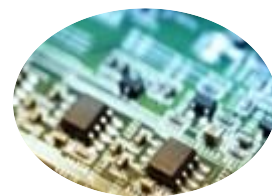
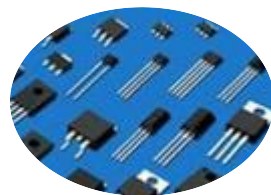


乐山无线电股份有限公司

Leshan Radio Company, Ltd.



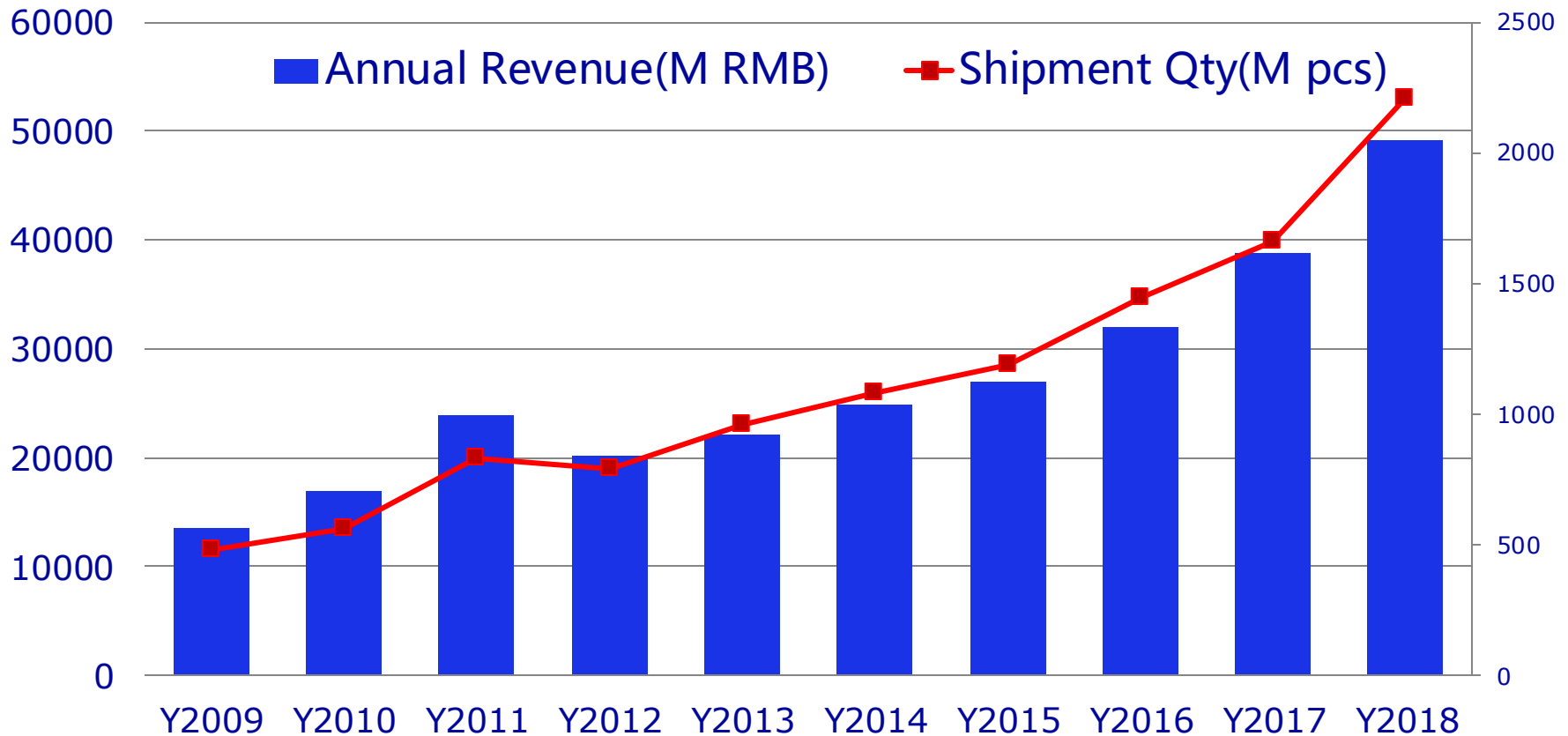
www.lrc.cn

Headquarter and Sales Network



Sales Revenue and Production Capacity

Employees : 2812 Annual Capacity : 53 Billion pcs

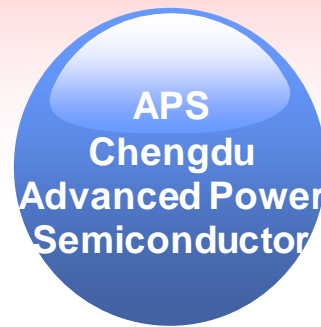


Company Structure

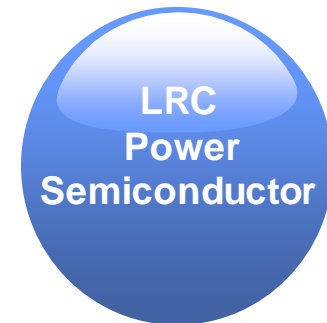
L R C



- Operated in 1995
- JV with ON-SEMI
- Small Signal SMD
- O/P~1200KKpcs/Wk



- Operated in 2011
- 100% owned by LRC
- Small Signal SMD
- O/P > 750KKpcs/Wk



- Axial Leaded Diodes
- Bridge Rectifier
- O/P = 30KK/Wks
- LRC own wafer fab

Failure Analysis Capability Overview



TOOL : SAM
 BRAND/MODEL : SONIX / URH-2000
 APPLICATION : DELAMINATION



TOOL : POWER SCOPE
 BRAND/MODEL : OLYMPUS
 APPLICATION : VISUAL INSPECTION



Equipment :
 Chemical Decapsulation System
 BRAND/MODEL : DYNAFLOW/MK3
 APPLICATION : DECAP



