



YJ Automotive Application

YJ 市场部.
2019年1月



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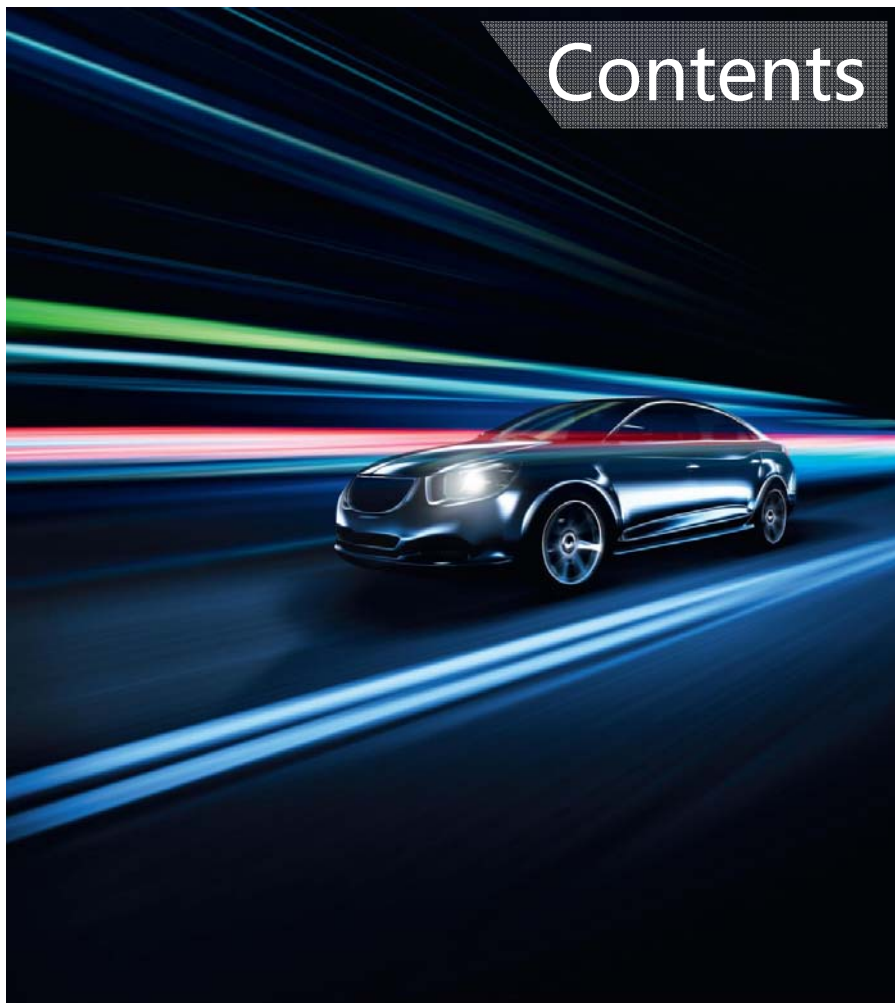
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01

Introduction

Company Profile



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Foundation: 2000 Yangzhou

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Products: Bridges, Diodes, Modules, Chips, Small Signal, Mosfet

3

Employee: around 3200

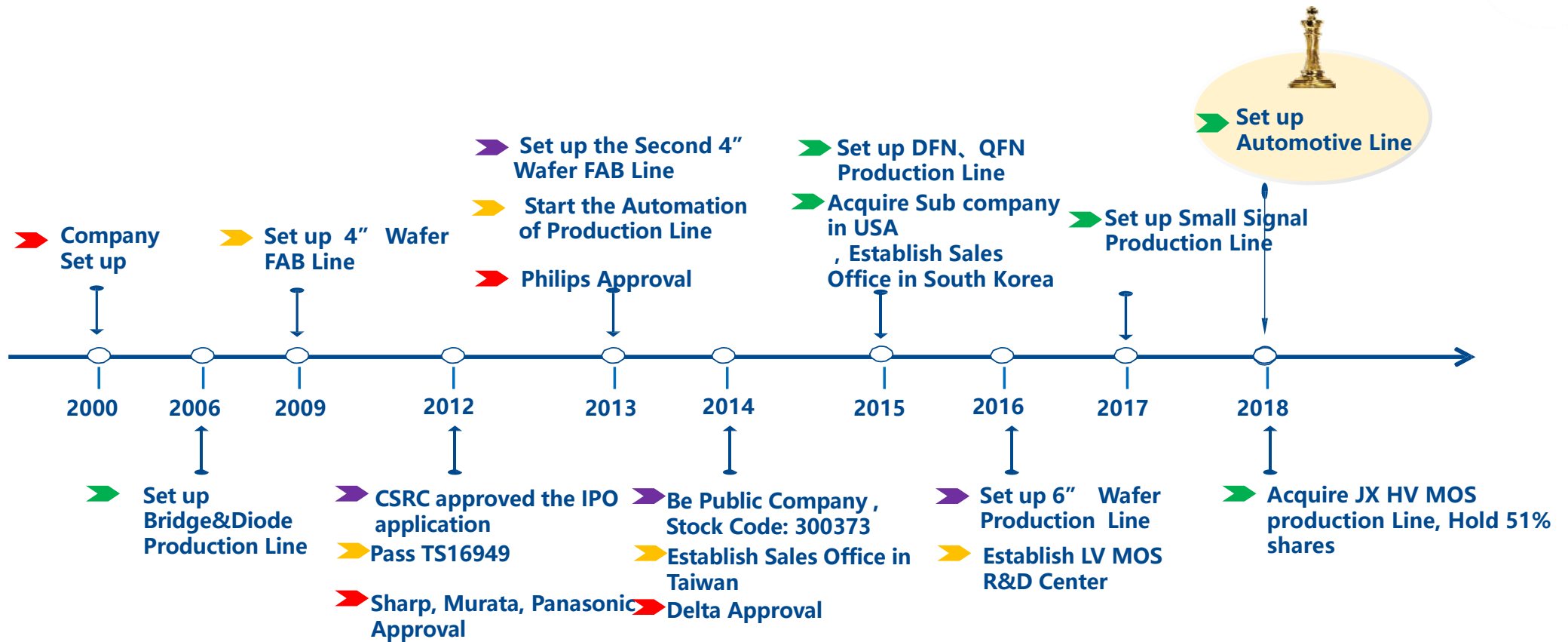
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Sales Revenue: 225 Million USD(2017)

