5A-5A Led driver



DC-DC

Package

- SOT235/SOT236/SOT89
- SOP8/ESOP8
- SOT238/SOT563
- CSP
- DFN/QFN
- WB Package Technology
- FC Package Technology

Pin to Pin

- P2P TI, MPS, Silergy etc.
- P2P Richtek, Fitipower, Zilltek etc.
- P2P JWT, MT, STI etc.

Multi-Channel DC-DC PMU

- V_{IN} 2.5~5.5V/ I_{OUT} 1×4A+2×1.5A
- V_{IN} 2.5~5.5V/ I_{OUT} 3×1.5A
- V_{IN} 2.5~5.5V/ I_{OUT} 3×2A
- V_{IN} 2.5~5.5V/ I_{OUT} 3×3A
- V_{IN} 2.5~5.5V/ I_{OUT} 4×2A

Ry1508
7-Channel PMU

- ABS-S STB

Ry1608
7-Channel PMU

- STB
- Tablet
- Car-DVR/ Electronic mirror

Ry13X3 Series
3-Channel DC/DC PMU

- OTT/IPC/DVR
- $V_{IN} 2.5\sim 5.5V/I_{OUT} 1 \times 4A + 2 \times 1.5A$
- $V_{IN} 2.5\sim 5.5V/I_{OUT} 3 \times 1.5A$
- $V_{IN} 2.5\sim 5.5V/I_{OUT} 3 \times 2A$
- $V_{IN} 2.5\sim 5.5V/I_{OUT} 3 \times 3A$



Ry1508
5-Channel PMU

- IP Camera
- Car-DVR

Ry1506
5-Channel PMU

- DVB-S2 STB

Ry13X4 Series
4-Channel DC/DC PMU

- OTT/IPC/DVR
- $V_{IN} 2.5\sim 5.5V/I_{OUT} 4 \times 2A$

Output Current

- I_{OUT} 200mA-1.4A

Low Power Consumption

- Quiescent Current $< 1\mu A$

Low Noise & High PSRR

- Output noise $< 30\mu V_{RMS}$
- PSRR $> 90dB$



Input Voltage

- $V_{IN} < 40V$

Output Voltage

- Fixed V_{OUT} 1.5V~5.0V
- Adjustable V_{OUT}

Package

- SOT23/SOT23-3
- SOT23-5/SOT23-6
- SOT89
- SOT-223
- TO-252
- DFN4-1x1/DFN6-2x2

Current limit IC

- VIN 2.4V-5.5V
- Max 1/1.5/2A fixed Current Limit
- 0.4~2A adjustable Current Limit
- High/Low Active Mode
- Over Temperature Protection



Protection IC

Battery Protection IC

- Protection of Battery Reverse Connection
- Overcharge Current Protection
- Over Discharge Current Protection
1/3/9/16/22/24/32A
- Load Short Circuiting Protection

Package

- SOT235/SOT236
- DFN
- CSP

Application

- Router/OTT/ONU USB Current limit
- Phone/PAD Charger Cable load switch
- Power bank battery protection
- IOT battery protection
- Electronic Toys battery protection

Multi-mode Load Switch IC

- VIN 2.75V-20V
- Low-resistance/Current limit/Disable mode switch
- >6V Reverse-supply protection
- >9A Over-current protection
- Over-temperature protection

Output Current

- 250mA-2A
- Peak 3.6A

Type of Motor

- DC motor
- Stepper motor
- Micro Stepper motor

Pin to Pin

- Allegro P2P
- TI P2P
- Panasonic P2P



Motor Drive

Input Voltage

- LV Input 2.7-5.5V, 1.8V-7V, 2.7V-15V
- HV Input 6.5V-32V, 8V-38V

Driver

- 1/2/4 Full bridge/H-bridge driver
- Single-Channel/Dual-Channel driver
- PH/EN/PWM controller mode

Stepper

- 1-1/2 Stepper
- 1-1/2-1/4 Stepper
- 1-1/2-1/4-1/8-1/16 Stepper
- 1~1/256 Stepper

Wi-Fi FEM

- 802.11ac Wi-Fi FEM
- 802.11ax Wi-Fi FEM

5G&IOT PAM/FEM

- 5G Small Cell PAM
- NB-IOT PA&SW
- 2.4GHz Zigbee/RF FEM



RF

Application

- AP/Router/ONT/OTT/XDSL
- 5G Mobile Communication
- 2.4G Electric toys/UAV/IOT

Package

- P2P skyworks
- P2P RTC

PSE

- 1/4/8 Ports PSE IC
- 802.3 af/at/bt standard
- High precision port monitoring
- Auto/semi-auto/manual mode
- OCP/OTP/OVP protection
- Internal/External Mosfet