TOOL : CURVE TRACER
 BRAND/MODEL : TEKTRONIX / 370A
 APPLICATION : PARAMETER



TOOL : PROBE STATION
 BRAND/MODEL : SINGATON / S-1170
 APPLICATION : PROBE DIE



TOOL : VACUUM OVEN
 BRAND/MODEL : YAMATO/DP23
 APPLICATION : BAKING

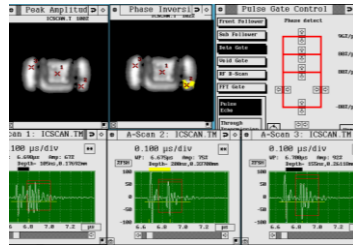


TOOL : POLISHING MACHINE
 BRAND/MODEL : BUEHLER/ECOMET 3
 APPLICATION : CROSS SECTION

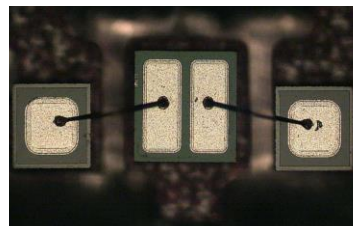


TOOL : SEM / EDX
 BRAND/MODEL : HITACHI/S-4700
 OXFORD/7200
 APPLICATION : MICROSTRUCTURE
 OBSERVATION

Failure Analysis Capability Overview



SONIX UHR2000



NIKON SMZ1500/L150



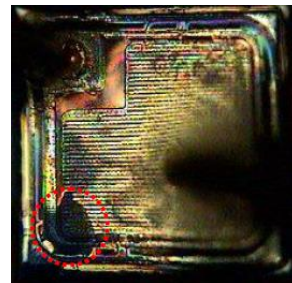
BUEHLER ECOMET 3

SAM

Visual Inspection

Cross Section

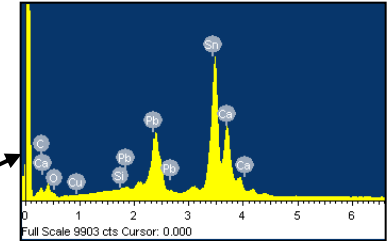
Liquid crystals



KARL SUSS _PM5

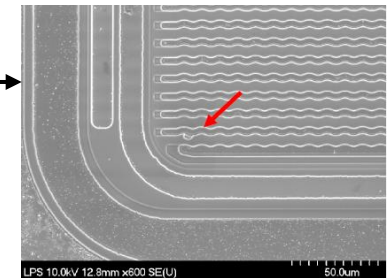
Technology Assessment Capabilities

EDX

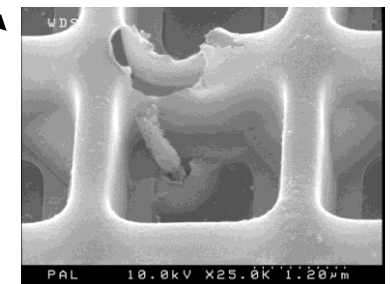


HORIBA EX_220

SEM

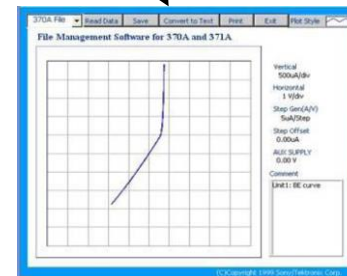


Deprocess



HITACHI S4700

Electrical Test



TEKTRONIX 370A

Reliability Capability Overview

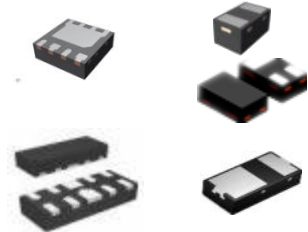
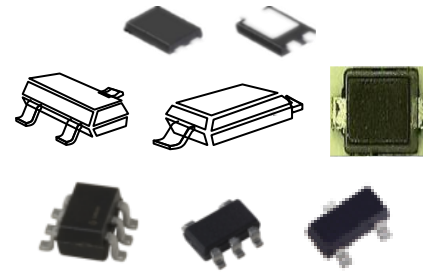