5

**Factory Space :120,000M²
Wafer FAB: 40,000M² Assembly: 60,000M²**

Company Milestone

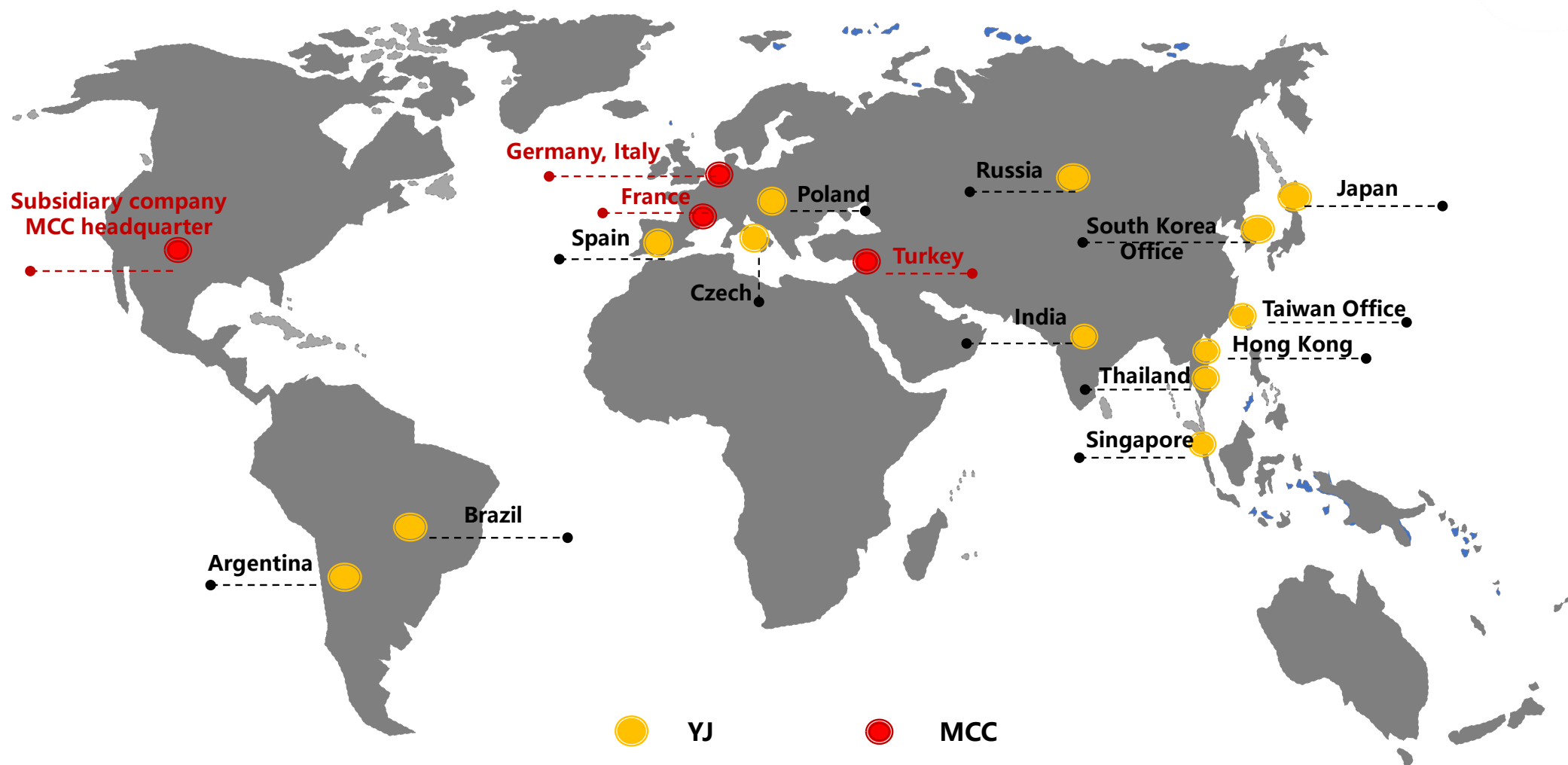


Domestic Sales Network



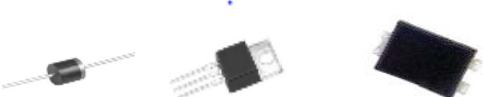
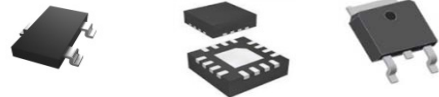
Factory	Capacity
4" STD、FRD、SF TVS、Auto Wafer	900000Pcs/M
6" SKY、FRED、 TMOS Wafer	40000Pcs/M
Bridge Rectifier	150KKpcs/M
Surface Mount	609KKpcs/M
Axial Lead	195KKpcs/M
TO, ITO	35KKpcs/M
Small Signal, TR	550KKpcs/M
Power Module	200Kpcs/M

International Sales Network



Complete Product Line :