PD

- 802.3af/at/bt standard
- af PD+DCDC all in one
- Stand-off voltage 120V



PoE

Package

- P2P TI
- P2P MPS
- P2P IC Plus
- P2P MAXIM

Application

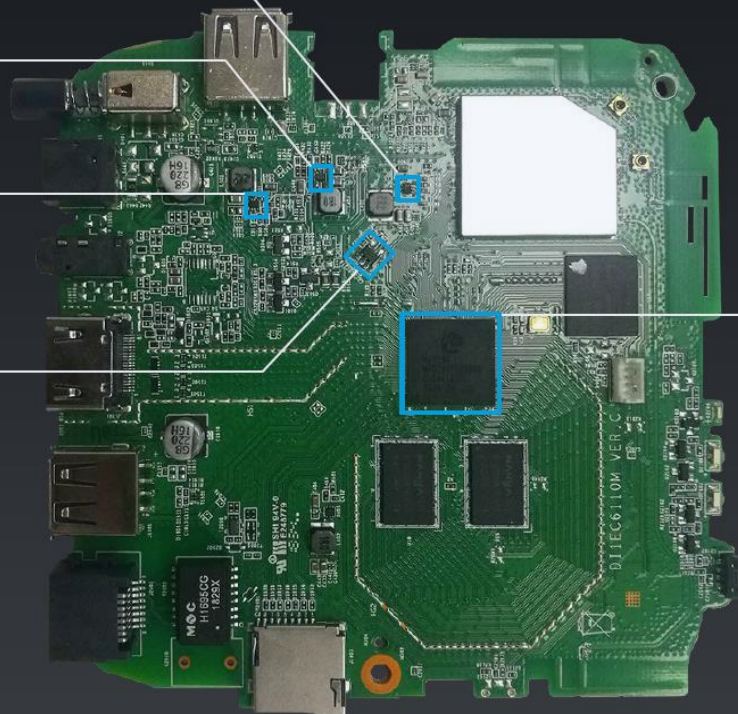
- IP Camera
- IP Phone
- POE Switch
- NVR

RY8126

RY9136C

RY8126

RY1113



Hisilicon 3798M V300



- 华为IPTV EC6110应用方案
- 中国电信 中国联通 中国移动

RY7135

RY7135

RYIII7

RY7135



ZX279127



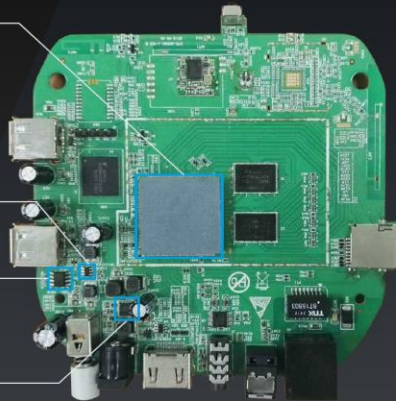
- 中兴单频ONU应用方案
- 中国电信

HiSilicon 3798M V100

RY8120

RY8234

RY1314



- 烽火通信IPTV应用方案
- 中国电信

Allwinner H2

RY1303



- OTT应用方案

HiSilicon 3518E

RY1505

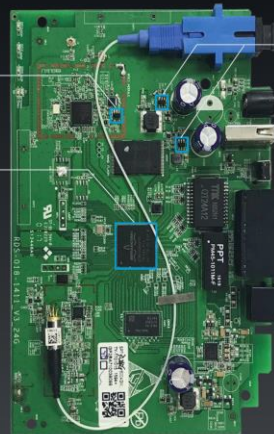


- IP摄像机应用方案

RY3408

Broadcom 68486

RY8122



- 天邑康和单频ONU应用方案
- 中国电信 中国移动

NS1068/1066/1081

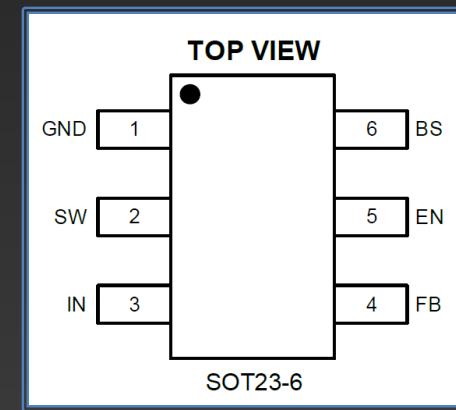
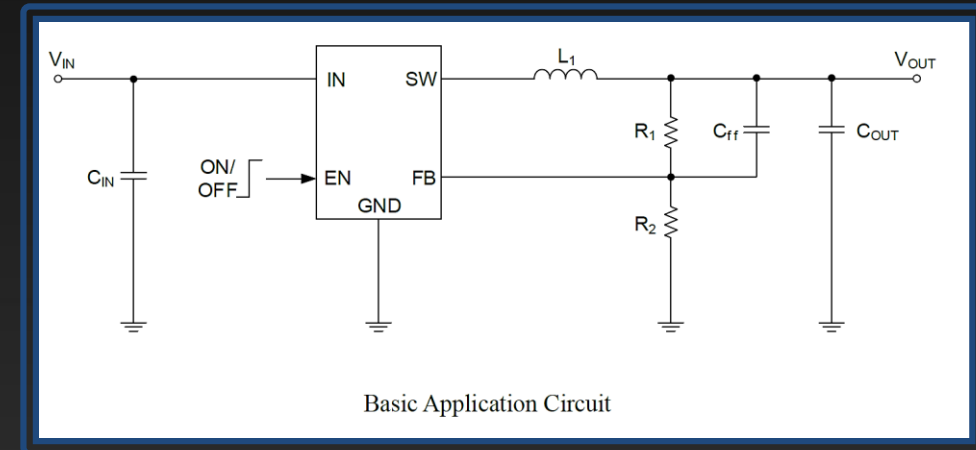
RY3834