LRC has the Capability to perform Reliability Test for Discrete Part per **AEC_Q101, JEDEC,**

Environment Test (5 Items)	: AC	TC	HTSL	SD	SH
Life Test (4 Items)	: HAST	H3TRB	HTRB	IOL	


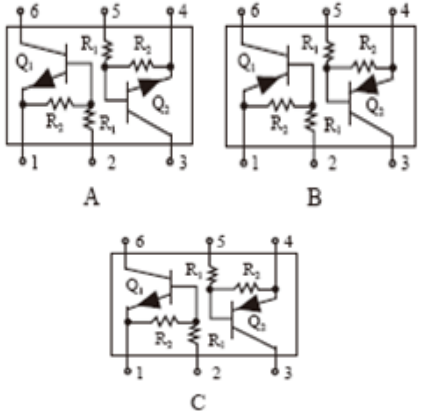
1. Autoclave (AC)
2. Solder Heat Test (SH)
3. Solderability (SD)
4. Temperature Cycling (TC)
5. High Temperature Storage Life Test (HTSL)
6. High Acceleration Stress Test (HAST)
7. High Temperature Reverse Bias Test (HTRB)
8. High Humidity High Temperature Reverse Bias Test (H3TRB)
9. Intermittent Operation Life (IOL)



Automotive Diodes

Product	Key Parameter	Package	Package Outline
ESD/TVS	V_{rwm} : 3.3~36V I_{pp} : 1~100A P_d : 3~4000W	DFN SC88/88A SOD123~SOD923	DFN: SOD882 / SOT883 / DFN1608 / DFN2510 / DFN2020  SOT23 / SC88 / SC88A / SMA / SMAFL / SMBFL / SODXXX / TO277 
Zener	V_z : 2.2V ~72V P_d : 200~500mW	SOD123~SOD923 SMA/SMAFL SOT23/SC88	
Schottky	V_r : 20~100V I_f : 0.2~5A V_f : < 0.5V	DFN SMAFL/SMBFL TO277 SOT23/SC88/SC70 SOD123~SOD923	
Rectifier	V_{pk} : 50~1000V I_o : 1~3A T_{rr} : > 35ns	SMA/SMAFL/SMBFL SOD123FL	
Switching	V_r : 35~350V I_f : 100~300mA T_{rr} : low to 4ns	DFN SMAFL/SMBFL TO277 SOT23/SC88/SC70 SOD123~SOD923	

