

PANJIT Automotive Product Selection Guide

PANJIT Application Dept -CN1
Jan.2024

Contents :

- A. Company Profile
- B. Automotive Application Guide
- C. Automotive Product Selection



Milestones

1986



Founded 1986
HQ Kaohsiung

2000



- Opened Wuxi factory
- Set up Pynmax Technology

2003



- Set up PANJIT Europe

2006

- TS16949 certified

2005

- Set up Shenzhen Office

2001

- PANJIT IPO in Taiwan

1997

- QS-9000 certified

2019



- Established IBU and R&D center in San Jose, US and Hsinchu, Taiwan

2018

- IATF16949 certified

2008



- Set up PANJIT Korea

2021

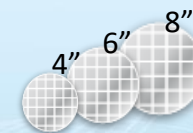


- Set up Xuzhou Factory
- Issued GDR in Luxembourg
- Invested in ALLTOP



2020

- 8" wafer fab set up



2022



- Taipei operation center opened.
- Acquired Champion Microelectronic Corp.



2023 **New**

- Set up PANJIT Japan
- Set up assembly site in Philippines
- IC products launched

PANJIT
SEMI
CONDUCTOR

PANJIT Overview

IDM Design Capability

PANJIT semiconductor has been providing its comprehensive range of discrete products to global community for over 37 years. With continuous investment in packaging miniaturization, wafer capacity expansion, R&D in advanced high power discrete solution and IC design capability, PANJIT is the brand name that customers can depend on to be life-long partner of discrete semiconductor components and total solution provider.

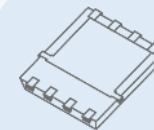
US\$ **457** Million
Y2023 consolidated
revenue



6

Worldwide Ranking
*From Omdia, 2022: Low
Power Rectifier, >500mA

3 Frontend
Wafer Sites



4 Backend
Packaging Sites

PANJIT Global Footprint at a Glance



Revenue Trend

Unit: US\$M



■ PANJIT Semiconductor

■ Consolidated



Product Offering

10K+ Parts

Annual Shipment

23B Pcs
2023



Worldwide

50+ Countries



Serving Over

10,000+
customers across
the globe

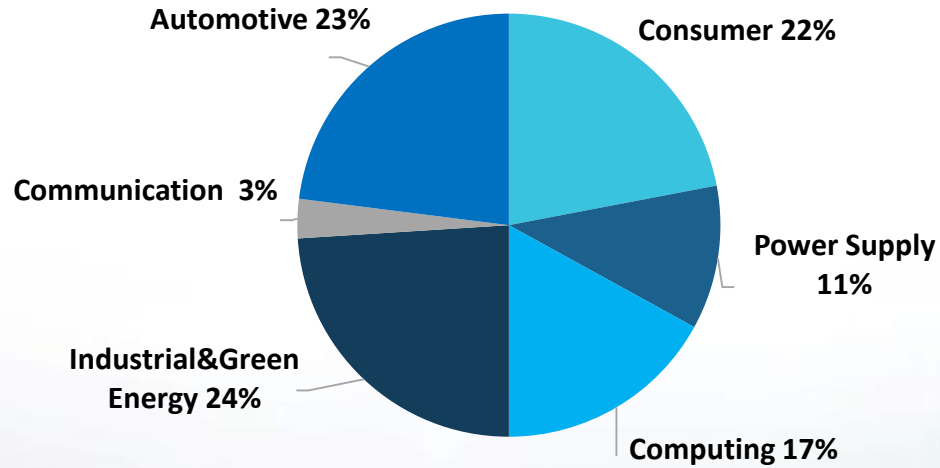


Employees

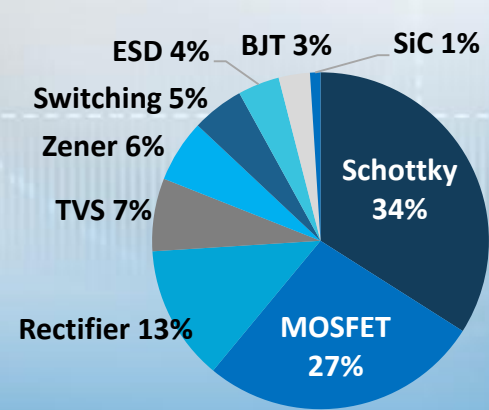
3,300+

Market Segment

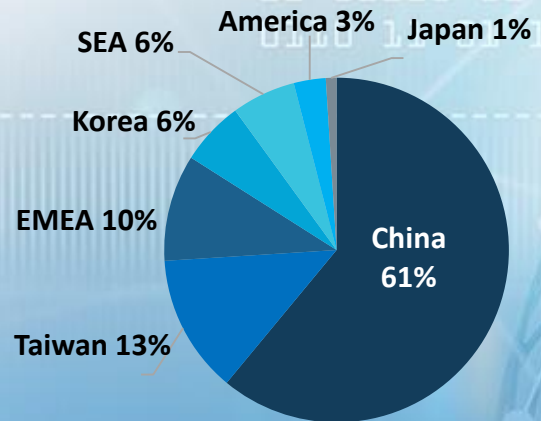
By Market Segment
2023



By Product
2023



By Region
2023



Application Field



Automotive

Lighting, Infotainment, Pump, Body & Comfort, On Board Charger



Industrial & Green Energy

PV Inverter, Server fan, EV charger, Motor, DC fan, Robot, Medical



Computing

Notebook, Motherboard, SSD, Server, Data center



Power Supply

PD Charger, Power adapter, UPS DC-DC Brick module, ATX/Server Power



Consumer

TV, White/Black goods, Game console, Printer, Smart watch, PC camera



Communication

POE, Mobile, Base station

Automotive Business

Unit: US\$M

AEC-Q101 parts business trend



Shipment
年出貨量
9.5B Pcs
2021~203Y



Quality Control
品質控制
0.03 < Dppm
2021-2023
市场累计缺陷反馈

Serving over
1000+
customers across
the globe
全球服務客戶數

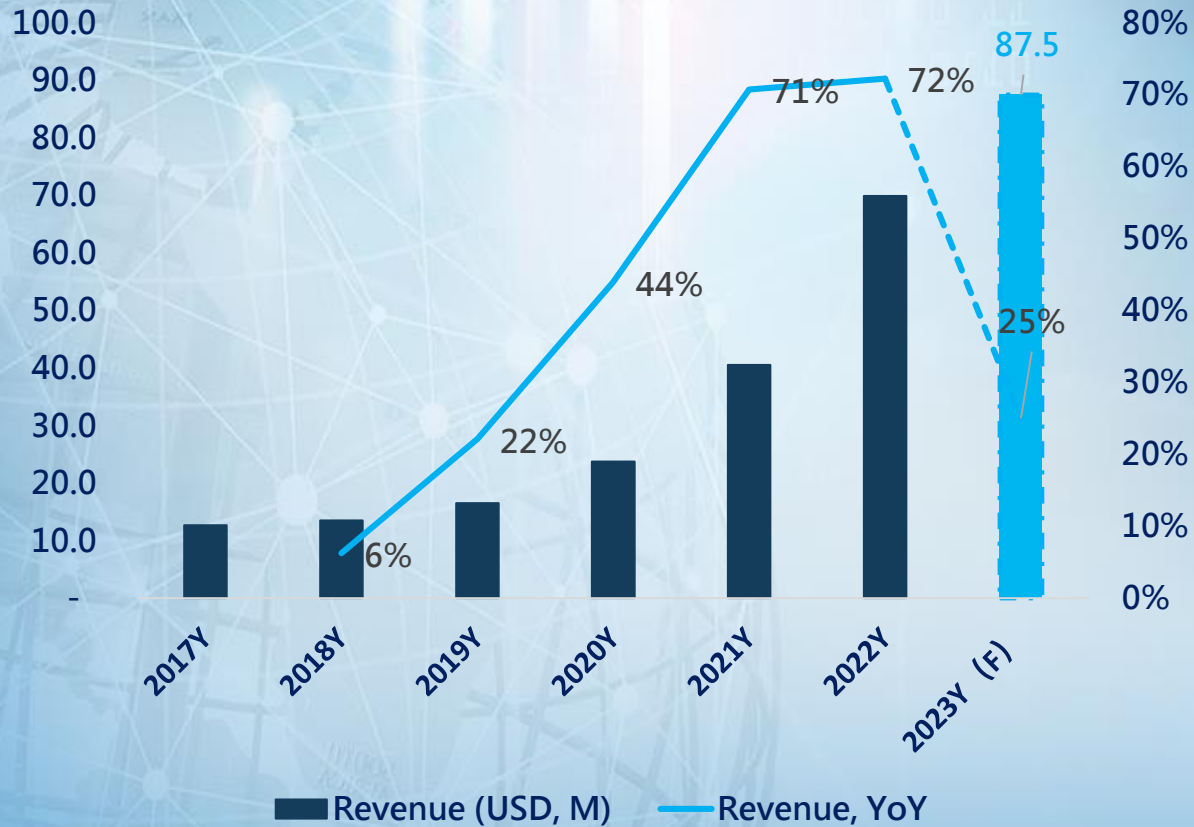


VDA 6.3 certified
戶客戶VDA6.3 核驗
20+ Top Tier 1
通过 20+ Top Tier 1
VDA 6.3 稽核

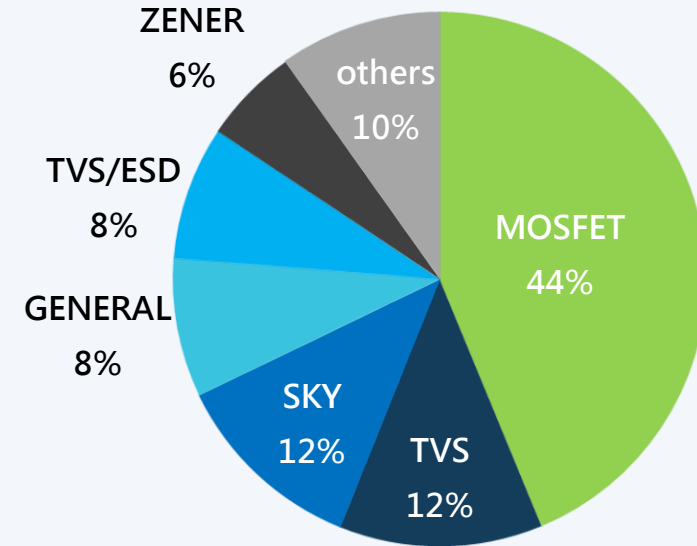
Automotive Business

Unit: US\$M

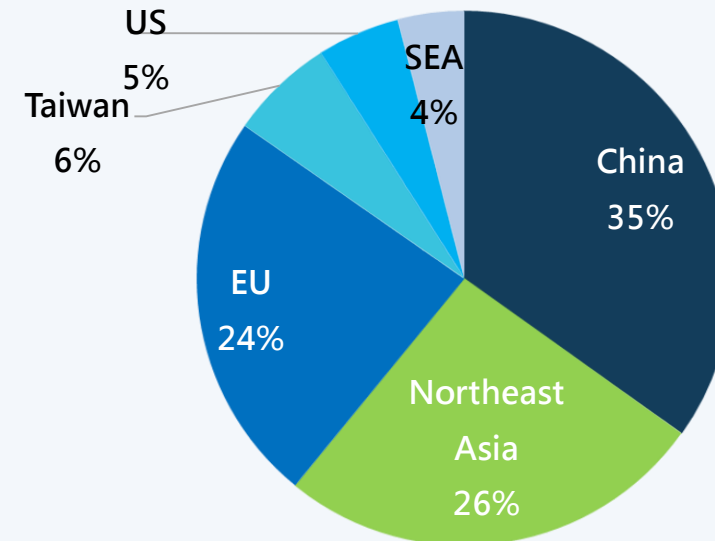
AEC-Q101 parts business trend



FUNCTION RATION



REGION RATION



Product Portfolio

Existing Portfolio



PMICs

Flyback Controller
Active Bridge Controller
Automatic x Capacitor Discharge

Transistors

Small Signal MOSFET
Power MOSFET
General BJT
Low Vce(sat) BJT

SiC Devices

SiC Diode (650 - 1200V)

Diodes

Rectifiers
Schottky (20-200V)
ESD Arrays ($\geq 0.2\text{pF}$)
TVS ($\leq 6.6\text{KW}$)
Zener ($\leq 5\text{W}$)
FRED (600-1200V)
Power Bridge

Technology Innovation



New

IC Products

Power IC
Signal Chain IC
Motor Control IC

MOSFETs

SGT MOSFET
(40 - 120V)
SJ MOSFET
(600 - 800V)

IGBTs

FS Trench IGBT
(650 - 1700V)

SiC Devices

SiC Diode
(650V - 1700V)
SiC MOSFET
(650V - 1200V)

Diodes

FRED (650 - 1700V)
Ultra LVF Rectifiers
(600V:T_J 150 °C/ 800V:T_J 175 °C)
Deep Snapback
ESD
(1V/3.3V/5V/24V/28V/3
6V/48V)

Innovation for the Future Technology

	2023	2024	2025	2026	2027
LV MOSFET	SGT Gen.1 N-CH 30V/40V	SGT Gen.2 N-CH 30V/40V Low Ron	SGT Gen.2 N-CH 30V/40V Line up	SGT Gen.2 Dual-CH 30V/40V Line up	SGT Gen.3 N-CH 30V/40V Low RSP
MV MOSFET	SGT Gen.2 N-CH 100V/80V	SGT Gen.2 N-CH: 80V&40V-LL/ 60V	ST Gen.2 P-CH 100V	SGT Gen.2/SGT Gen.3 N-CH 150V/100V	SGT Gen.1 N-CH 250V SOA FET 100V
SJ MOSFET	Gen.1.5 FR 600V	Gen.2 Easy/FR 650V		Gen.1 Easy 800V	Gen.3 Easy 650V
FS Trench IGBT	Gen.1 HS 650V	Gen.1 HS 1200V	Gen.1 MS 650V/1200V	Gen.2 HS 650V/1200V	Gen. 2 Voltage extension
SiC Diode	Gen.2 650V	Gen.2 1200V	Gen.2 1700V	Gen. 3 650V/1200V	
SiC MOSFET		Gen.1 650V/1200V		Gen.2 650V/1200V	
FRED		Gen.1 650V/1200V, T _j :175°C	Gen.2 650V/1200V	Gen.2 Voltage extension	
Ultra LVF Bridge Rectifiers	Gen.1/Gen1.5 600V V _F < 0.87V, T _J 150-175°C	Gen.2 800V V _F < 0.87V, T _J 175°C			
Deep Snapback ESD		Gen.1 1V/3.3V/5V, C _J :0.1pF 24V/28V C _J :0.4pF	Gen.2 36V/48V C _J :0.4pF Small PKG hi-Surge	Gen.3 28V/36V/48V C _J :0.2pF 1V/3.3V/5V C _J :0.05pF	Gen.1 Tiny PKG(DFN0402) <0.1pF
H-type TVS		Gen.2 Bi, 14V-48V 6.6KW, T _J :175°C	Gen.2 Uni/Bi, 5V-220V 200W-3KW, T _J :175°C	Gen.2 Uni/Bi, 12V-58V 5KW, T _J :175°C	

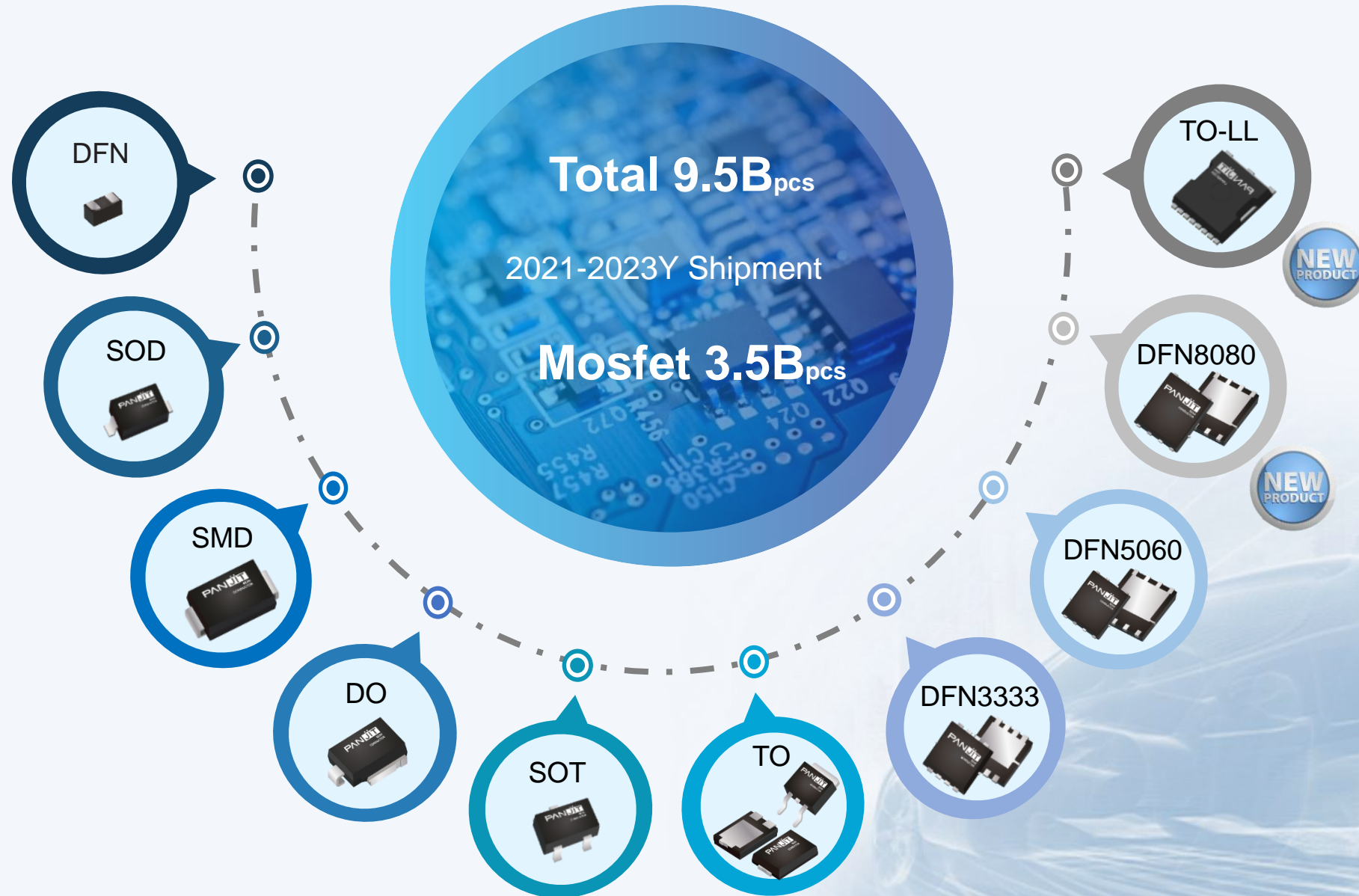


Innovation for the Future Technology New

		2023	2024	2025	2026	2027
POWER IC	DC-DC Regulators	18V/24V Buck Converter Up to 6A/8A/10A/12A		Wide Vin Buck Converter Up to 60V, 3A/5A		
		Nano Power Buck Iq < 300nA		240W Buck-Boost Controller Up to 80V		24V Buck-Boost Conv. Integrated 4-Switch
	LDOs	High PSRR LDO Up to 92dB	Ultra Low Iq LDO Iq < 100nA		High Voltage LDO Up to 100V	
	Power Switches	LV Load Switch 1CH-6A & 2CH-6A+6A	USB PD Power Switch Up to 40V/5A		Hot-Swap & e-Fuse Up to 30A	
	BMS	Gas Gauge Support 2-5 series cell	Gas Gauge Support 1 series cell		Gas Gauge Support 5-16 series cell	
	Signal Chain IC	Sensors Amplifiers	Temperature Sensor High Accuracy to 0.35%/13C		Current Sense Amplifier Digital I/F, w/ Reporting	
Interfaces		Single Gate Logic IC		High Speed I/F PCIE 3.0 & USB3.0/3.1 up to 11Gbps		
Motor Control IC		Gen.1 40V/48MHZ M0 / MCU Pre-driver MCU / ALL IN ONE	Gen.2 200V/200MHZ M4 / MCU Pre-driver MCU / ALL IN ONE		Gen.3 600V/500MHZ M7/ MCU Pre-driver MCU / ALL IN ONE	

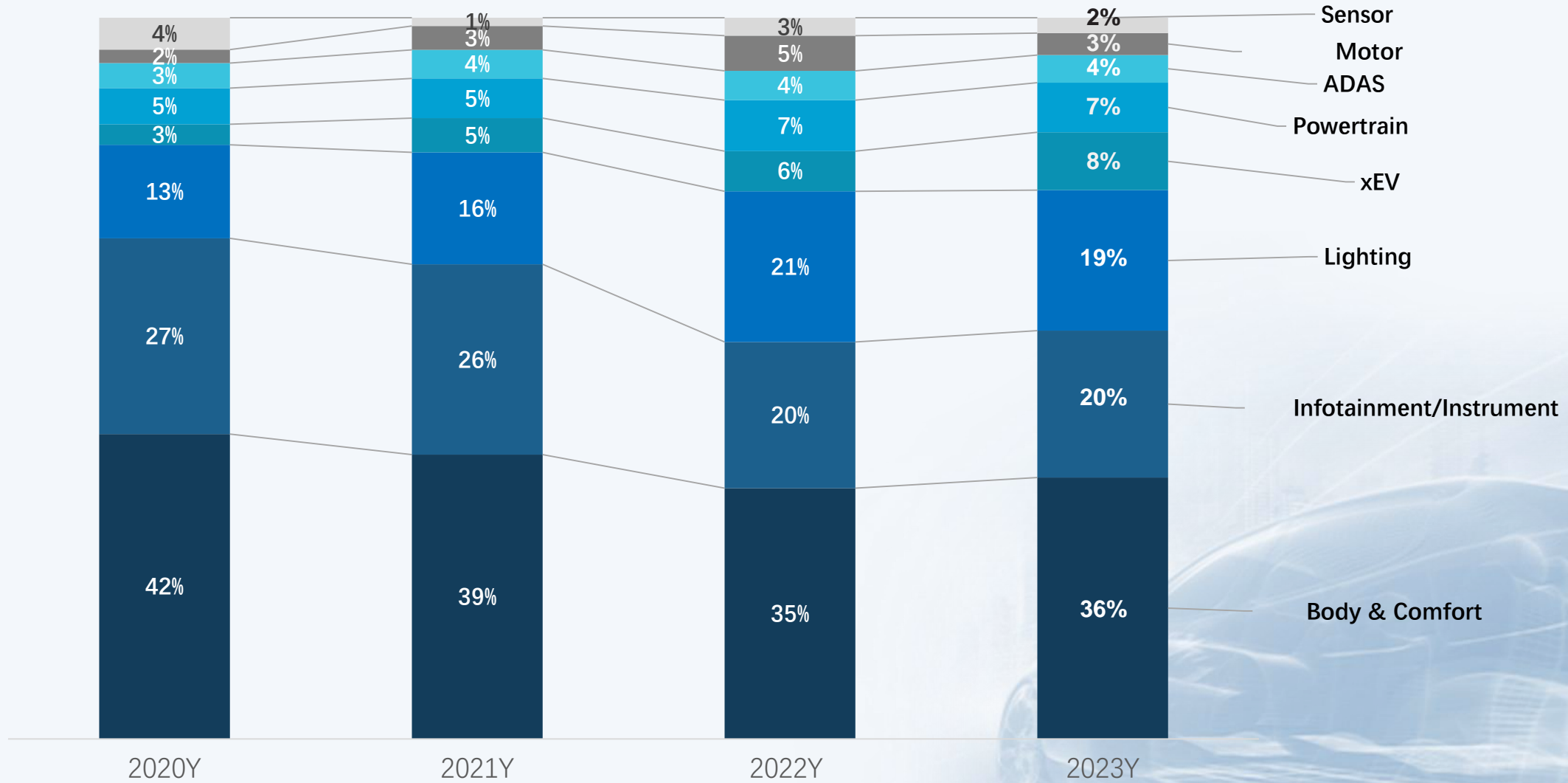


Automotive Packages



Automotive Business 2023Y updated

AU business revenue by application



管理团队

强茂集团
总裁
Jason Fang

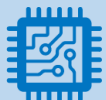


强茂
董事长暨总经理
Jeff Fang



集团功能事业体

- Financial
- Accounting
- H.R.
- I.T.
- Legal Office
- Affiliated Enterprise Development



半导体事业群



COO
Edgar Chen



晶圆事业群



Chairman & CEO
Jeff Fang (Act)



新创事业体



CSO
Jasper Lee



先进封测制造事业体



Director
Arthur Ho

营业事业体



COO
Edgar Chen (Act)

产品事业体



Sr. Director
Danil Yu

IC产品事业处



Director
Edison Chen

汽车事业体



VP
Roland Koenig

冈山制造事业体



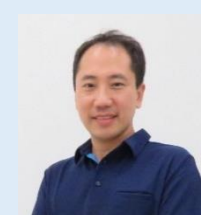
VP
TA Chiew

无锡制造事业体



Sr. Director
Brook Zhu

徐州制造事业体



Sr. Director
Daniel Chen

总品质事业体



Director
Alan Liu

Wafer and Assembly

Wafer Capacity



4"

Fab 2
Shandong, China

✓ TVS: 30,000 pcs/month



6"

Fab 1
Kaohsiung, Taiwan

- ✓ EPI: 60,000 pcs/month
- ✓ Schottky: 45,000 pcs/month
- ✓ TVS ESD Array: 5,000 pcs/month
- ✓ Zener: 5,000 pcs/month
- ✓ FRED: 5,000 pcs/month
- ✓ LVf Rectifier: 5,000 pcs/month



8"