- SSD硬盘盒应用方案

Key Features

- 2.7V to 5.5V Input Voltage Range
- 2A Continuous Output Current
- 1.2MHz Switching Frequency
- Built-in Short Protection
- Built-in Over Current Limit
- Built-in Over Voltage Protection
- PFM Mode for High Efficiency in Light Load
- High Efficiency: Up to 96%
- Internal Soft-Start
- Output Adjustable from 0.6V
- Over Temperature Protected
- Low Quiescent Current: 40 μ A
- Available in SOT23-5 package
- -40 $^{\circ}$ C to +85 $^{\circ}$ C Temperature Range



Marking	Model	Package	VIN_MAX	IOUT_MAX	PFM/PWM	VFB	ECOT/CM	TI	Sillergy	Other
Single Channel Step Down DCDC 5V2A										
ADYLL	RY3420	SOT23-5	5.5V-6.5V	2.0A	PFM/PWM	0.6V	Current Mode	TLV62569DBV	SY8079 SY8089	RT8097CB FP6378A FP6358 JW5212 ZTP7108T

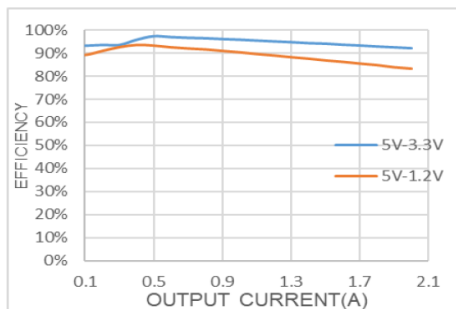
Typical Performance Characteristics (1)(2)

Note (1): Performance waveforms are tested on the evaluation board.

Note (2): $V_{IN}=5V$, $V_{OUT}=3.3V$, $T_A = +25^{\circ}C$, unless otherwise noted.

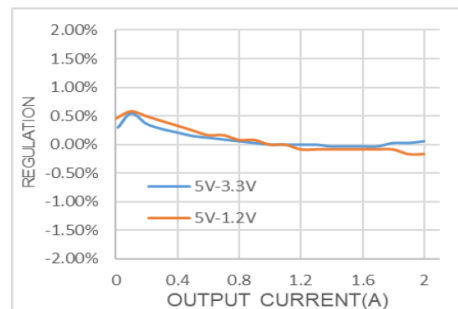
Efficiency vs Load Current

$V_{IN}=5V$, $V_{OUT}=3.3V/1.2V$



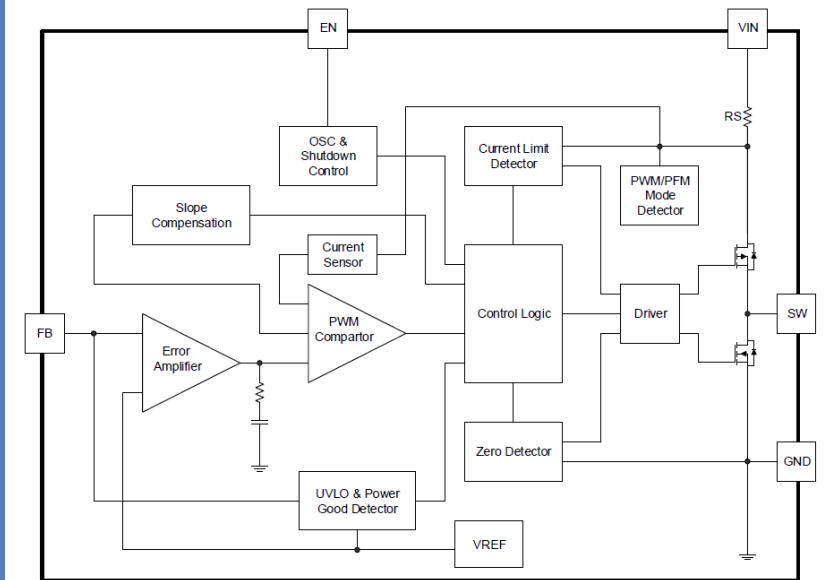
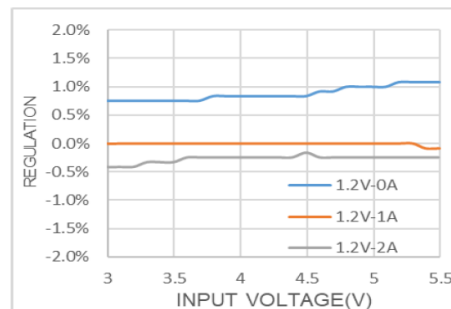
Load Regulation

