



BOYA Company Profile

Flash Memory Supplier



BOYA OVERVIEW

Founded: Dec. 2nd, 2014

Invested by leading experts in the Non-Volatile Memory field

Headquarter: Zhuhai, Guangdong

Subsidiaries/Offices: Shanghai, Shenzhen, Hefei, Sichuan, Beijing, Taiwan

Technology focus: High-end general-purpose flash memory IC development

Product: SPI NOR Flash

Process: 65/55/50nm at 12-inches wafer manufacturing facilities

Annual Sales: 2020: RMB ¥ 190M

2019: RMB ¥ 140M

2018: RMB ¥ 100M



BOYA



BOYA GLOBALIZATION

BOYA

External Foundry Resource

- HLMC, China
- SMIC, China

Final Manufacturing

- Huatian, China
- Mounstek, China
- JCET, China

✈ Tianshui

▲ Beijing

✈ Xi'an

☉ Suining

▲ Hefei

▲ Shanghai

Dongguan

☉ Shenzhen

☉ Taiwan

★ BOYA, Zhuhai



- ★ Head office
- ☉ Branch office
- ▲ Foundry Partner
- ✈ Assembly & Test

BOYA FLASH VALUE PROPOSITION

BOYA

➤ Advanced Nor Flash technology process

Floating Gate	65/50nm
SONOS	55nm

- Process 50nm has been mass produced successfully. It is the first mass-produced brand supplier in China

➤ The product covers most areas of memory-related applications

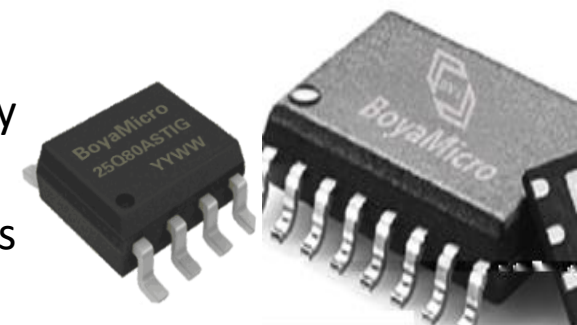
- Density from 512kb ~ 256Mb

BY25QxxAS Series	High Voltage	2.7V - 3.6V	1. Clock frequency can be up to 55MHz (erase/program/normal read) and 108MHz/120MHz (fast/dual/quad read); 2. Flexible program (256byte)and erase(4K/32K/64K/all chip); 3. 0.7ms page program time and 40ms sector erase time; 4. Operating temperature range from -40C ~ +85C or 105C
BY25QxxAL Series	Low Voltage	1.65V - 2.0V	
BY25QxxAW Series	Wide Voltage	1.65V - 3.6V	

- Provide a full range of technical support and good after-sale service

➤ BOYA has been growing rapidly steadily over the past several years

- Initial product of the company are used in the low-end market, and now they are widely used in Networking, PC application and other fields
- In the future, we will develop into high-end application field and produce high specifications and requirements products to serve the market demand



APPLICATIONS

BOYA



Audio Multimedia

- BT Voice Box & Headset & Soundbar
- BT connect unit
- BT Vehicle-Mounted
- BT Modules
-



Wi-Fi

- Smart Power Plus
- Home Automation
- Wi-Fi Location-Awer Device
- IP Cameras
- Wearable Electronics
- Industrial Wireless Control
- ...



