

POTENS Semiconductor Corporation

博盛半導體股份有限公司

ポテンツ セミコンダクタ コーポレーション

2024Q2B

会社概要



会社名：博盛半導體股份有限公司
英社名：Potens Semiconductor Corp.
日本名：ポテンツ・セミコンダクタ

第32回國家磐石獎受賞



董事長總經理：孟祥集（Menq Meng）

創業日：2012年4月

上場日：2023年11月(Emerging Stock Board - Taipei Exchange)

資本金：NT\$2.94億(12.6億円)

本社：台湾新竹縣竹北市高鐵二路32號6樓之3 TEL：886-3-6682068

營業處：新竹、台北、日本、中国、韓国、ドイツ

販売網：台湾、日本、中国、韓国、アメリカ、インド、ブラジル、ドイツ、等21ヵ国

従業員数：70名（2024年4月現在）

事業内容：パワー半導体・電源IC・電源の設計開発と製品販売

取得認証：ISO9001・ISO14001

売上金額：2022年度73億円 *為替条件 1:4.3

創業理念

感動を生む製品とサービスで日々の生活をより豊かに



R&D VP: Tony Lai

1996~1999: Episil Process Engineer

1999~2003: SiS TD Senior Engineer

2003~2008: PSMC (PSC) TD/Device Deputy Manager

2008~2013: PSMC(Maxchip) TD Manager (MOS Development)

2013~Now: Potens R&D VP (Founder)



President: Meng Meng 孟祥集

1996~1998: HSMC MOS TD Engineer

1998~2008: APEC MOS Product & FAE Manager(Founder)

2008~2012: UBIQ MOS Marketing VP(Founder)

2012~Now: Potens CEO (Founder)



Sales VP: C.C. Tsao

1999~2008: APEC MOS Sales Senior Manager

2008~2012: UBIQ MOS Sales Director

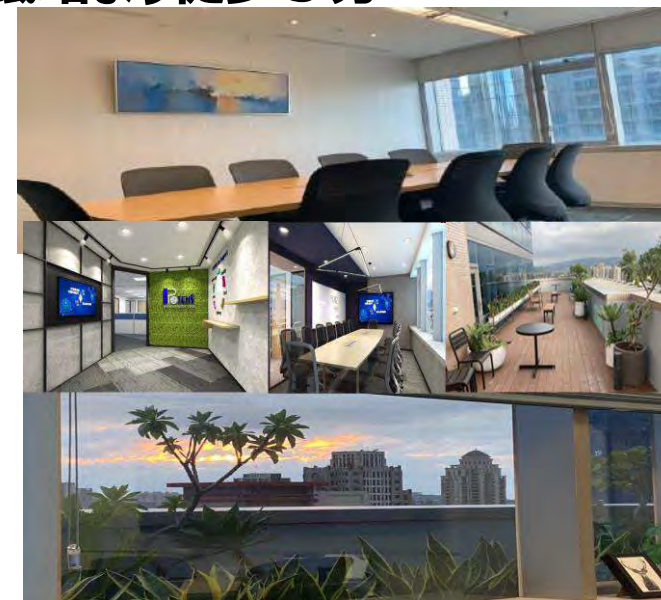
2012~Now: Potens Sales VP (Founder)

Potens新竹本社



新竹縣竹北市高鐵二路32號6F & 15F

新竹高鐵站より徒歩 5 分

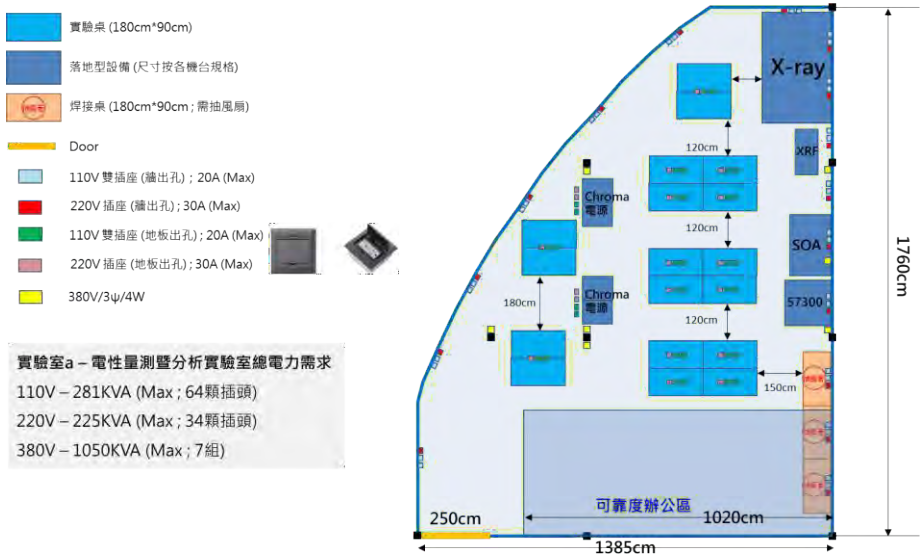


Potens新竹開發センター

2024 Q4 will be starting to operate.



Parameter Analysis Lab.