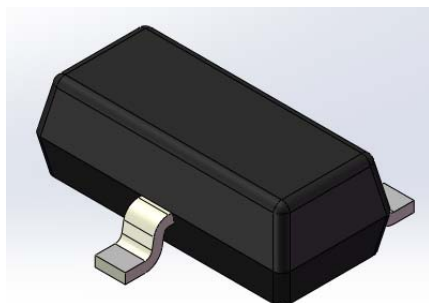


	Chip	- GPP Chips: STD FRD TVS Auto Electronics High Voltage Module - SKY Chips: SBD SKY TSBD SKY
	Small Signal	- SOD123 SOD323 SOD523 SOT23 SOT323 (Switching Diode, SKY Diode , Zener Diode , ESD, Triode)
	Diode	- Axial: R-1 A-405 DO-41 DO-15 DO-201AD R-6 TO220AB TO220AC ITO220AB ITO220AC TO-252 - SMD: SMA/B/C SMAF SOD123FL TO-277 (Rectifier, FRD, HER, SFR, TVS, Zener)
	PV Diode	- Axial R-6 - SMD TO263 GF004 TO220AB TO220AC ITO220AB ITO220AC - Module GF008 GF009 GF010
	Bridge	- SMD Bridge ABS LLB MBS/MBLS HDS/HDLS YBS DB/DBS/DBLS - Wire Bridge KBP KBL KBU - Frame Bridge 2KBJ/4KBJ/6KBJ JA/JB GBP GBL GBU D3K - Square Bridge K1 K6 K8/K10 KBPC GBPC GBPCW BR SKBPC
	Power Module	- Rectifier FRED Thyristor - Schottky MOSFET & IGBT
	MOS	SOT23 SOP-8 DFN5*6 TO-252 TO-263

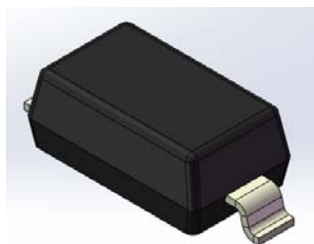
02

Automotive Application

SOT23



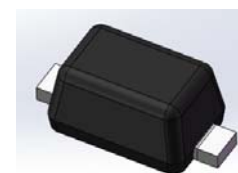
SOD123



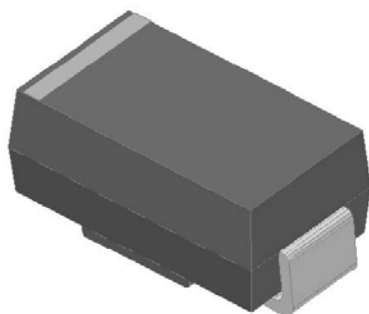
SOD323



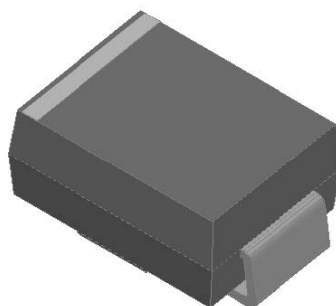
SOD523



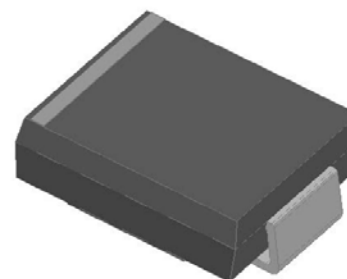
SMA(DO-214AC)



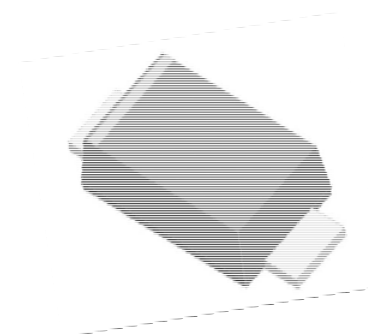
SMB(DO-214AA)



SMC(DO-214AB)