Display PC-related

- Digital photo frame&LCD
- PC Monitors
- Printers
-



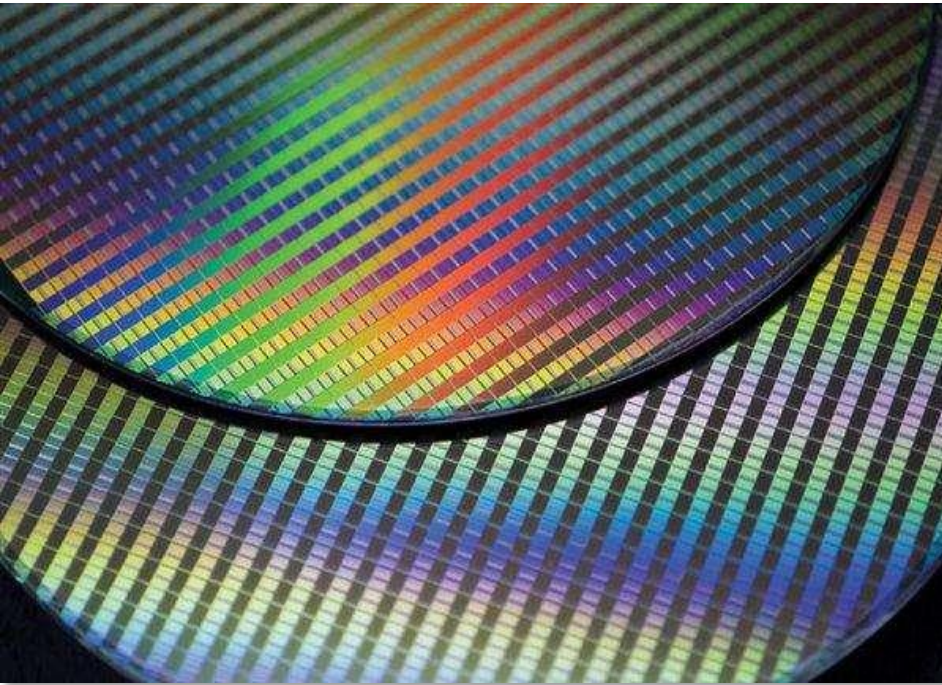
Smart toy Creativity

- Toy
- Creativity Gift
- BT Bracelet
- BT connect unit
- ...

Bluetooth | WiFi | Smart wearable devices | Toy | TV board | Mobile phone | STB/DVD | Security | U-key | IoT | Micro printer | Smart card | ADSL | PC Acc

BOYA KNOWN GOOD DIE SOLUTIONS

BOYA



BOYA provides Known Good Die (KGD) products for custom **system-in-package (SiP)** or **multi-chip package(MCP)** solutions requiring NOR Flash memory.

- All BOYA SPI NOR products are offered in KGD option.
- KGD products are delivered in wafer form without dicing.
- Dedicated technical staff will work with KGD customers for their specific requirements.