Automotive Transistors

Product	Key Parameter	Package	Package Outline
General Purpose Transistors	BV_{CEO} : 20~400V I_C : 0.1~1.5A H_{FE} : 30~800 Low V_{ces} : <0.3V	SC70 SC88 SOT23 SC89 SOT883	SOT23/SC88/SC88A/SC70/SOT883  
Switching Transistors	BV_{CEO} : 40~60V I_C : 200~600mA H_{FE} : >80 T_{on}/T_{off} : < 70ns/300ns	SC70 SC88 SOT23 SOT883	
Digital Transistors	BV_{CEO} : >50V I_C : 0.2~0.5A R_1 : 1~100Kohm R_1/R_2 : 1~50 H_{FE} : 30~160	SC70 SC88 SOT23 SOT883	
MOSFETS	BV_{DSS} : 20~100V I_D : 0.1~0.35A R_{ds} : <10ohm V_{GS} : 0.5~1.2V	SC70 SC88 SOT23 SOT883	

KEY CUSTOMERS & APPLICATIONS

KOSTAL



UAES



长江汽车电子
Changjiang Automobile Electronic



上汽集团
SAIC MOTOR

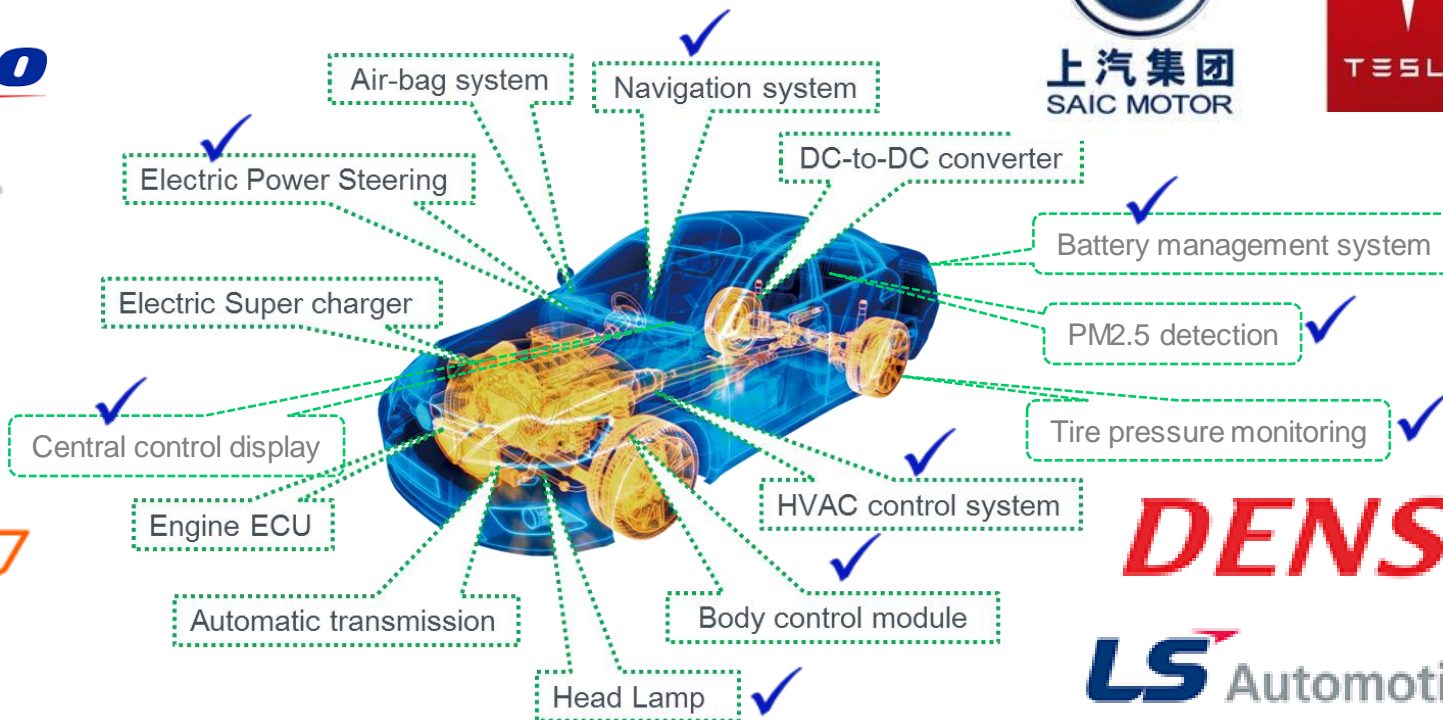


ACDelco

Clarion



JECO



DENSO

LS Automotive



BOSCH

HSAE 航盛

DELPHI

SV AUTO
德赛西威

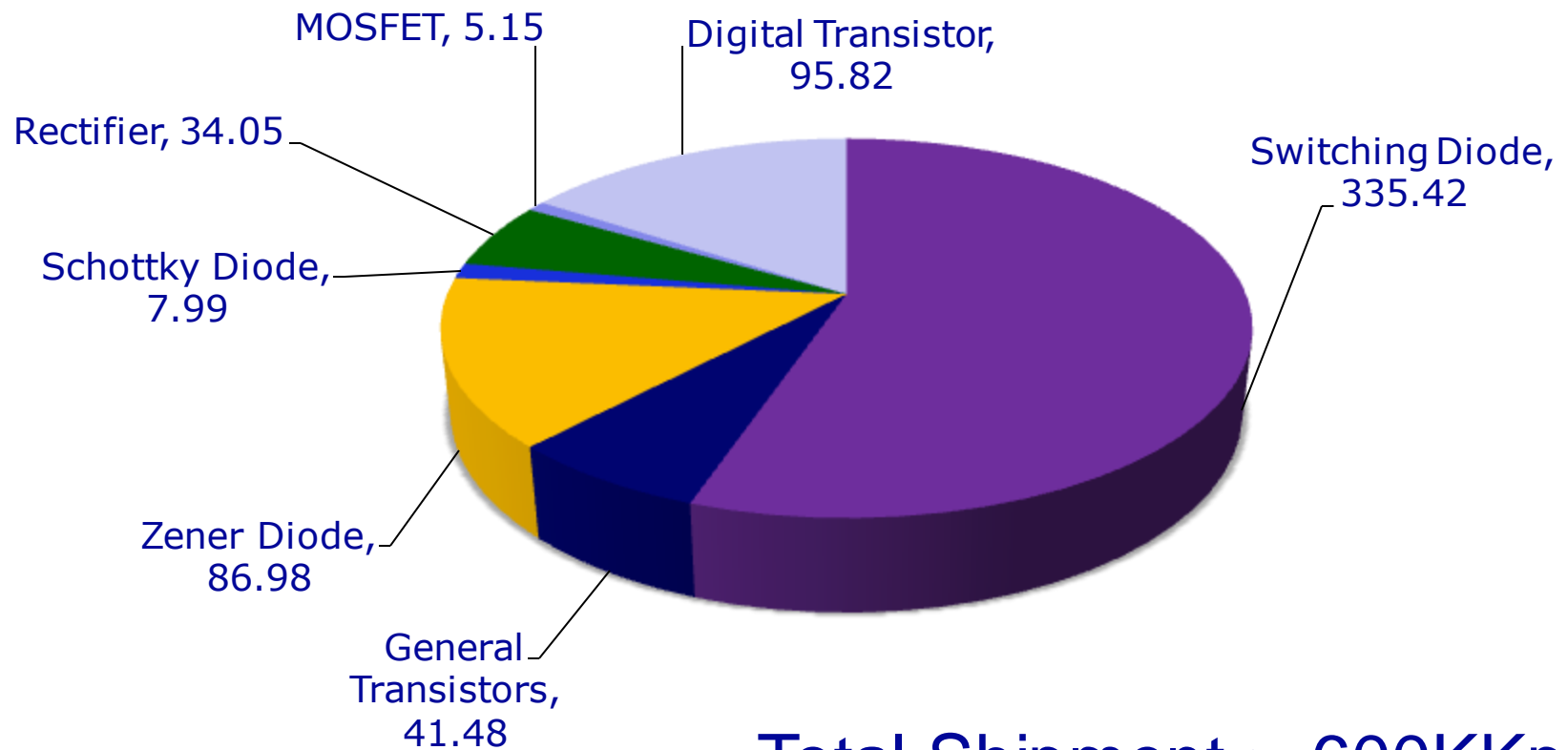
✓ LRC Products in used

Designed in, expect volume run in 2018



Shipment of Automotive Products

2017 Shipment of LRC Automotive Product (KKpcs)