$V_{IN}=5V$, $V_{OUT}=3.3V/1.2V$



Line Regulation

$V_{IN}=5V$, $V_{OUT}=1.2V$, $I_{OUT}=0A/1A/2A$



Block Diagram

Key Features

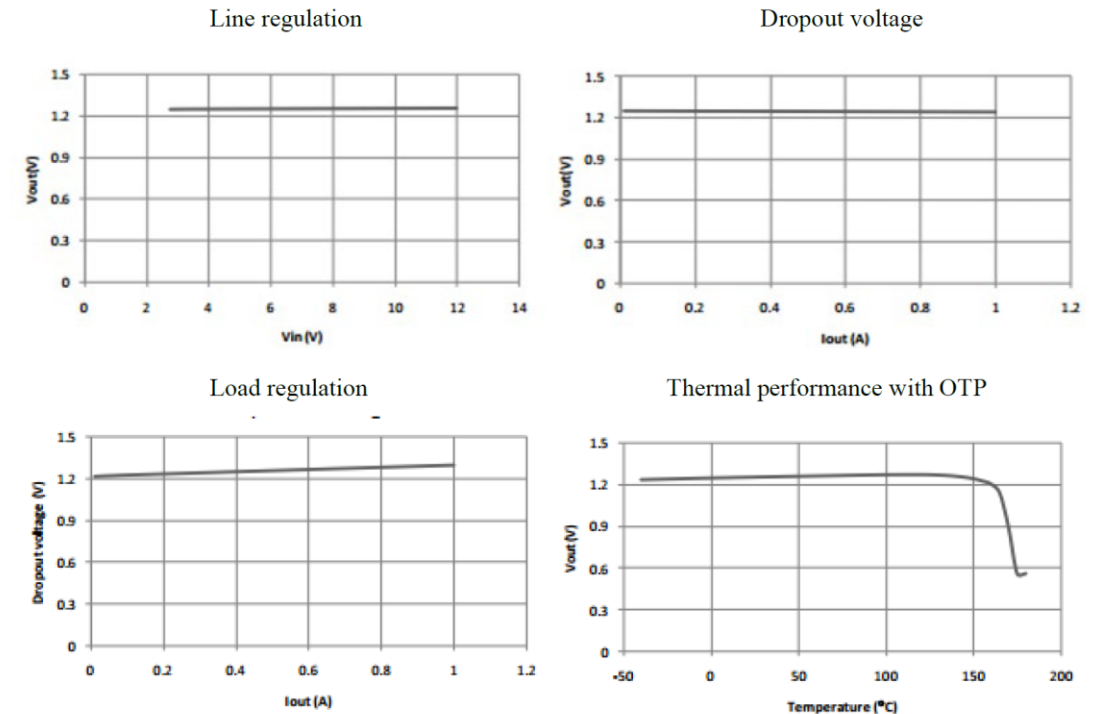
- Maximum output current is 1.2A
- Range of operation input voltage: Max 15V
- Line regulation: 0.03%/V (typ.)
- Standby current: 2mA (typ.)
- Load regulation: 0.2%/A (typ.)
- Environment Temperature: -20°C~85°C

Applications

- Power Management for Computer Mother Board, Graphic Card
- LCD Monitor and LCD TV
- DVD Decode Board
- ADSL Modem
- Post Regulators for Switching Supplies

Typical Performance Characteristics

TA=25°C, unless otherwise noted.



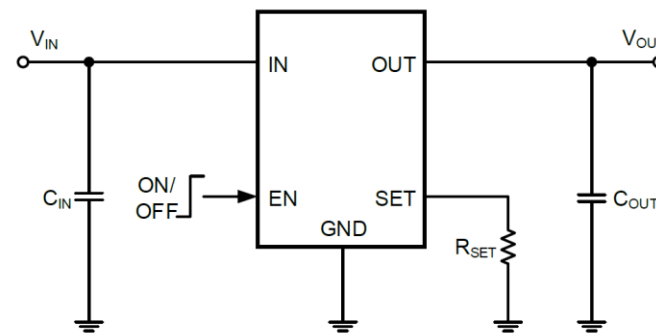
Key Features

- Single-Channel Power Distribution Switch
- Programmable Current Limit in 0.4A~2A Output Current
- Enable polarity: Active High
- 2.4V to 5.5V Supply Range
- Under-Voltage Lockout
- -40°C to +85°C Ambient Temperature Range

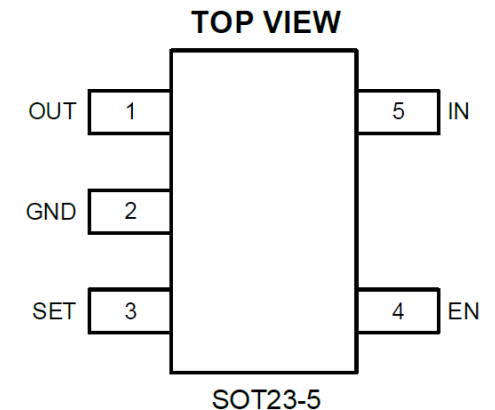
- Accurate Current Limit
- 15μA Quiescent Current
- 80mΩ MOSFET
- Thermal-Shutdown Protection
- Built-In Soft Start
- Reverse Current Blocking (No Body Diode)
- Available in SOT23-5 Package