BOYA CHIPSET PARTNERS

BOYA



BOYA Manufacturing and Customers

BOYA

FOUNDRY PARTNERS



TESTING & PACKAGE

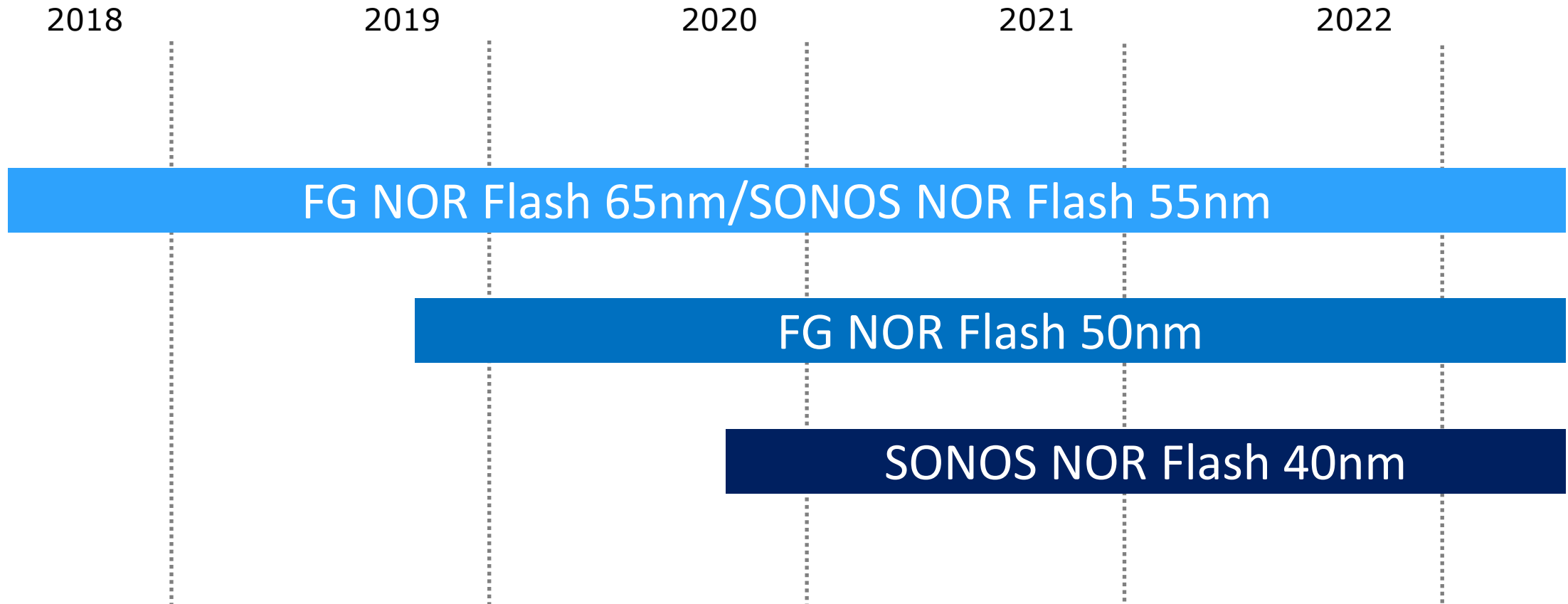


CUSTOMERS



BOYA TECHNOLOGY ROADMAP

BOYA



BOYA FG 3.3V SPI Flash Roadmap

BOYA

Density	Current Product	Description	2019		2020				2021				2022	
			3Q19	4Q19	1Q20	2Q20	3Q20	4Q20	1Q21	2Q21	3Q21	4Q21	1Q22	2Q22
1Gb	BY25QM1GFS	3.3V, Quad SPI, QPI, DTR, 120Mhz												
512Mb	BY25QM512FS	3.3V, Quad SPI, QPI, DTR, 120Mhz												
256Mb	BY25Q256FS	3.3V, Quad SPI, QPI, DTR, 120Mhz												
128Mb	BY25Q128FS	3.3V, Quad SPI, QPI, DTR, 120Mhz												
	BY25Q128AS	3.3V, Quad SPI, 108Mhz												
64Mb	BY25Q64FS	3.3V, Quad SPI, QPI, 108Mhz												
	BY25Q64AS	3.3V, Quad SPI, 108Mhz												
32Mb	BY25Q32FS	3.3V, Quad SPI, QPI, 108Mhz												
	BY25Q32BS	3.3V, Quad SPI, 108Mhz												
	BY25Q32CS	3.3V, Quad SPI, QPI, 108Mhz												
16Mb	BY25Q16FS	3.3V, Quad SPI, QPI, 108Mhz												
	BY25Q16BS	3.3V, Quad SPI, QPI, 108Mhz												
	BY25D16AS	3.3V, Dual SPI, 108Mhz												
8Mb	BY25Q80BS	3.3V, Quad SPI, QPI, 108Mhz												
	BY25D80AS	3.3V, Dual SPI, 108Mhz												
4Mb	BY25D40AS	3.3V, Dual SPI, 108Mhz												
2Mb	BY25D20AS	3.3V, Dual SPI, 108Mhz												
1Mb	BY25D10AS	3.3V, Dual SPI, 108Mhz												
512Kb	BY25D05AS	3.3V, Dual SPI, 108Mhz												

CS MP
MP Ready

BOYA FG 1.8V SPIFlash Roadmap

BOYA

Density	Current Product	Description	2020				2021				2022	
			1Q20	2Q20	3Q20	4Q20	1Q21	2Q21	3Q21	4Q21	1Q22	2Q22
512Mb	BY25M512FL	1.8V, Quad SPI, QPI, DTR, 120Mhz										
256Mb	BY25Q256FL	1.8V, Quad SPI, QPI, DTR, 120Mhz										
128Mb	BY25Q128BL	1.8V, Quad SPI, QPI, DTR, 120Mhz										
64Mb	BY25Q64FL	1.8V, Quad SPI, QPI, DTR, 120Mhz										

CS MP
MP Ready

BOYA SONOS SPI Flash Roadmap

BOYA

Density	Current Product	Description	2019		2020				2021				2022	
			3Q19	4Q19	1Q20	2Q20	3Q20	4Q20	1Q21	2Q21	3Q21	4Q21	1Q22	2Q22
32Mb	BY25M32AW	1.65~3.6V, Quad SPI, 85Mhz												
16Mb	BY25Q16AW	1.65~3.6V, Quad SPI, 85Mhz												
8Mb	BY25Q80AW	1.65~3.6V, Quad SPI, 85Mhz												
4Mb	BY25Q40AL	1.65~2.05V, Quad SPI, 85Mhz												
	BY25Q40AW	1.65~3.6V, Quad SPI, 85Mhz												
2Mb	BY25Q20AW	1.65~3.6V, Quad SPI, 85Mhz												