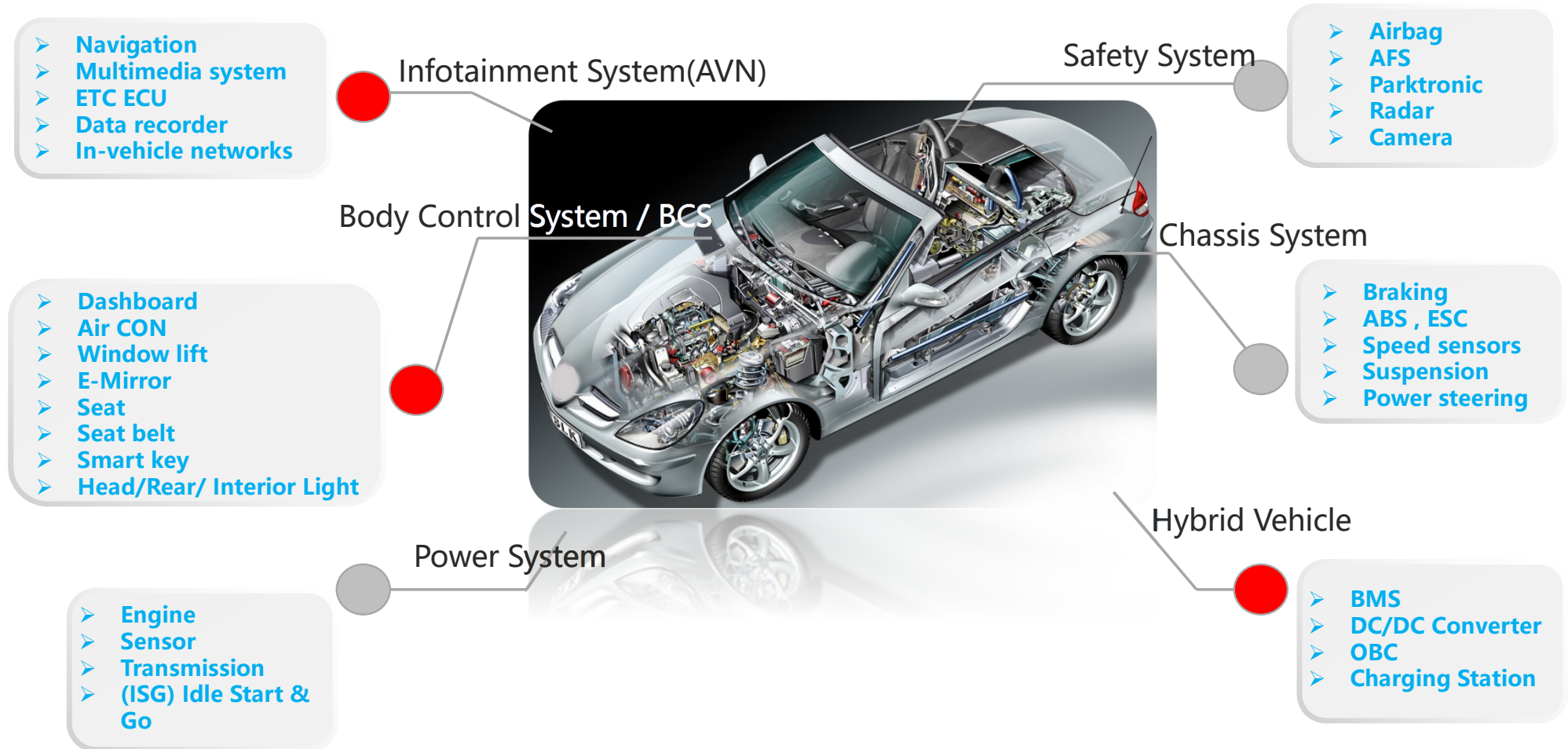


SOD-123FL

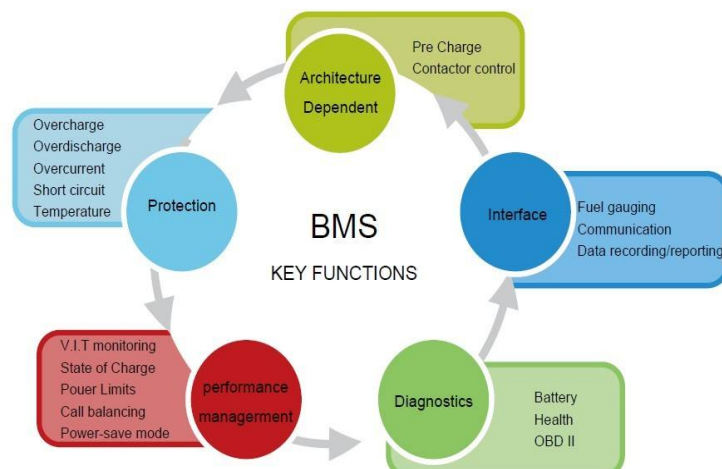


Catalogue	Products	Current	Voltage	Package
Schottky Barrier	Small Signal Schottky Diodes	0.1 - 0.75A	7 - 100V	SOD123, SOD323, SOD523, SOT23
	Schottky Rectifiers	1 - 5A	30 - 100V	SMA, SMB, SMC
Diodes	Small Signal Switching Diodes	0.15 - 0.5W	75 - 250V	SOD123, SOD323, SOD523, SOT23
	General Purpose Rectifiers	1 - 8A	50 - 1000V	SMA, SMB, SMC
	Fast Recovery Rectifiers	1 - 3A	50 - 1000V	SMA, SMB, SMC
	High Efficient Rectifier	1 - 3A	50 - 1000V	SMA, SMB, SMC
	Ultra Fast Recovery Rectifiers	1 - 3A	50 - 600V	SMA, SMB, SMC
Zener	Small Signal Zener Diodes	0.2 - 0.5W	2.4 - 47V	SOD123, SOD323, SOD523, SOT23, SOT323
Protection	Transient Voltage Suppressors	400W - 6.6KW	6.8- 220V	SMA, SMB, SMC, DO-218AB(Planned)
	ESD Diode(Planned)	200W~300W	24V	SOD323, SOD523, SOT23
Transistor	Small Signal Transistors	0.2 - 0.35W	30 - 180V	SOD123, SOD323, SOD523, SOT23