Total Shipment > 600KKpcs

Major Automotive Items and Applications - 1

Part number	Product	Application
S-LBAS21HT1G	Switching Diode	Body Control Module
S-LBAV70LT1G	Switching Diode	Body Control Module
S-LMUN2234LT1G	Digital Transistor	Cooling Fan motor controller(Engine room)
S-LMBT2907ALT1G	Transistor	Cooling Fan motor controller(Engine room)
S-LBAS21HT1G	Switching Diode	Cooling Fan motor controller(Engine room)
S-LMBR140FT1G	Schottky Diode	Cooling Fan motor controller(Engine room)
S-LMBT2907ALT1G	General Purpose Transistor	Passenger Detect System(PDS) ECU
S-LBAS21HT1G	Switching Diode	Passenger Detect System(PDS) ECU
S-LMUN2234LT1G	Digital Transistor	Smart Junction box
S-LBAS21HT1G	Switching Diode	Smart Junction box
S-LMSZ5231BT1G	Zener Diode	Smart Junction box
S-LMUN2234LT1G	Digital Transistor	Smart Junction box
S-LMUN2234LT1G	Digital Transistor	Smart Junction box
S-LBAS21HT1G	Switching Diode	Smart Junction box
S-LMUN2234LT1G	Digital Transistor	Body Control Module