CS MP
MP Ready

BOYA NOR FLASH PRODUCT PORTFOLIO

BOYA

Tech	Series	Voltage	512Kb	1Mb	2Mb	4Mb	8Mb	16Mb	32Mb	64Mb	128Mb	256Mb	512Mb	1Gb
65nm FG	25DXXA/B/CS	2.7V-3.6V	●	●	●	●	●	●	●	●	●	-	-	-
50nm FG	25QxxFS	2.7V-3.6	-	-	-	-	-	○	○	○	○	●	○	○
50nm FG	25QxxFL	1.65V-2.0V	-	-	-	-	-	-	-	○	○	○	○	-
55nm SONOS	25QxxAW	1.65V-3.6V	-	-	●	●	●	○	○	-	-	-	-	-

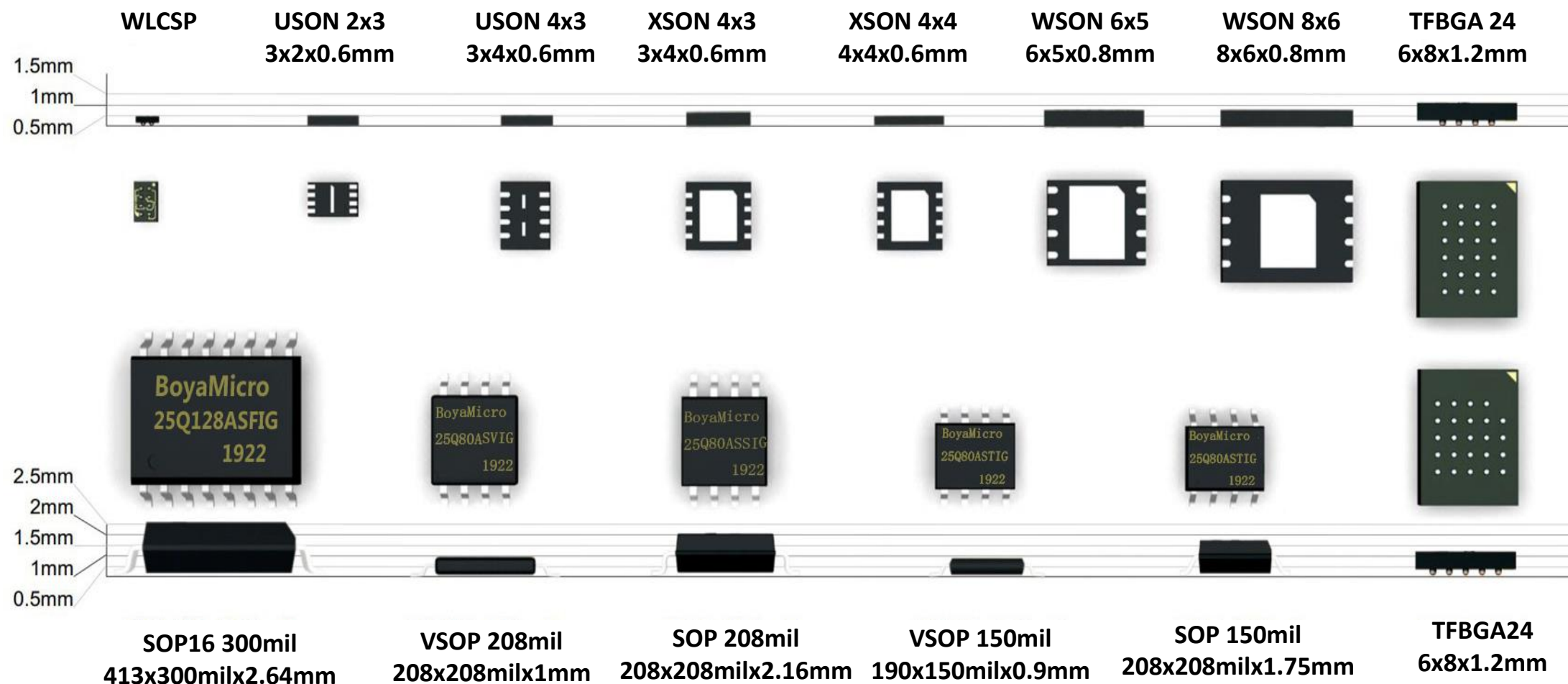
● Mass Production ○ Under Development

BOYA PACKAGE OPTIONS

Package Type	1.8V & 3.3V											1.65V--3.6V			
	512Kb	1Mb	2Mb	4Mb	8Mb	16Mb	32Mb	64Mb	128Mb	256Mb	512Mb	4Mb	8Mb	64Mb	128Mb
USON8 (2x3)	●	●	●	●	●	●	○	-	-	-	-	●	○	-	-
USON8 (3x4)	-	-	-	-	-	-	●	●	-	-	-	-	-	-	-
WSON8 (6x8)	-	-	-	-	-	-	-	-	-	●	○	-	-	-	-
WSON8 (5x6)	-	-	-	-	-	-	●	●	●	●	-	-	-	-	-
WLCSP	-	●	-	-	-	-	-	-	-	-	-	○	-	-	-
VSOP8 (208mil)	-	-	-	-	-	-	○	○	○	-	-	-	-	-	○
SOP16 (300mil)	-	-	-	-	-	-	-	-	●	●	○	-	-	-	-
SOP8 (208mil)	-	-	-	-	●	●	●	●	●	●	-	-	○	-	-
SOP8 (150mil)	●	●	●	●	●	●	●	●	-	-	-	●	●	○	-
TSSOP8 (173mil)	●	●	●	●	●	●	-	-	-	-	-	●	○	-	-

● Mass Production ○ Under Development

BOYA NOR FLASH PACKAGES



BOYA FLASH FAMILY DECODER

BOYA

Example: BY 25 Q 80 A S S I G (T)

Company Prefix :

BY=Boya Technology

Product Family:

25=SPI FLASH

29G=Parallel FLASH

Family:

Q=Quad I/O

D=Dual I/O

B=Quad I/O

QE=1

Density:

05=512Kbit

10=1Mbit

20=2Mbit

40=4Mbit

80=8Mbit

16=16Mbit

32=32Mbit

64=64Mbit

128=128Mbit

256/257 =256Mbit

M512/M513 =512Mbit

M1G /M1G1 =1Gbit

Version:

A= 65/55nm Version

B= 65/55nm Version

C= 65/55nm Version