Reliability Setup Layout



Potens台北營業本部



2024 Q3 will be starting to operate.



臺北南港高鐵站より徒歩3分

✓ 既存拠点 ✓ 計画拠点

営業拠点（5拠点）・販売網（21カ国）



企業指針



✓ 開発販売

顧客との価値共創を重視

✓ 品質・技術

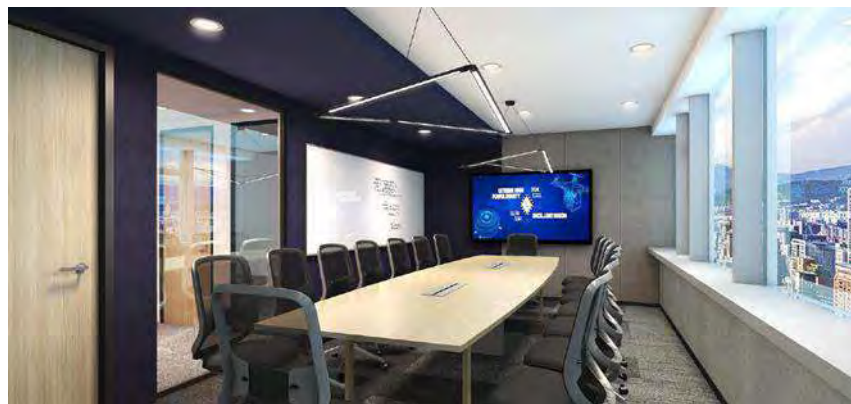
徹底した技術サポート QCDST

✓ 新製品開発

新製品・次世代製品の積極展開

✓ 豊富な製品ラインナップ

低耐圧から高耐圧品まで拡充



製品一覽



Industrial Driver



PV Inverter



UPS



SMPS



Server
BLDC



SMPS PFC



LED Lighting



Motor Control



LED Lighting



Telecom



Motor Drive



Power Tools



2nd Sync.

Car head light

Computing

Hand-Held

Battery

■ U MOS Gen 1+2

N MOS: 12V~200V P MOS: 12V~ 150V

■ U MOS Gen 3 (smaller chip,better Ciss Qg)

P MOS: 20V~ 40V

■ SGT Gen 1+2

N MOS: 30V~150V P MOS:100V

■ SGT Gen 2plus (smaller chip,better Ciss Qg)

N MOS: 40V~100V

650品種~(Pch 152品種)

6 in 1 Double Trench
4 in 1 Double Trench
(30V ~100V)

Gen1 & Gen2
MV Double Trench

Gen1 LV Double Trench

12V CSP

24V CSP

300品種~
(Super junction30品種~)