Fab 3
Kaohsiung, Taiwan

✓ MOSFET/ IGBT: 10,500 pcs/month

Assembly Capacity

01

Kaohsiung, Taiwan

Package:
Small Signal Devices/SMD Bridge

Capacity:
2,975 million/month

02

Wuxi, China

Package:
SMD/Power Package

Capacity:
450 million/month

03

Xuzhou, China

Package:
Small Signal Device

Capacity:
520 million/month

04

Cabuyao, Philippine

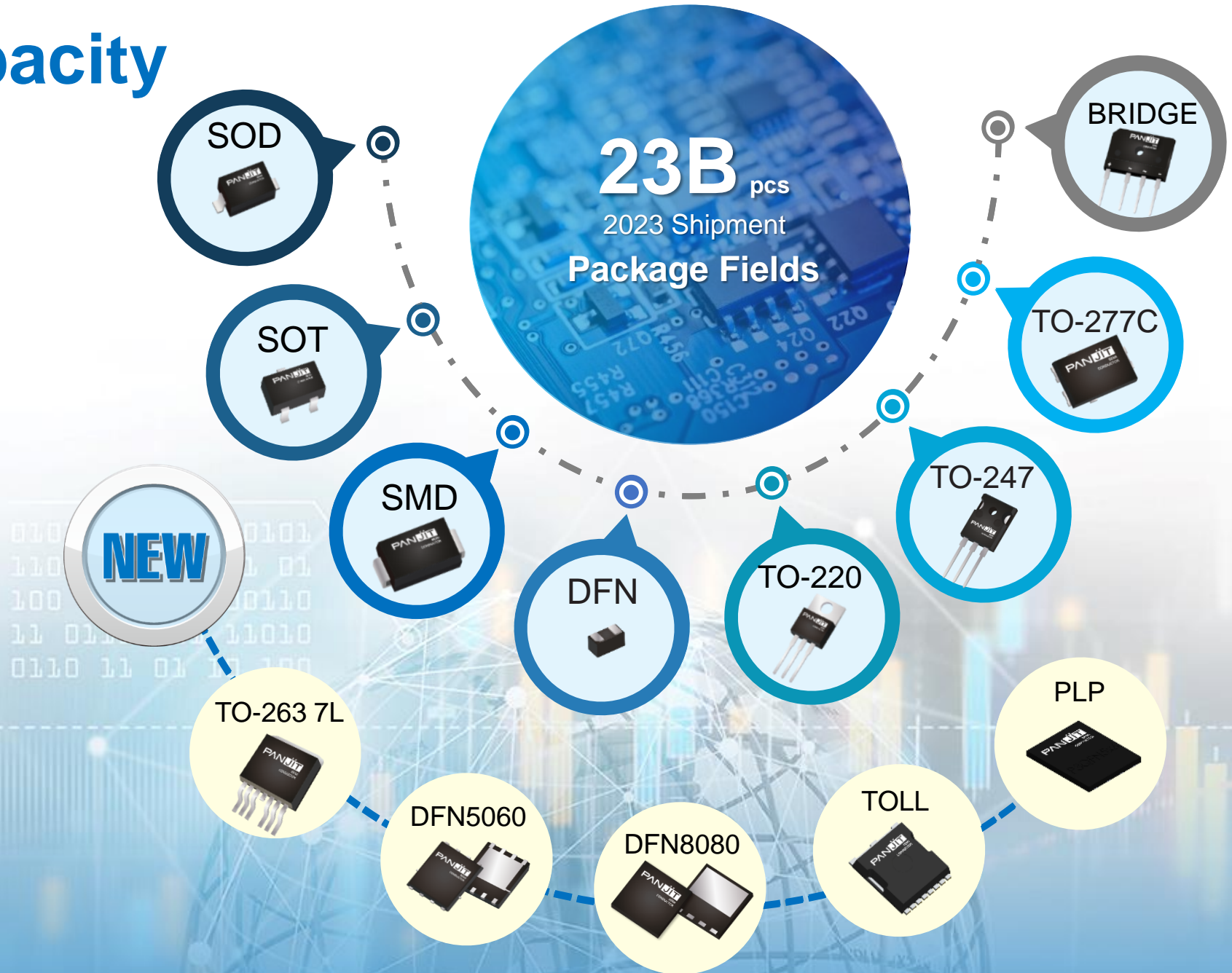
Package:
Small Signal Device

Capacity:
55 million/month (MP in 2024 Q4)

Capacity:

4,000 million/month

Overall



Contents :

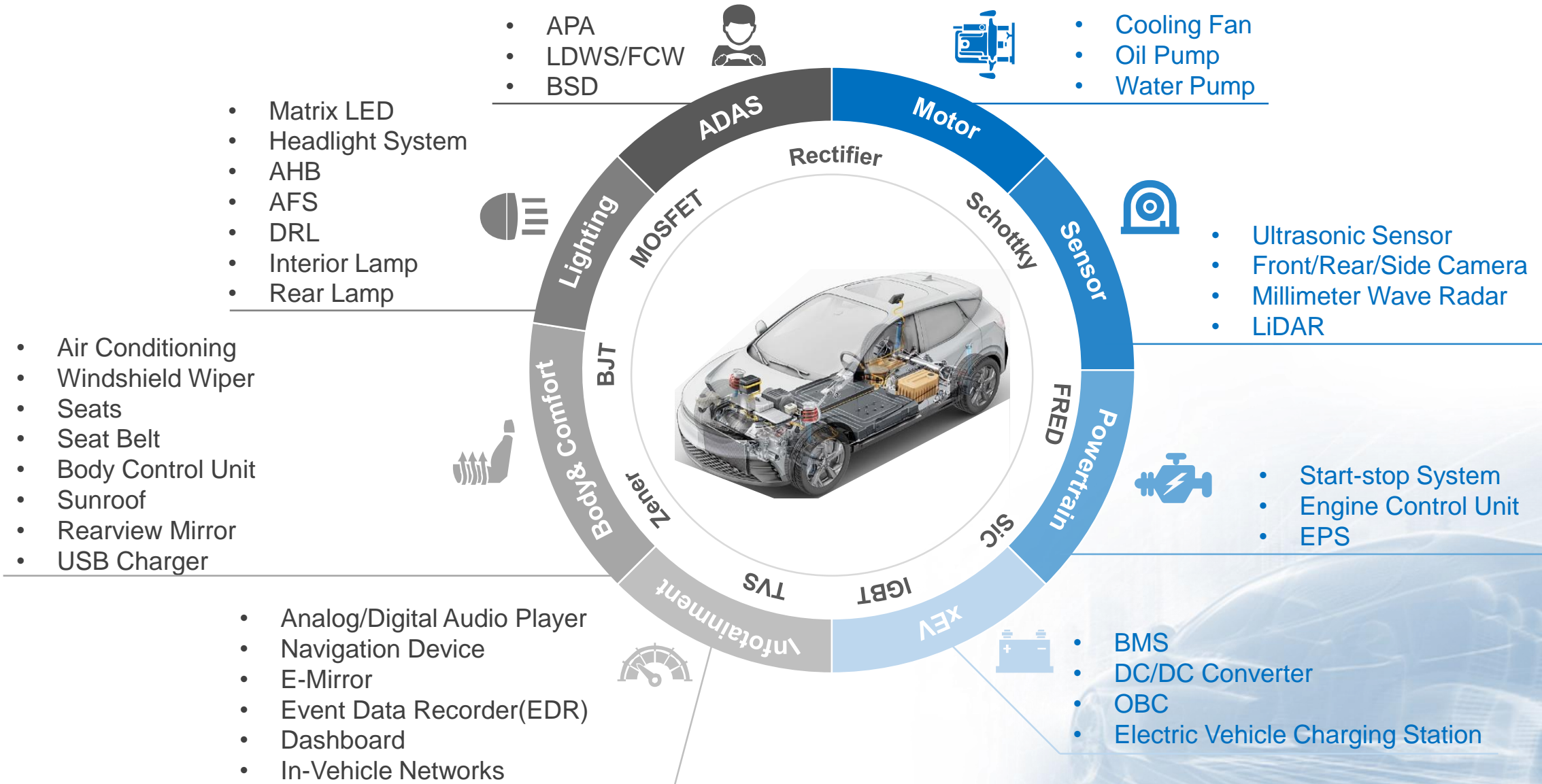
A. Company Profile

B. Automotive Application Guide _ Continuous Updating

C. Automotive Product Selection

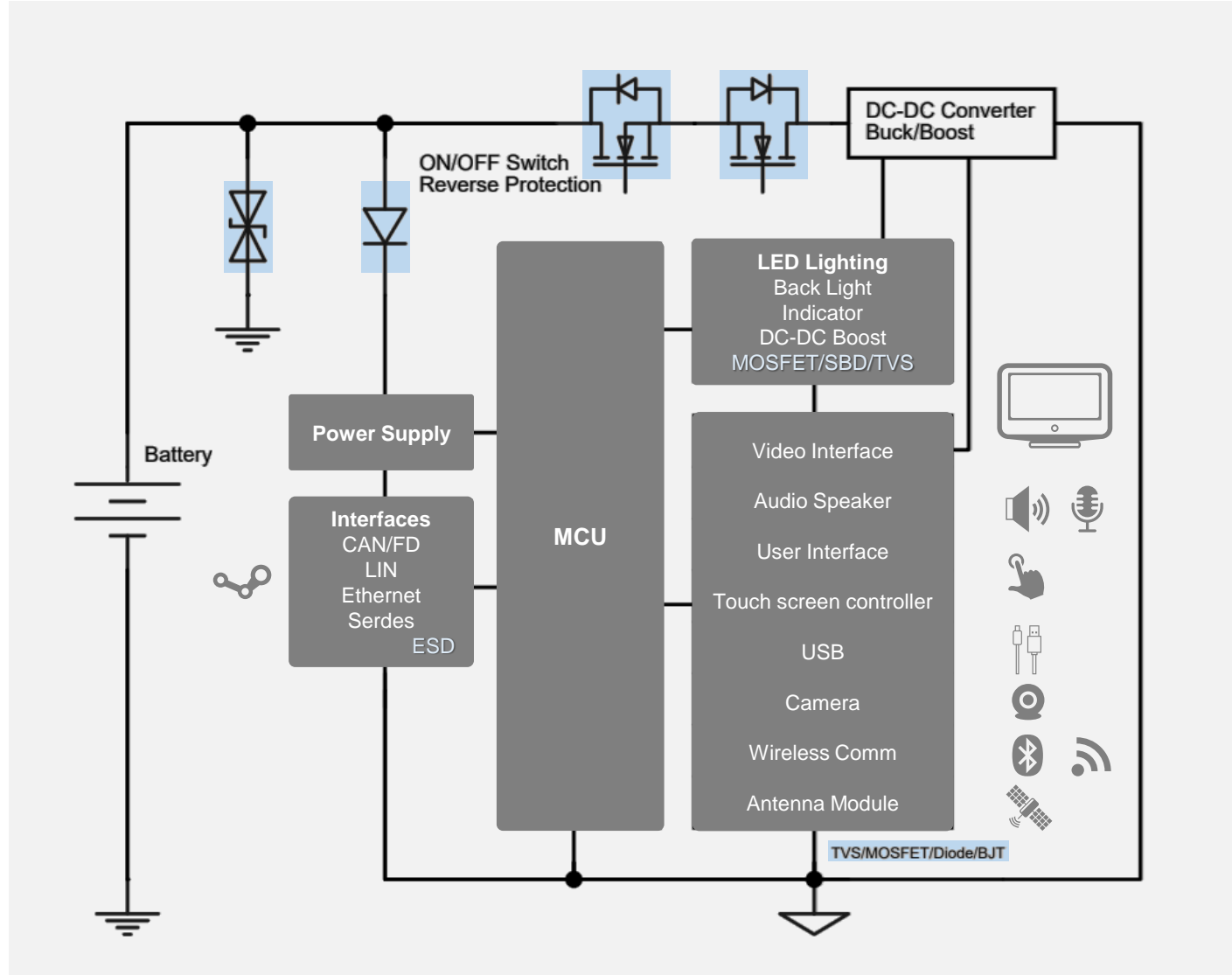


Automotive Application Overview



Infotainment & Cluster

Block Diagrams

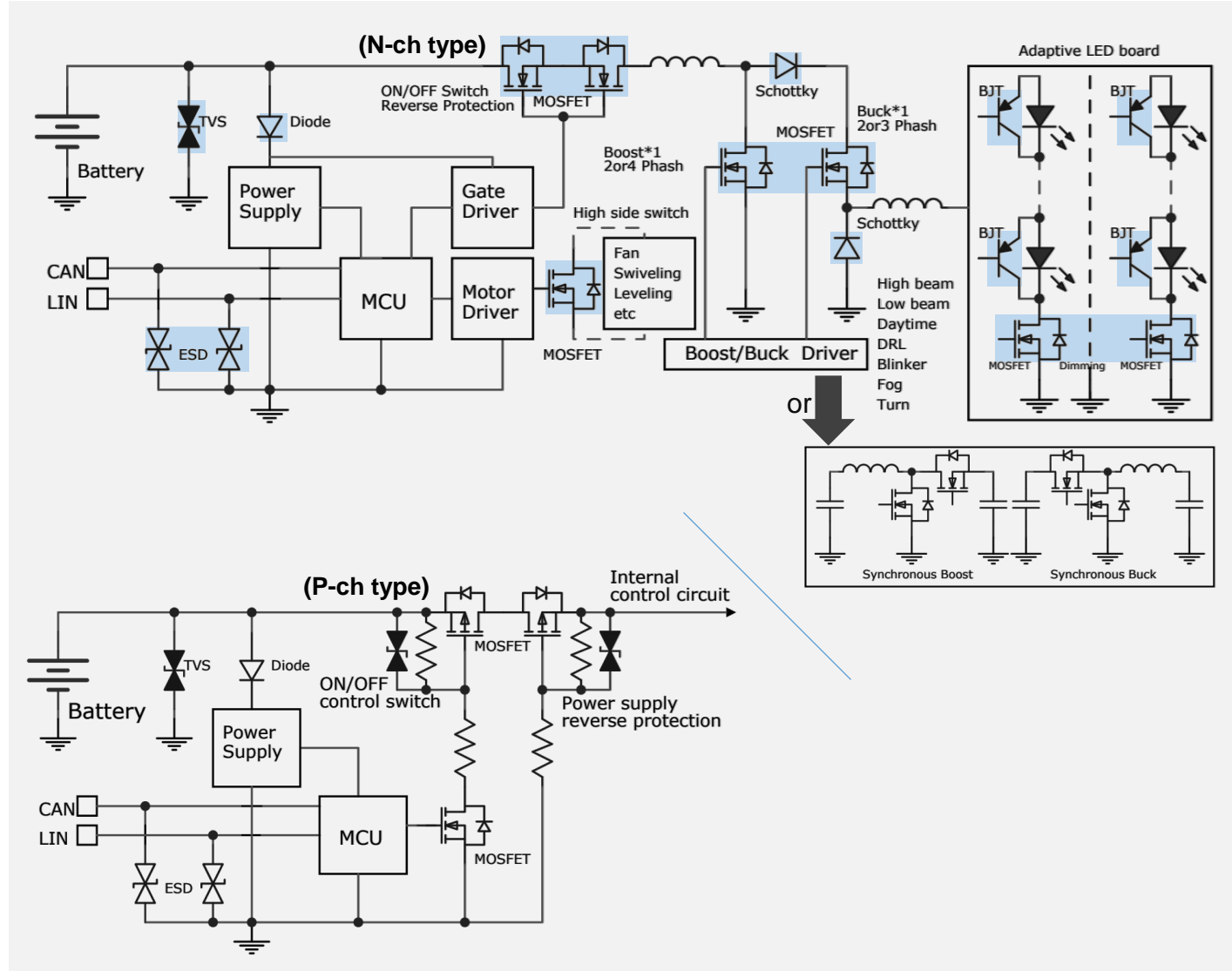


Recommended Products

Applications	P/N	V _{DS} [V]	R _{DS(on)} @V _{gs} =10V [mΩ].Max	Package
ON/OFF Reverse Protection MOSFET	PJQ5449E-AU	-40	6	DFN5060-8L
	PJQ5451E-AU	-40	9.4	DFN5060-8L
	PJD95P04E-AU	-40	6	TO-252AA
	PJD75P04E-AU	-40	9.4	TO-252AA
	PJD50P06A-AU	-60	21	TO-252AA
	PJD16P06A-AU	-60	48	TO-252AA
	PJD15P06A-AU	-60	68	TO-252AA
	PJQ5542-AU	40	2.5	DFN5060-8L
	PJQ5544-AU	40	3.3	DFN5060-8L
	PJQ5546-AU	40	5.3	DFN5060-8L
	PJQ5946-AU	40	6.8	DFN5060B-8L
	PJQ5560A-AU	60	2.6	DFN5060-8L
	PJQ5562A-AU	60	5.9	DFN5060-8L
	PJQ5564A-AU	60	7.9	DFN5060-8L
	PJQ5968A-AU	60	14	DFN5060B-8L
Applications	P/N	V _{CEO} [V]	I _c [mA]	Package
Switch BJT	MMBT3904-AU	40	200	SOT-23
	MMBT3906-AU	-40	-200	SOT-23
Applications	P/N	P _D [W]	V _{RWM} [V]	Package
Power Supply TVS	P6SMBJ Series	600	5.0~70	SMB
	1.5SMCJ Series	1500	5.0~70	SMC
	SM8SxxA-AU Series	6600	14~48	DO-218AB
Applications	P/N	V _{RWM} [V]	C _J [pF]	Package
CAN Line ESD	PEC3824C2A-AU	24	20	SOT-23
	PEC3836C2A-AU	36	15	SOT-23

Head Light

Block Diagrams



Recommended Products

Applications	P/N	V _{DS} [V]	R _{DS(on)} @V _{gs} =10V [mΩ].Max	Package
ON/OFF Switch Reverse Protection	PJD60P04E-AU	-40	11.3	TO-252AA
	PJD95P04E-AU	-40	6	TO-252AA
	PJQ5451E-AU	-40	9.4	DFN5060-8L
ON/OFF Switch Reverse Protection Boost/Buck	PJQ5449E-AU	-40	6	DFN5060-8L
	PJQ5548V-AU	40	10	DFN5060-8L
	PJQ5548-AU	40	8.8	DFN5060-8L
	PJQ5568A-AU	60	13.5	DFN5060-8L
Dimming	PJQ5968A-AU	60	15	DFN5060B-8L
	PJQ5576A-AU	100	16	DFN5060-8L
Dimming	PJA3460-AU	60	75	SOT-23

Applications	P/N	V _{RWM} [V]	I _F [A]	Package
Schottky Boost/Buck	SB560LPC-AU	60	5	TO-277C
	MBR5H60PC-AU	60	5	TO-277C
	MBR8H120PC-AU	120	8	TO-277C

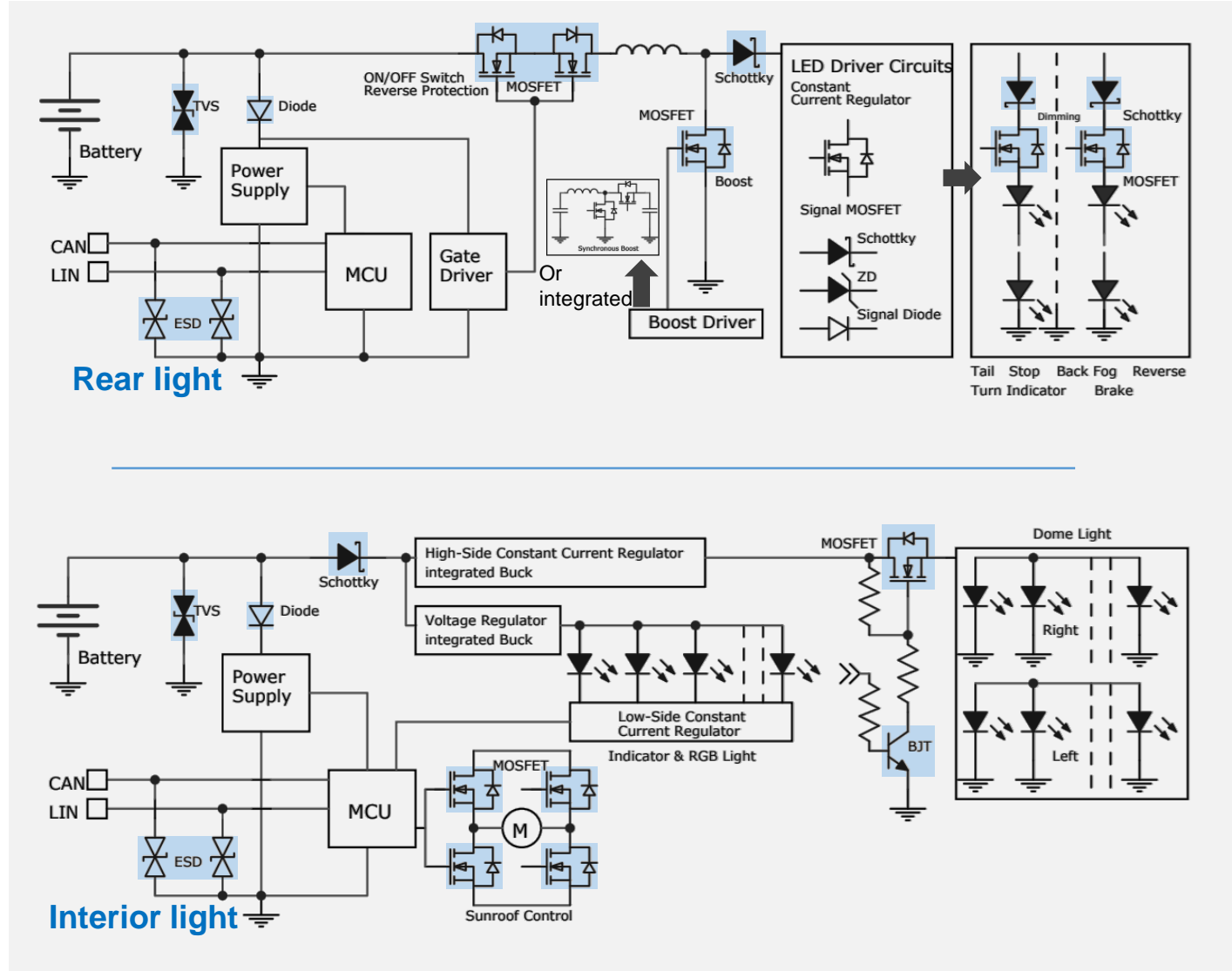
Applications	P/N	V _{CEO} [V]	I _C [mA]	Package
Load Switch BJT	BCP56-16-AU	100	1000	SOT-223

Applications	P/N	P _D [W]	V _{RWM} [V]	Package
TVS Protection	P6SMBJxxCA Series	600	5.0~70	SMB
	1.5SMCJ Series	1500	5~70	SMC

Applications	P/N	V _{RWM} [V]	C _J [pF]	Package
ESD CAN Line	PEC3824C2A-AU	24	20	SOT-23
	PEC3836C2A-AU	36	15	SOT-23

Rear Light And Interior Light

Block Diagrams



Recommended Products

Applications	P/N	V _{DS} [V]	R _{DS(on)} @V _{gs} =10V [mΩ].Max	Package
ON/OFF Reverse	PJD60P04E-AU	-40	11.3	TO-252AA
	PJQ5451E-AU	-40	9.4	DFN5060-8L
ON/OFF Reverse Boost Motor Driver	PJQ5548V-AU	40	10	DFN5060-8L
	PJQ5548-AU	40	8.8	DFN5060-8L
	PJQ5568A-AU	60	13.5	DFN5060-8L
	PJQ5968A-AU	60	15	DFN5060B-8L
	PJQ5576A-AU	100	16	DFN5060-8L
Dimming	PJA3460-AU	60	75	SOT-23
	PJW5N10-AU	100	130	SOT-223

Applications	P/N	V _{RRM} [V]	I _F [A]	Package
Boost/Reverse Schottky	MB2H60AL-AU	60	2	SOD-123FL
	MBR5H60PC-AU	60	5	TO-277C
	SS10100HE-AU	100	1	SOD-123HE
	SS30100HE-AU	100	3	SOD-123HE

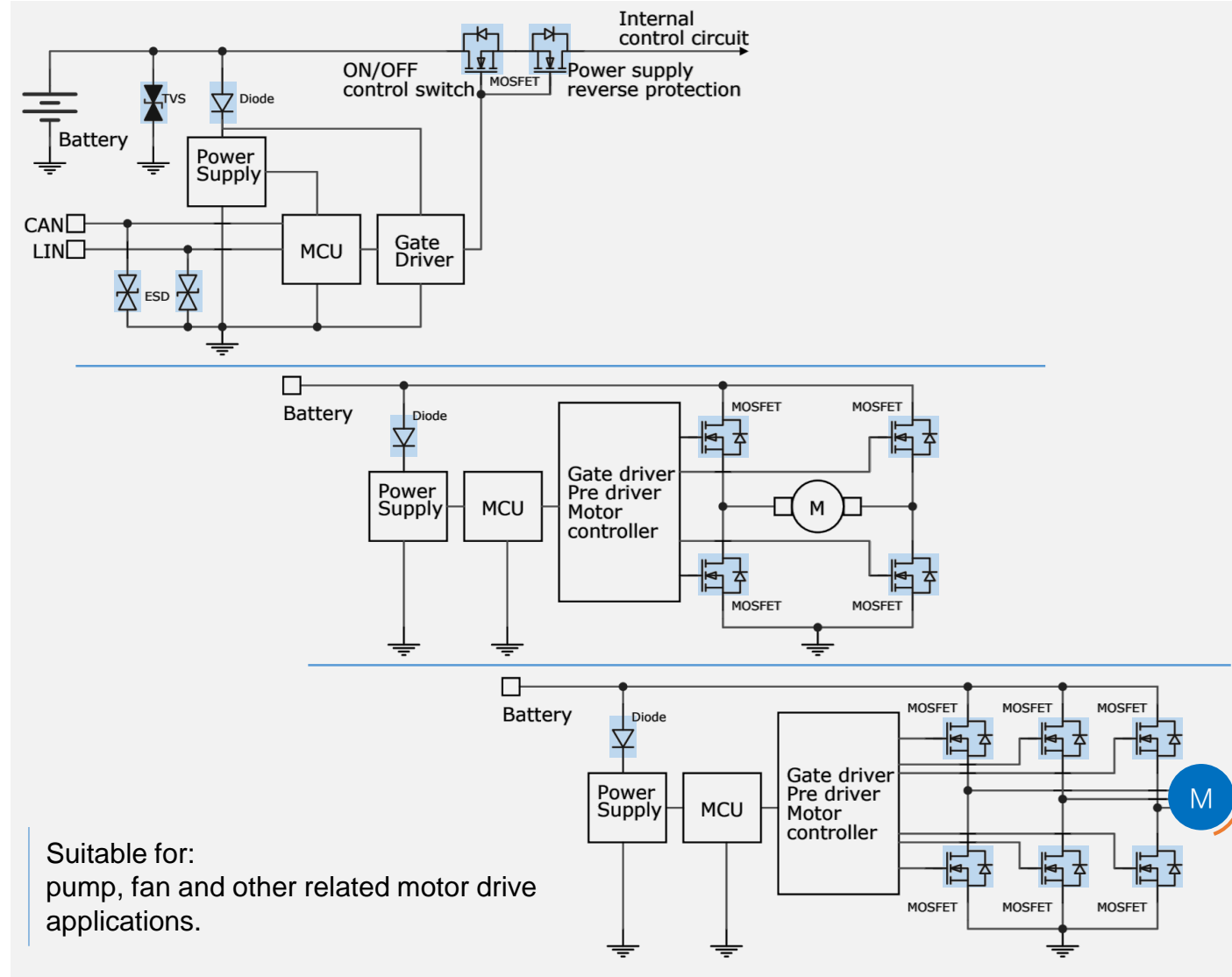
Applications	P/N	V _{CEO} [V]	I _c [mA]	Package
BJT Switch	MMBT3904-AU	40	200	SOT-23

Applications	P/N	P _D [W]	V _{RWM} [V]	Package
TVS Protection	P6SMBJ Series	600	5.0~70	SMB
	1.5SMCJ Series	1500	5~70	SMC

Applications	P/N	V _{RWM} [V]	C _J [pF]	Package
CAN Line ESD	PEC3824C2A-AU	24	20	SOT-23
	PEC3836C2A-AU	36	15	SOT-23

BDC / BLDC Motor Control Topologies

Block Diagrams



Recommended Products

Applications	P/N	V_{DS} [V]	$R_{DS(on)}$ @ $V_{gs}=10V$ [mΩ].Max	Package
Reverse Protection Motor Drive	PJQ5536S6VC-AU	40	0.9	DFN5060X-8L
	PJQ5540VC-AU	40	1.46	DFN5060X-8L
	PJQ5540V-AU	40	2.1	DFN5060X-8L
	PJQ5542V-AU	40	3	DFN5060-8L
Small Signal MOSFET	2N7002K-AU	60	3000	SOT-23
	PJA138K-AU	50	1600	SOT-23
	PJA3460-AU	60	75	SOT-23