Applications

- Set-Top Boxes
- Wi-Fi Router/AP
- USB 3G Datacard/ USB Dongle
- High-Definition Digital TVs
- ONT Boxes
- USB Ports and Hubs, Laptops, and Desktops
- Smartphone and PDA
- MiniPCI Accessories



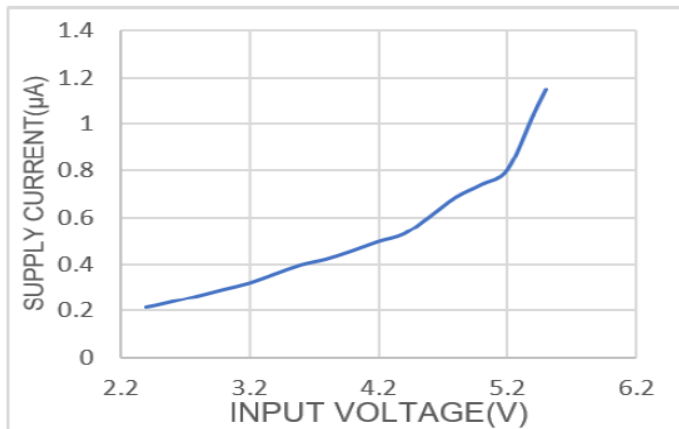
Basic Application Circuit



Marking	P/N	Model	Package	VIN_MAX	IOUT_MAX	PFM/PWM	VFB	ECOT/CM	Sillergy	Other
MEYLL	70702013	RY2121	SOT23-5	5.5V-6.5V					SY6280	FP6861C

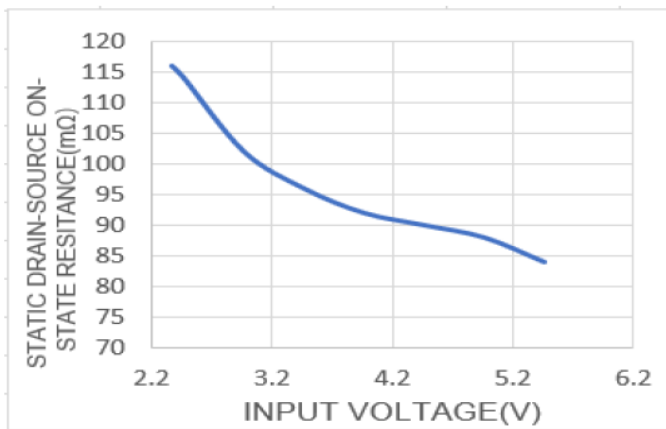
Supply Current, Output Disabled vs. Input Voltage

V_{EN} = 0V



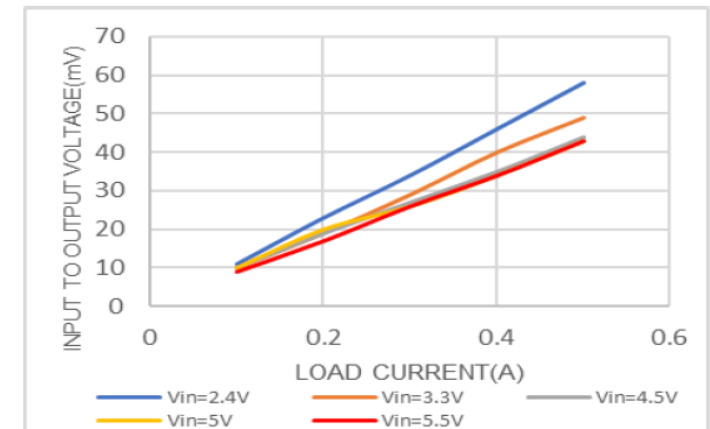
Static Drain-Source On-State Resistance vs. Input Voltage

V_{EN} = 5V, I_{LOAD} = 0.5A



Input to Output Voltage vs. Load Current

V_{EN} = 5V



RY9135 DC/DC Step-Down Regulator

序号	试验项目	参考标准	试验条件/方法	样本量	试验结果
1	HTOL	JESD22-A108	Tj≥125°C, Vcc≥Vccmax, 1000hrs, 0 fail	3lot 77pcs	0 fail
2	PC	JESD22-A113	Ta≥120°C, 15psi, 100%RH, 168hrs, 0 fail	77pcs	0 fail
3	HTSL, High Temperature Storage	JESD22-A103	Ta≥150°C, 1000hrs, 0 fail	77pcs	0 fail
4	THB, or HAST	JESD22-A101	85C/85%RH, 1000hrs, 0 fail	77pcs	0 fail
5	Temperature Humidity	JESD22-A110	110°C, 85%RH, 96hrs/264hrs, 0 fail	77pcs	0 fail
		JESD22-A118	110°C, 85%RH, 96hrs/264hrs, 0 fail	77pcs	0 fail
6	TC	JESD22-A104	from -65° C to 150° C for 1000 cycles or equivalent	77pcs	0 fail
7	ESD-HBM	JESD22-A114	Ta=25°C, Min≥500V	3pcs	≥2000V
8	ESD-CDM	JESD22-C101	Ta=25°C, Min≥200V	3pcs	≥200V
9	Latch-up	JESD78	Ta=25°C and Tjmax, Min≥100mA and 1.5Vccmax (for power)	3pcs	≥150mA