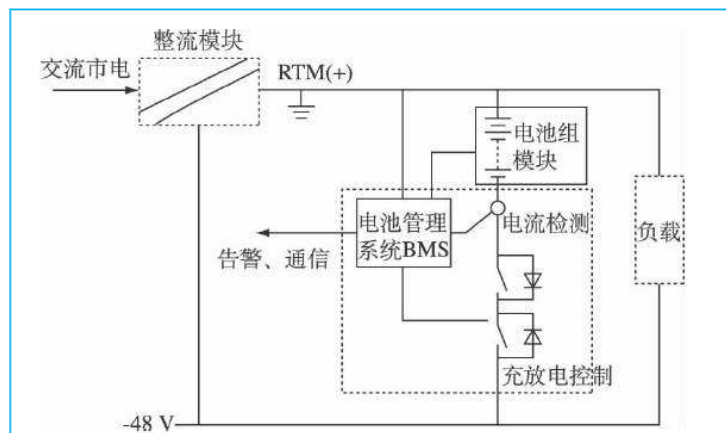
YJ Automotive Application



Hybrid Vehicles---Battery Management System BMS



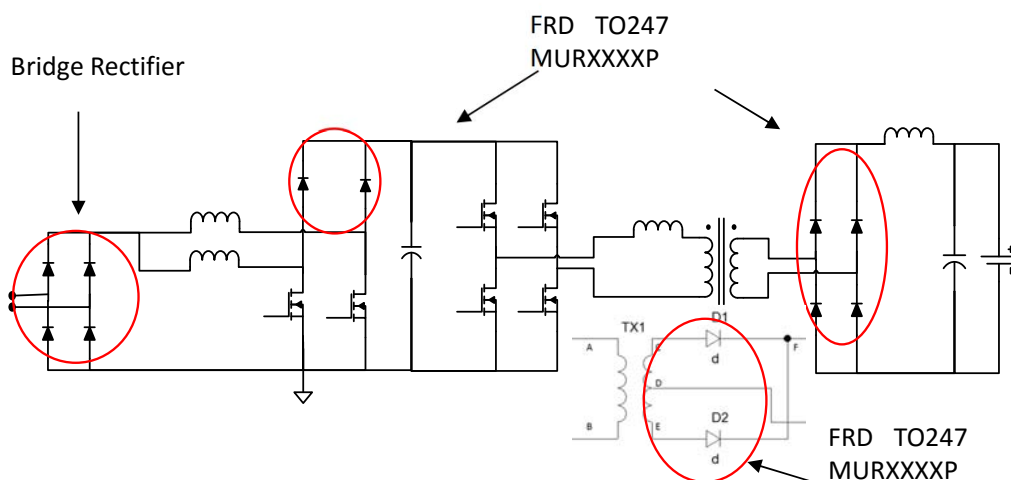
Application	Catalogue	Electric Property	Recommend Item	Package
BMS	Switching Diode	150~250mA 75~250V	1N4148WQ,BAS16WSQ, BAS21Q,BAV70Q, BAV99Q	SOD-123,SOD-323,SOT-23
BMS	Rectifier Diode	1A,2A,3A 600V,800V,1000V	GS1MQ,GS2MQ,GS3MQ	SMA,SMB,SMC
BMS	Zener	0.5W 2V4~47V	BZT52CXXQ, BZT52BXXQ	SOD-123, SOD323
BMS	SKY	0.2~1A 30V,40V,60V	BAS70Q,BAT54AQ/CQ/SQ, RB521S-30Q	SOT-23,SOD523
BMS	SKY	1A,2A,3A 40V,60V,100V	SS110Q,SS24Q,SS36BQ,SS310Q	SMA,SMB,SMC
BMS	TVS	400W,600W,1500W 6.8~220V	SMAJQ,SMBJQ, SMCJQ	SMA, SMB,SMC
BMS	TVS	6600W 22~36V	SM8SXXAQ	DO-218AB
BMS	ESD	24V 300W	ESD24VQ	SOT-23
BMS	Transistor	300mW	MMBT3904Q,MMBT3906Q, MMBT5401Q,MMBT5551Q	SOT-23



Hybrid Vehicles---On-Board Charger & Charging Pile



Application	Catalogue	Electric Property	Recommend Item	Package
On-Board Charger & Charging Pile	Super Fast Diode	600V/30A/2300mv/10uA/35ns	MUR3060BQ	TO-247
On-Board Charger & Charging Pile	Super Fast Diode	600V/60A/1700mv/10uA/70ns	MUR6060BQ	TO-247
On-Board Charger & Charging Pile	Super Fast Diode	1200V/30A/2400mv/10uA/75ns	MUR30120BQ	TO-247
On-Board Charger & Charging Pile	Super Fast Diode	1200V/60A/2800mv/10uA/80ns	MUR60120BQ	TO-247
On-Board Charger & Charging Pile	Bridge Rectifier	35A/50A 600/1000V/1200V	GBJ3506Q, GBJ3510Q, GBJ3512Q, GBJ5006Q, GBJ5010Q, GBJ5012Q	6KBJ
On-Board Charger & Charging Pile	Bridge Rectifier	35A/50A 600V/1000V/1200V	DF35NA06Q, DF35NA10Q, DF35NA12Q, DFN50NA06Q, DF50NA10Q, DF50NA12Q	TSB-5
DC-DC Invertor	TVS	400W,600W,1500W	SMAJQ,SMBJQ, SMCJQ	SMA, SMB,SMC
DC-DC Invertor	SKY	3A 40V	SS34Q	SMC

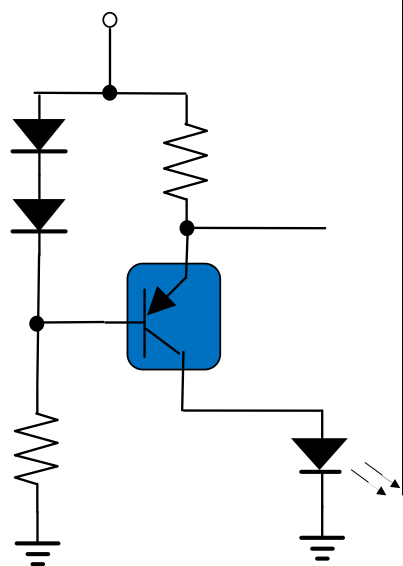


Body Control System / BCS---Self-adaptive LED Head Lamp



Application	Catalogue	Electric Property	Recommend Item	Package
Self-adaptive LED Head Lamp	Switching Diode	150~250mA 75~250V	1N4148WQ,BAS16WSQ, BAS21Q,BAV70Q, BAV99Q	SOD-123,SOD-323,SOT-23
Self-adaptive LED Head Lamp	Rectifier Diode	1A,2A,3A 600V,800V,1000V	GS1MQ,GS2MQ,GS3MQ	SMA,SMB,SMC
Self-adaptive LED Head Lamp	Zener	0.5W 2V4~47V	BZT52CXXQ, BZT52BXXQ	SOD-123, SOD323
Self-adaptive LED Head Lamp	SKY	1A,2A,3A 40V,60V,100V	SS110Q,SS24Q,SS36BQ,SS310Q	SMA,SMB,SMC
Self-adaptive LED Head Lamp	TVS	400W,600W,1500W 6.8~220V	SMAJQ,SMBJQ, SMCJQ	SMA, SMB,SMC
Self-adaptive LED Head Lamp	TVS	6600W 22~36V	SM8SXXAQ	DO-218AB
Self-adaptive LED Head Lamp	ESD	24V 300W	ESD24VQ	SOT-23
Self-adaptive LED Head Lamp	Transistor	300mW	MMBT3904Q,MMBT3906Q,MMBT5401Q, MMBT5551Q	SOT-23