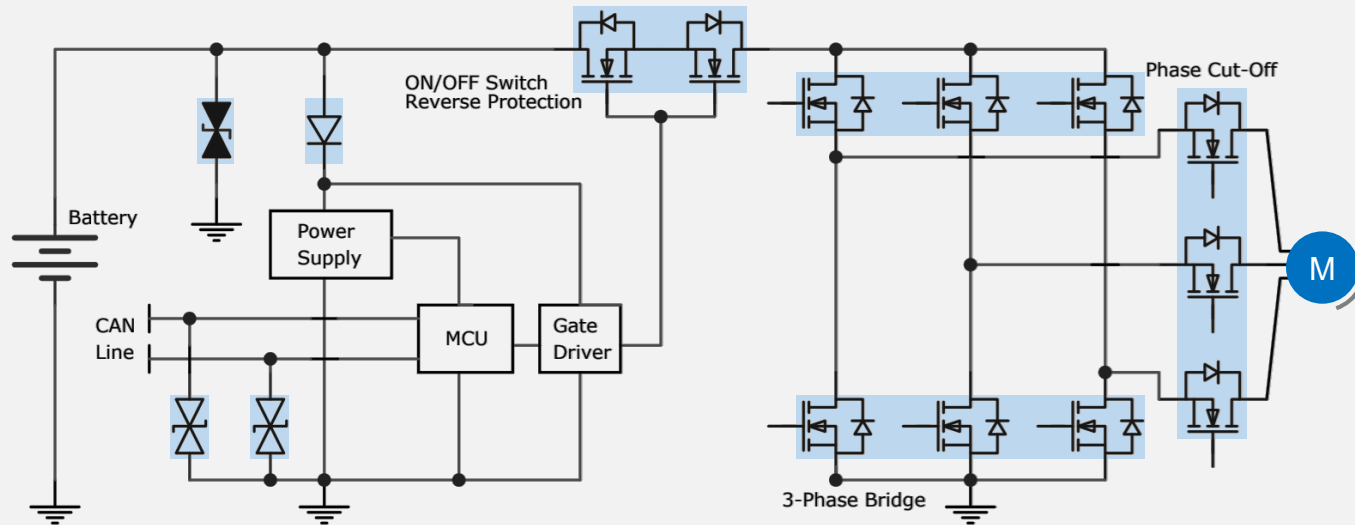
Applications	P/N	P_D [W]	V_{RWM} [V]	Package
TVS Protection	P6SMBJxxCA Series	600	5~70	SMB
	1.5SMCJ Series	1500	5~70	SMC
	SM8SxxA Series	6600	14~48	DO-218AB

Applications	P/N	V_{RWM} [V]	C_J [pF]	Package
ESD CAN Line	PEC3824C2A-AU	24	20	SOT-23
	PEC3836C2A-AU	36	15	SOT-23

Applications	P/N	V_{RRM} [V]	I_F [A]	Package
Fast Diodes Rectifier	MER2DAH-AU	200	2	SOD-123HE
	MER3DAH-AU	200	3	SOD-123HE
Small Signal Diode	1N4148WS-AU	100	0.2	SOD-323
	BAS316-AU	100	0.25	SOD-323
	BAV70-AU	100	0.15	SOT-23
Small Signal Schottky	SBA0540Q-AU	40	0.5	DFN 2L
	RB751S40-AU	40	0.3	SOD-523
	BAS40WS-AU	40	0.2	SOD-323

EPS (Electric Power Steering)

Block Diagrams



*Planning

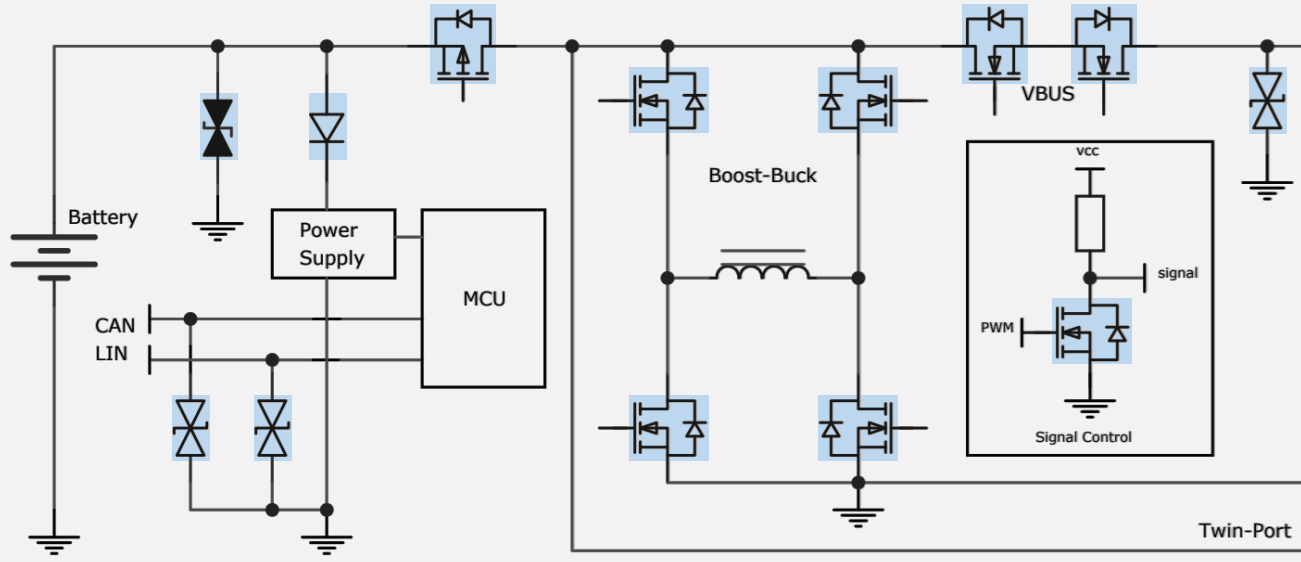
Recommended Products

Applications	P/N	V _{DS} [V]	R _{DS(on)} @V _{gs} =10V [mΩ].Max	Package
Reverse Protection Motor Drive	PJQ5540VC-AU	40	1.32	DFN5060X-8L
	PJQ5540V-AU	40	2.1	DFN5060X-8L
	PJN280N04V-AU*	40	1	TO-LL
	PJN250N04V-AU*	40	1.3	TO-LL
	PJQ5558AC-AU*	60	1.2	DFN5060-8L
	PSMN011N08NS2-AU	80	1.1	TO-LL
	PSMN015N10NS2-AU	100	1.5	TO-LL
	PSMN028N10NS2-AU	100	2.8	TO-LL
Applications	P/N	P _D [W]	V _{RWM} [V]	Package
Power Supply Unit TVS	P6SMBJ Series	600	5.0~70	SMB
	1.5SMCJ Series	1500	5.0~70	SMC
	SM8SxxA-AU Series	6600	14~48	DO-218AB
Applications	P/N	V _{RWM} [V]	C _J [pF]	Package
ESD CAN Line	PEC3824C2A-AU	24	20	SOT-23
	PEC3836C2A-AU	36	15	SOT-23
Applications	P/N	V _{RRM} [V]	I _F [A]	Package
Other Units Rectifier	SBA0540Q-AU	40	0.5	DFN 2L
	SS1060XFL-AU	60	1	SOD-123FL
	SS1060FL-AU	100	1	SOD-123FL
	1N4148W-AU	100	0.2	SOD-123
	MER1DMA-AU	200	1	SMA

Automotive USB Charge

Block Diagrams

- Dual, output voltage 5V/9V/12V/15V, output power 30W.



*Planning

Recommended Products

Applications	P/N	V _{DS} [V]	R _{DS(on)} @V _{gs} =10V [mΩ].Max	Package
Reverse Polarity Boost-Buck Vbus	PJQ54603A-AU*	-60	17	DFN5060-8L
	PJQ4528P-AU	30	6.5	DFN3333-8L
	PJQ4530P-AU	30	7.8	DFN3333-8L
	PJQ4534P-AU	30	9.3	DFN3333-8L
	PJQ4546P-AU	40	9.1	DFN3333-8L
Signal Control	PJQ4568AP-AU	60	13.8	DFN3333-8L
	2N7002K-AU	60	3000	SOT-23
	PJC138K-AU	50	1600	SOT-323

Applications	P/N	V _{CEO} [V]	I _c [mA]	Package
BJT Switch	MMBT3904-AU	40	200	SOT-23
	MMBT3906-AU	-40	-200	SOT-23

Applications	P/N	P _D [mW]	V _Z [V]	Package
Zener	BZX584C Series	200	2.4~75	SOD-523
	BZT52-B Series	200	2.4~75	SOD-323

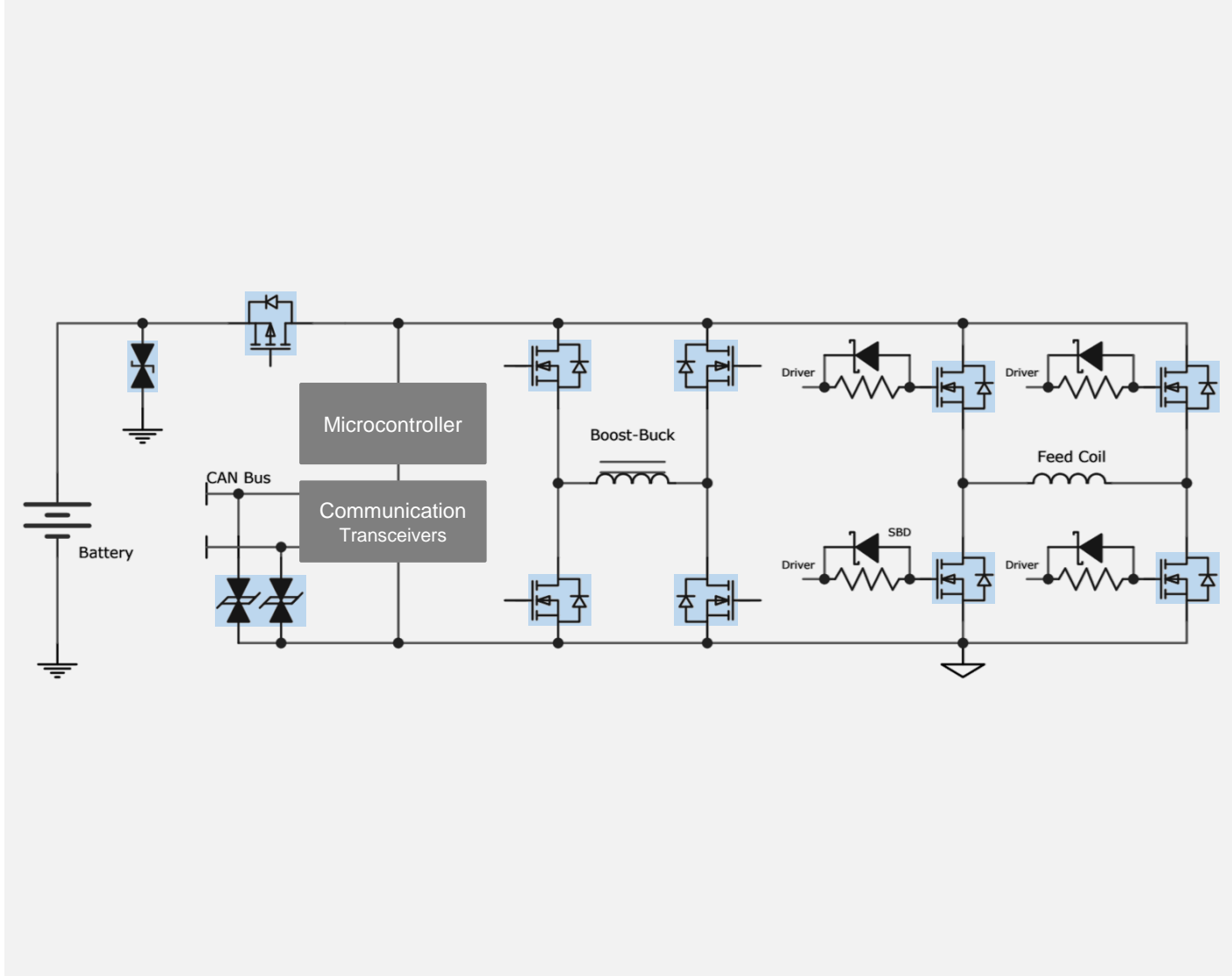
Applications	P/N	P _D [W]	V _{RWM} [V]	Package
Power TVS	P6AFC Series	600	3.3~64	SMAF-C
	P6SMBJ Series	600	5.0~70	SMB

Applications	P/N	V _{RWM} [V]	I _F [A]	Package
Rectifier	SS1030HEWS-AU	30	1	SOD-323HE

Applications	P/N	V _{RWM} [V]	C _J [pF]	Package
ESD CAN Line	PEC3824C2A-AU	24	20	SOT-23
	PEC3836C2A-AU	36	15	SOT-23

Vehicular Wireless Charging

Block Diagrams



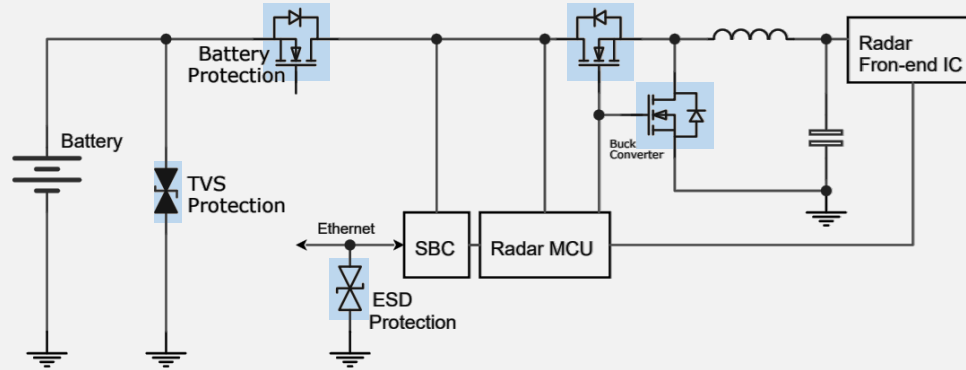
Recommended Products

Applications	P/N	V _{DS} [V]	R _{DS(on)} @V _{gs} =10V [mΩ].Max	Package
Reverse Protection	PJQ4441P-AU	-40	17	DFN3333-8L
	PJQ4453EP-AU	-40	11.6	DFN3333-8L
	PJQ5451EP-AU	-40	9.8	DFN3333-8L
Buck or Boost Reverse Protection	PJQ5948-AU	40	12.3	DFN5060B-8L
	PJQ5844-AU	40	8	DFN5060B-8L
	PJQ4548P-AU	40	9.1	DFN3333-8L
	PJQ4546P-AU	40	5.6	DFN3333-8L
	PJQ5544-AU	40	3.3	DFN5060-8L
	PJQ5548V-AU	40	10	DFN5060-8L
	PJQ5544V-AU	40	3.6	DFN5060-8L
	PJQ5866A-AU	60	17	DFN5060B-8L
PSMQC060N06LS1-AU	60	6	DFN5060-8L	
Applications	P/N	V _{RRM} [V]	I _F [A]	Package
Flywheel Schottky	SBA140CS-AU	40	1	SOD-323
	SS1040HEWS-AU	40	1	SOD-323HE
	SS2040FL-AU	40	2	SOD-123FL
Applications	P/N	P _D [W]	V _{RWM} [V]	Package
TVS Protection	P6SMBJ Series	600	5.0~70	SMB
Applications	P/N	V _{RWM} [V]	C _J [pF]	Package
CAN Line ESD	PEC3824C2A-AU	24	20	SOT-23
	PEC3836C2A-AU	36	15	SOT-23

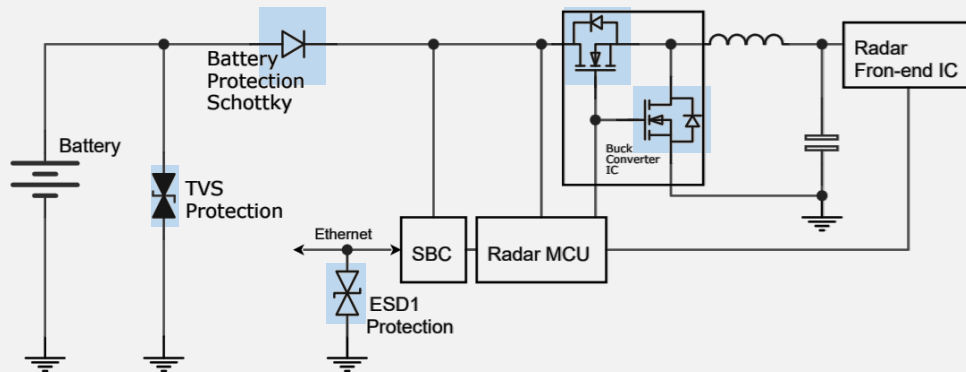
ADAS Radar Sensor Module

Block Diagrams

Power Type



Low Power Type



Recommended Products

Applications	P/N	V_{DS} [V]	$R_{DS(on)}$ @ $V_{gs}=10V$ [mΩ].Max	Package
Reverse Protection	PJQ4451EP-AU	-40	9.8	DFN3333-8L
	PJQ4453EP-AU	-40	11.6	DFN3333-8L
	PJQ4465AP-AU	-60	48	DFN3333-8L
DC-DC Buck	PJQ4548P-AU	40	9.1	DFN3333-8L
	PJQ4546P-AU	40	5.6	DFN3333-8L
	PJQ5548-AU	40	8.8	DFN5060-8L
	PJQ5546-AU	40	5.3	DFN5060-8L

Applications	P/N	V_{RRM} [V]	I_F [A]	Package
Schottky Reverse Protection	SB24AFC-AU	40	2	SMAF-C
	SB34AFC-AU	40	3	SMAF-C
	SS3040HE-AU	40	3	SOD-123HE
	SS2060LHE-AU	60	2	SOD-123HE
	SB36AFC-AU	60	3	SMAF-C

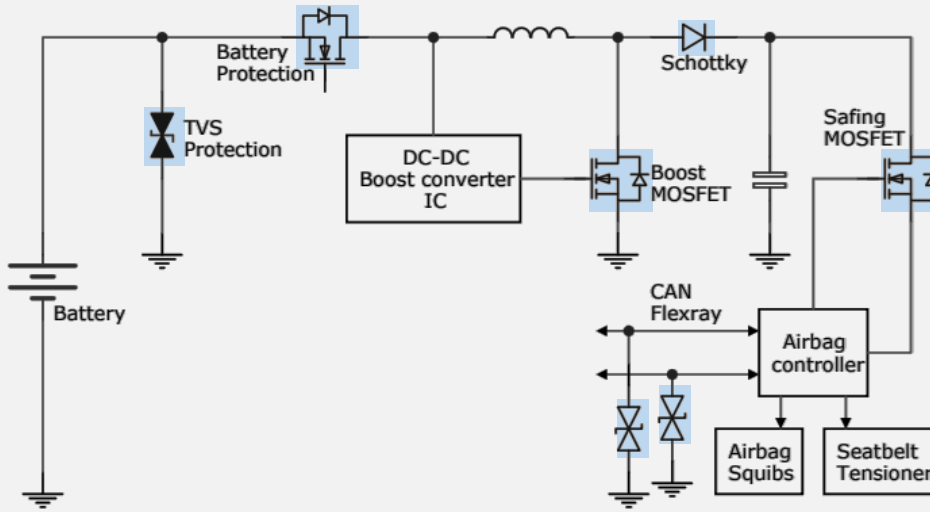
Applications	P/N	P_D [W]	V_{RWM} [V]	Package
TVS Protection	P6SMBJ Series	600	5.0~70	SMB

Applications	P/N	V_{RWM} [V]	C_J [pF]	Package
CAN Line ESD	PEC3824C2A-AU	24	20	SOT-23
	PEC3836C2A-AU	36	15	SOT-23

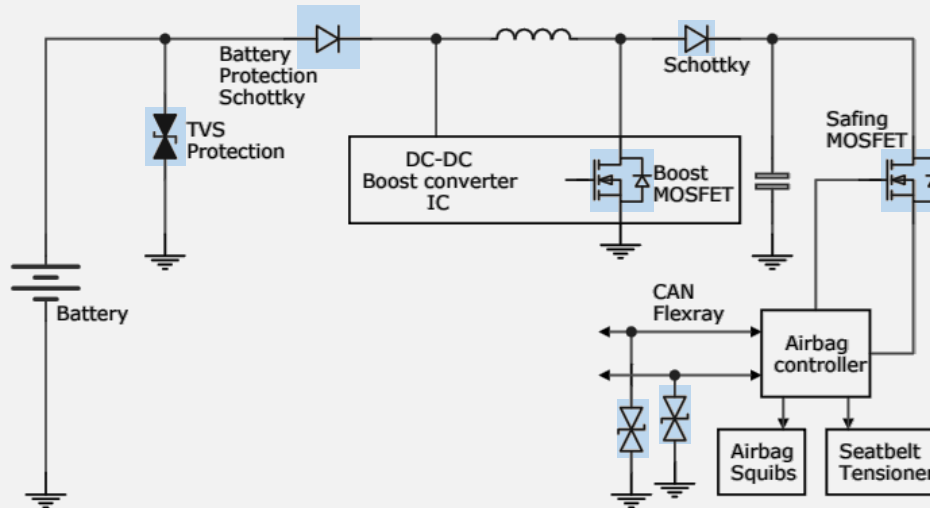
Airbag Controller

Block Diagrams

Power Type



Low Power Type



Recommended Products

Applications	P/N	V _{DS} [V]	R _{DS(on)} @V _{gs} =10V [mΩ].Max	Package
Reverse Protection	PJQ4451EP-AU	-40	9.8	DFN3333-8L
	PJQ4453EP-AU	-40	11.6	DFN3333-8L
DC-DC Boost	PJQ4548P-AU	40	9.1	DFN3333-8L
	PJQ4546P-AU	40	5.6	DFN3333-8L
	PJQ4568AP-AU	60	14	DFN3333-8L
	PJQ4564AP-AU	60	8.4	DFN3333-8L
Safing	PJQ5540VC-AU	40	1.32	DFN5060X-8L
	PJQ5540V-AU	40	2.1	DFN5060X-8L
	PJQ5542V-AU	40	3	DFN5060-8L

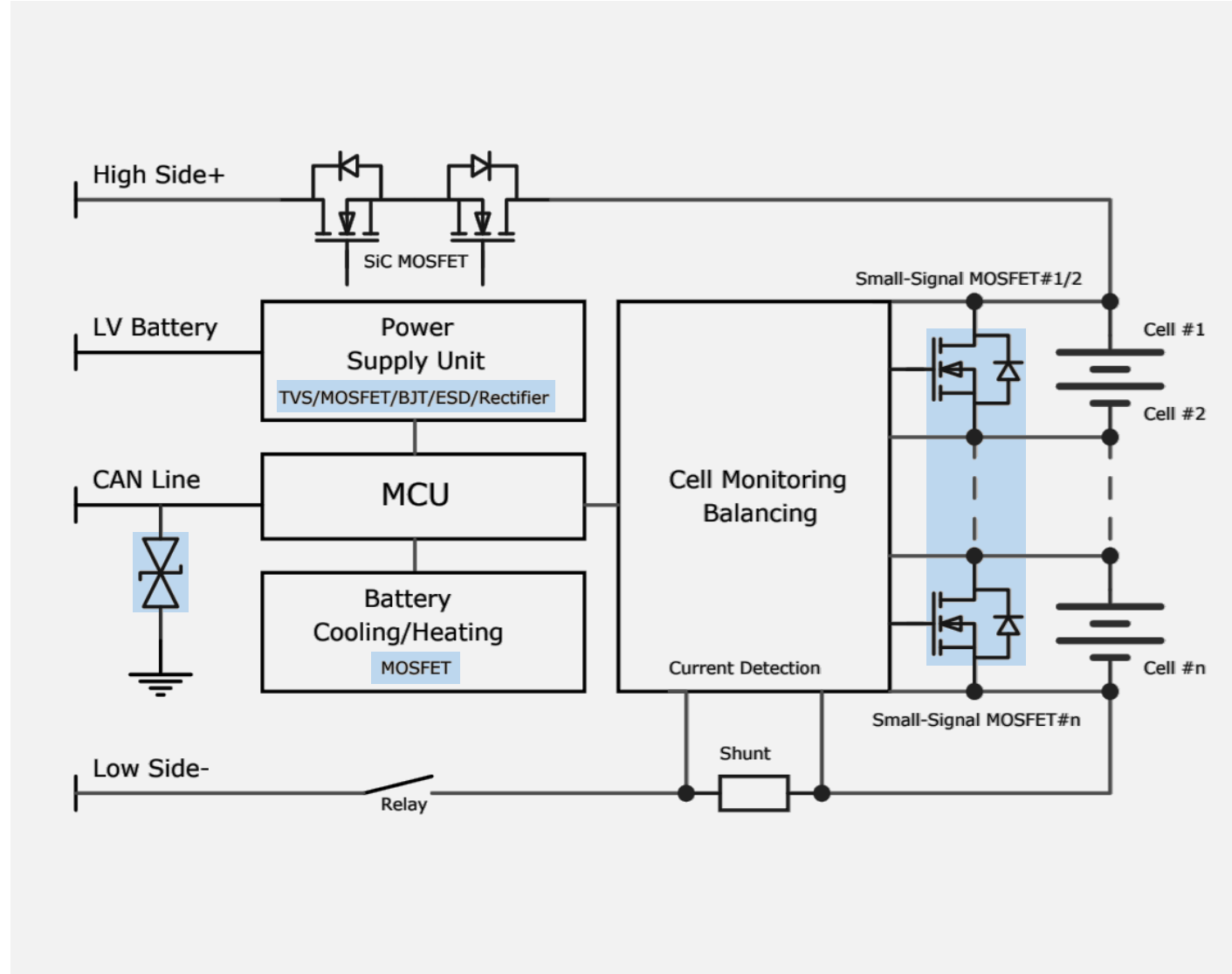
Applications	P/N	V _{RRM} [V]	I _F [A]	Package
Schottky Reverse Protection DC-DC Boost	SB24AFC-AU	40	2	SMAF-C
	SB34AFC-AU	40	3	SMAF-C
	SS3040HE-AU	40	3	SOD-123HE
	SS2060LHE-AU	60	2	SOD-123HE
	SB36AFC-AU	60	3	SMAF-C

Applications	P/N	P _D [W]	V _{RWM} [V]	Package
TVS	P6SMBJ Series	600	5.0~70	SMB

Applications	P/N	V _{RWM} [V]	C _J [pF]	Package
CAN Line ESD	PEC3824C2A-AU	24	20	SOT-23
	PEC3836C2A-AU	36	15	SOT-23

High Voltage Battery Management System (HVBMS)

Block Diagrams



Recommended Products

Applications	P/N	V _{DS} [V]	R _{DS(on)} @V _{gs} =10V [mΩ].Max	Package
Power Supply Unit Cooling/Heating	PJQ5449E-AU	-40	6	DFN5060-8L
	PJQ5542V-AU	40	3	DFN5060-8L
	PJQ5540V-AU	40	2.1	DFN5060-8L
	PJQ5540VC-AU	40	1.32	DFN5060-8L
	PJQ5562A-AU	60	5.9	DFN5060-8L
	PJQ5560A-AU	60	2.6	DFN5060-8L