1500V MOSFETs

1200V SiC MOS/SBD

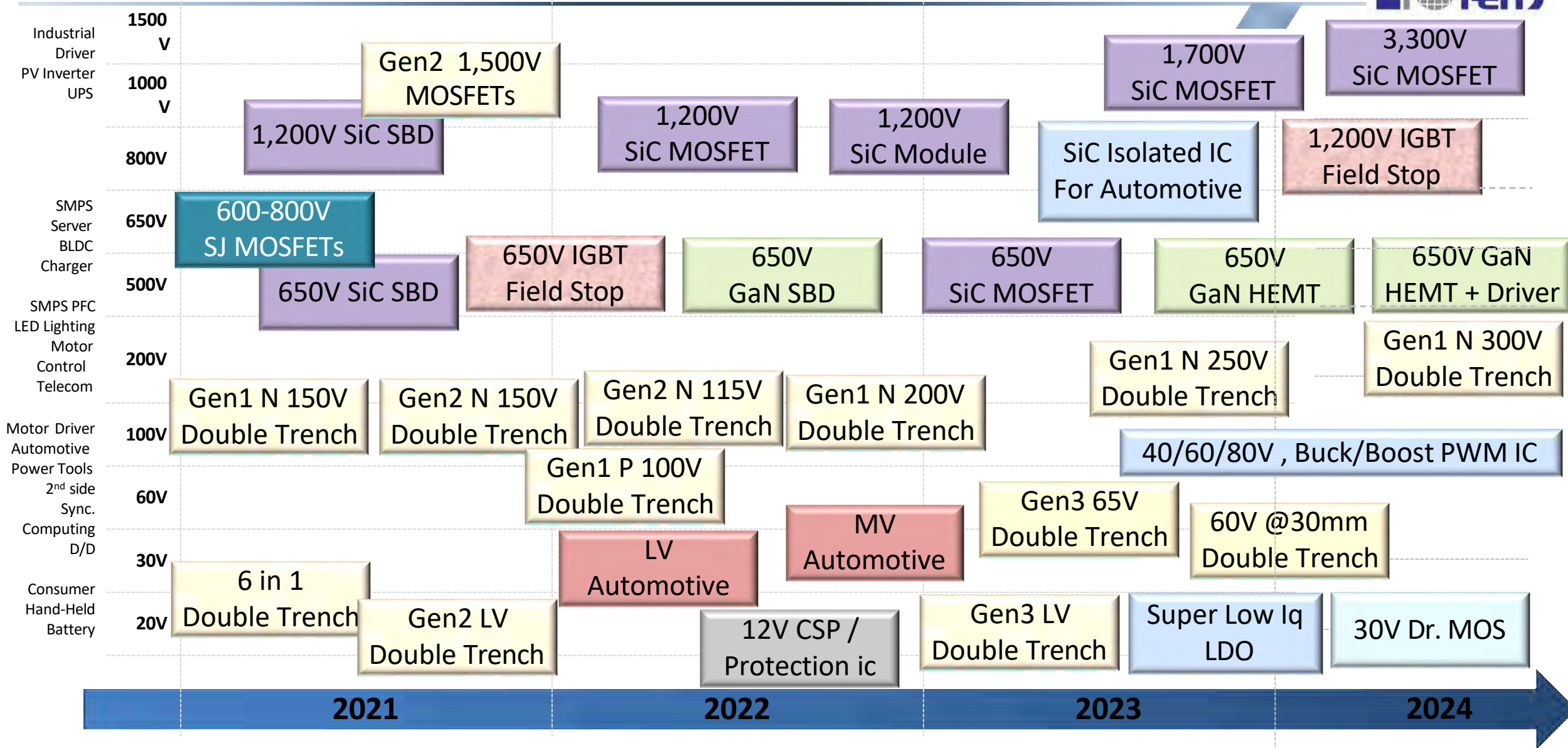
Super Junction 600~800V

600V SiC SBD/GaN/IGBT

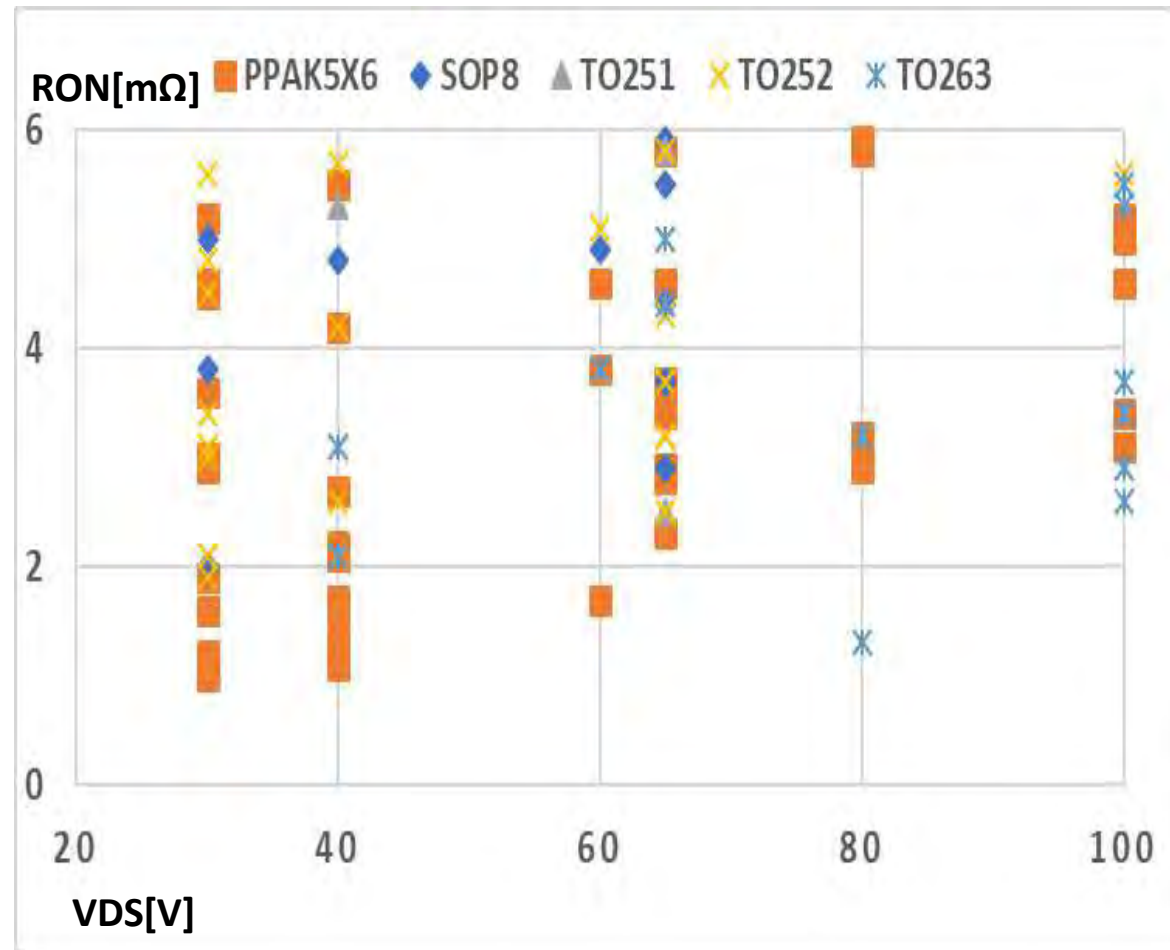
150V MV Double Trench

10V 20V 30V 60V 100V 200V 650V 800V 1000V 1500V

製品ロードマップ°



MOSFET Low Rdson品 (~100V)



Part No.	Package	Configuration	Type	Vds(V)	Vgs(V)	Vth(V)	Rdson(10V)	Id (A)
PDC3902X	PPAK5X6	Single	N	30	±20	1.2/1.6/2.5	1.2/1.6	130
PDC3990X	PPAK5X6	Single	N	30	20/-12	1/1.6/2.5	1.2/1.4	240
PDC3809RC	PPAK5X6	Asym. Dual	N+N	30	±20	1.2/1.6/2.5	0.55/0.7	210
PDC3809LRC	PPAK5X6	Asym. Dual	N+N	30	±12	0.9/1.3/1.7	0.55/0.7	210
PDC3811LRC	PPAK5X6	Asym. Dual	N+N	30	±12	0.9/1.3/1.7	0.95/1.2	135
PDC49G0BX	PPAK5X6	Single	N	40	±20	1.2/1.6/2.5	1.25/1.6	210
PDC49G0BHX	PPAK5X6	Single	N	40	±20	2/2.8/4	1.35/1.7	200
PDP40B8A	TO220	Single	N	40	20/-12	2/2.8/4	1.5/1.8	210
PDX4970	TO247	Single	N	40	±20	1.5/2.5/3.5	1.2/1.5	320