F= 50nm Version

Voltage:

S= 2.7V-3.6V

L=1.65V-2.0V

W=1.65V-3.6V

V= 2.3V-3.6V

Packing Type:

(T)=Tube

(R)=Tape & Reel

(Y)=Tray

Special Option:

G=Pb Free+Halogen Free Green Package

P= Pb Free+Halogen Free Green Package +

Power Meter Application

E= Special Application

Temperature Range:

I=Industrial(-40°C~85 °C)

J= Industrial(-40 °C~105 °C)

Package Type:

S= SOP8 208mil

T= SOP8 150mil

O=TSSOP8 173mil

V= VSOP8 208mil

F=SOP16 300mil

L=WLCSP

M=USON8 2*3mm(0.50mm)

U=USON8 2*3mm(0.55mm)

X=USON8 2*3mm(0.45mm)

K=USON8 2*3mm(0.75mm)

N=USON8 3*3mm

H=USON8 4*3mm

W=WSO8 5*6mm

E =WSO8 6*8mm

Z=TFBGA-24Ball 6*8mm (6*4ball array)

BOYA QUALITY

ISO 9001



Product Report



ESD HUMAN
REPORT

LATCH UP
REPORT







REACH SVHC
REPORT







RoHS 2.0
REPORT



BOYA PROGRAMMER SUPPORT

BOYA

Programmer	BOYA Product Family
Prosystems 浦洛  I C 烧录行业领导品牌	SPI NOR FLASH 512Kb ~ 128Mb
Xeltek 西尔特 	SPI NOR FLASH 512Kb ~ 128Mb
ZLG 周立功  致远电子 世界因我们而不同	SPI NOR FLASH 512Kb ~ 128Mb
Hi-Lo 河洛  河洛半导体股份有限公司	SPI NOR FLASH 512Kb ~ 128Mb
WSY 金鼎科  通用系列编程器 UNIVERSAL PROGRAMMERS	SPI NOR FLASH 512Kb ~ 128Mb
STG 思泰佳 	SPI NOR FLASH 512Kb ~ 128Mb

Programmer	BOYA Product Family
Sofi 硕飞 	SPI NOR FLASH 512Kb ~ 128Mb
Dediprog 岱锴 	SPI NOR FLASH 512Kb ~ 128Mb
Leap 力浦  力浦电子实业股份有限公司 LEAP ELECTRONIC CO.,LTD	SPI NOR FLASH 512Kb ~ 128Mb
UPUP 景天 	SPI NOR FLASH 512Kb ~ 128Mb
Quickpro 珍世好 	SPI NOR FLASH 512Kb ~ 128Mb
ELENC 爱科 	SPI NOR FLASH 512Kb ~ 128Mb

THANK YOU!



BOYA TECHNOLOGY CO., LTD.

Address: Zhuhai, Guangdong