S-LBAT545LT1G	Schottky Diode	Body Control Module
S-LMUN2114LT1G	Digital Transistor	Body Control Module
S-LBAS21HT1G	Switching Diode	Body Control Module
S-LBAS21HT1G	Switching Diode	Smart connector(Side mirror)
S-LBAS21LT1G	Switching Diode	BCM
S-LMUN5311DW1T1G	Digital Transistor	I06 ECU
S-LMUN5214DW1T1G	Digital Transistor	Power Window
S-LMUN5335DW1T1G	Digital Transistor	BMS
S-LEDZ15BT1G	Zener Diode	SCS
S-LMUN2111LT1G	Digital Transistor	BCM(Body Control Module)
S-LMUN5314DW1T1G	Digital Transistor	SBW(线转控向)
S-LBC847ALT1G	General Purpose Transistor	MLB Q7/B9 light switch
S-LMUN2211LT1G	Digital Transistor	Model Control SW
S-SM540AF-E	Schottky Diode	SCS
S-LMUN5211T1G	Digital Transistor	Console Switch
S-LBAS21HT1G	Switching Diode	Switch
S-LDAN202KLT1G	Switching Diode	Dash Board
S-LMBTA42LT1G	General Purpose Transistor	Dash Board
S-LMBTA92LT1G	General Purpose Transistor	Dash Board
S-LMSZ5234BT1G	Zener Diode	Dash Board
S-LMUN2113LT1G	Digital Transistor	Door Switch