PDH4970-S	TO263-6L	Single	N	40	±20	1.5/2.5/3.5	0.8/1	220
PDP6970	TO220	Single	N	60	±20	1.5/2.3/3.5	1.4/2.2	170
PDT89E6BH	TOLL	Single	N	80	±20	2/2.8/4	0.9/1.1	320
PDP89E6BH	TO220	Single	N	80	±20	2/2.8/4	1.1/1.3	300
PDX89E6BH	TO247	Single	N	80	±20	2/2.8/4	1.2/1.5	330
PDH80D8BH	TO263	Single	N	80	±20	2/3/4	1.5/1.8	260
PDH89E6BH	TO263	Single	N	80	±20	2/2.8/4	1.1/1.3	300
PDT09E6BH	TOLL	Single	N	100	±20	2/2.8/4	1.2/1.5	300
PDP09E6BH	TO220	Single	N	100	±20	2/2.8/4	1.4/1.7	280
PDX09E6BH	TO247	Single	N	100	±20	2/2.8/4	1.5/1.8	310
PDH09E6BH	TO263	Single	N	100	±20	2/2.8/4	1.4/1.7	280

MOSFETパッケージリスト 1



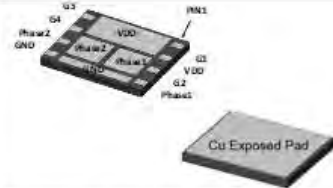
PDDXXX	PDDXXX	PDRXXX	PDCXXXX	PDCXXXT	PDCXXXR	PDCXXXZ
TO252-3L	TO252-4L	TO251	PPAK5X6 (Single)	PPAK5X6 (Dual)	PPAK5X6 (Asym. Dual)	PPAK3X3 (Single)
2500 / Reel	2500 / Reel	4000 / Box	3,000 / Reel	3,000 / Reel	3,000 / Reel	3,000 / Reel