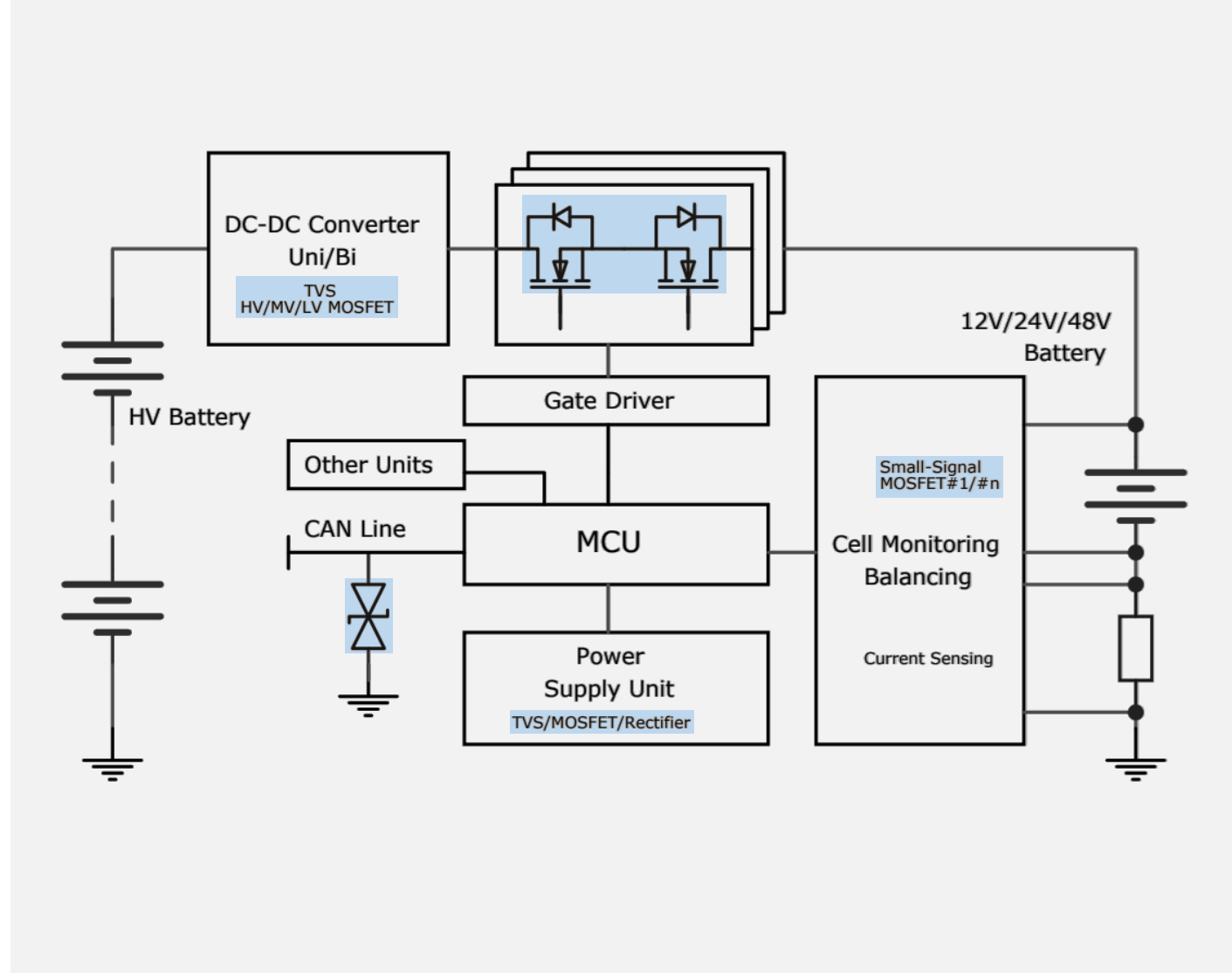
Applications	P/N	V _{DS} [V]	R _{DS(on)} @V _{gs} =10V [mΩ].Max	Package
Small-Signal MOSFET	PJA3446-AU	40	42	SOT-23
	PJA138K-AU	50	1600	SOT-23
	2N7002K-AU	60	3000	SOT-23
	PJA3476-AU	100	6000	SOT-23

Applications	P/N	P _D [W]	V _{RWM} [V]	Package
Power Supply Unit TVS	P6SMBJ Series	600	5.0~70	SMB
	1.5SMCJ Series	1500	5.0~70	SMC
	SMxS Series	6600	14~48	DO-218AB

Applications	P/N	V _{RWM} [V]	C _J [pF]	Package
CAN Line ESD	PEC3824C2A-AU	24	20	SOT-23
	PEC3836C2A-AU	36	15	SOT-23

Low Voltage Battery Management System (LVBMS)

Block Diagrams



Recommended Products

Applications	P/N	V _{DS} [V]	R _{DS(on)} @V _{gs} =10V [mΩ].Max	Package
Charge-Discharge	PJD75N04V-AU	40	2.1	TO-252
	PJD60N04V-AU	40	2.7	TO-252
	PJD100N06SA-AU	60	3.3	TO-252
	PSMN011N08NS2-AU	80	1.1	TO-LL
	PSMB033N10NS2-AU	100	3.3	TO-263
	PSMN015N10NS2-AU	100	1.5	TO-LL
	PSMN028N10NS2-AU	100	2.8	TO-LL

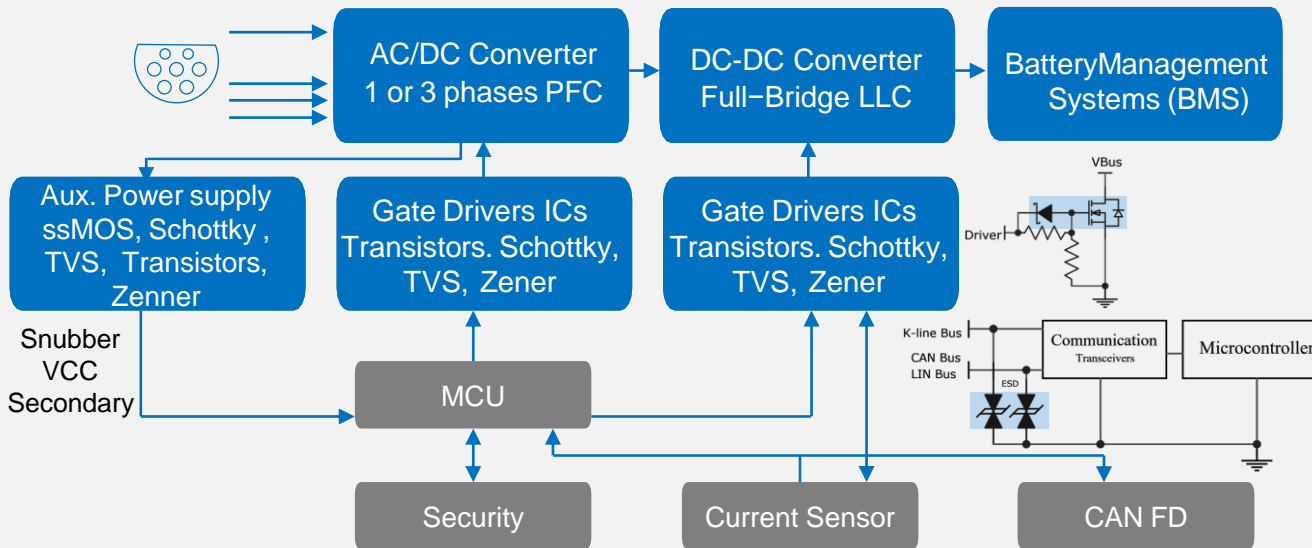
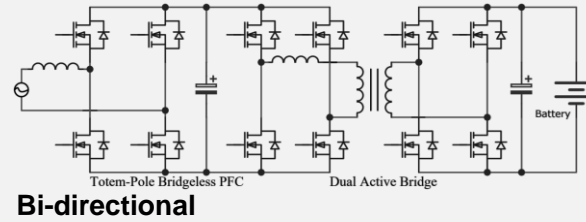
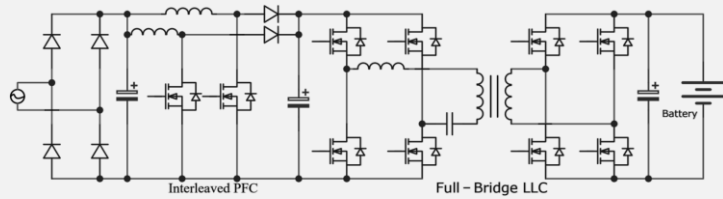
Applications	P/N	V _{DS} [V]	R _{DS(on)} @V _{gs} =10V [mΩ].Max	Package
Small-Signal MOSFET	PJA3446-AU	40	42	SOT-23
	PJA138K-AU	50	1600	SOT-23
	2N7002K-AU	60	3000	SOT-23
	PJA3476-AU	100	6000	SOT-23

Applications	P/N	P _D [W]	V _{RWM} [V]	Package
Power Supply Unit TVS	P6SMBJ Series	600	5.0~70	SMB
	1.5SMCJ Series	1500	5.0~70	SMC
	SM8SxxA-AU Series	6600	14~48	DO-218AB

Applications	P/N	V _{RWM} [V]	C _J [pF]	Package
CAN Line ESD	PEC3824C2A-AU	24	20	SOT-23
	PEC3836C2A-AU	36	15	SOT-23

On Board Charger (OBC)

Block Diagrams



Recommended Products

Applications	P/N	V_{RRM} [V]	I_F [A]	Package
SiC Schottky AC/DC DC/DC	PCDH2065CCG1-AU	650	20	TO-247AD-3LD
	PCDH3065CCG1-AU	650	30	TO-247AD-3LD
	PCDH4065CCG1-AU	650	40	TO-247AD-3LD
	PCDH20120CCG1-AU	1200	20	TO-247AD-3LD
	PCDH30120CCG1-AU	1200	30	TO-247AD-3LD
	PCDH40120CCG1-AU	1200	40	TO-247AD-3LD

Applications	P/N	V_{RRM} [V]	I_F [A]	Package
Fast Diodes Rectifier	MER1DAH-AU	200	1	SOD-123HE
	MER3DAH-AU	200	3	SOD-123HE
Small Signal Diode	1N4148WS-AU	100	0.2	SOD-323
	BAS316-AU	100	0.25	SOD-323
Small Signal Schottky	SBA130AS-AU	30	1	SOD-123
	SS1040-AU	40	1	SOD-123
	SS10100FL-AU	100	1	SOD-123FL

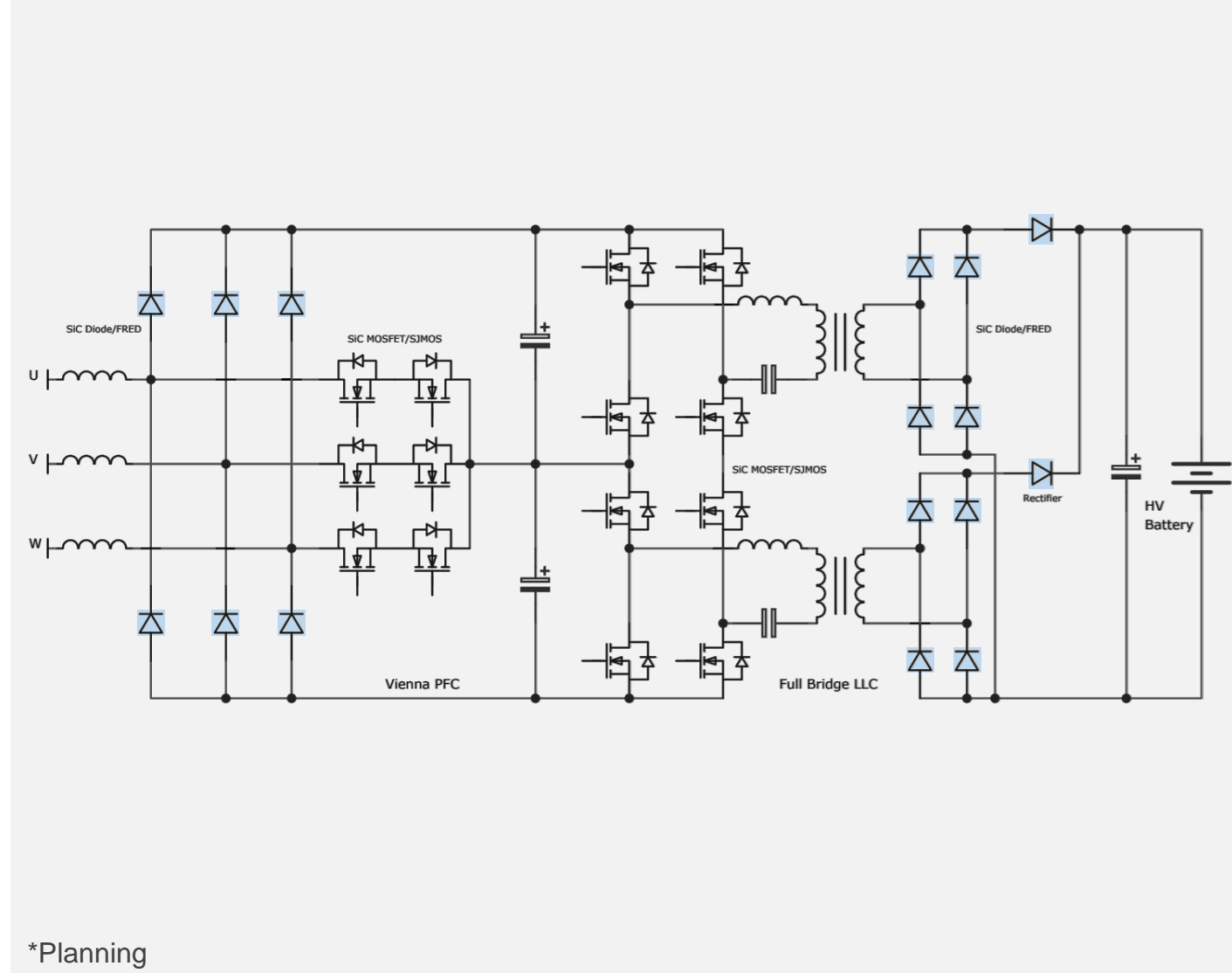
Applications	P/N	P_D [W]	V_{RWM} [V]	Package
TVS Protection	P6SMBJ Series	600	5.0~70	SMB

Applications	P/N	V_{RWM} [V]	C_J [pF]	Package
ESD CAN Line	PEC3824C2A-AU	24	20	SOT-23
	PEC3836C2A-AU	36	15	SOT-23

Applications	P/N	V_{CEO} [V]	I_c [mA]	Package
BJT Switch	MMBT3904-AU	40	200	SOT-23

xEV/HEV Charging

Block Diagrams



*Planning

Recommended Products

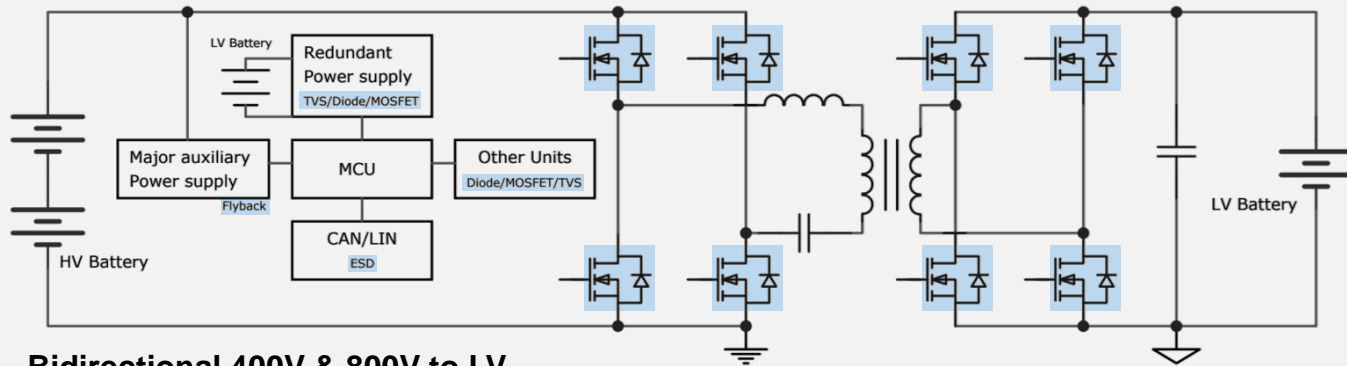
Applications	P/N	V _{DS} [V]	R _{DS(on)} @V _{gs} =10V [mΩ].Max	Package
Vienna PFC SJMOS	PJMH042N60FRC*	600	42	TO-247-3L
	PJMH074N60FRCH	600	74	TO-247-3L
	PJMH021N65FR2*	650	21	TO-247-3L
	PJMH042N65FR2*	650	42	TO-247-3L
	PJMH063N65FR2*	650	63	TO-247-3L

Applications	P/N	V _{RRM} [V]	I _F [A]	Package
Vienna PFC Secondary FRED/SiC	PSDH30100S1	1000	30	TO-247-2L
	PSDH30120S1	1200	30	TO-247-2L
	PSDH60120S1	1200	60	TO-247-2L
	PCDH20120G1	1200	20	TO-247-2L
	PCDH20120CCGB	1200	20	TO-247-3L
	PCDH30120CCGB	1200	30	TO-247-3L
	PCDH40120CCGB	1200	40	TO-247-3L

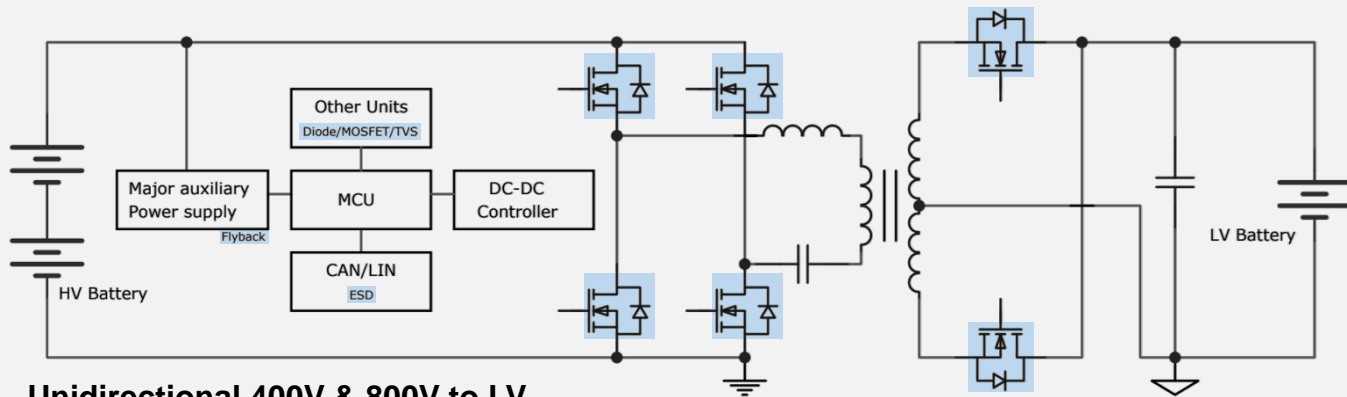
Applications	P/N	V _{RRM} [V]	I _F [A]	Package
Oring	PGR6016PT	1600	60	TO-247-2L
	PGR9016PT	1600	90	TO-247-2L

DC-DC Converter

Block Diagrams



Bidirectional 400V & 800V to LV



Unidirectional 400V & 800V to LV

*Planning

Recommended Products

Applications	P/N	V _{DS} [V]	R _{DS(on)} @V _{gs} =10V [mΩ].Max	Package
Primary Side	PCMH20120G1-AU*	1200	35	TO-247-3L
	PCMH30120G1-AU*	1200	45	TO-247-3L
	PCMH40120G1-AU*	1200	55	TO-247-3L
	PCMH60120G1-AU*	1200	75	TO-247-3L
Secondary Side	PJQ5536S6VC-AU	40	0.9	DFN5060-8L
	PJQ5540VC-AU	40	1.32	DFN5060-8L
	PJQ5558AC-AU	60	1.5	DFN5060-8L
	PJN400N08S-AU*	80	0.7	TO-LL
	PSMN011N08NS2-AU	80	1.1	TO-LL
	PSMN025N08NS2-AU	80	2.5	TO-LL
	PSMN015N10NS2-AU	100	1.5	TO-LL
	PSMN028N10NS2-AU	100	2.8	TO-LL

Applications	P/N	V _{RWM} [V]	I _F [A]	Package
Small Signal Diode	1N4148WS-AU	100	0.2	SOD-323
	BAS316-AU	100	0.25	SOD-323
Schottky	BAT54A-AU	30	0.6	SOT-23
	SS2060FL-AU	60	2	SOD-123FL
	SK26-AU	60	2	SMB
	SS3060HE-AU	60	3	SOD-123HE
	SK36-AU	60	3	SMC

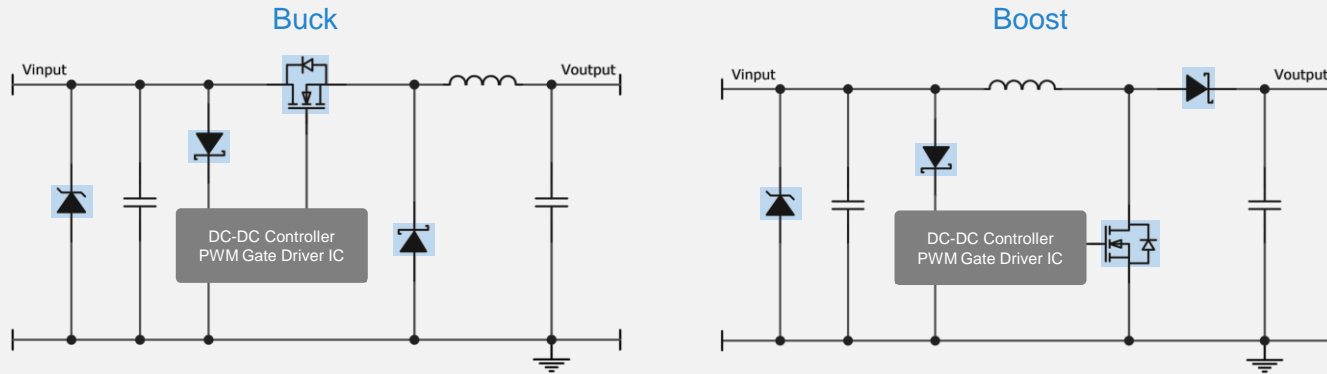
Applications	P/N	V _{RWM} [V]	C _J [pF]	Package
ESD CAN Line	PEC3824C2A-AU	24	20	SOT-23
	PEC3836C2A-AU	36	15	SOT-23

DC/DC Topologies

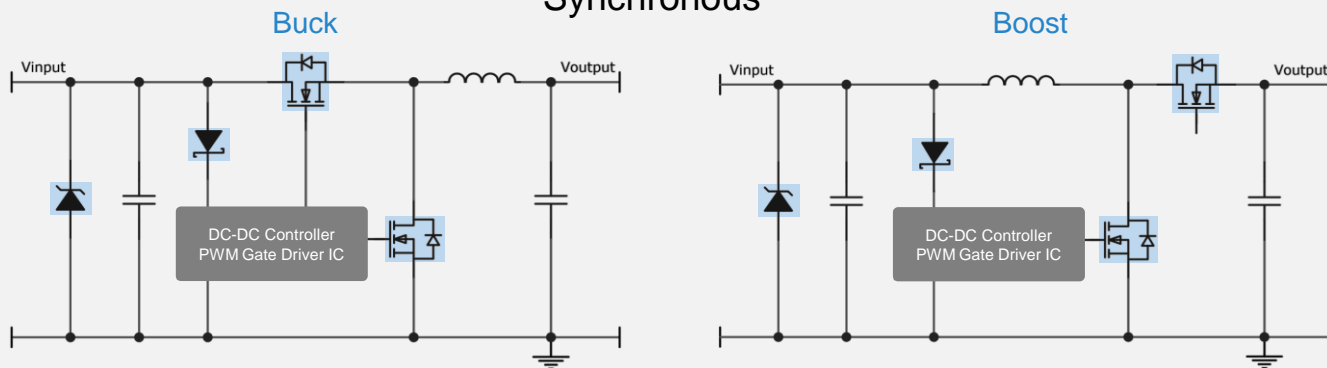
DC/DC Buck & Boost

Block Diagrams

Asynchronous



Synchronous



*Planning

Recommended Products

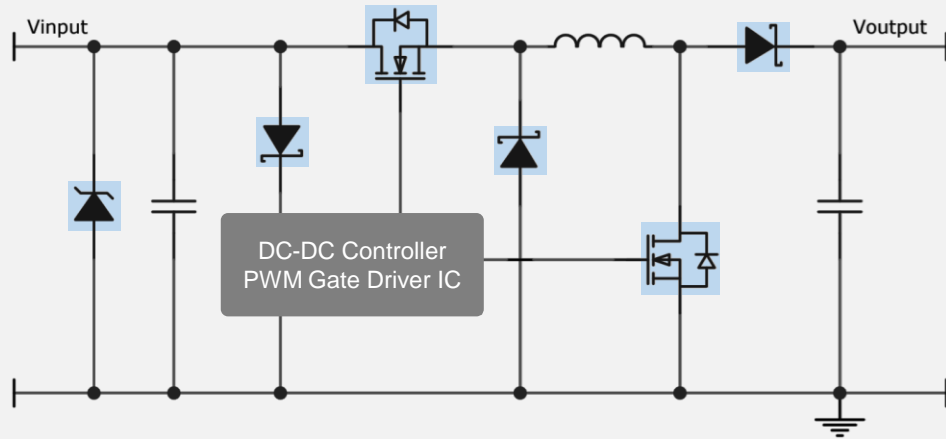
Applications	P/N	V _{DS} [V]	R _{DS(on)} @V _{gs} =10V [mΩ].Max	Package
Buck/Boost MOSFET	PJQ4546P-AU	40	5.6	DFN3333-8L
	PJQ5540-AU	40	1.88	DFN5060X-8L
	PJQ5542-AU	40	2.5	DFN5060-8L
	PJQ5544-AU	40	3.3	DFN5060-8L
	PJQ5546-AU	40	5.3	DFN5060-8L
	PJQ5548-AU	40	8.8	DFN5060-8L
	PJQ5946-AU	40	6.8	DFN5060B-8L
	PJQ5948-AU	40	12.3	DFN5060B-8L
	PJQ4564AP-AU	60	8.4	DFN3333-8L
	PJQ5560A-AU	60	2.6	DFN5060-8L
	PJQ5562A-AU	60	5.9	DFN5060-8L
	PJQ5564A-AU	60	7.9	DFN5060-8L
	PJQ5568A-AU	60	13.5	DFN5060-8L
	PJQ5968A-AU	60	14	DFN5060B-8L
	PJQ55802A-AU*	80	2.5	DFN5060-8L
	PJQ55806A-AU*	80	4.2	DFN5060-8L
	PJQ55810A-AU*	80	8	DFN5060-8L
PJQ4574AP-AU	100	11	DFN3333-8L	
PJQ5572A-AU	100	7.4	DFN5060-8L	
PJQ5574A-AU	100	10.5	DFN5060-8L	
Applications	P/N	V _{RRM} [V]	I _F [A]	Package
Buck/Boost Schottky	SK34-AU	40	3	SMC
	SK54-AU	40	5	SMC
	SK36-AU	60	3	SMC
	SB56AFC-AU	60	5	SMAF-C
	MB310-AU	100	3	SMC
	MB510-AU	100	5	SMC