Body Control System / BCS---Interior LED Lighting Constant Current



Application	Catalogue	Electric Property	Recommend Item	Package
Interior LED Lighting Constant Current	Switching Diode	150~250mA 75~250V	1N4148WQ,BAS16WSQ, BAS21Q,BAV70Q, BAV99Q	SOD-123,SOD-323,SOT-23
Interior LED Lighting Constant Current	Rectifier Diode	1A,2A,3A 600V,800V,1000V	GS1MQ,GS2MQ,GS3MQ	SMA,SMB,SMC
Interior LED Lighting Constant Current	Zener	0.5W 2V4~47V	BZT52CXXQ, BZT52BXXQ	SOD-123, SOD323
Interior LED Lighting Constant Current	SKY	1A,2A,3A 40V,60V,100V	SS110Q,SS24Q,SS36BQ, SS310Q	SMA,SMB,SMC
Interior LED Lighting Constant Current	TVS	400W,600W,1500W 6.8~220V	SMAJQ,SMBJQ, SMCJQ	SMA, SMB,SMC
Interior LED Lighting Constant Current	ESD	24V 300W	ESD24VQ	SOT-23
Interior LED Lighting Constant Current	Transistor	300mW	MMBT3904Q,MMBT3906Q,MMBT540 1Q,MMBT5551Q	SOT-23

Body Control System / BCS---High Power , High Efficiency DC Converter



Application	Catalogue	Electric Property	Recommend Item	Package
High Power , High Efficiency DC Converter	Switching Diode	150~250mA 75~250V	1N4148WQ,BAS16WSQ, BAS21Q,BAV70Q, BAV99Q	SOD-123,SOD-323,SOT-23
High Power , High Efficiency DC Converter	Rectifier Diode	1A,2A,3A 600V,800V,1000V	GS1MQ,GS2MQ,GS3MQ	SMA,SMB,SMC
High Power , High Efficiency DC Converter	Zener	0.5W 2V4~47V	BZT52CXXQ, BZT52BXXQ	SOD-123, SOD323
High Power , High Efficiency DC Converter	SKY	1A,2A,3A 40V,60V,100V	SS110Q,SS24Q,SS36BQ,SS310Q	SMA,SMB,SMC
High Power , High Efficiency DC Converter	TVS	400W,600W,1500W 6.8~220V	SMAJQ,SMBJQ, SMCJQ	SMA, SMB,SMC
High Power , High Efficiency DC Converter	TVS	6600W 22~36V	SM8SXXAQ	DO-218AB
High Power , High Efficiency DC Converter	ESD	24V 300W	ESD24VQ	SOT-23
High Power , High Efficiency DC Converter	Transistor	300mW	MMBT3904Q,MMBT3906Q,MMBT5401Q,MMBT 5551Q	SOT-23

Body Control System / BCS---Voltage Reduction DC Convertor

Application	Catalogue	Electric Property	Recommend Item	Package
Voltage Reduction DC Convertor	Switching Diode	150~250mA 75~250V	1N4148WQ,BAS16WSQ, BAS21Q,BAV70Q,BAV99Q	SOD-123,SOD-323,SOT-23
Voltage Reduction DC Convertor	Rectifier Diode	1A,2A,3A 600V,800V,1000V	GS1MQ,GS2MQ,GS3MQ	SMA,SMB,SMC
Voltage Reduction DC Convertor	Zener	0.5W 2V4~47V	BZT52CXXQ, BZT52BXXQ	SOD-123, SOD323
Voltage Reduction DC Convertor	SKY	1A,2A,3A 40V,60V,100V	SS110Q,SS24Q,SS36BQ,SS310Q	SMA,SMB,SMC
Voltage Reduction DC Convertor	TVS	400W,600W,1500W 6.8~220V	SMAJQ,SMBJQ, SMCJQ	SMA, SMB,SMC
Voltage Reduction DC Convertor	TVS	6600W 22~36V	SM8SXXAQ	DO-218AB
Voltage Reduction DC Convertor	ESD	24V 300W	ESD24VQ	SOT-23
Voltage Reduction DC Convertor	Transistor	300mW	MMBT3904Q,MMBT3906Q,MMBT5401Q,MMBT 5551Q	SOT-23

Body Control System / BCS---Constant Current Source



Application	Catalogue	Electric Property	Recommend Item	Package
Constant Current Source	Switching Diode	150~250mA 75~250V	1N4148WQ,BAS16WSQ, BAS21Q,BAV70Q, BAV99Q	SOD-123,SOD-323,SOT-23
Constant Current Source	Rectifier Diode	1A,2A,3A 600V,800V,1000V	GS1MQ,GS2MQ,GS3MQ	SMA,SMB,SMC
Constant Current Source	Zener	0.5W 2V4~47V	BZT52CXXQ, BZT52BXXQ	SOD-123, SOD323
Constant Current Source	SKY	1A,2A,3A 40V,60V,100V	SS110Q,SS24Q,SS36BQ,SS310Q	SMA,SMB,SMC
Constant Current Source	TVS	400W,600W,1500W 6.8~220V	SMAJQ,SMBJQ, SMCJQ	SMA, SMB,SMC
Constant Current Source	TVS	6600W 22~36V	SM8SXXAQ	DO-218AB
Constant Current Source	ESD	24V 300W	ESD24VQ	SOT-23
Constant Current Source	Transistor	300mW	MMBT3904Q,MMBT3906Q,MMBT5401Q,MMBT5551Q	SOT-23

Body Control System / BCS---HVAC-BLDC Blower Motor & Cool Fan

Application	Catalogue	Electric Property	Recommend Item	Package
HVAC-BLDC Blower Motor & Cool Fan	Switching Diode	150~250mA 75~250V	1N4148WQ,BAS16WSQ, BAS21Q,BAV70Q, BAV99Q	SOD-123,SOD-323,SOT-23
HVAC-BLDC Blower Motor & Cool Fan	Rectifier Diode	1A,2A,3A 600V,800V,1000V	GS1MQ,GS2MQ,GS3MQ	SMA,SMB,SMC
HVAC-BLDC Blower Motor & Cool Fan	Zener	0.5W 2V4~47V	BZT52CXXQ, BZT52BXXQ	SOD-123, SOD323
HVAC-BLDC Blower Motor & Cool Fan	SKY	1A,2A,3A 40V,60V,100V	SS110Q,SS24Q,SS36BQ,SS310Q	SMA,SMB,SMC
HVAC-BLDC Blower Motor & Cool Fan	TVS	400W,600W,1500W 6.8~220V	SMAJQ,SMBJQ,SMCJQ	SMA, SMB,SMC
HVAC-BLDC Blower Motor & Cool Fan	TVS	6600W 22~36V	SM8SXXAQ	DO-218AB
HVAC-BLDC Blower Motor & Cool Fan	ESD	24V 300W	ESD24VQ	SOT-23
HVAC-BLDC Blower Motor & Cool Fan	Transistor	300mW	MMBT3904Q,MMBT3906Q,MMBT5401Q,MM BT5551Q	SOT-23