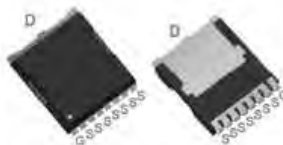
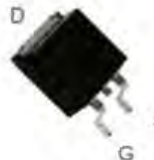
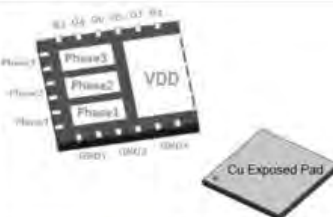
PDCXXXV	PDCXXXK	PDCXXXF	PDBXXX	PDBXXXL	PDBXXXE	PDBXXXS
PPAK3X3 (Dual)	PPAK3X3 (NEP Dual)	PPAK2X5 (Com. Dual)	DFN2x2-6 (Single)	DFN2x2-6 (Single)	DFN2x2-6 (Com. Dual)	DFN2x2-6 (Dual N+P)
3,000 / Reel	3,000 / Reel	3,000 / Reel	3,000 / Reel	3,000 / Reel	3,000 / Reel	3,000 / Reel

PDBXXXQ	PDBXXXM	PDBXXXN	PDBXXXH	PDSXXX	PDSXXX	PDWXXX
DFN2x3-6 (Dual)	DFN2x3-8 (Dual N+P)	DFN3X3 (Com. Dual)	DFN3X3 (Asym. Dual)	SOP8 (Single)	SOP8 (Dual)	TSSOP8 (Dual)
3,000 / Reel	3,000 / Reel	3,000 / Reel	3,000 / Reel	3,000 / Reel	3,000 / Reel	3,000 / Reel

MOSFETパッケージリスト 2

					
PDQXXX	PDQXXX	PDVXXXZ	PDVXXXXY	PDLXXX	PDKXXX
SOT23-6L (Single)	SOT23-6L (Dual)	SOT363 (Dual)	SOT563 (Dual)	SOT223	SOT89
3,000 / Reel	3,000 / Reel	3,000 / Reel	4,000 / Reel	3,000 / Reel	1,000 / Reel

						
PDNXXX	PDNXXXS	PDUXXXZ	PDUXXXXY	PDUXXXXX	PDUXXXXW	PDBXXXXHX4H
SOT23	SOT23-3S	SOT323	SOT523	SOT723	SOT883	DFN5X6 (4 IN 1)
3,000 / Reel	3,000 / Reel	3,000 / Reel	3,000 / Reel	8,000 / Reel	8,000 / Reel	3,000 / Reel

						
PDPXXX	PDFXXX	PDXXXX	PDTXXX	PDHXXX	PDYXXX	PDBXXXXHF6H
TO220	TO220F	TO247	TOLL	TO263	TO-3P	DFN10X10 (6 IN 1)
1000 / Box	1000 / Box	330 / Box	2,000 / Reel	800 / Reel	330 / Box	3,000 / Reel