Major Automotive Items and Applications - 2

Part number	Product	Application
S-LMUN2132LT1G	Digital Transistor	Door Switch
S-LMUN2232LT1G	Digital Transistor	Door Switch
S-LUDZS5.1BT1G	Zener Diode	Door Switch
S-LUDZS5.6BT1G	Zener Diode	Door Switch
S-LUDZS6.8BT1G	Zener Diode	Door Switch
S-SOD4005-SH	Zener Diode	Dash Board
S-LBZT52C5V1T1G	Zener Diode	Dash Board
S-LMSZ5232BT1G	Zener Diode	Dash Board
S-LMSZ5254BT1G	Zener Diode	Dash Board
S-LMUN2111LT1G	Digital Transistor	Dash Board
S-LMUN2133LT1G	Digital Transistor	Dash Board
S-LMUN2211LT1G	Digital Transistor	Dash Board
S-LMUN2233LT1G	Digital Transistor	Dash Board
S-LUDZS6.2BT1G	Zener Diode	Switch
S-LUDZS7.5BT1G	Zener Diode	Switch
S-LUDZS9.1BT1G	Zener Diode	Switch
S-SOD4004-SH	Rectifier	Switch
S-LDTB113ZLT1G	Digital Transistor	Switch
S-LDTD113ZLT1G	Digital Transistor	Switch
S-LDTD143ELT1G	Digital Transistor	Switch
S-LMSZ5231BT1G	Zener Diode	Switch
S-SBR5100	Schottky Diode	Switch
S-FM407	Rectifier	BCM
S-L1SS400T1G	Switching Diode	BCM
S-LBAS21HT1G	Switching Diode	BCM
S-LBAT54CLT1G	Schottky Diode	BCM
S-LBAV99LT1G	Switching Diode	BCM
S-LBSS84LT1G	MOSFET	BCM
S-LBZX84C18LT1G	Zener Diode	BCM
S-LMUN2135LT1G	Digital Transistor	BCM
S-L1SS355T1G	Switching Diode	Car Clock
S-L2SA1576ART1G	General Purpose Transistor	Car Clock
S-L2SC4081QT1G	General Purpose Transistor	Car Clock
S-LUDZS5.6BT1G	Zener Diode	Car Clock
S-LUDZS8.2BT1G	Zener Diode	Car Clock
S-L1SS355T1G	Switching Diode	Car Clock

Major Automotive Items and Applications - 3

Part number	Product	Application
S-SOD4004-SH	Rectifier	Car Clock
S-L2SA1576AST1G	General Purpose Transistor	instrument board
S-LBC846BWT1G	General Purpose Transistor	instrument board
S-LMBTA06LT1G	General Purpose Transistor	instrument board
S-LMUN5232T1G	Digital Transistor	instrument board
S-LMUN5233T1G	Digital Transistor	instrument board
S-L1N4148WT1G	Switcing Diode	HVAC control system
S-LBZT52C12T1G	Zener Diode	HVAC control system
S-FMAF407	Rectifier	HVAC control system
S-L1N4148WT1G	Switcing Diode	HVAC control system
S-LBC807-40LT1G	General Purpose Transistor	HVAC control system
S-LBC817-40LT1G	General Purpose Transistor	HVAC control system
S-FMAF407	Rectifier	HVAC control system
S-L1N4148WT1G	Switching Diode	HVAC control system
S-LBC807-40LT1G	General Purpose Transistor	HVAC control system
S-LBC817-40LT1G	General Purpose Transistor	HVAC control system
S-SOD4004-SH	Rectifier	HVAC control system
S-FMAF405	Rectifier	HVAC control system
S-L1SS226LT1G	Switching Diode	HVAC control system
S-LMBTA56LT1G	General Purpose Transistor	HVAC control system
S-LMBTA06LT1G	General Purpose Transistor	HVAC control system
S-LUDZS5.1BT1G	Zener Diode	HVAC control system
S-LUDZS4.7BT1G	Zener Diode	Lamp
S-LMBR140FT1G	Schottky Diode	Lamp
S-LMBR140ET1G	Schottky Diode	Lamp
S-SOD4007-SH	Rectifier	Lamp
S-EFMAF104	Rectifier	(DCDC Converter + OBC
S-SM140AF	Rectifier	(DCDC Converter + OBC
S-LMDL914T1G	Switching Diode	(DCDC Converter + OBC
S-EFMBF201	Rectifier	(DCDC Converter + OBC
S-EFMAF108	Rectifier	(DCDC Converter + OBC
S-LMBR0540FT1G	Schottky Diode	(DCDC Converter + OBC
S-LBAV99LT1G	Switching Diode	(DCDC Converter + OBC
S-L2N7002SLT1G	MOSFET	(DCDC Converter + OBC
S-LMBT2222ALT1G	General Purpose Transistor	(DCDC Converter + OBC