Body Control System / BCS



Application	Catalogue	Electric Property	Recommend Item	Package
Window	Rectifier Diode	1A 600V, 1000V	GS1JQ, GS1MQ	SMA
Window	Fast Diode	2A, 600V	ES2JQ	SMB
360 around View	Switching Diode	150~250mA 75~250V	BAV99Q,BAV70Q	SOT-23
360 around View	SKY	5A,60V	SS56Q	SMC
360 around View	TVS	600W	SMBJ24AQ	SMB
360 around View	Transistor	300mw	MMBT5401Q	SOT-23
Smart Key	Rectifier Diode	1A,2A,3A 600V,800V,1000V	GS1JQ, GS2GQ, GS3MQ	SMA,SMB,SMC
Smart Key	Switching Diode	150~250mA 75~250V	1N4148WQ,BAS21Q	SOD-123, SOT-23
Smart Key	Zener	0.5W 2V4~47V	BZT52CXXQ,BZX84BXXQ	SOD-123, SOT-23
Auto Seat	Switching Diode	150~250mA 75~250V	1N4148WTQ	SOD-523
Auto Seat	Zener	0.5W 2V4~47V	BZT52C7V5Q	SOD-123
Auto Seat	SKY	0.2~1A 30V,40V,60V	B5819WQ,BAT54CQ,BAT54WSQ	SOD-123, SOT-23
Auto Seat	Transistor	300mw,350mw	MMBT3904Q,MMBT3906Q,MMBT2222AQ	SOT-23

Infotainment System(AVN)

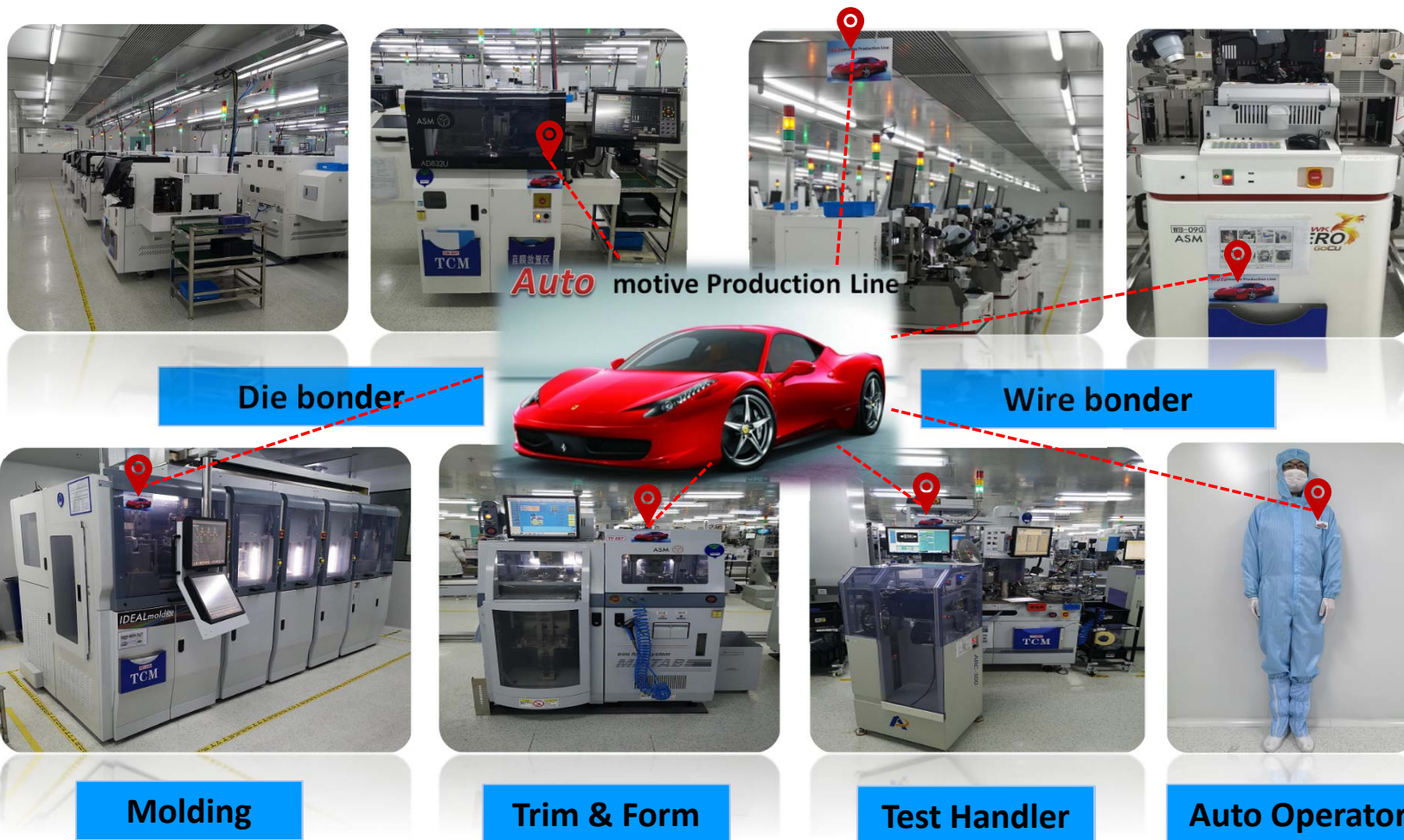


Application	Catalogue	Electric Property	Recommend Item	Package
navigation	Zener	Zener Diode 350mw, 500mw	BZX84CXXQ,BZT52CX XSQ, BZT52BXXSQ	SOT-23,SOD-323
navigation	SKY	Schokkty Diode 2A, 60V	SS26AQ,SS26Q,SS36Q	SMA,SMB,SMC
navigation	TVS	400W,600W,1500W	SMAJQ/SMBJQ/SMCJ Q	SMA,SMB,SMC
navigation	Rectifier Diode	2A,3A 600V,800V,1000V	GS2MQ, GS3MQ	SMB,SMC