DC/DC Topologies

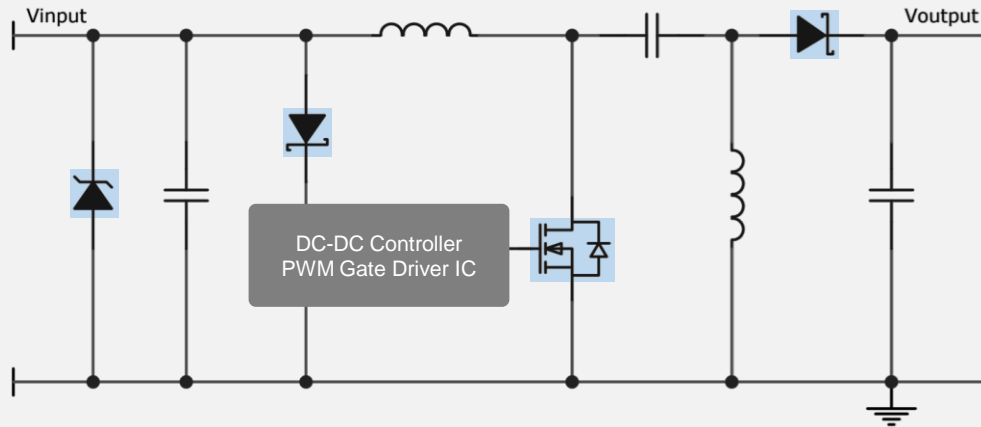
DC/DC Buck-Boost & SEPIC

Block Diagrams

Buck-Boost



SEPIC



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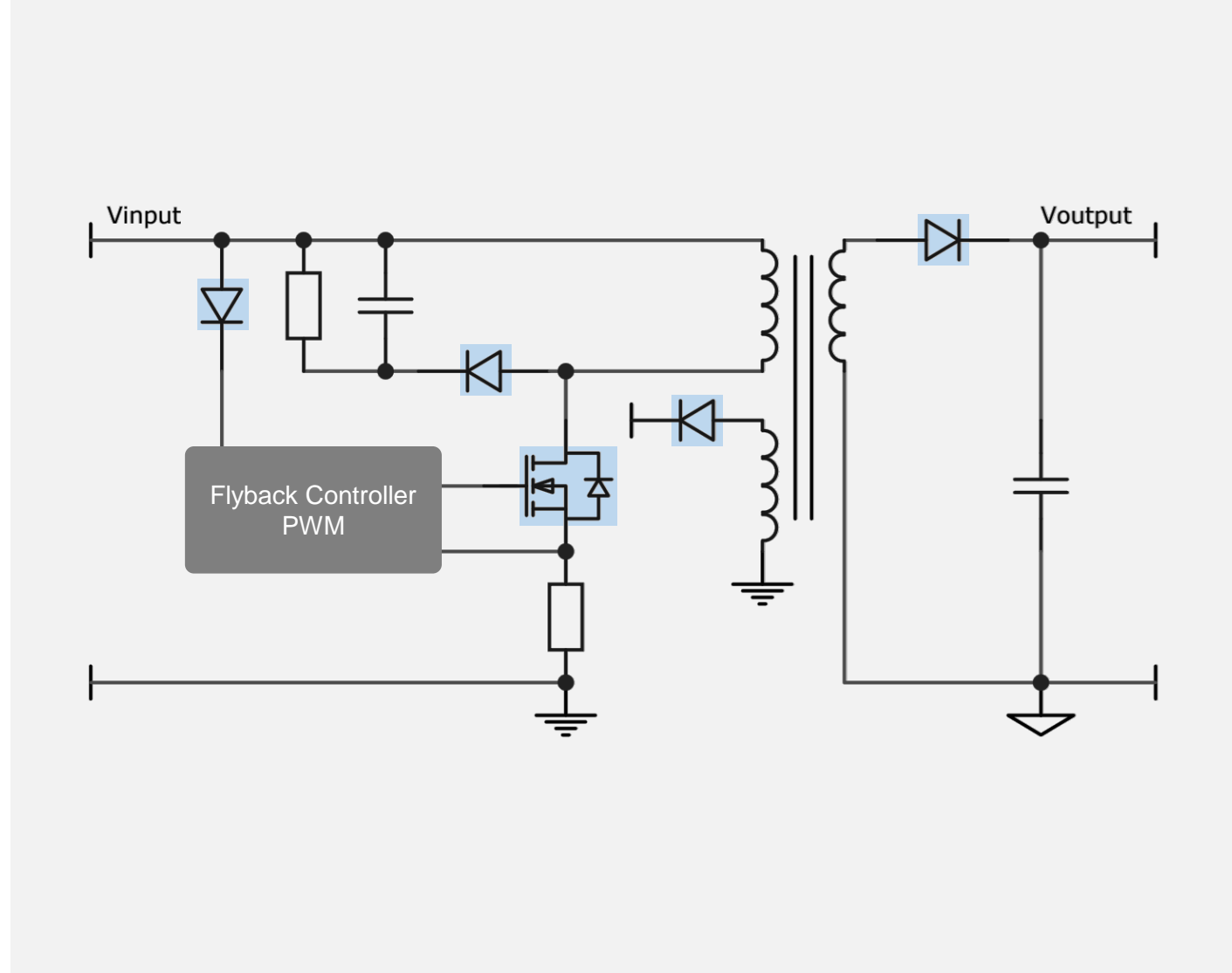
Recommended Products

Applications	P/N	V _{DS} [V]	R _{DS(on)} @V _{gs} =10V [mΩ].Max	Package
Buck-Boost SEPIC MOSFET	PJQ4546P-AU	40	5.6	DFN3333-8L
	PJQ5540-AU	40	1.88	DFN5060X-8L
	PJQ5542-AU	40	2.5	DFN5060-8L
	PJQ5544-AU	40	3.3	DFN5060-8L
	PJQ5546-AU	40	5.3	DFN5060-8L
	PJQ5548-AU	40	8.8	DFN5060-8L
	PJQ5946-AU	40	6.8	DFN5060B-8L
	PJQ5948-AU	40	12.3	DFN5060B-8L
	PJQ4564AP-AU	60	8.4	DFN3333-8L
	PJQ5560A-AU	60	2.6	DFN5060-8L
	PJQ5562A-AU	60	5.9	DFN5060-8L
	PJQ5564A-AU	60	7.9	DFN5060-8L
	PJQ5568A-AU	60	13.5	DFN5060-8L
	PJQ5968A-AU	60	14	DFN5060B-8L
	PJQ55802A-AU*	80	2.5	DFN5060-8L
PJQ55806A-AU*	80	4.2	DFN5060-8L	
PJQ55810A-AU*	80	8	DFN5060-8L	
PJQ4574AP-AU	100	11	DFN3333-8L	
PJQ5572A-AU	100	7.4	DFN5060-8L	
PJQ5574A-AU	100	10.5	DFN5060-8L	
Applications	P/N	V _{RRM} [V]	I _F [A]	Package
Buck-Boost SEPIC Schottky	SK34-AU	40	3	SMC
	SK54-AU	40	5	SMC
	SK36-AU	60	3	SMC
	SB56AFC-AU	60	5	SMAF-C
	MB310-AU	100	3	SMC
	MB510-AU	100	5	SMC

DC/DC Topologies

DC/DC Flyback

Block Diagrams



Recommended Products

Applications	P/N	V _{DS} [V]	R _{DS(on)} @V _{gs} =10V [mΩ].Max	Package
Flyback MOSFET	PJQ4466AP-AU	60	21	DFN3333-8L
	PJQ4468AP-AU	60	34	DFN3333-8L
	PJQ4460AP-AU	60	72	DFN3333-8L
	PJQ5466A-AU	60	21	DFN5060-8L
	PJQ5468A-AU	60	34	DFN5060-8L
	PJQ5458A-AU	60	50	DFN5060-8L
	PJD35N06A-AU	60	21	TO-252AA
	PJD25N06A-AU	60	34	TO-252AA
	PJD16N06A-AU	60	50	TO-252AA
	PJD11N06A-AU	60	75	TO-252AA
	PJQ4476AP-AU	100	25	DFN3333-8L
	PJQ5476AL-AU	100	25	DFN5060-8L
	PJD50N10AL-AU	100	25	TO-252AA

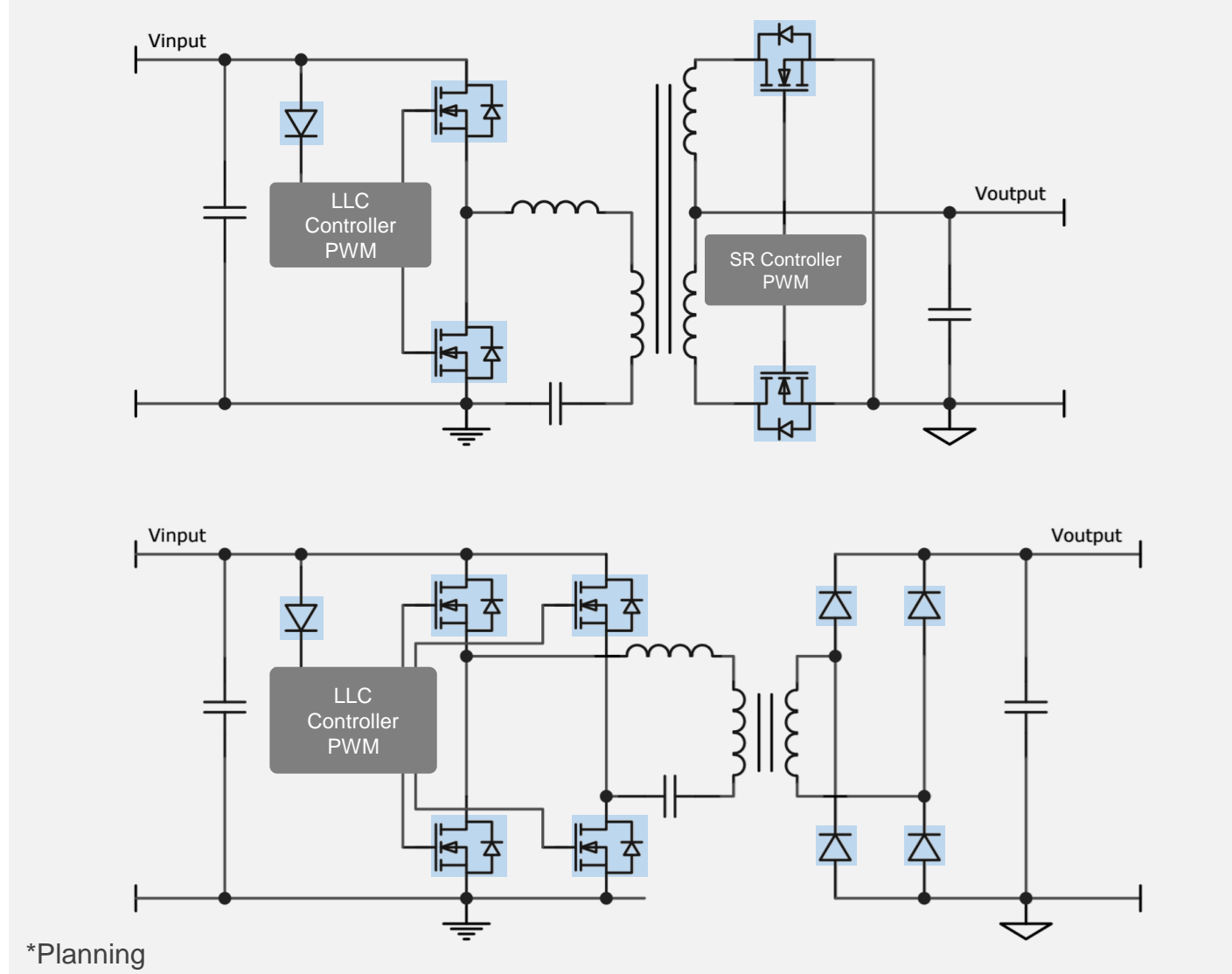
Applications	P/N	V _{RRM} [V]	I _F [A]	Package
Secondary Rectifier	MER1DMA-AU	200	1	SMA
	MER2DMA-AU	200	2	SMA
	MER3DMA-AU	200	3	SMA
	SS16-AU	60	1	SMA
	SX36-AU	60	3	SMA
	MS110-AU	100	1	SMA
	BR210-AU	100	2	SMA
	BR310-AU	100	3	SMB

Applications	P/N	V _{RRM} [V]	I _F [A]	Package
RCD/VCC	1N4148W-AU	100	0.2	SOD-123

DC/DC Topologies

DC/DC Resonant LLC

Block Diagrams



*Planning

Recommended Products

Applications	P/N	V _{DS} [V]	R _{DS(on)} @V _{gs} =10V [mΩ].Max	Package
Primary Side SJ MOS SiC MOS	PJMH021N65FR2-AU*	650	21	TO-247-3L
	PJMH042N65FR2-AU*	650	42	TO-247-3L
	PCMH25N65G1-AU*	650	25	TO-247-3L
	PCMH45N65G10-AU*	650	45	TO-247-3L
	PCMH60N65G1-AU*	650	60	TO-247-3L
	PCMH20120G1-AU*	1200	35	TO-247-3L
	PCMH30120G1-AU*	1200	45	TO-247-3L
	PCMH40120G1-AU*	1200	55	TO-247-3L
Secondary Side MV MOS	PCMH60120G1-AU*	1200	75	TO-247-3L
	PJQ5536S6VC-AU	40	0.9	DFN5060-8L
	PJQ5540VC-AU	40	1.32	DFN5060-8L
	PJQ5558AC-AU	60	1.5	DFN5060-8L
	PJN400N08S-AU*	80	0.7	TO-LL
	PSMN011N08NS2-AU	80	1.1	TO-LL
	PSMN025N08NS2-AU	80	2.5	TO-LL
Secondary Side FRED SiC Diode	PSMN015N10NS2-AU	100	1.5	TO-LL
	PSMN028N10NS2-AU	100	2.8	TO-LL
	PSDH6065S2-AU*	650	60	TO-247-2L
	PSDH8065S2-AU*	650	80	TO-247-2L
	PSDH60120S2-AU*	1200	60	TO-247-2L
	PSDH75120S2-AU*	1200	75	TO-247-2L
	PCDH2065CCG1-AU	650	20	TO-247-3L
	PCDH4065CCG1-AU	650	40	TO-247-3L
PCDH20120CCG1-AU	1200	20	TO-247-3L	
PCDH40120CCG1-AU	1200	40	TO-247-3L	

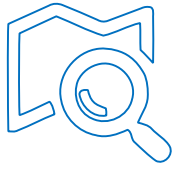
Contents :

A. Company Profile

B. Automotive Application Guide

C. Automotive Product Selection





Catalog:

1. Low / Medium Voltage MOSFET Products
2. Schottky Products
3. Transient Voltage Suppressor Products
4. ESD Protection Products
5. Bipolar Junction Transistor Products
6. Rectifier Products
7. Zener Products

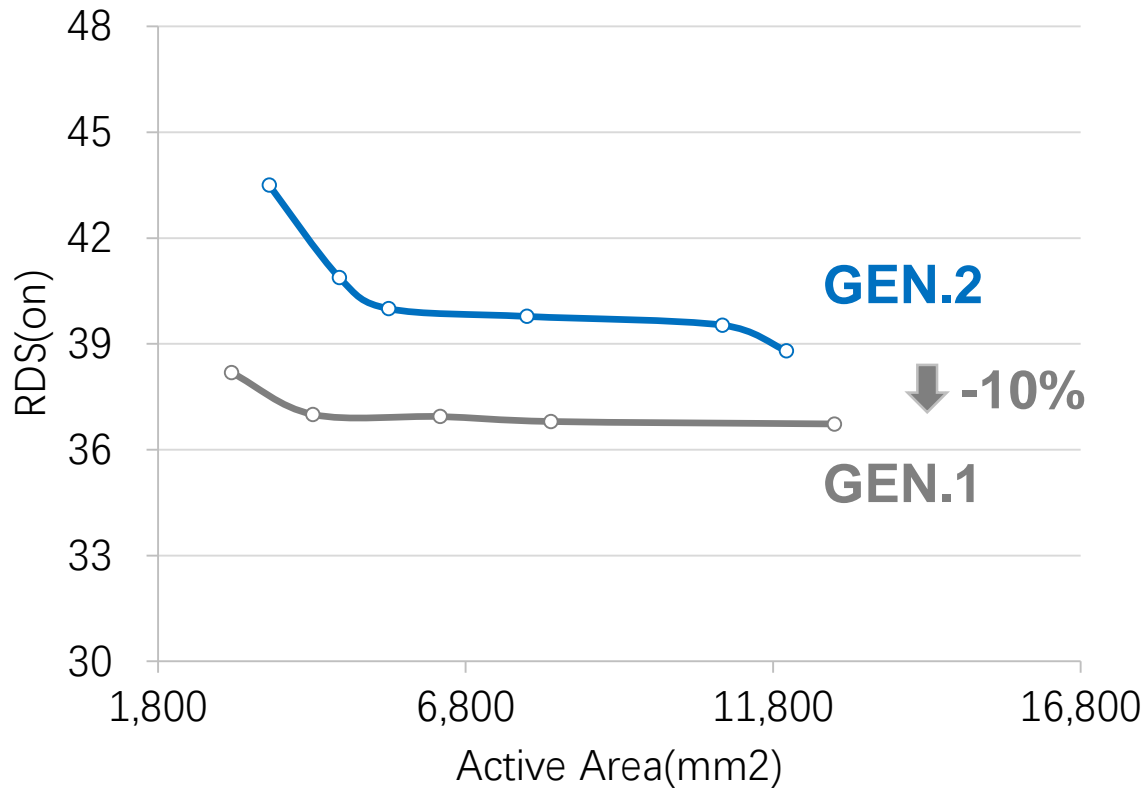
Low / Medium Voltage MOSFET Product Roadmap

Series/Date	Mass Productions	2023	2024
Low Voltage MOSFET	<p>N-channel (Trench) </p> <p>Single & Dual & Complementary 30V: RDS(ON) 1.6mΩ*120nC 40V: RDS(ON) 2.8mΩ*100nC</p>	<p>N-channel (SGT) Gen1 </p> <p>Single & Dual LL,30V: RDS(ON) 1.6mΩ45nC LL,40V: RDS(ON) 1.44mΩ*75nC SL,40V: RDS(ON) 1.41mΩ*63nC</p>	<p>N-channel (SGT) S6-Series </p> <p>Single & Dual SL,30V: RDS(ON) 0.52mΩ LL,40V: RDS(ON) 0.56mΩ SL,40V: RDS(ON) 0.6mΩ</p> <p> Available Developing Automotive </p>
	<p>P-channel (Trench) </p> <p>Single & Dual & Complementary -30V: RDS(ON) >3.3mΩ -40V: RDS(ON) >7.6mΩ</p>	<p>P-channel (Trench) </p> <p>Single & Dual ESD,-30V: RDS(ON) 5.1-15mΩ -40V: RDS(ON) 3.1mΩ</p>	
Medium Voltage MOSFET	<p>N-channel (Trench) </p> <p>Single & Dual & Complementary 60V: RDS(ON) 7mΩ*104nC 100V: RDS(ON) 12mΩ*69nC</p>	<p>N-channel (SGT) Gen1 </p> <p>Single & Dual LL,60V: RDS(ON) 2.6mΩ*82nC LL,100V: RDS(ON) 7.4mΩ*62nC</p>	<p>N-channel (SGT) Gen2 </p> <p>Single & Dual LL,60V: RDS(ON) 1.2mΩ SL,60V: RDS(ON) 1.2mΩ LL,100V: RDS(ON) 2.5mΩ SL,100V: RDS(ON) 1.5mΩ LL,80V: RDS(ON) 2.5mΩ SL,80V: RDS(ON) 1.2mΩ</p> <p>N-channel (SGT) Gen1 </p> <p>Single LL,80V: RDS(ON) 3mΩ SL,80V: RDS(ON) 1.8mΩ</p> <p>P-channel (Trench) </p> <p>Single -60V: RDS(ON) 10.5mΩ</p>
	<p>P-channel (Trench) </p> <p>Single & Dual & Complementary -60V: RDS(ON) >48mΩ -100V: RDS(ON) >110mΩ</p>	<p>N-channel (SGT) </p> <p>Single SL,150V: RDS(ON) 15mΩ*53nC</p>	

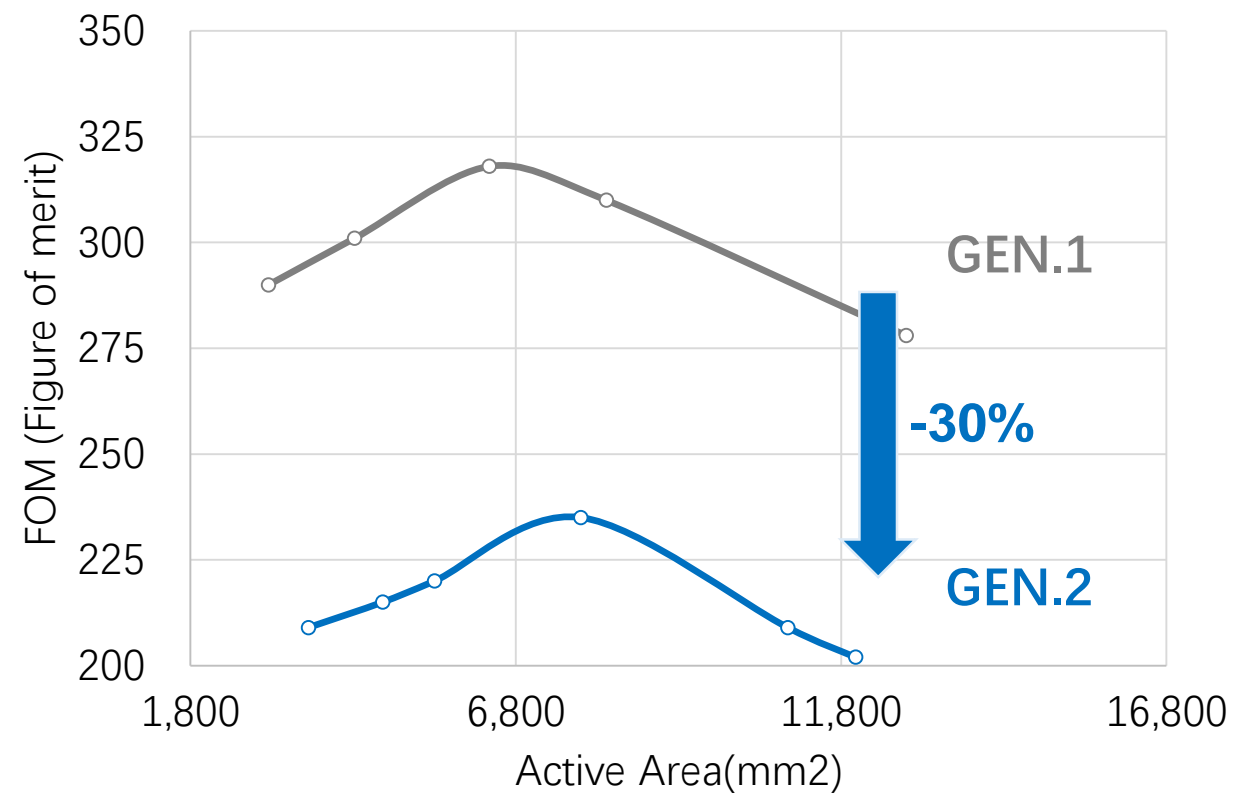
Note: LL: Logic Level($V_{th} < 2.5V$);SL: Stand Level($2V < V_{th} < 4V$)

Low / Medium Voltage MOSFET Gen1 & Gen2 Difference

100V SGT – **RSP**=RDS(on)×Active Area

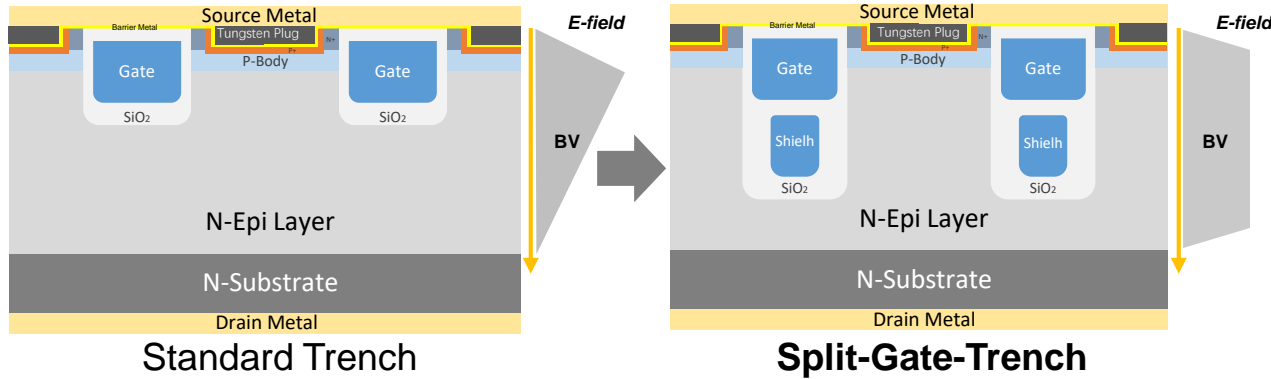


100V SGT - **FOM** =RDS(on)×Qg



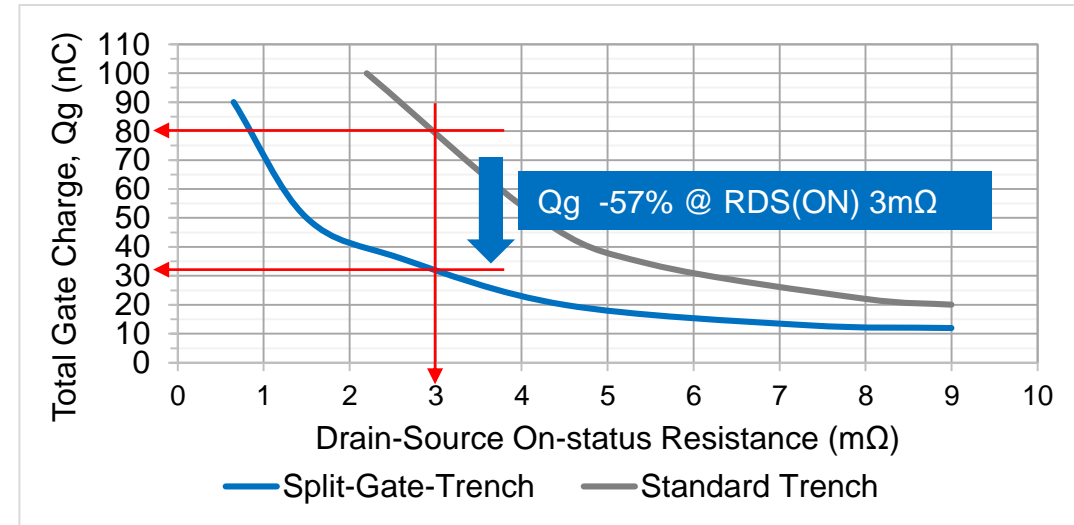
Low / Medium Voltage MOSFET Product Technology

Wafer Technology



- Reduce RSP, improve FOM, and increase power density; Reduce dielectric capacity (Cgd & Qg) and optimize switching characteristics.
- 175°C operating junction temperature; AEC-Q101 qualified

Figure of Merit (FOM) ($R_{ds(on)} \cdot Q_g$)