图2-1 LOT1 HTOL VFB

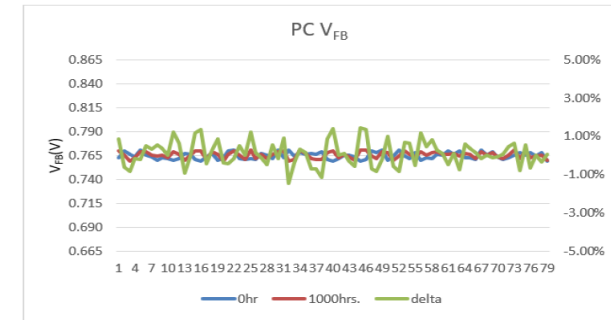
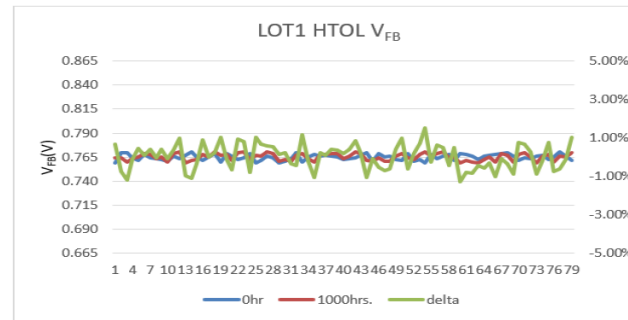


图2-2 LOT1 HTOL Ishutdown

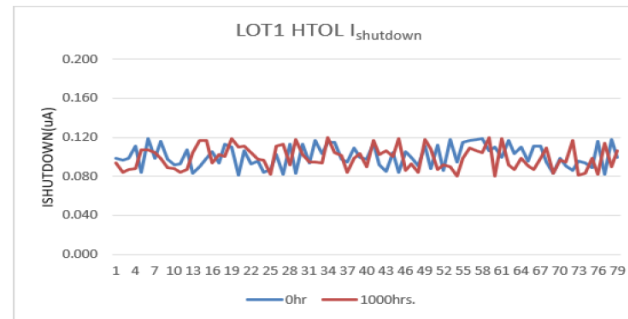
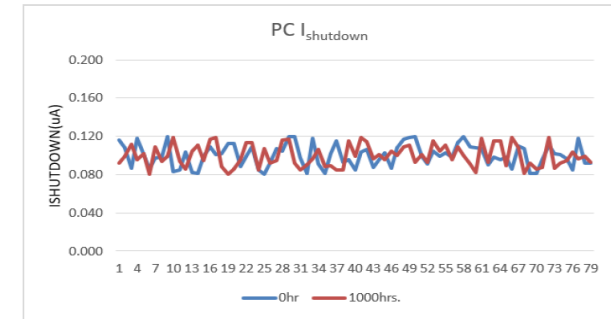


图3-2 PC Ishutdown





Roadmap

DCDC Converter

2019

DCDC High Frequency
RY8008: VFB=0.6V 6MHZ 800mA

DCDC ECOT
RY9180: 500KHZ 8A
RY9190: 500KHZ 9A

DCDC 40V ASY
RY8440: ASY 4A
RY8450: ASY 5A

DCDC/80V Low Nosie
RY8801: VFB=0.925V 1A

DCDC ECOT 1uA
RY901X: VFB=0.8V 2.2MHZ 1.0A
RY902X: VFB=0.8V 2.2MHZ 2.0A
RY903X: VFB=0.8V 2.2MHZ 3.0A

DCDC ECOT
RY914X: 600KHZ 4A
RY915X: 600KHZ 5A
RY916X: 600KHZ 6A

DCDC 40V Low Nosie
RY8401: VFB=0.8V 0.6A
RY8403: VFB=0.76 0.6A
RY8411: VFB=0.8V 1.2A
RY8413: VFB=0.76V 1.2A
RY8420: VFB=0.8V 2A

DCDC/60V Low Nosie
RY8620: VFB=0.925V 2A

2018

DCDC 4/5A ECOT
RY9040: VFB=0.6V 1MHZ 4.0A
RY9050: VFB=0.6V 1MHZ 5.0A

DCDC 2/3A ECOT
9120: VFB=0.6V 600KHZ
9122: VFB=0.8V 600KHZ
9124: VFB=0.76V 600KHZ
9130: VFB=0.6V 600KHZ
9132: VFB=0.8V 600KHZ
9134: VFB=0.76V 600KHZ