パッケージ カバー率

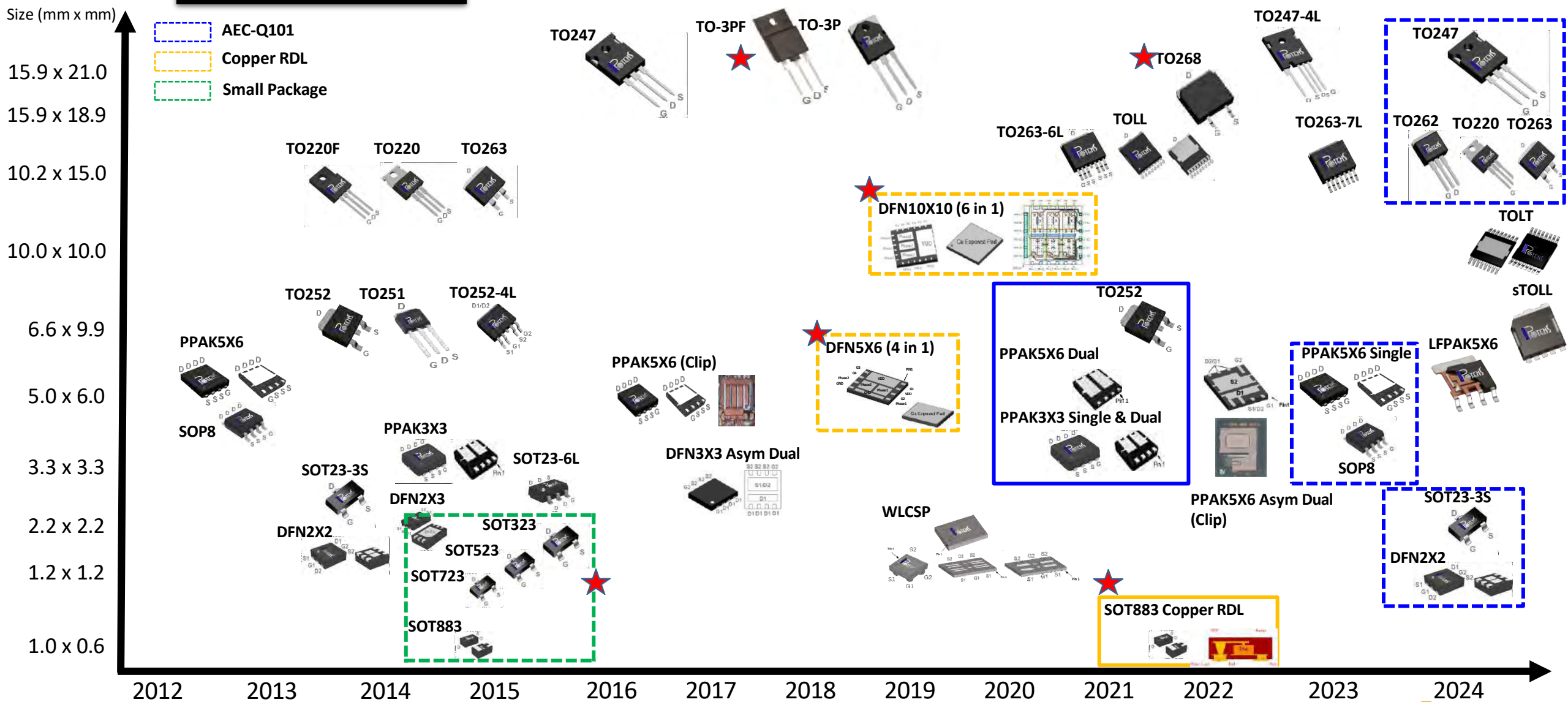


No1	PKG	図	Potens	A	B	C	D	E	F
1	SOT723(1.2×1.2)		○	○	○	×	×	×	○
2	SOT523(1.6×1.6)		○	○	○	×	○	○	○
3	SOT323(2.1×2.0)		○	○	○	○	○	○	○
4	SOT23(2.9×2.4 SOT346含む)		○	○	○	○	○	○	○
5	SOT523-6(1.6×1.6)		○	○	×	×	○	○	○
6	SOT323-6(2.1×2.0)		○	○	○	○	○	○	○
7	SOT23-6(2.8×2.9)		○	○	×	×	○	○	○
8	SOP8(5.0×6.0)		○	○	○	○	○	○	○
9	SOP Advance (HSOP8)		○	○	○	○	○	○	○
10	HSMT8(3.3×3.3)		○	○	○	○	○	○	○
11	TSMT8(3.0×2.8)		○	○	×	×	×	×	○
12	SOT89(4.5×4.0)		○	×	×	○	○	×	○

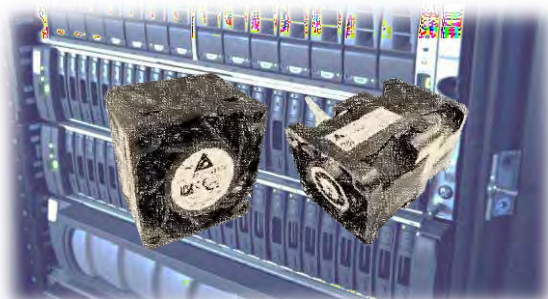
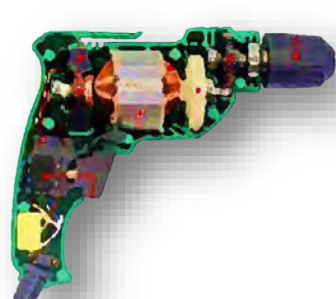
No1	PKG	図	Potens	A	B	C	D	E	F
13	SOT223(6.5×7.0)		○	×	○	○	○	○	×
14	TO262 (DPAK)		○	○	○	○	○	○	○
15	TO263 (D2PAK)		○	○	○	○	○	○	○
16	TO251(TO252ロングリード)		○	○	×	×	○	○	×
17	TO220		○	○	○	○	○	○	○
18	TO92MOD		○	×	○	×	○	×	×
19	TO247		○	○	○	○	○	○	○
20	TO3P		○	○	○	×	×	○	○
21	TSST8(3.0×1.9)		○	×	×	×	×	×	○
22	ATPAK		○	×	○	×	×	×	×