Package Technology

DFN2020B-6L
2 x 2 x 0.8

DFN3333-8L
3.3 x 3.3 x 0.8

DFN5060B-8L
5 x 6 x 1

DFN5060-8L
5 x 6 x 1

Wire Bonding

Cu Clip

提升散热能力
降低导通阻抗

TO-220AB-L
10 x 16 x 5

TO-252AA
6.5 x 9.9 x 2.3

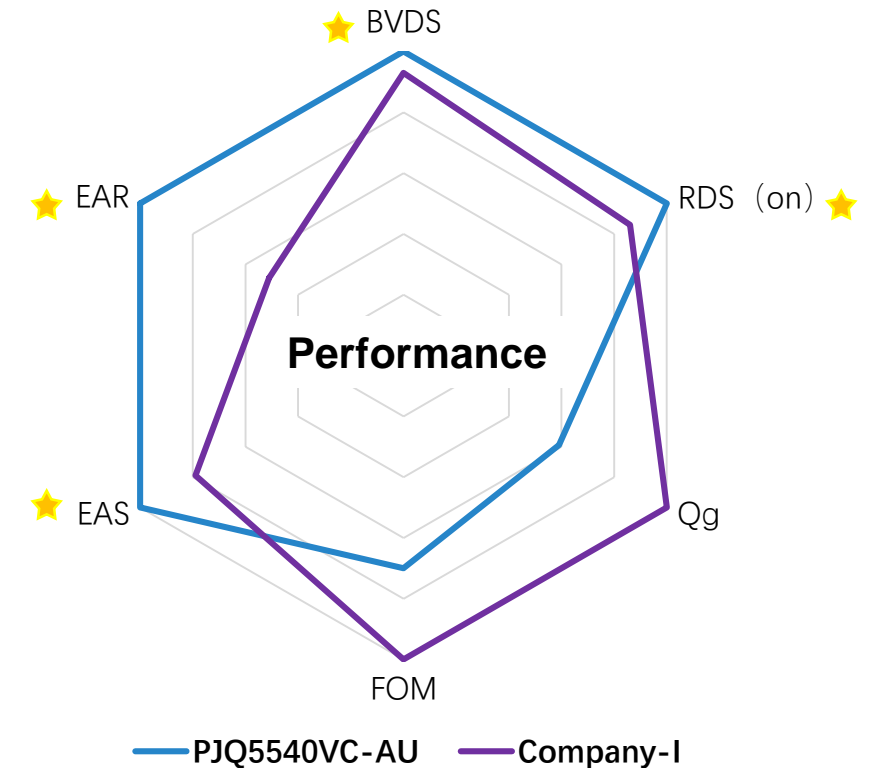
TO-263
10 x 15 x 4.6

TO-263-7
10 x 15 x 4.6

TO-LL
9.8 x 10.4 x 2.3

Low Voltage MOSFET Product Benchmark Data_Gen1

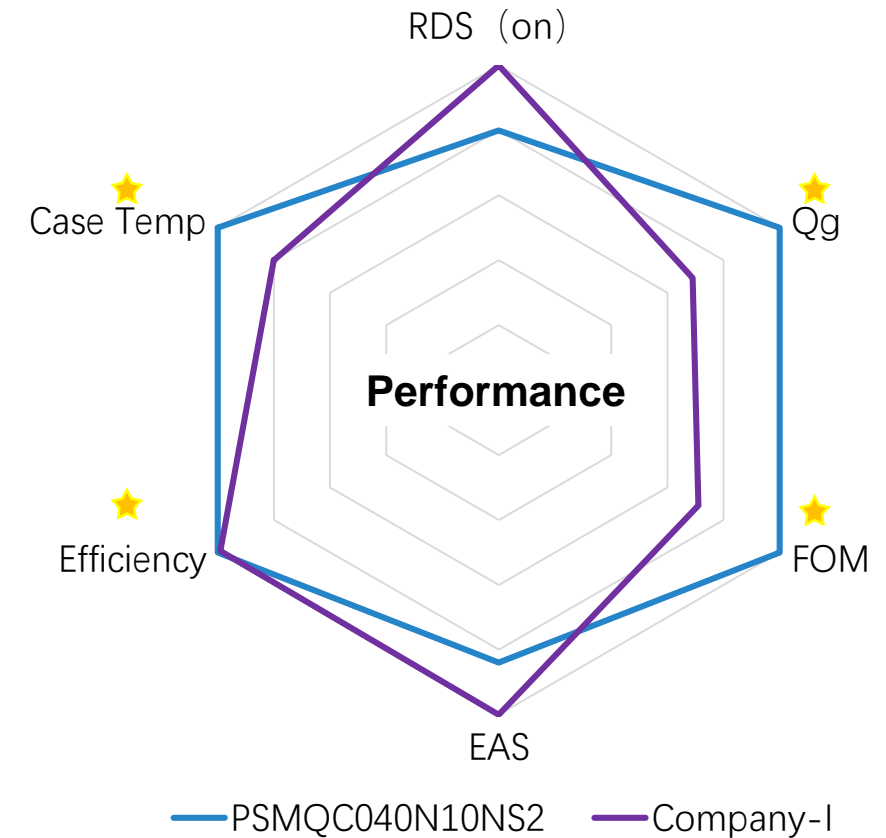
Parameter	Test condition	Temperature	PJQ5540VC-AU	Company-I-S6	Unit
BVDSS	VGS=0, ID=250uA	TA=25°C	45.68	43.14	V
		TA=100°C	48.27	44.95	
VGS(th)	VDS=0, ID=50uA	TA=25°C	2.85	2.54	V
		TA=100°C	2.06	1.89	
IDSS	VDS=40V, VGS=0V	TA=25°C	0.02	0.02	uA
		TA=100°C	4.10	2.93	
RDS(on)	VGS=10V, ID=20A	TA=25°C	1.19	1.42	mΩ
		TA=100°C	1.79	2.06	
RDS(on)	VGS=7V, ID=20A	TA=25°C	1.40	1.60	mΩ
		TA=100°C	2.08	2.33	
Qg	VDS=32V, ID=20A, VGS=10V	TA=25°C	73.29	43.13	nC
Ciss	VGS=0V VDS=25V F=1MHz	TA=25°C	4305.6	2751.36	pF
Coss		TA=25°C	944.3	816.69	pF
Crss		TA=25°C	139.4	18.42	pF
VSD	Is=20A, VGS=0V	TA=25°C	0.78	0.79	V
		TA=100°C	0.63	0.65	
EAS	VDS=40V, L=0.5mH	TA=25°C	1521	441	mJ
EAR	VDS=30V, L=0.08mH, ID=60A	TA=25°C	20000	300	cycles
FOM	RDS (ON) *Qg	-	87.21	61.24	-



- Panjit表现较好的Rdson/BVDS/EAS/EAR.
- Company-I表现较好的Qg/FOM





Medium Voltage MOSFET Product Benchmark Data_Gen2

Parameter	Test condition	PSMQC040N10NS2	Company-I S5	Company-O	Company-V	Unit
Official Spec. (Typ.)	-	100 / 3.8	100 / 3.4	100 / 3.8	100 / 3.7	V/mR
Hard SW FOM	$R_{ds(on)} \times Q_g \times E_{sw} \times Q_{oss}$	265	307	188	223	-
Soft SW FOM	$R_{ds(on)} \times Q_{g_Sync} \times Q_{rr}$	257	358	250	283	-
Rds(on)	Vgs=12V, Ids=25A	3.6	2.9	3.6	3.2	mR
Vsd	Isd=20A	0.81	0.80	0.80	0.81	V
Qg (Hard SW)	Vds=50V Ids=25A	39	57	36	37	nC
Qg_Sync (Soft SW)		32	46	31	35	nC
Qrr	Rg=0R Ids=25A Vgs=12V	224	270	223	257	nC
Eas	L=1mH	1253	1483	1318	1436	mJ
Efficiency	100% load	96.25	95.48	96.03	95.73	%
Case Temp	HS @ 100% load	81	101	84	90	°C
Case Temp	LS @ 100% load	100	105	98	110	°C








Low Voltage MOSFET Product List_Gen1

Pch w/ESD,-30V Standard Trench






Series	BV (V)	VGS (V)	Rdson		Vth (V)				
			10V typ.(mohm)	4.5V		DFN3333-8L	DFN5060-8L	TO-252AA	DFN5060B-8L
-30V Trench	-30	±25 (ESD)	15	23.6	-1.8	PJQ4439EP-AU	PJQ5439E-AU	PJD40P03E-AU	PJQ5839E-AU
			12	20		PJQ4437EP-AU	PJQ5437E-AU	PJD45P03E-AU	
			9.7	15.3		PJQ4435EP-AU	PJQ5435E-AU	PJD55P03E-AU	
			6.7	10.4		PJQ4433EP-AU	PJQ5433E-AU	PJD70P03E-AU	
			5.1	8		PJQ4431EP-AU	PJQ5431E-AU	PJD90P03E-AU	

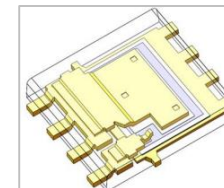
P-ch, -40V Standard Trench

Series	BV (V)	VGS (V)	Rdson		Vth (V)					
			10V typ.(mohm)	4.5V		DFN3333-8L	DFN5060-8L	TO-252AA	TO-263AB	TO-263-7L
-40V Trench	-40	±25	9	13.2	-1.8	PJQ4453EP-AU	PJQ5453E-AU	PJD60P04E-AU		
			7.5	11		PJQ4451EP-AU	PJQ5451E-AU	PJD75P04E-AU		
			4.8	7			PJQ5449E-AU	PJD95P04E-AU		
			3.9	5.4	-1.8		PJQ5447E-AU	PJD100P04E-AU	PJB120P04E-AU	PJB140P04E7-AU
			3.1	4.7				PJB160P04E-AU	PJB180P04E7-AU	

Low Voltage MOSFET Product List_Gen1

N-ch, 30V SGT

Series	BV (V)	VGS (V)	Rdson		Vth (V)					
			10V typ.(mohm)	4.5V		DFN3333-8L	DFN5060-8L	DFN5060X-8L	TO-263AB	TO-263-7L
30V SGT, LL	30	±20	7.4	11.3	1.6	PJQ4534P-AU	PJQ5534-AU			
			6	9.7		PJQ4530P-AU	PJQ5530-AU			
			4.8	7.3		PJQ4528P-AU	PJQ5528-AU			
			4	6		PJQ4526P-AU	PJQ5526-AU			
			2.9	4.9		PJQ4524P-AU	PJQ5524-AU			
			1.63	2.4			PJQ5522-AU			
			1.37	1.97			PJQ5520-AU			
			0.77	1.4			PJQ5518C-AU			
			0.8	1.3	1.5			PJQ5518C-AU	PJB120N03S-AU	PJB200N03S7-AU



*Add Develop

Low Voltage MOSFET Product List_Gen1

N-ch, 40V LL, SGT

Series	BV (V)	VGS (V)	Rdson		Vth (V)	DFN3333-8L		DFN5060-8L		DFN5060X-8L		DFN5060B-8L		TO-252AA		TO-263AB		TO-263-7L		TOLL			
			10V typ.(moh m)	4.5V typ.(moh m)																			
40V SGT, LL	40	±20	7	9.3	1.6	PJQ4548P-AU	PJQ5548-AU				PJQ5948-AU	PJD30N04S-AU											
			4.2	5.7		PJQ4546P-AU	PJQ5546-AU				PJD55N04S-AU												
			2.6	3.3			PJQ5544-AU				PJD60N04S-AU												
			2	2.5			PJQ5542-AU				PJD65N04S-AU												
			1.5	1.9					PJQ5540-AU			PJD80N04S-AU											
	40	±20	1.11	1.44	1.6										PJB100N04S-AU	PJB180N04S7-AU	PJN250N04S-AU						
			0.9	1												PJB120N04S-AU	PJB200N04S7-AU	PJN280N04S-AU					

*Add Develop







N-ch, 40V SL, SGT

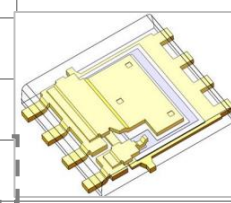
Series	BV (V)	VGS (V)	Rdson		Vth (V)	DFN3333-8L		DFN5060-8L		DFN5060X-8L		DFN5060B-8L		TO-252AA		TO-263AB		TO-263-7L		TOLL		
			10V typ.(moh m)	7V typ.(moh m)																		
40V SGT, SL	40	±20	8	9.5	2.8	PJQ4548VP-AU	PJQ5548V-AU				PJQ5948V-AU	PJD25N04V-AU										
			4.7	5.6		PJQ4546VP-AU	PJQ5546V-AU				PJD50N04V-AU											
			2.9	3.5			PJQ5544V-AU				PJD55N04V-AU											
			2.4	2.8			PJQ5542V-AU				PJD60N04V-AU											
			1.7	2.1					PJQ5540V-AU			PJD75N04V-AU										
	40	±20	1.17	1.41	2.8																	
			0.9	1																		

*Add Develop

Medium Voltage MOSFET Product List_Gen1








N-ch, 60V LL, SGT

Series	BV (V)	VGS (V)	Rdson		Vth (V)						
			10V	4.5V		DFN2020B-6L	DFN3333-8L	DFN5060-8L	DFN5060B-8L	TO-252AA	TO-220AB
			typ.(mohm)								
60V SGT, LL	60	±20	10.6	18.8	2	PJQ2568A	PJQ4568AP-AU	PJQ5568A-AU	PJQ5968A-AU	PJD45N06SA-AU	
			10	16	1.5	PJQ2566A					
			6.3	11.1	2		PJQ4564AP-AU	PJQ5564A-AU		PJD60N06SA-AU	PJP75N06SA-AU
			4.7	7.3		PJQ5562A-AU		PJD80N06SA-AU	PJP100N06SA-AU		
			2.1	3.4		PJQ5560A-AU			PJP125N06SA-AU		
60	±20	1	1.7	2			PJQ5558A C -AU				



*Add Develop


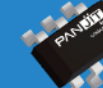





N-ch, 100V LL, SGT

Series	BV (V)	VGS (V)	Rdson		Vth (V)							
			10V	4.5V		SOT-23	DFN2020B-6L	DFN3333-8L	DFN5060-8L	TO-252AA	TO-263AB	TOLL
			typ.(mohm)									
100V SGT, LL	100	±20	94	123	2	PJA3474S-AU						
			13.3	20			PJQ4576AP-AU	PJQ5576A-AU	PJD50N10SA-AU			
			8.6	12.3			PJQ4574AP-AU	PJQ5574A-AU	PJD65N10SA-AU			
			5.9	8.4				PJQ5572A-AU	PJD70N10SA-AU			
	100	±20	3.3	4.5	2				PJQ5570A-AU	PJD100N10SA-AU	PJB130N10SA-AU	PJN160N10SA
100	±20	3	4	2						PJB160N10SA-AU	PJN200N10SA	

*Add Develop

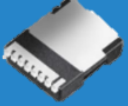




Medium Voltage MOSFET Product List_Gen1

N-ch, 150V LL, SGT

Series	BV (V)	VGS (V)	Rdson		Vth (V)							
			10V	7V		SOT-23	SOT-23 6L	DFN3333-8L	DFN5060-8L	TO-252AA	TO-263AB	TOLL
			typ.(mohm)									
150V SGT, SL	150	±20	280	320	3	PJA3480S-AU	PJS6480S-AU					
			39	41				PJQ4594P-AU	PJQ5594-AU	PJD30N15S-AU		
			17	20					PJQ5592-AU	PJD45N15S-AU		
			13	14					PJQ5590-AU	PJD50N15S-AU		
	150	±20	8.5	9.5	3						PJB100N15S-AU	PJN100N15S
			4.5	5.5							PJB150N15S-AU	PJN150N15S
			4	5							PJB200N15S-AU	PJN200N15S

*Add Develop

Medium Voltage MOSFET Product List_Gen2







VDSS	SL/LL	 TO-LL	 TO-263	 DFN5060(X)-8L	 DFN3333(S)-8L	 TO-220AB-L
80	SL	PSMN011N08NS2/AU (80V/ 1.1mohm)				
80	SL	PSMN025N08NS2/AU (80V/ 2.5mohm)	PSMB027N08NS2 (80V/ 2.7mohm)	PSMQF021N08NS2* (80V/ 2.1mohm)		
80	SL			PSMQF026N08NS2* (80V/2.6mohm)		
80	SL			PSMQF035N08NS2* (80V/3.5mohm)		
80	SL		PSMB042N08NS2 (80V/ 4.2 mohm)	PSMQC040N08NS2 (80V/ 4mohm)		PSMP042N08NS2 (80V/4.2mohm)

*Cu Clip

Released

ERP:2024-Mar.

Medium Voltage MOSFET Product List_Gen2




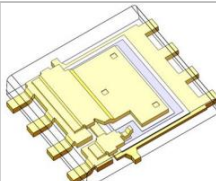
VDSS	SL/LL	 TO-LL	 TO-252AA	 TO-263	 TO-220AB-L	 DFN5060(X)-8L	 DFN3333(S)-8L
100	SL	PSMN015N10NS2/AU (100V/ 1.5mohm)					
100	SL	PSMN028N10NS2/AU (100V/ 2.8mohm)		PSMB033N10NS2 (100V/ 3.3mohm)	PSMP033N10NS2 (100V/ 3.3mohm)	PSMQF026N10NS2* (100V/ 2.6mohm)	
100	SL			PSMB046N10NS2 (100V/ 4.6mohm)	PSMP046N10NS2 (100V/ 4.6mohm)	PSMQF035N10NS2* (100V/ 3.5mohm)	
100	SL			PSMB050N10NS2 (100V/ 5.0mohm)	PSMP050N10NS2 (100V/ 5.0mohm)	PSMQC040N10NS2 (100V/ 4.4mohm)	
100	SL					PSMQC074N10NS2/AU (100V/ 7.4mohm)	
100	SL		PSMD110N10NS2 (100V/ 11mohm)		PSMP110N10NS2 (100V/ 11mohm)	PSMQC094N10NS2/AU (100V/ 9.4mohm)	PSMQE085N10NS2* (100V/ 8.5mohm)
100	SL						PSMQB550N100NS2 (100V/ 55mohm)
100	LL					PSMQC042N10LS2 (100V/ 4.2mohm)	
100	LL		PSMD081N10LS2 (100V/ 8.1mohm)			PSMQC078N10LS2/AU (100V/ 7.8mohm)	PSMQE080N10LS2* (100V/ 8mohm)
100	LL		PSMD099N10LS2 (100V/ 9.9mohm)			PSMQC098N10LS2/AU (100V/ 9.8mohm)	PSMQB086N10LS2 (100V/ 8.6mohm)
100	LL		PSMD280N10LS2 (100V/ 28mohm)		PSMP240N10LS2 (100V/ 24mohm)	PSMQC280N10LS2/AU (100V/ 28mohm)	PSMQB280N10LS2 (100V/ 28mohm)

*Cu Clip

Released ERP:2024-Mar.




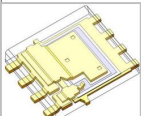
Low Voltage MOSFET Product List_N-ch S6 Series

N-ch, 30V LL_S6 series, SGT




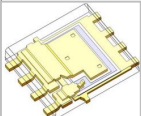
Series	BV (V)	VGS (V)	Rdson		Vth (V)			
			10V typ.(mohm)	4.5V		DFN3333-8L	DFN5060X-8L	DFN5060B-8L
	30V SGT, LL	30	±20	5	8.5	1.5	PJQ4528S6P-AU	PJQ5528S6-AU
3.5				5.5	PJQ4524S6P-AU		PJQ5524S6-AU	PJQ5924S6-AU
2.5				3.8	PJQ4522S6P-AU		PJQ5522S6-AU	PJQ5922S6-AU
1.8				2.8	PJQ4520S6P-AU		PJQ5520S6-AU	
1.3				2.1	PJQ4520S6CP-AU		PJQ5520S6C-AU	
0.95				1.45			PJQ5518S6-AU	
0.63				1.4			PJQ5518S6C-AU	
0.52				0.75			PJQ5516S6C-AU	

Low Voltage MOSFET Product List_N-ch S6 Series

N-ch, 40V LL_S6 series, SGT







Series	BV (V)	VGS (V)	Rdson		Vth (V)	 DFN3333-8L	 DFN5060X-8L	 DFN5060B-8L
			10V typ.(mohm)	4.5V				
40V SGT, LL	40	±20	6.5	9.5	1.5	PJQ4548S6P-AU	PJQ5548S6-AU	PJQ5948S6-AU
			4.5	6.5		PJQ4546S6P-AU	PJQ5546S6-AU	PJQ5946S6-AU
			3.2	4.7		PJQ4544S6P-AU	PJQ5544S6-AU	PJQ5944S6-AU
			2	3.2		PJQ4542S6P-AU	PJQ5542S6-AU	
			1.5	2.4		PJQ4542S6C-AU	PJQ5542S6C-AU	
			1	1.5			PJQ5538S6-AU	
			0.65	1.45			PJQ5538S6C-AU	
			0.56	0.8			PJQ5536S6C-AU	

N-ch, 40V SL_S6 series, SGT

Series	BV (V)	VGS (V)	Rdson		Vth (V)	 DFN3333-8L	 DFN5060X-8L	 DFN5060B-8L
			10V typ.(mohm)	7V				
40V SGT, SL	40	±20	6.5	13	3	PJQ4548S6V-AU	PJQ5548S6V-AU	PJQ5948S6V-AU
			4.6	6.8		PJQ4546S6V-AU	PJQ5546S6V-AU	PJQ5946S6V-AU
			3.3	4.9		PJQ4544S6V-AU	PJQ5544S6V-AU	PJQ5944S6V-AU
			2.2	4.5		PJQ4542S6V-AU	PJQ5542S6V-AU	
			1.65	2.6		PJQ4542S6VC-AU	PJQ5542S6VC-AU	
			1.1	1.6			PJQ5538S6V-AU	
			0.75	1.7			PJQ5538S6VC-AU	
			0.65	0.9			PJQ5536S6VC-AU	

Medium Voltage MOSFET Product List_Gen1

N-ch, 80V LL, SGT

Series	BV (V)	VGS (V)	Rdson		Vth (V)						
			10V typ.(mohm)	4.5V		SOT-23	SOT-23 6L-1	DFN2020BW-6L	DFN3333-8L	DFN5060-8L	TO-252AA
80V SGT, LL	80	20	82	36	1.7	PJA34820A-AU	PJS64820A-AU	PJQ25820AW-AU	PJQ45820AP-AU	PJQ55820A-AU	
			62	103		PJA34818A-AU	PJS64818A-AU	PJQ25818AW-AU	PJQ45818AP-AU	PJQ55818A-AU	
			25	42			PJS64816A-AU	PJQ25816AW-AU	PJQ45816AP-AU	PJQ55816A-AU	
			15	25					PJQ45814AP-AU	PJQ55814A-AU	PJD25N08SA-AU
			9	14.5					PJQ45812AP-AU	PJQ55812A-AU	PJD60N08SA-AU
			7	11.5					PJQ45810AP-AU	PJQ55810A-AU	PJD70N08SA-AU
			5.7	9.3					PJQ45808AP-AU	PJQ55808A-AU	PJD90N08SA-AU
			3.2	5.3						PJQ55806A-AU	PJD100N08SA-AU
			2.7	4.5						PJQ55804A-AU	
			1.8	3						PJQ55802A-AU	

Medium Voltage MOSFET Product List_Gen1

N-ch, 80V SL, SGT

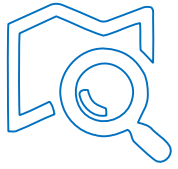
Series	BV	VGS	Rdson	Vth							
	(V)	(V)	10V typ.(mohm)		(V)	DFN2020BW-6L	DFN3333-8L	DFN5060-8L	TO-252AA	TO-263AB	TO-263-7L
80V SGT, SL	80	20	26	3	PJQ25816W-AU	PJQ45816P-AU	PJQ55816-AU				
			16			PJQ45814P-AU	PJQ55814-AU	PJD25N08S-AU			
			10			PJQ45812P-AU	PJQ55812-AU	PJD60N08S-AU			
			8			PJQ45810P-AU	PJQ55810-AU	PJD70N08S-AU			
			6.2			PJQ45808P-AU	PJQ55808-AU	PJD90N08S-AU	PJB95N08S-AU		
			3.7				PJQ55806-AU	PJD100N08S-AU	PJB105N08S-AU		
			3.1				PJQ55804-AU		PJB110N08S-AU		
			2.1				PJQ55802-AU		PJB120N08S-AU	PJB160N08S7-AU	PJN160N08S-AU
			1.55				PJQ55800C-AU			PJB240N08S7-AU	PJN240N08S-AU
			1.23							PJB300N08S7-AU	PJN300N08S-AU
			0.9							PJB320N08S7-AU	PJN350N08S-AU
			0.37							PJB340N08S7-AU	PJN400N08S-AU

Medium Voltage MOSFET Product List_Gen1

P-ch, -60V Standard Trench

Series	BV (V)	VGS (V)	Rdson		Vth (V)							
			10V typ.(mohm)	4.5V		SOT-23	SOT-23 6L	DFN2020BW-6L	DFN3333-8L	DFN5060-8L	TO-252AA	
-60V, Trench	-60	20	145	190	-1.7	PJA34613-AU	PJS64613-AU					
			64	85			PJS64611-AU	PJQ24611AP-AU	PJQ44611AP-AU			
			47	62				PJQ24609AP-AU	PJQ44609AP-AU	PJQ54609A-AU		
			32	43						PJQ44607AP-AU	PJQ54607A-AU	PJD30P06A-AU
			21	28						PJQ44605AP-AU	PJQ54605A-AU	PJD40P06A-AU
			14	20							PJQ54603A-AU	PJD50P06A-AU
			10.5	15								PJQ54601A-AU

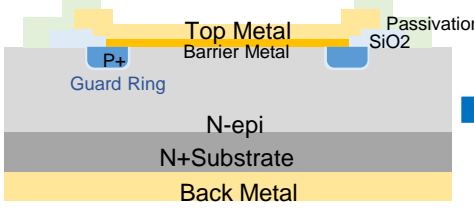
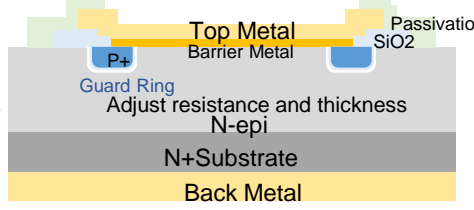
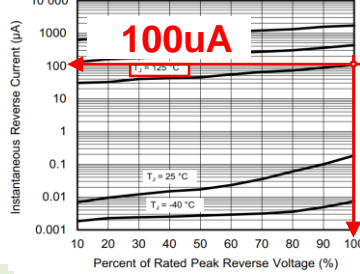
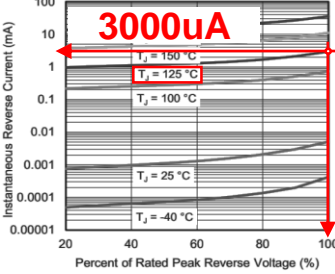
Leading Product



Catalog:

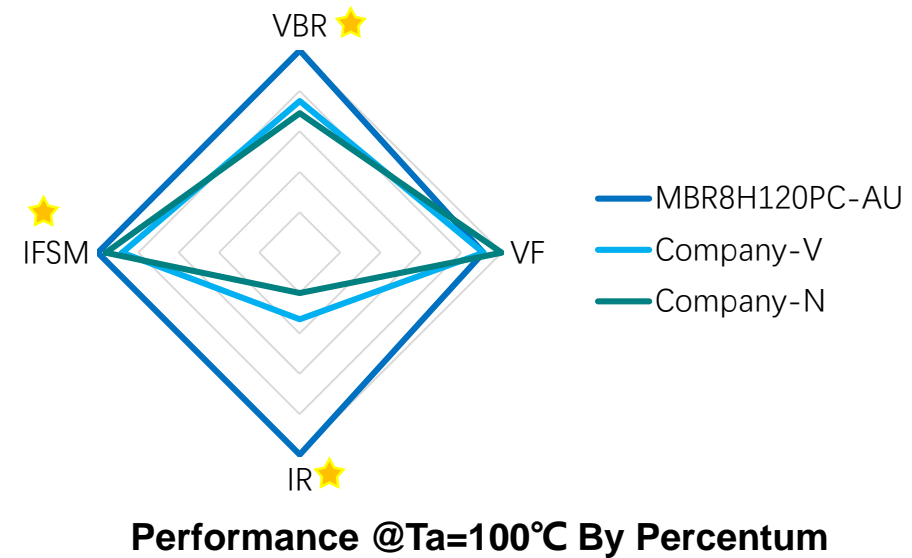
1. Low / Medium Voltage MOSFET Products
2. **Schottky Products**
3. Transient Voltage Suppressor Products
4. ESD Protection Products
5. Bipolar Junction Transistor Products
6. Rectifier Products
7. Zener Products