DCDC 3CH PMU
RY1315 : 3CH 40V PMU

2017

PMU 2/3/4CH 1.5/2/3A
RY1303A: 3CH VFB=0.6V 1.5MHZ 1.5A
RY1303: 3CH VFB=0.6V 1.5MHZ 2.0A
RY1314: 4CH VFB=0.6V 1.5MHZ 2.0A

DCDC 2/3A ECOT RY9127 :
VFB=0.8V 800KHZ RY9128C:
VFB=0.8V 1.2MHZ FPWM RY9136 :
VFB=0.8V,600KHZ RY9137 :
VFB=0.8V,800KHZ

DCDC 3A Current Mode
RY8335 : VFB=0.8V,500KHZ
RY8336 :VFB=0.925V,500KHZ

2016

DCDC 1/2/3A Current Mode
RY3408 : VFB=0.6V 1.5MHZ 1.0A
RY3410 : VFB=0.6V 1.5MHZ 1.2A
RY3415 : VFB=0.6V 1.5MHZ 1.5A
RY3420 : VFB=0.6V 1.5MHZ 2.0A
RY3430 : VFB=0.6V 1.5MHZ 3.0A

DCDC 3A Current Mode
RY8130 : VFB=0.6V,500KHZ
RY8132 : VFB=0.8V,500KHZ
RY3835 : VFB=0.76V,600KHZ
RY7135 : VFB=0.8V,600KHZ

DCDC 2A Current Mode
RY8320 : VFB=0.6V,500KHZ
RY8321 : VFB=0.8V,500KHZ
RY8326 : VFB=0.925V,500KHZ

DCDC 1.2A Current Mode
RY8310 : VFB=0.8V,1.4MHZ
RY8311 : VFB=0.6V,600KHZ

DCDC 0.8A Current Mode
RY8301 : VFB=0.8V,1.4MHZ

<10V

20V

30V

40V

80V

Motor Driver

2021

Three half-H-Bridge Motor Driver

Custom product :
 High voltage high current
 High voltage Low current
 Low voltage high current
 Low voltage Low current

H-Bridge Motor Driver

Custom product :
 High voltage high current
 High voltage Low current
 Low voltage high current
 Low voltage Low current

Dual-H-Bridge Motor Driver

Custom product :
 High voltage high current
 High voltage Low current
 Low voltage high current
 Low voltage Low current

2020

Three Half-H-Bridge Motor Driver

RY4313: High voltage low current
 RY4313C: Low voltage high current

Stepper And DC Motor Driver

RY4908:256microsteps per full step
 DC Motor Driver

H-Bridge Motor Driver

RY4840: High voltage high current
 DC motor driver

H-Bridge Motor Driver

RY4870/RY4872:Drives a DC Motor ,one winding of a Stepper Motor, or Other Loads
 3.6-A Maximum Drive Current
 Wide 6.5V to45V Operating Voltage
 PWM Control interface

Dual-H-Bridge Motor Driver

RY4812: High voltage high current
 PH/EN Control interface
 RY4812C: Low voltage high current

Stepper Motor Driver

RY4825:High voltage high current
 Step/Dir Control interface

2019

H-Bridge Motor Driver

RY4837:Drives a DC Motor or Other Loads
 1.8-A Maximum Drive Current
 Motor VM:0 TO 11V Logic Vcc:0 to 7V
 PWM Control interface

Dual-H-Bridge Motor Driver

RY4139: Drive two DC motors or stepper motor
 700-mA Maximum Driver Current
 Wide 2.7V to 15V Operating Voltage
 PWM Control Interface

H-Bridge Motor Driver

Stepper Motor Driver

Three half-H-Bridge Motor Driver

2021

2020

2019

2018

大S卫星通信/北斗 PA
2G/3G/4G多模多频PA
SOI频带切换开关
DP5T/SP8T
X-Ka band MMIC

M-Power 2.4G Wi-Fi
FEM RY5511
2400MHz-2500MHz

M-Power 2.4G
Zigbee/ISM FEM
RY5401
2400MHz-2500MHz

M-Power 5G Wi-Fi FEM
RY5523 RY5524
5150MHz-5850MHz

M-Power 5G Wi-Fi
FEM RY5521 RY5522
5150MHz-5850MHz

5G Small Cell PAM
RY5365
2500MHz-2700MHz

5G Small Cell PAM
RY5362
925MHz-960MHz

5G Small Cell PAM
RY5361
860MHz-894MHz

H-Power 5G PAM系列

5G Small Cell PAM
RY5367
4800MHz

5G Small Cell PAM
RY5366
3400MHz-3800MHz

5G Small Cell PAM
RY53644
2110MHz-2170MHz

5G Small Cell PAM
RY5363
1805MHz-1880MHz

NB-IoT FEM

NB-IoT SW RY5141
NB-IoT PAM RY5341

2.4GHz

5GHz

2G/3G/4G前端模组

Wi-Fi FEM

5G微基站PAM

NB-IoT

2021

2020

2019

2018

Normal

Low Noise

Low Power

High Speed

High Pricision

nA 100KHz OPA

RY1131 Series: 1CH 100KHz 700nA
 RY1132 Series: 2CH 100KHz 700nA

4CH OPA 11MHz

RY1214 Series: 11MHz, 800 μ A

nA 15KHz OPA

RY1121 Series: 1CH 15KHz 600nA
 RY1122 Series: 2CH 15KHz 600nA
 RY1124 Series: 4CH 15KHz 600nA