03

Automotive Automated Line

Automotive Automated Line



Automotive Product Control



People

- Operator > 6 Months Experienced, Accreditation per 6 months
- Engineer > 12 Months Experienced, Accreditation per 6 months



Machine

- High Efficient Manufacture machine, Accreditation per 6 months
- Precision Automated Line



Material

- High level, high reliability Material
- Tight Control in assessment criteria
- Preventive Maintenance



Product Development

- APQP, PPAP
- Automotive Product FMEA



Process

- Automotive Control Plan
- Recipe management
- SPC Control, CPK > 1.67
- PAT Control



Process

- Lot track, Management Difference
- 5S Management
- Automated Error Prevention



Abnormal Control

- MRB Order, whole lot production, suspend
- Feedback within 24 hours



4M Change

- CCB Change Control
- Change FMEA



Continuous Improvement

- Continuous Improvement Plan
- Zero Defect
- BPI (Business process improvement)



04

Automotive Quality Control

Quality and Environmental Management



- ISO & IATF16949 Certified ;
- Meet RoHS standard ;
- Pb free and halogen free ;
- QC080000 certified.



ISO9001



ISO14001



IATF16949



QC080000

Automotive Reliability Test Item



Item	Consumer/Industry	Automotive
HTRB	3x 77 units/lot; 1000 hr Tj 150 °C or specified Tj (max), 80% RV per as JA108	3x 77 units/lot; 1000 hr Tj 150 °C or specified Tj (max), 100% RV per as AEC-Q101 2x stress for robustness for Cu wire per as AEC-Q006
HTGB	3x 77 units/lot; 1000 hr Tj 150 °C or specified Tj (max) per as JA108	3x 77 units/lot; 1000 hr Tj 150 °C or specified Tj (max) 2x stress for robustness for Cu wire per as AEC-Q006
HTSL	3x 77units/lot; 1000 hr Ta= T storage max per as JA103	3x 77units/lot; 1000 hr Ta= T storage max per as JA103
PC (Precondition)	Perform moisture pre-conditioning per J-STD-020 with MSL-1 recipe	Perform moisture pre-conditioning per J-STD-020 with MSL-1 recipe
PC+TC	3x 77 units/lot 1000x cys; -55 to 150 °C per as JA104B	3x 77 units/lot 1000x cys; -55 to 150 °C per as JA104B 2x stress for robustness for Cu wire per as AEC-Q006
PC+IOL	3x 77 units/lot; 15000 cys per as MIL-STD-750	3x 77 units/lot; 15000 cys per as MIL-STD-750 / AEC-Q101 2x stress for robustness for Cu wire per as AEC-Q006
PC+AC or PC+HAST	3x 77 units/lot; 96 hr per as JA102 or JA110	3x 77 units/lot; 96 hr per as JA102 or JA110 2x stress for robustness for Cu wire per as AEC-Q006
PC+H3TRB	3x 77 units/lot; 1000 hr, per as JA101	3x 77 units/lot; 1000 hr per as JA101 2x stress for robustness for Cu wire per as AEC-Q006
CSAM	3x22; before and after PC per as J-JSD-020	3x22 before and after PC per as J-JSD-020
DPA	3x2; 50x optical inspection after TC, HAST or H3TRB	3x2; 50x optical inspection after TC, HAST or H3TRB Per as AEC-Q101-004, Section4
CDPA	NA	3x3 BS/WP; 3x1 cross section after 1x stress and 3x2 BS/WP after 2x stress, 3x1 cross section

Automotive Product Reliability Roadmap



AEC-Q101 Product Roadmap



05

Automotive Achievement

2018 Automotive Achievement



Customer	Item	2018 Shipment	Application	End Customer	Start Time
YUNYI	GS1G,GS3JB 1N4004G	16KK	Automotive Rectifier	FAW-Volkswagen	2016
LUCAS TVS	1N5404G	1.5KK	Automotive Rectifier	Ford, HYUNDAI, TATA, MAHINDRA	2017
Edison-Litek (Edison Group)	GS1J, BAS21, MMBT222A	5KK	Automotive Lighting	Beijing Automotive Group	2017
Denso (Chongqing)	G1M,GS1M , GS5M,1N4148W, MMSZ6V8CW	16KK	Motorcycle Regulator, Charger	Honda , Toyota , SUZUKI, Zongshen	Before 2015
Sanxin	MB6S, MBR6045PT	16KK	Motorcycle Igniter, Regulator		Before 2015
Kumho HT	GS1GA,SS510B,BAS21	45K	LED Lighting	Geely	2018

2018 Automotive Proposal



Customer	Item	Application	End Customer	Status
Rockford Fosgate	SMBJ, SMCJ	Automotive Lighting	SAIC Motor, FAW-Volkswagen	Sample
Toyo-Denso	G1G,MMSZ Series	Switch	Beijing Automotive Group	Quote
OMRON	MBRB3045CT	LDC Low DC-DC Converter	SYMC	Approved

Automotive FAE Team Contact Window



Contact	Sales	PM	Auto Line Production Director
Title	Area Sales Manager	Small Signal/TVS : Lisa Wang Standard/ Fast/ SKY: Thomas Chen	Dexin Zeng
Email	Pls check sales contact in our catalogue	Lisa: Lisa.wang@21yangjie.com Thomas: xiaohua.chen@21yangjie.com	dexin.zeng@21yangjie.com
Cell Phone	Pls check sales contact in our catalogue	Lisa: 15805277362 Thomas:136-2521-1162	15252780481



Thank you !