Schottky Product Technology Roadmap

Series/Date	Mass Productions	2024
Small Signal Schottky (IF < 1A)	<div data-bbox="435 339 784 504" style="border: 1px solid blue; padding: 5px;"> <p>SBA-Series </p> <p>20V: IF 0.5A/0.8A</p> <p>30V: IF 0.5A/0.8A</p> <p>40V: IF 0.5A/0.8A</p> </div>	<div style="display: flex; flex-direction: column; align-items: flex-end;"> <div style="margin-bottom: 10px;"> Available</div> <div style="margin-bottom: 10px;"> Developing</div> <div> Automotive</div> </div>
Power Schottky (IF ≥ 1A)	<div data-bbox="435 532 784 961" style="border: 1px solid blue; padding: 5px;"> <p>MBR-Series </p> <p>20V: 1A</p> <p>40V: 1A-60A</p> <p>45V: 2A-60A</p> <p>50V: 2A-60A</p> <p>60V: 1A-60A</p> <p>80V: 1A-60A</p> <p>90V: 1A-60A</p> <p>100V: 1A-60A</p> <p>150V: 1A-60A</p> <p>200V: 1A-60A</p> </div> <div data-bbox="901 525 1294 675" style="border: 2px solid yellow; border-radius: 10px; padding: 10px; display: inline-block; margin: 10px;"> <p>MBR-H-Type-Series </p> <p>150V: 1A-30A</p> </div> <div data-bbox="1396 525 1803 675" style="border: 2px solid yellow; border-radius: 10px; padding: 10px; display: inline-block; margin: 10px;"> <p>MBR-H-Type-Series </p> <p>60V: 1A-5A</p> <p>120V: 8A /15A</p> </div>	
Super Schottky (Low VF)	<div data-bbox="435 982 784 1096" style="border: 1px solid blue; padding: 5px;"> <p>SBM-Series </p> <p>45V: IF 3A</p> <p>60V: IF 2A 3A 15A</p> </div> <div data-bbox="435 1125 784 1360" style="border: 1px solid blue; padding: 5px;"> <p>SBT/STR-Series</p> <p>45V: 10A-30A</p> <p>50V: 5A-20A</p> <p>60V: 15A</p> <p>100V: 3A-60A</p> <p>120V: 10A-30A</p> </div>	<div style="border: 2px dashed blue; padding: 10px;"> <p>Features</p> <p>Tecnology:</p> <ul style="list-style-type: none"> • High Quality Schottky Barrier Metals, Ultra-low leakage current, high reliability • Low Leakage Current Substrate, Low High Temperature leakage current • High Quality Passivation, Moisture-resistant <p>Product:</p> <ul style="list-style-type: none"> • High temperature low leakage current • Junction temperature Tj175°C • Provide PPAP file <p>WaferTechnology</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Planar</p> </div> <div style="font-size: 2em; color: blue;">➔</div> <div style="text-align: center;">  <p>Planar(H-type)</p> </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 20px;"> <div style="text-align: center;">  <p>Low IR Schottky</p> </div> <div style="text-align: center;">  <p>Traditional Schottky</p> </div> </div> <p style="text-align: center; color: red; font-weight: bold; font-size: 1.2em;">IR Reduce 30 times</p> <p style="text-align: right; font-size: 0.8em;">*Data Sources: Company-V</p> </div>

H-Type Schottky Product Benchmark Data






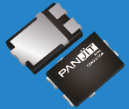
Characteristic	Test Condition	MBR8H120PC-AU	Company-V	Company-N	Unit
VBR	$I_R = 500\mu A, T_a = 25^\circ C$	163.80	124.70	121.90	V
	$I_R = 500\mu A, T_a = 100^\circ C$	177.80	134.10	122.10	
VF	$I_F = 3A, T_a = 25^\circ C$	0.73	0.73	0.68	V
	$I_F = 3A, T_a = 100^\circ C$	0.59	0.59	0.54	
IR	$V_R = 100V, T_a = 25^\circ C$	0.01	0.05	0.07	uA
	$V_R = 100V, T_a = 100^\circ C$	29.53 44.60@120V	133.30	217.60	
IFSM	8.3ms single half sine wave	250	220	240	A
Tj	Operating junction temperature	-55 to +175	-55 to +175	-55 to +175	°C

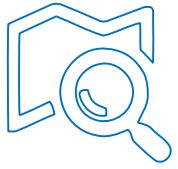


Summary:

- 左表显示实测静态特性比对, Panjit 表现 VBR/IR/IFSM较优, Company-V表现VF较优.
- 右上雷达图显示各特性总结, 以优异参数计算相差百分比得出.

H-Type Schottky Product List

VRRM	IF	VF	IR	 SOD-123FL	 SOD-123HE	 SMA	 SMAF-C	 SMB	 TO-277C
[V]	[A]	[V]	[μA]						
60	1	0.75	3	MB1H60AL-AU					
	2	0.75	3	MB2H60AL-AU					
	3	0.7	5		MB3H60AH-AU		MBR3H60AFC-AU	MBR3H60MB	
	5	0.75	5				MBR5H60AFC-AU		MBR5H60PC-AU
120	8	0.87	1						MBR8H120PC-AU
	15	0.87	1						MBR15H120PC-AU
150	3	0.85	0.5			SX3H15-AU			
	5	0.85	0.5					SR5H15 -AU	MBR5H150PC-AU
	10	0.85	0.5						MBR10H150PC-AU



Catalog:

1. Low / Medium Voltage MOSFET Products
2. Schottky Products
- 3. Transient Voltage Suppressor Products**
4. ESD Protection Products
5. Bipolar Junction Transistor Products
6. Rectifier Products
7. Zener Products

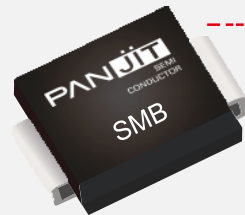
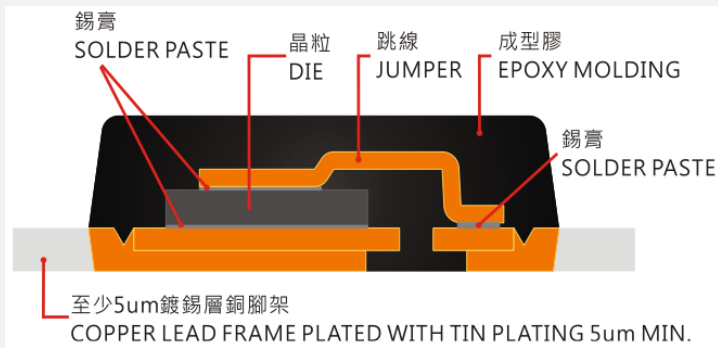
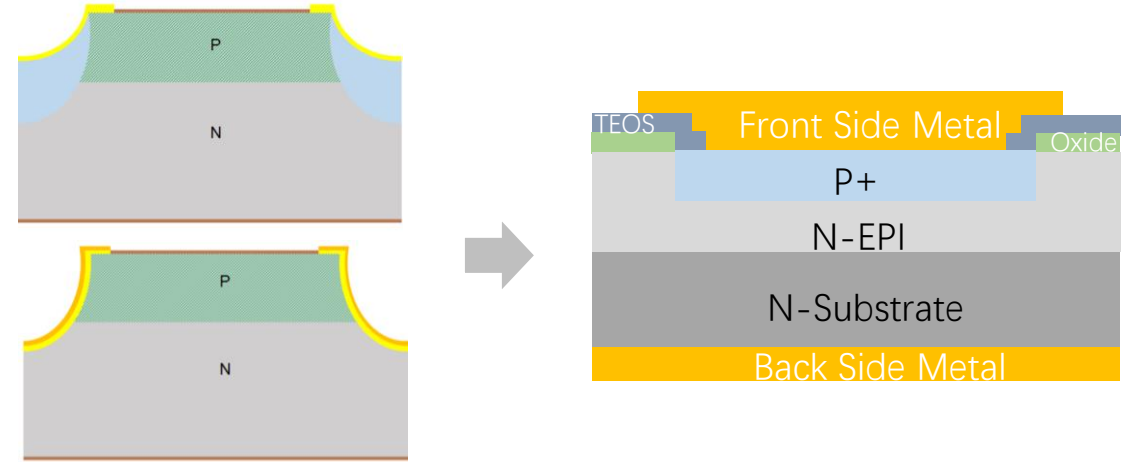
Transient Voltage Suppressor Product Roadmap

Series/Date	Mass Productions	2024
<p>Transient Voltage Suppressors 150W-5000W</p>	<div style="display: flex; flex-wrap: wrap; gap: 10px;"> <div style="background-color: #0070C0; color: white; padding: 5px; border-radius: 5px; width: 45%;"> PPP:150W Uni-Directional VRWM: 3.3V -36V </div> <div style="background-color: #0070C0; color: white; padding: 5px; border-radius: 5px; width: 45%;"> PPP:1500W Uni/Bi-Directional VRWM: 5V -70V </div> <div style="background-color: #0070C0; color: white; padding: 5px; border-radius: 5px; width: 45%;"> PPP:200W Uni-Directional VRWM: 3.3V -70V </div> <div style="background-color: #0070C0; color: white; padding: 5px; border-radius: 5px; width: 45%;"> PPP:3000W Uni/Bi-Directional VRWM: 10V -70V </div> <div style="background-color: #0070C0; color: white; padding: 5px; border-radius: 5px; width: 45%;"> PPP:400W Uni/Bi-Directional VRWM: 3.3V -220V </div> <div style="background-color: #0070C0; color: white; padding: 5px; border-radius: 5px; width: 45%;"> PPP:5000W Uni/Bi-Directional VRWM: 12V -70V </div> <div style="background-color: #0070C0; color: white; padding: 5px; border-radius: 5px; width: 45%;"> PPP:600W Uni/Bi-Directional VRWM: 3.3V -70.1V </div> </div>	<div style="text-align: right;"> <div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="width: 15px; height: 15px; background-color: #0070C0; margin-right: 5px;"></div> Available </div> <div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="width: 15px; height: 15px; background-color: #808080; margin-right: 5px;"></div> Developing </div> <div style="display: flex; align-items: center;"> <div style="width: 15px; height: 15px; background-color: #90EE90; margin-right: 5px;"></div> Automotive </div> </div>
<p>Load Dump 3600W-8000W</p>	<div style="background-color: #0070C0; color: white; padding: 5px; border-radius: 5px; width: 100%;"> PPP:3.6/4.6/6.6KW Uni-Directional VRWM: 14V -48V </div>	<div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="background-color: #808080; color: white; padding: 5px; border-radius: 5px; width: 45%;"> PPP:6.6KW Bi-Directional VRWM: 24V/36V </div> <div style="background-color: #808080; color: white; padding: 5px; border-radius: 5px; width: 45%;"> PPP:8KW Uni/Bi-Directional VRWM: 14V -48V </div> </div>

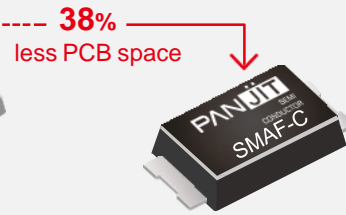
Transient Voltage Suppressor Product Technology

► Features

- Wafer Mesa(DB/Nitride) /Planar Structure
- Planar Structure Smaller Clamp Voltage &leakage current
- High absorption power
- Smaller volume size
- High heat dissipation capacity



SMB: 19mm²
Footprint Area



SMAF-C: 11.8mm²
Footprint Area

38%
less PCB space



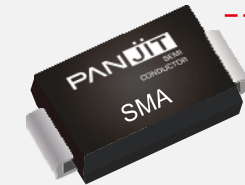
SOD-123HE



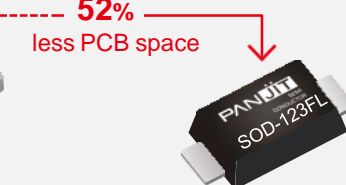
SMC



DO-218AB

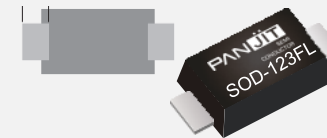


SMA: 13.5mm²
Footprint Area



SOD-123FL: 6.5mm²
Footprint Area

52%
less PCB space











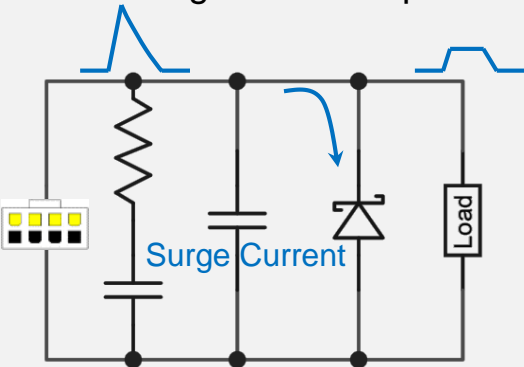
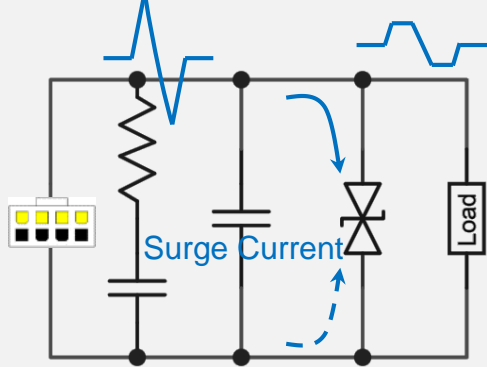
SOD-123FL: 6.5mm²
Footprint Area

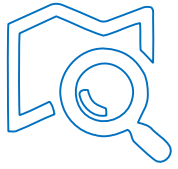


SOD-323HE: 3.3mm²
Footprint Area

49%
less PCB space

Transient Voltage Suppressor Product List









PPP	Directional	VRWM									
[W]	Uni/Bi	[V]	SOD-323HE	SOD-123HE	SOD-123FL	SMAF-C	SMA	SMB	SMC	DO-218AB	
150	Uni	3.3-36	P1CHxxA-AU								
200	Uni	3.3-70			SMFxxA-AU P2ALxxA-AU						
400	Uni	3.3-220		P4HExxA-AU	P4FLxxA-AU	P4AFCxxAS-AU	P4SMAxxA-AU P4SMAJxxA-AU				
	Bi	5-70.1					P4SMA10CA-AU P4SMAJ17CA-AU				
600	Uni	3.3-70.1				P6AFCxxA-AU		P6SMBxxA-AU P6SMBJxxA-AU			
	Bi	5-70.1						P6SMBxxCA-AU P6SMBJxxCA-AU			
1500	Uni	5-70	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Transient Voltage Clamped Transient</p>  <p>Uni-directional</p> </div> <div style="text-align: center;"> <p>Transient Voltage Clamped Transient</p>  <p>Bi-directional</p> </div> </div> <p>Notes: "x" For series products</p>							1.5SMCxxA-AU 1.5SMCJxxA-AU	
	Bi	5-70								1.5SMCxxCA-AU 1.5SMCJxxCA-AU	
3000	Uni	10-70								3.0SMCJxxA-AU	
	Bi	10-70								3.0SMCJxxCA-AU	
3600	Uni	14-48									SM5SxxA-AU
4600	Uni	14-48									SM6SxxA-AU
5000	Uni	12-70									5KMCxxAS-AU
	Bi	12-70									5KMCxxCAS-AU
6600	Uni	14-48									SM8SxxA-AU



Catalog:

1. Low / Medium Voltage MOSFET Products
2. Schottky Products
3. Transient Voltage Suppressor Products
4. **ESD Protection Products**
5. Bipolar Junction Transistor Products
6. Rectifier Products
7. Zener Products

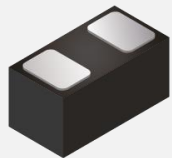
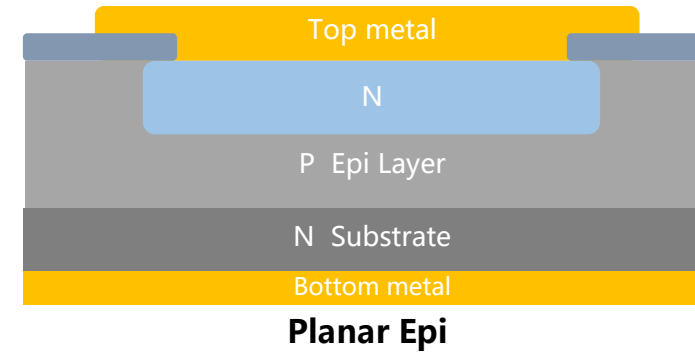
ESD Protection Product Roadmap

Series/Date	Mass Productions	2024
<p>High Surge</p>	<div data-bbox="473 501 873 682"> <p>Gen1 Uni/Bi-Directional VRWM: 3V~80V CJ:0.6pF~540pF</p>  </div> <div data-bbox="473 758 873 939"> <p>Gen1 Uni-Directional VRWM: 12V/22V IPP:1A-1.9A@1ms</p>  </div> <div data-bbox="473 1033 873 1215"> <p>Gen1 Bi-Directional VRWM: 12V/15V/24V CJ:15pF</p>  </div> <div data-bbox="988 758 1388 939"> <p>Gen2 Uni-Directional VRWM: 3V~26V IPP:0.87A-3A@1ms</p>  </div> <div data-bbox="988 1033 1388 1215"> <p>Gen2 Bi-Directional VRWM: 8V~36V CJ:15pF</p>  </div>	<div data-bbox="2186 358 2453 511"> <p>Available Developing Automotive</p>  </div> <div data-bbox="1676 501 2076 682"> <p>Gen2 Bi-Directional VRWM: 2.5V~5V IPP: 5A~ 30A</p>  </div> <div data-bbox="1676 1033 2076 1215"> <p>Gen2 Uni-Directional VRWM: 3V~36V IPP: 3A~ 100A</p>  </div>

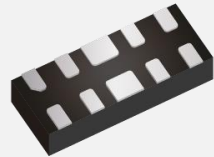
ESD Protection Product Technology

► Features

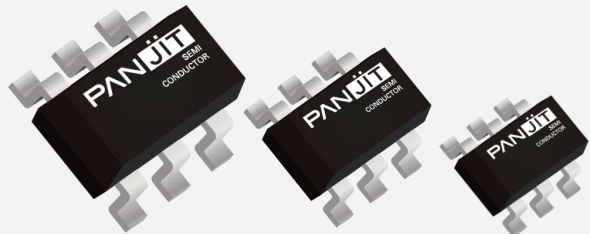
- Excellent ESD clamping behavior
- High current density
- High surge current capability
- Low device capacitance
- Package miniaturization
- AEC-Q101 qualified



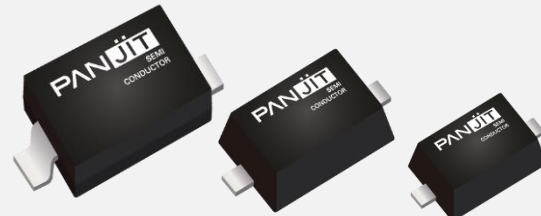
DFN-2L



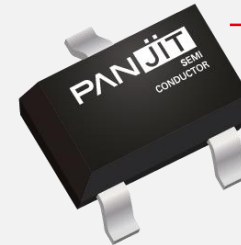
DFN2510-10L



SOT-23-6L/363/563



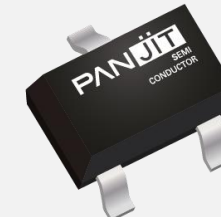
SOD-123/323/523



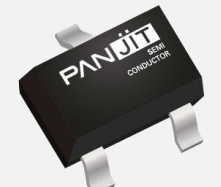
SOT-23: 2.9mm²
Footprint Area

39% less PCB space

67% less PCB space










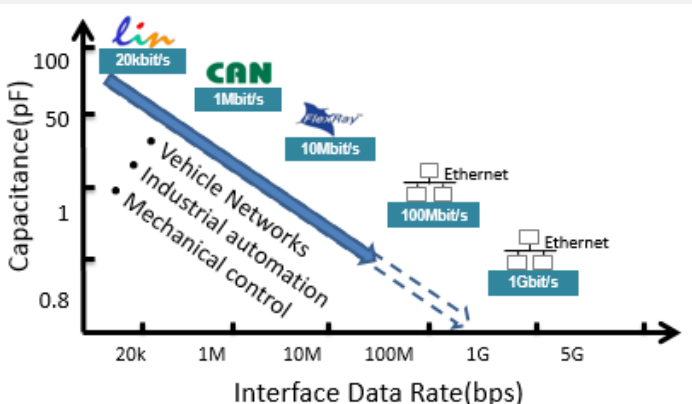


SOT-323: 1.77mm²
Footprint Area

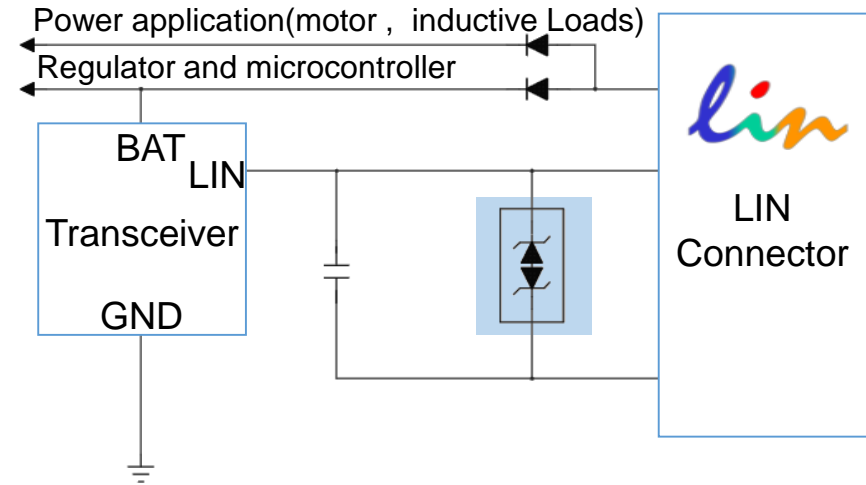
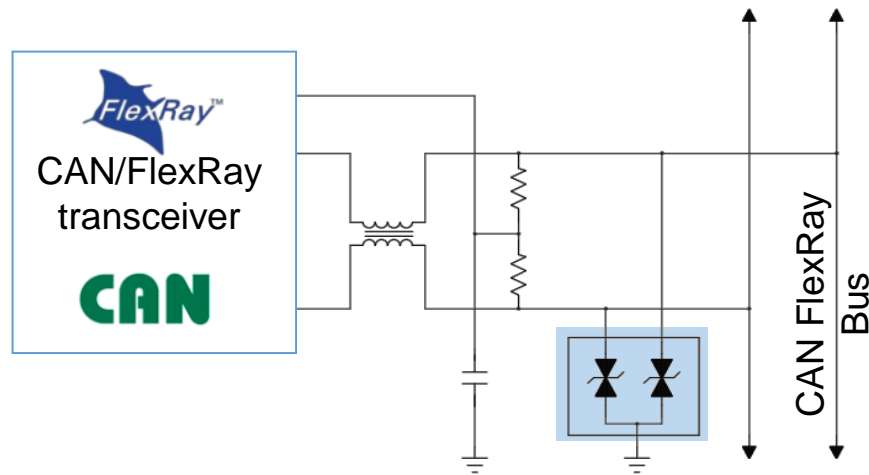







SOT-523: 0.58mm²
Footprint Area

ESD Protection Product List

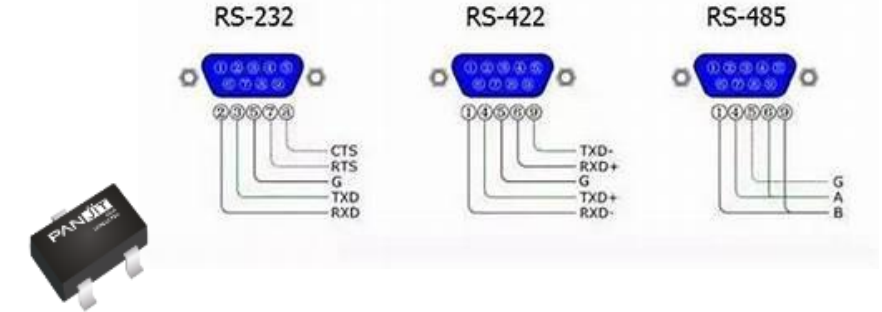
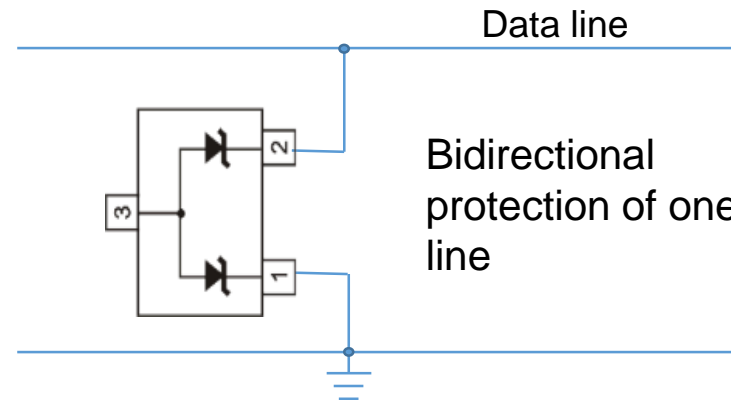
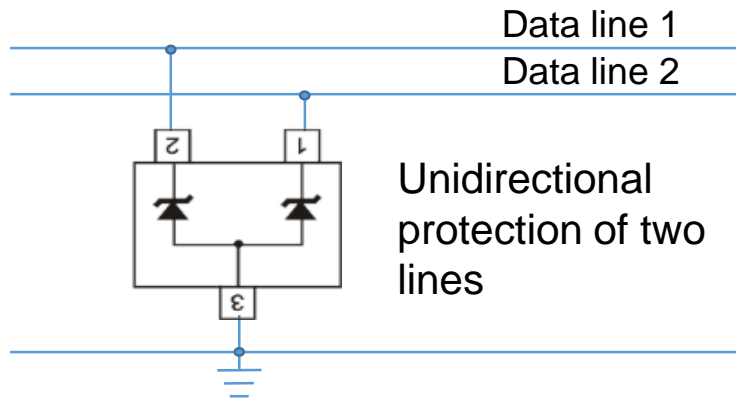
Directional	VRWM									
Uni/Bi	[V]	DFN-2L	DFN2510-10L	SOD-123	SOD-323	SOD-523	SOT-23	SOT-323	SOT-523	SOT-23-6L/363/563
Bi	5.5	PEC1605M1Q-AU								
Uni	5		PJE5UFN10A-AU							
Bi	8-36			PEC38xxAS-AU						
Uni	3-36	<p>■ Capacitance match 20Kbit/s – 10Mbit/s</p> 				PJSDxxW-AU PJGBLCxx-AU	PJSDxxTS-AU PJSD05TS-02-AU	PJMBZxxA-AU PJSOTxxC-05-AU PJMBZxxV-AU PJSOT36-AU PE4136C2A-AU		
Bi	3-80			PEC38xxCS-AU PJSDxxCW-AU PJGBLCxxC-AU PJEC2415VM1WS-AU PEC3212C1CS-AU			PEC38xxC2A-AU PEC3324C2A-AU PEC3215C2A-AU PEC3124C2A-AU PJEC12VM1TA-AU PJEC24MTA-AU PE9180C1A-AU	PEC38xxC2C-AU	PEC38xxC2E-AU PJE5V0U8TB-AU	
Uni	5.5									PE1605C4A6-AU PE1605C4C6-AU PE1605C4E6-AU