10MHz 5 μ V OPA

RY1531 Series: 1CH 10MHz 5 μ V
 RY1532 Series: 2CH 10MHz 5 μ V
 RY1534 Series: 4CH 10MHz 5 μ V

4CH OPA 6MHz

RY1204 Series: 6MHz, 500 μ A

nA 5KHz OPA

RY1111 Series: 1CH 5KHz 350nA
 RY1112 Series: 2CH 5KHz 350nA

1.5MHz 5 μ V OPA

RY1521 Series: 1CH 1.5MHz 5 μ V
 RY1522 Series: 2CH 1.5MHz 5 μ V
 RY1524 Series: 4CH 1.5MHz 5 μ V

2CH OPA 11MHz

RY1212 Series: 11MHz, 800 μ A

 μ A 500KHz OPA

RY1021 Series: 1CH 500KHz 18 μ A
 RY1022 Series: 2CH 500KHz 18 μ A
 RY1024 Series: 4CH 500KHz 18 μ A

350KHz 15 μ V OPA

RY1511 Series: 1CH 350KHz 15 μ V
 RY1512 Series: 2CH 350KHz 15 μ V
 RY1514 Series: 4CH 350KHz 15 μ V

4CH OPA

RY324 Series: 1MHz

2CH OPA 6MHz

RY1202 Series: 6MHz, 500 μ A

500MHz OPA

RY1321 Series: 1CH 500MHz 8.2mA
 RY1322 Series: 2CH 500MHz 8.2mA
 RY1324 Series: 4CH 500MHz 8.2mA

Bidirectional OPA

RY1611 Series: 1CH

2CH OPA

RY358 Series: 1MHz

1CH OPA 11MHz

RY1211 Series : 11MHz, 800 μ A

 μ A 15KHz OPA

RY1011 Series: 1CH 15KHz 5.5 μ A
 RY1012 Series: 2CH 15KHz 5.5 μ A
 RY1014 Series: 4CH 15KHz 5.5 μ A

250MHz OPA

RY1311 Series: 1CH 250MHz 2.3mA
 RY1312 Series: 2CH 250MHz 2.3mA
 RY1314 Series: 4CH 250MHz 2.3mA

1CH OPA

RY321 Series : 1MHz

1CH OPA 6MHz

RY1201 Series : 6MHz, 500 μ A

Computer

2021

2020

2019

2018

4CH Comparator

RY339

2CH Comparator

RY393

4CH High-Speed Comparator

RY211Q Series: PP Mode

RY212Q Series: PP Mode

2CH High-Speed Comparator

RY211D Series: PP Mode

RY212D Series: PP Mode

1CH High-Speed Comparator

RY211 Series: PP Mode

RY212 Series: PP Mode

4CH High-Speed Comparator

RY221Q Series: PP Mode

RY222Q Series: OD Mode

RY223Q Series: PP Mode

2CH High-Speed Comparator

RY221D Series: PP Mode

RY222D Series: OD Mode

RY223D Series: PP Mode

1CH High-Speed Comparator

RY221 Series: PP Mode

RY222 Series: OD Mode

RY223 Series: PP Mode

Normal Comparator

High-Speed Comparator

Low-Power Comparator

2022

2021

2020

IEEE 802.3af POE PD

R5803:802.3AF POE PD and DC-DC, Flyback SSR/Buck mode, HTSSOP14 R5805 : 802.3af POE PD and DC-DC with Integrated MOSFET, Flyback SSR mode, QFN20-4x6
 R5806:802.3AF POE PD and DC-DC with Integrated MOSFET, Flyback PSR/Buck mode, QFN28-4x5

IEEE 802.3at POE PD

R5811:802.3AF/AT POE PD and DC-DC, Flyback SSR mode, QFN28-4x5
 R5812 : 802.3AF/AT POE PD and DC-DC, Flyback PSR/SSR/active clamp SSR mode, QFN28-4x5
 R5814:802.3AF/AT POE PD and DC-DC, SSR/active clamp SSR, HTSSOP20
 R5815:802.3AF/AT POE PD and DC-DC with Integrated MOSFET, Flyback PSR/Buck mode, QFN24-4x6

IEEE 802.3bt POE PD

R5823A:802.3AF/AT/BT Type3 POE PD interface, QFN20-5x5
 R5823B:802.3AF/AT/BT Type4 POE PD interface, QFN20-5x5

802.3af

802.3at

802.3bt

2022

2021

2020

IEEE 8023 PSE af/atRY5851:802.3AF/AT 1Port PSE Controller IC,
QFN28-5x5RY5858:802.3AF/AT 8Port PSE Controller IC,
QFN48-7x7**IEEE 8023 PSE af/at**RY5854:802.3AF/AT 4Port PSE Controller IC,
QFN48-7x7RY5855:802.3AF/AT 4Port PSE Controller IC,
TSSOP28**IEEE 8023 PSE af/at/bt**RY5868:802.3AF/AT/BT 8Port PSE Controller
IC, QFN56-8x8

802.3af/at

802.3at/af/bt

Wafer Process Roadmap



Cooperation & Partner



Master Controller Application

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Cogobuy.com

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QINUO

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