パッケージロードマップ

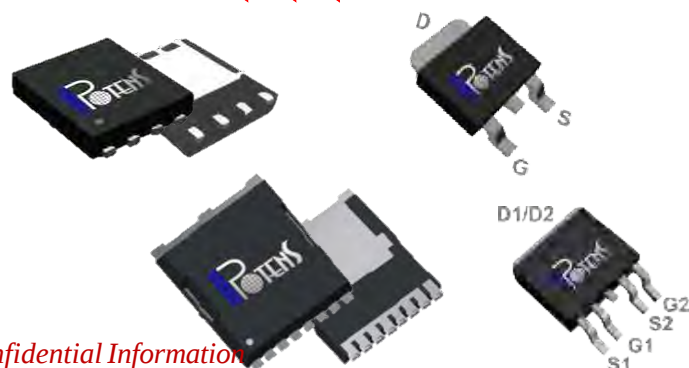
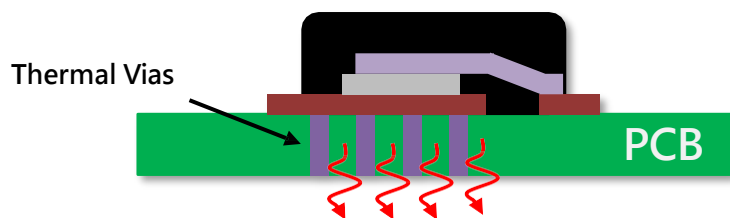
60~パッケージ展開



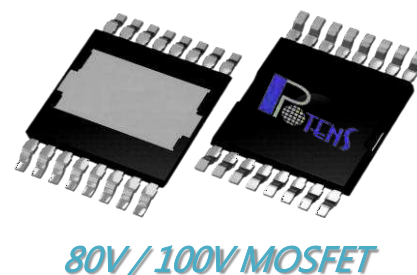
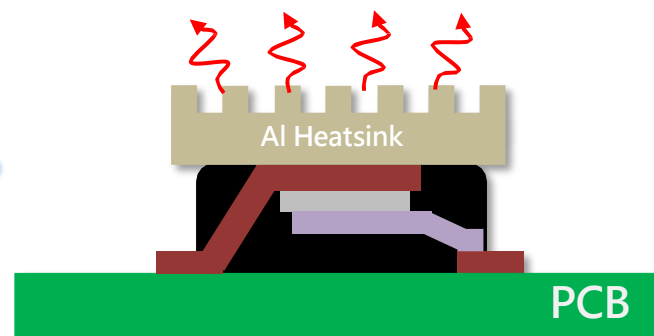
高効率パッケージ モータ用途向け



Traditional Design

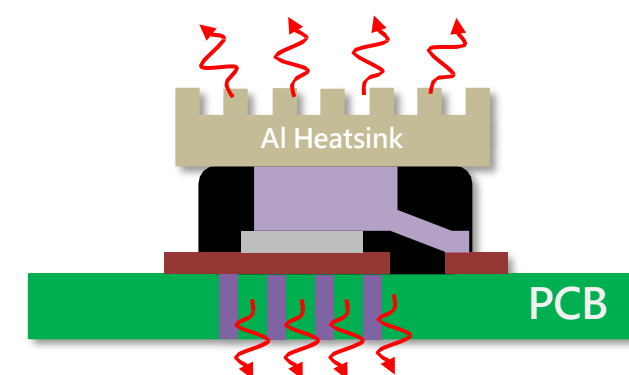


Top Cooling Design

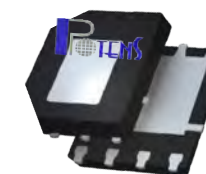


Under development

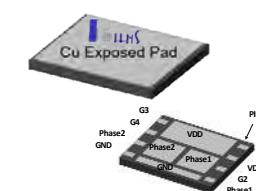
Dual Cooling Design



DFN3X3、DFN5X6



DFN10X10 (multi-chip)



40V / 80V / 100V MOSFET

Under development

Total MOSFET in System Application Provider

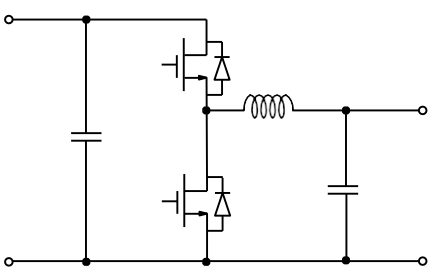


採用実績：液晶TV・PC・NB

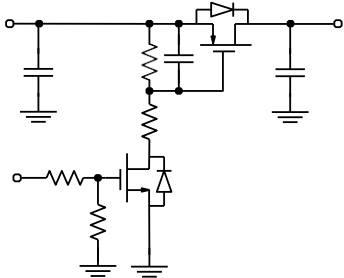


TV/PC

- ❑ Low conduction and switching loss
- ❑ Improved dv/dt capability
- ❑ Enhance BVDSS