ESD Protection PEC38xx-AU Series Product List_Gen2



Directional	VRWM (V)	 SOD-323	 SOD-123	 SOT-523	 SOT-323	 SOT-23
Bi	8	PEC3808CS-AU	PEC3808AS-AU	PEC3808C2E-AU	PEC3808C2C-AU	PEC3808C2A-AU
Bi	12	PEC3812CS-AU	PEC3812AS-AU	PEC3812C2E-AU	PEC3812C2C-AU	PEC3812C2A-AU
Bi	15	PEC3815CS-AU	PEC3815AS-AU	PEC3815C2E-AU	PEC3815C2C-AU	PEC3815C2A-AU
Bi	24	PEC3824CS-AU	PEC3824AS-AU	PEC3824C2E-AU	PEC3824C2C-AU	PEC3824C2A-AU
Bi	36	PEC3836CS-AU	PEC3836AS-AU	PEC3836C2E-AU	PEC3836C2C-AU	PEC3836C2A-AU

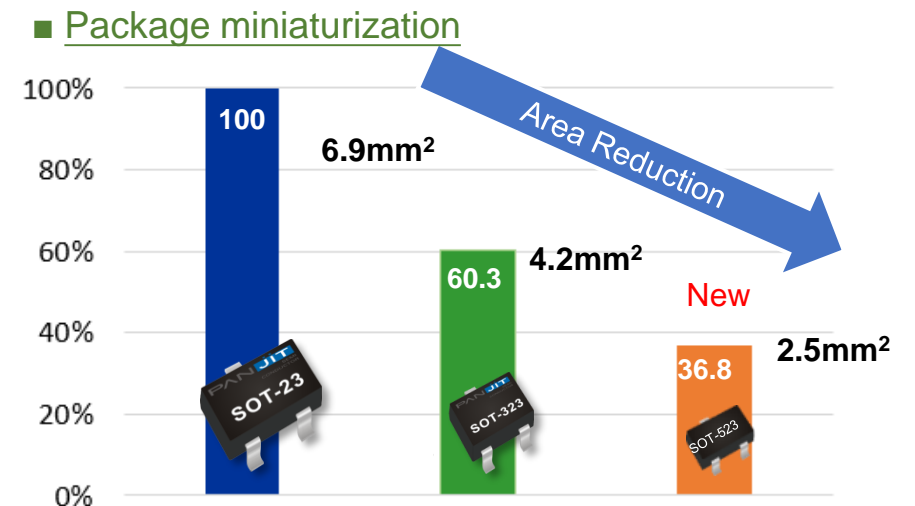
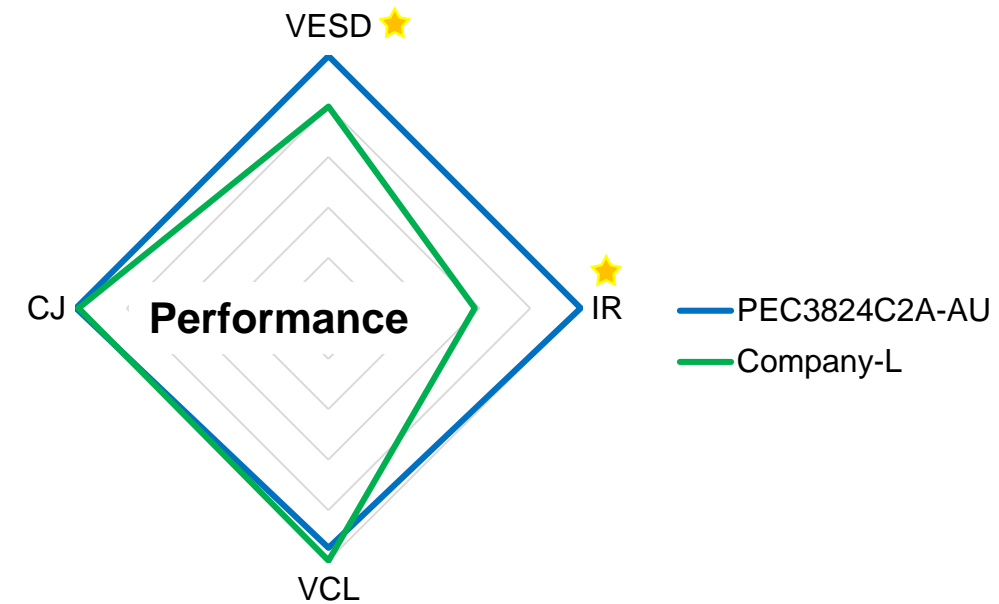
ESD Protection PJMBZxxA-AU Series Product List_Gen2

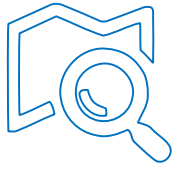


Parts	Vrwm (V)	Channel	Vbr(min.) (V)	Ipp(10/1000us) (A)	Package
PJMBZ5V6A-AU	3	2	5.32	3	SOT-23
PJMBZ6V2A-AU	3	2	5.89	2.76	SOT-23
PJMBZ6V8A-AU	4.5	2	6.46	2.5	SOT-23
PJMBZ9V1A-AU	6	2	8.65	1.7	SOT-23
PJMBZ12A-AU	8.5	2	11.40	2.35	SOT-23
PJMBZ15A-AU	12	2	14.25	1.9	SOT-23
PJMBZ18A-AU	14.5	2	17.10	1.6	SOT-23
PJMBZ20A-AU	17	2	19.00	1.4	SOT-23
PJMBZ27A-AU	22	2	25.65	1	SOT-23
PJMBZ33A-AU	26	2	31.35	0.87	SOT-23

ESD Protection Product Benchmark Data

Characteristic	Test Condition	PEC3824C2A-AU	Company-L	Unit
VESD	ESD IEC61000-4-2(Air)	±30	±30	KV
	ESD IEC61000-4-2(Contact)	±30	±24	
VBR	$I_R = 1\text{mA}$, $T_a=25^\circ\text{C}$	29.65	28.65	V
	$I_R = 1\text{mA}$, $T_a=100^\circ\text{C}$	30	30	
IR	$V_R=24\text{V}$, $T_a= 25^\circ\text{C}$	0.46	0.65	nA
	$V_R=24\text{V}$, $T_a=100^\circ\text{C}$	1.7	2.92	
VCL	IPP = 1 A, tP = 8/20 us	33.38	32.09	V
	IPP = 3 A, tP = 8/20 us	39.98	38.20	
CJ	0Vdc Bias f = 1 MHz	8.007	8.094	pF
Tj	Operating junction temperature	-55~150	-55~150	°C








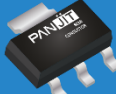
Catalog:

1. Low / Medium Voltage MOSFET Products
2. Schottky Products
3. Transient Voltage Suppressor Products
4. ESD Protection Products
- 5. Bipolar Junction Transistor Products**
6. Rectifier Products
7. Zener Products






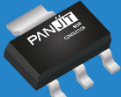
Bipolar Junction Transistor Product Roadmap

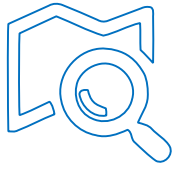
Series/Date	Mass Productions	2024
<p>General Transistor</p>	<div style="display: flex; flex-wrap: wrap; gap: 10px;"> <div style="border: 1px solid #0070C0; border-radius: 10px; padding: 5px; width: 30%;"> <p>Polarity:NPN VCEO: 30V~300V IC: 100mA-600mA</p> </div> <div style="border: 1px solid #0070C0; border-radius: 10px; padding: 5px; width: 30%;"> <p>Polarity:PNP+PNP VCEO: -45V IC: -100mA</p> </div> <div style="border: 1px solid #0070C0; border-radius: 10px; padding: 5px; width: 30%;"> <p>Polarity:NPN+PNP VCEO: 45V~65V IC: 100mA-500mA</p> </div> <div style="border: 1px solid #0070C0; border-radius: 10px; padding: 5px; width: 30%;"> <p>Polarity:PNP VCEO: -30V~-300V IC: -100mA~-600mA</p> </div> <div style="border: 1px solid #0070C0; border-radius: 10px; padding: 5px; width: 30%;"> <p>Polarity:NPN+PNP VCEO: 40V~65V IC: 100mA-200mA</p> </div> </div>	<div style="text-align: right; margin-bottom: 10px;"> <div style="display: inline-block; width: 15px; height: 10px; background-color: #0070C0; margin-right: 5px;"></div> Available <div style="display: inline-block; width: 15px; height: 10px; background-color: #808080; margin-right: 5px; margin-top: 5px;"></div> Developing <div style="display: inline-block; width: 15px; height: 10px; background-color: #90EE90; margin-right: 5px; margin-top: 5px;"></div> Automotive </div> <div style="border: 1px solid #808080; border-radius: 10px; padding: 10px; width: 100px; margin: 0 auto; background-color: #808080; color: white; text-align: center;">By Demand</div>
<p>Low VCE(sat) Transistor</p>	<div style="display: flex; flex-wrap: wrap; gap: 10px;"> <div style="border: 1px solid #0070C0; border-radius: 10px; padding: 5px; width: 30%;"> <p>Polarity:NPN VCEO: 100V IC: 1000mA</p> </div> <div style="border: 1px solid #0070C0; border-radius: 10px; padding: 5px; width: 30%;"> <p>Polarity:PNP VCEO: -100V IC: -1000mA</p> </div> </div>	<div style="border: 1px solid #808080; border-radius: 10px; padding: 10px; width: 100px; margin: 0 auto; background-color: #808080; color: white; text-align: center;">By Demand</div>

Bipolar Junction Transistor Product List -1

Series	Polarity	VCEO	IC	 SOT-23	 SOT-363	 SOT-89	 SOT-223
		[V]	[mA]				
General Transistor	NPN	30	100	BC848x-AU BC849x-AU			
		32	500	2SC2411K-AU			
		40	200/600	MMBT3904-AU MMBT4401-AU MMBT2222A-AU			
		45	100/500	BC847x-AU BC850x-AU BC817-xx-AU			
		60	500	MMBTA05-AU			
		65	100	BC846x-AU			
		80	500	MMBTA06-AU			
		160	600	MMBT5551-AU			
		300	500	MMBTA42-AU			
	NPN+NPN	40	200	DMMT3904W-AU			
		45	100		BC847xS-AU		
60		100		BC846xS-AU			
Low VCE(sat) Transistor	NPN	100	1000	PBHV8110DA-AU		BCX56-16-AU PBHV8110DH-AU	BCP56-16-AU PBHV8110DW-AU

Bipolar Junction Transistor Product List -2












Series	Polarity	VCEO	IC	 SOT-23	 SOT-323	 SOT-23-6L	 SOT-363	 SOT-89	 SOT-223
		[V]	[mA]						
General Transistor	PNP	-30	-100	BC858x-AU BC859x-AU					
		-40	-200	MMBT3906-AU					
		-45	100/500	BC807-xx-AU BC857x-AU	BC807-xxW-AU BC857xW-AU				
		-60	500/600	MMBT2907A-AU MMBTA55-AU					
		-65	-100	BC856x-AU	BC856BW-AU		BC856BS-AU		
		-80	-500	MMBTA56-AU					
		-150	-500	MMBT5401-AU					
		-300	-500	MMBTA92-AU					
	PNP+PNP	-45	-100				BC857xS-AU		
	NPN+PNP	-45/45	-100/100 -500/500			BC817DPN-AU	BC847xPN-AU		
-60/60		-150/150			IMZ1AS-AU				
-65/65		-100/100				BC846BPN-AU			
Low VCE(sat) Transistor	PNP	-100	-1000	PBHV9110DA-AU				BCX53-16-AU PBHV9110DH-AU	BPC53-16-AU PBHV9110DW-AU



Catalog:

1. Low / Medium Voltage MOSFET Products
2. Schottky Products
3. Transient Voltage Suppressor Products
4. ESD Protection Products
5. Bipolar Junction Transistor Products
- 6. Rectifier Products**
7. Zener Products

Rectifier Product Roadmap

Series/Date	Mass Productions	2024
<p>Small Signal Switching</p>	<div data-bbox="473 369 830 505">PTO:175~500mW VRRM:100V </div> <div data-bbox="876 369 1233 505">PTO:200~350mW VRRM:200V </div> <div data-bbox="473 519 830 655">PTO:200~350mW VRRM:120V </div> <div data-bbox="876 519 1233 655">PTO:200~500mW VRRM:250V </div>	<div data-bbox="1480 458 1837 594">By Demand</div> <div data-bbox="2193 358 2448 515">  Available  Developing  Automotive </div>
<p>General</p>	<div data-bbox="473 783 830 919">VRRM:50-1000V IF:1~10A </div> <div data-bbox="876 783 1233 919">VRRM:1600V IF:60A/ 90A </div>	<div data-bbox="1480 798 1837 933">By Demand</div>
<p>Hyper Fast Recovery</p>	<div data-bbox="473 1132 830 1268">VRRM:200V IF:1~3A TRR:35ns </div>	<div data-bbox="1480 1132 1837 1268">VRRM:200V IF:1~2A TRR:20ns </div>

Rectifier 1600V_60A / 90A Product Market

PGR6016PT

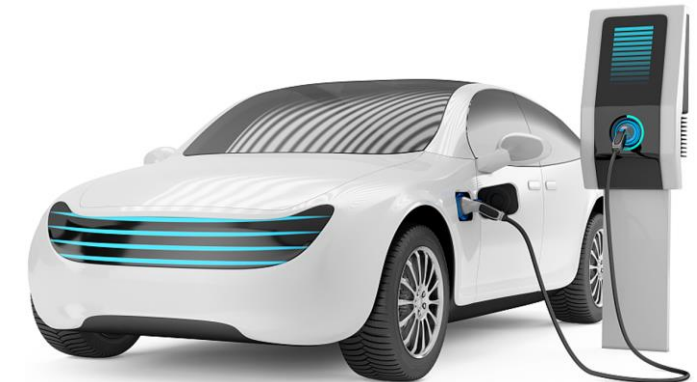
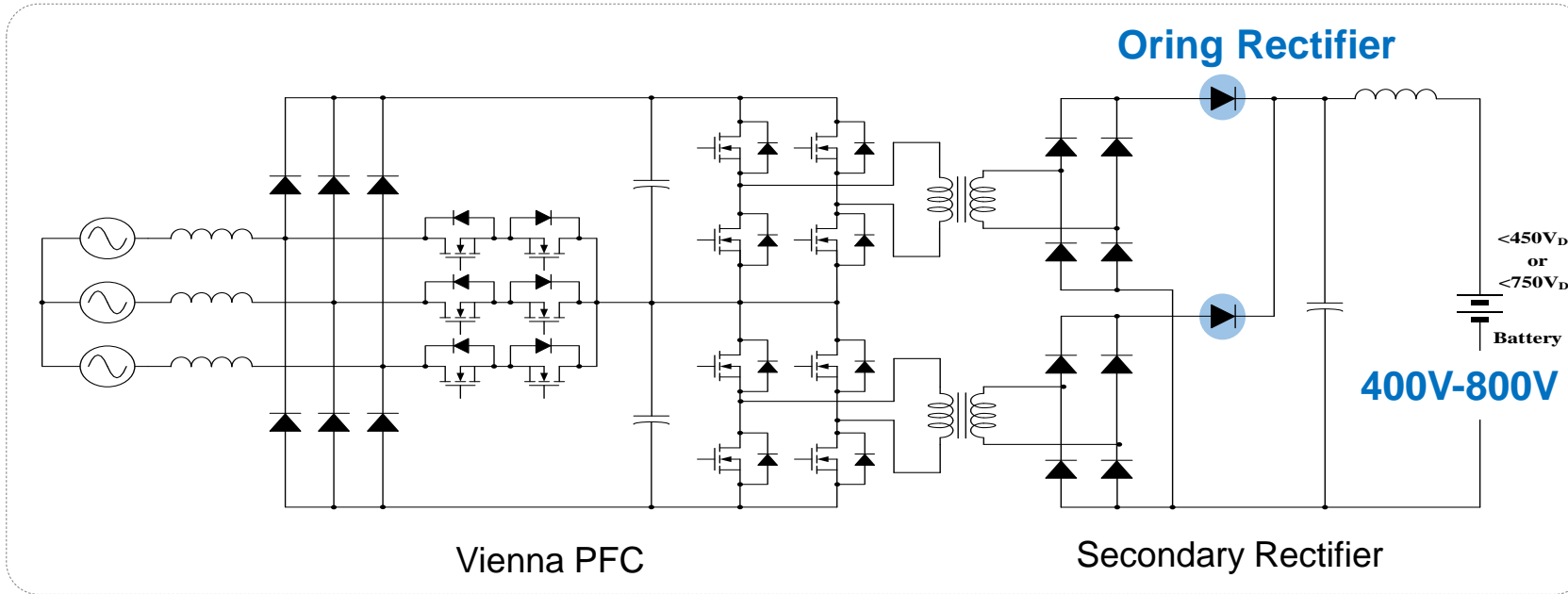
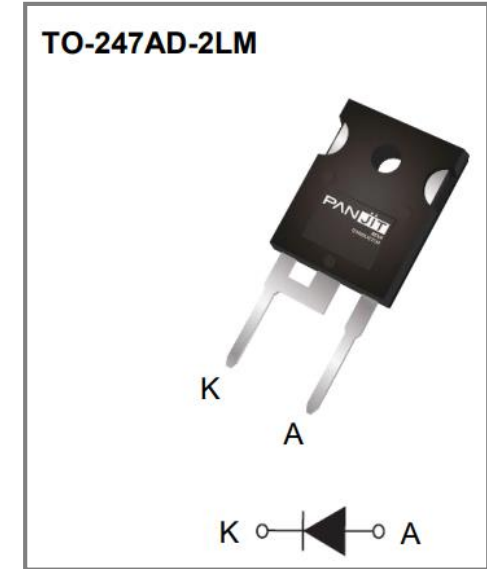
General Purpose Rectifier

Voltage	1600 V	Current	60 A
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PGR9016PT

General Purpose Rectifier

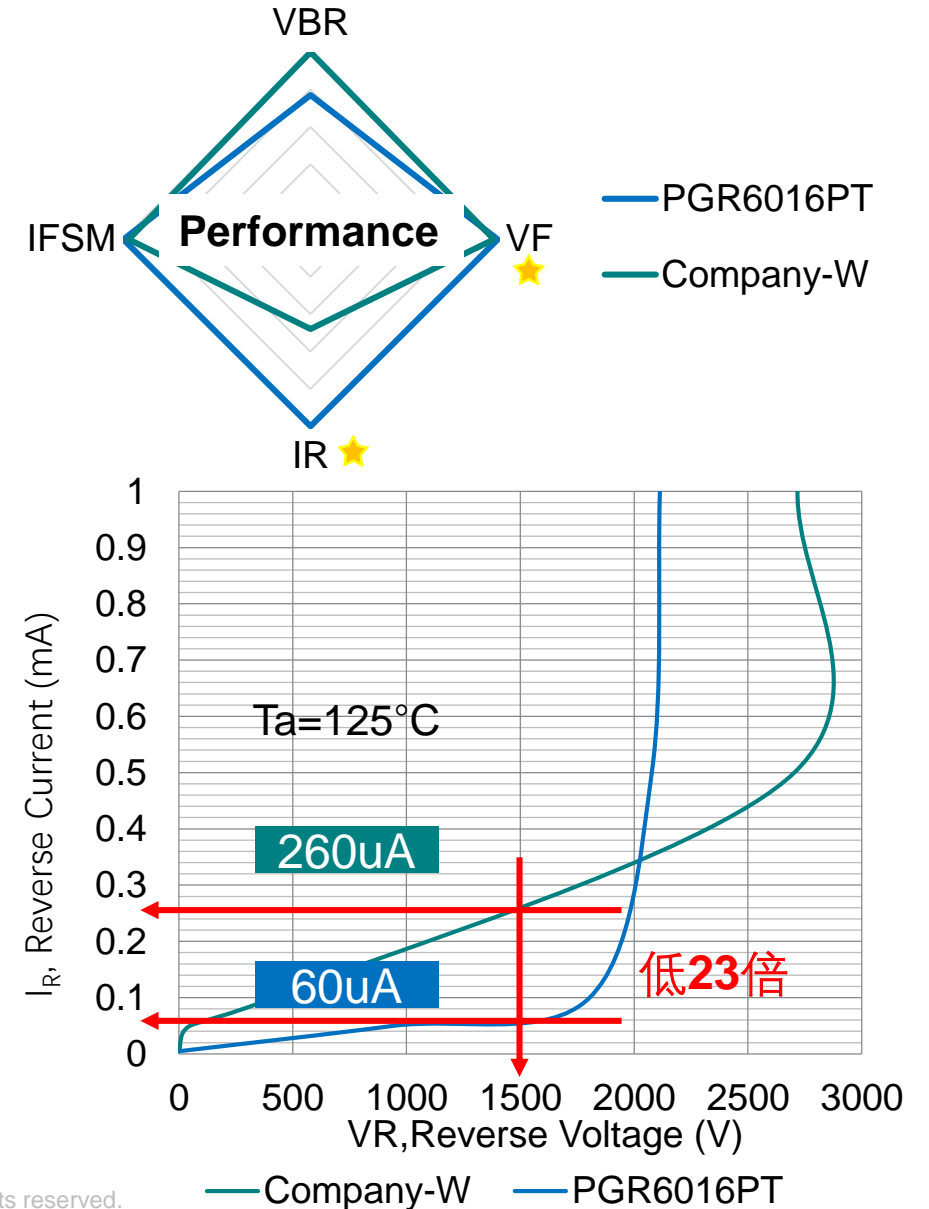
Voltage	1600 V	Current	90 A
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EV/HEV Charger

Rectifier 1600V_60A / 90A Product Benchmark Data

Characteristic	Test Condition	PGR6016PT	Company-W	Unit
VBR	$I_R = 500\mu\text{A}, T_a=25^\circ\text{C}$	2060	2484	V
	$I_R = 500\mu\text{A}, T_a=125^\circ\text{C}$	2078	2703	
VF	$I_F=60\text{A}, T_a= 25^\circ\text{C}$	1.032	1.047	V
	$I_F=60\text{A}, T_a=125^\circ\text{C}$	0.960	0.972	
IR	$V_R=1600\text{V}, T_a= 25^\circ\text{C}$	0.327	0.538	μA
	$V_R=1600\text{V}, T_a=125^\circ\text{C}$	74	152	
IFSM	10ms single half sine wave	1200	1170	A
Tj	Operating junction temperature	-55 to +150	-55 to +150	$^\circ\text{C}$



Hyper Fast Recovery Product List /Technology

VRRM	IF	VF	IR	Trr	SOD-123FL	SOD-123HE	SMAF-C	SMBF	SMA	SMB
[V]	[A]	[V]	[μA]	[nS]						
200	1	0.95@1A	1	35	-	MER1DAH MER1DAH-AU	MER1DAFC MER1DAFC-AU	-	MER1DMA MER1DMA-AU	MER1DMB MER1DMB-AU
	2	0.95@2A	1	35	MER2DAL MER2DAL-AU	MER2DAH MER2DAH-AU	MER2DAFC MER2DAFC-AU	MER2DBF MER2DBF-AU	MER2DMA MER2DMA-AU	MER2DMB MER2DMB-AU
	3	0.95@3A	1	35	-	MER3DAH MER3DAH-AU	MER3DAFC MER3DAFC-AU	MER3DBF MER3DBF-AU	MER3DMA MER3DMA-AU	MER3DMB MER3DMB-AU
200 MSR	1	0.95@1A	1	20	MSR1DAL MSR1DAL-AU	MSR1DAH MSR1DAH-AU	MSR1DAFC MSR1DAFC-AU		MSR1DMA MSR1DMA-AU	MSR1DMB MSR1DMB-AU
	2	0.95@2A	1	20	MSR2DAL MSR2DAL-AU	MSR2DAH MSR2DAH-AU	MSR2DAFC MSR2DAFC-AU		MSR2DMA MRS2DMA-AU	MSR2DMB MRS2DMB-AU

Release Time: **MP** **The blue font was released in Q3**

► Features

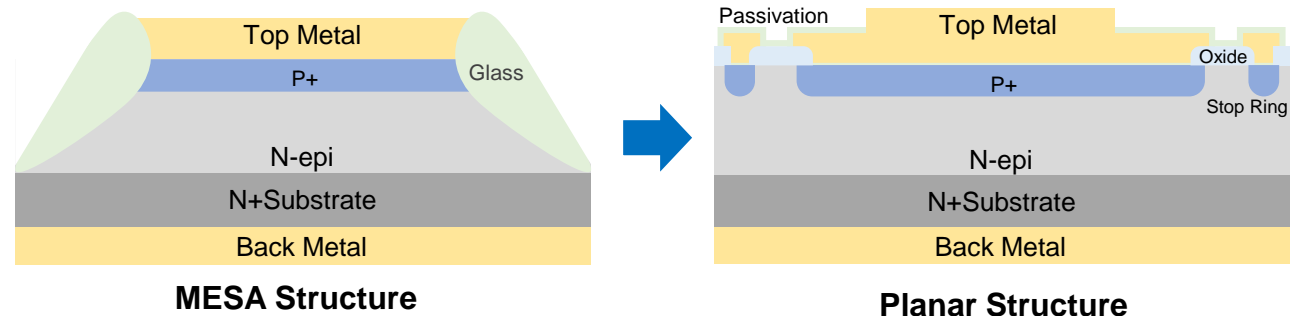
Tecnology:

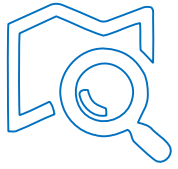
- Metal doping dose control, Low Reverse Recovery Time & Charge
- Passivation layer addition, Low leakage current
- Higt current density

Product:

- 175°C operating junction temperature
- AEC-Q101 qualified

► Process Technology


















Catalog:

1. Low / Medium Voltage MOSFET Products
2. Schottky Products
3. Transient Voltage Suppressor Products
4. ESD Protection Products
5. Bipolar Junction Transistor Products
6. Rectifier Products
7. **Zener Products**

Zener Product Roadmap

Series/Date	Mass Productions			2024
<p>VZ 2%</p>	<p>PD:200mW  VZ: 2.4V~75V</p>	<p>PD:400mW  VZ: 4.7V~36V</p>	<p>PD:500mW  VZ: 4.3V~51V</p>	<p>By Demand</p> <ul style="list-style-type: none"> Available Developing  Automotive
<p>VZ 5%</p>	<p>PD:200mW  VZ: 2.4V~75V</p>	<p>PD:410mW  VZ: 2.4V~75V</p>	<p>PD:500mW  VZ: 2.4V~51V</p>	<p>By Demand</p>
<p>PD:1000mW  VZ: 3.3V~75V</p>	<p>PD:1500mW  VZ: 3.6V~68V</p>	<p>PD:3000mW  VZ: 5.6V~51V</p>		
<p>PD:300mW  VZ: 2.4V~36V</p>	<p>PD:2000mW  VZ: 6.8V~51V</p>	<p>PD:5000mW  VZ: 5.6V~51V</p>		

关注我们



An aerial view of a city at dusk or dawn, with a blue-tinted sky and city lights. Overlaid on the image is a network of glowing blue lines and nodes, resembling a global communication or data network. The text is centered within a white rectangular frame.

YOUR COMPONENT OUR PROFESSION