Major Automotive Items and Applications - 4

Part number	Product	Application
S-SM240AF	Schottky Diode	(DCDC Converter + OBC
S-SM330AF	Schottky Diode	(DCDC Converter + OBC
S-LBAT54CLT1G	Schottky Diode	(DCDC Converter + OBC
S-L2N7002SLT1G	MOSFET	(DCDC Converter + OBC
S-LUDZS3.3BT1G	Zener Diode	(DCDC Converter + OBC
S-LUDZ12BT1G	Zener Diode	(DCDC Converter + OBC
S-LBAV70LT1G	Switching Diode	Power Control Unit
S-LBAV99LT1G	Switching Diode	Power Control Unit
S-LBAW56LT1G	Switching Diode	Power Control Unit
S-LBZX84C12LT1G	Zener Diode	Power Control Unit
S-LBZX84C6V2LT1G	Zener Diode	Power Control Unit
S-LBZX84B10LT1G	Zener Diode	Power Control Unit
S-LBC846BLT1G	General Purpose Transistor	Power Control Unit
S-LBC856BLT1G	General Purpose Transistor	Power Control Unit
S-LBSS139LT1G	MOSFET	Power Control Unit
S-LBSS84LT1G	MOSFET	Power Control Unit
S-L1N4148WT1G	Switching Diode	PM2.5 Air Purifier
S-LBZT52C5V1T1G	Zener Diode	PM2.6 Air Purifier
S-LMUN5335DW1T1G	Digital Transistor	PM2.7 Air Purifier
S-LDTD123YLT1G	Digital Transistor	PM2.7 Air Purifier
S-L1N4148WT1G	Switching Diode	PM2.5 Air Purifier
S-LBZT52C3V3T1G	Zener Diode	PM2.6 Air Purifier
S-LMUN5335DW1T1G	Digital Transistor	PM2.9 Air Purifier
S-L1N4148WT1G	Switching Diode	PM2.5 Air Purifier
S-LBZT52C3V3T1G	Zener Diode	PM2.6 Air Purifier
S-LMUN5335DW1T1G	Digital Transistor	PM2.9 Air Purifier
S-FFMAF207T	Rectifier	PM2.5 Air Purifier
S-L1N4148WT1G	Switching Diode	PM2.6 Air Purifier
S-L8550HQLT1G	General Purpose Transistor	PM2.7 Air Purifier
S-L8050HQLT1G	General Purpose Transistor	PM2.7 Air Purifier
S-LMUN5335DW1T1G	Digital Transistor	PM2.9 Air Purifier
S-LMBR0530FT1G	Schottky Diode	PM2.10 Air Purifier
S-L8050HQLT1G	General Purpose Transistor	5W Wireless Charger
S-SOD4007-SH	Rectifier	Wireless Charger 5W
S-L2N7002KLT1G	MOSFET	5W/15W Wireless Charger

Major Automotive Items and Applications - 5

Part number	Product	Application
S-L2N7002KWT1G	MOSFET	15W Wireless Charger
S-SZAF15A	Zener Diode	15W Wireless Charger
S-SZAF13A	Zener Diode	5W Wireless Charger
S-SBR5100	Schottky Diode	5W Wireless Charger
S-L2N7002SLT1G	MOSFET	5W/15W Wireless Charger
S-L2N7002SWT1G	MOSFET	15W Wireless Charger
S-LM3Z15VT1G	Zener Diode	15W Wireless Charger
S-LBAS516T1G	Switching Diode	15W Wireless Charger
S-SOD4007-SH	Rectifier	5W Wireless Charger
S-LBAS21LT1G	Switching Diode	5W Wireless Charger
S-LBAS21LT1G	Switching Diode	PM2.5 Air Purifier



THANK YOU !