Synchronous Buck



Load switch

Part No	PKG Type	VDS[V]	Ron(max) @10V [mΩ]
PDC3904Z	PPAK3X3	30	3.8
PDC3906Z	PPAK3X3	30	6
PDC3908AZ	PPAK3X3	30	7.2
PDC3908Z	PPAK3X3	30	7.8
PDC3964CZ	PPAK3X3	30	3.7
PDC3964Z	PPAK3X3	30	4.5
PDEC3908Z	PPAK3X3	30	8.5
PDC3056CX	PPAK5X6	30	3.5
PDC3094X	PPAK5X6	30	4
PDC3906X	PPAK5X6	30	5.5
PDC3908AX	PPAK5X6	30	7.2
PDC3908X	PPAK5X6	30	7.8
PDC3956CX	PPAK5X6	30	6.2
PDC39F2BX	PPAK5X6	30	2.95
PDEC3906X	PPAK5X6	30	5.5
PDD3906	TO252	30	6
PDD3908	TO252	30	9

Part No	PKG Type	VDS[V]	Ron(max) @10V [mΩ]
PDC4960X	PPAK5X6	40	2.8
PDC6976X-5	PPAK5X6	65	4.2
PDC6982BZ-5	PPAK3X3	65	4.4
PDC6986X-5	PPAK5X6	65	11.5
PDC0982BX	PPAK5X6	100	11.2
PDD0956	TO252	100	115
PDD0982B	TO252	100	10.8
PDC30N15BHX	PPAK5X6	150	51

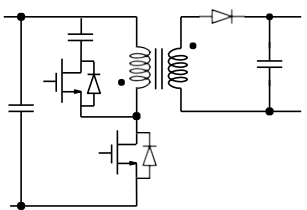
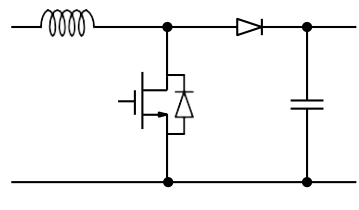
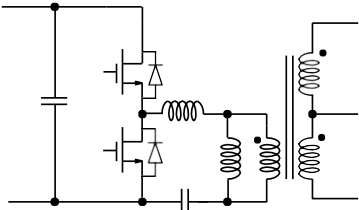
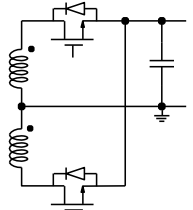
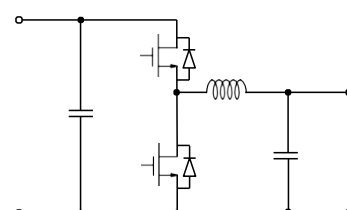
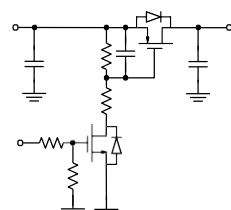
Part No	PKG Type	VDS[V]	Ron(max) @10V [mΩ]
PDC3905Z	PPAK3X3	-30	15
PDC3907Z	PPAK3X3	-30	20
PDEC3907Z	PPAK3X3	-30	20
PDC3901X	PPAK5X6	-30	3.3
PDC3903X	PPAK5X6	-30	8.5
PDD3907	TO252	-30	20
PDC4959X	PPAK5X6	-40	5.8

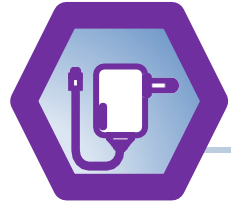
Part No	PKG Type	VDS[V]	Ron(max) @10V [mΩ]
PDC3803R (Asym. Dual N+N)	PPAK5X6	30	9.5
		30	4.2



採用実績：電源・PD電源



Active Clamp / QR Flyback	PFC converter	LLC converter	SR circuit	Synchronous Buck	Load switch
					
PMF08N60M(650V/1.2Ω) PMF09N60M(650V/1Ω) PMF10N60M(650V/0.68Ω) PMF02N65M(650V/5Ω) PMF04N65P(650V/2.4Ω) PMF04N65M(650V/2.6Ω) PMF08N65M(650V/1.2Ω) PMF09N65M(650V/0.75Ω) PMF10N65M(650V/0.7Ω) PMF12N65P(650V/0.78Ω) PMF12N65M(650V/0.75Ω) PJF05N65N(650V/0.9Ω) PJF08N65N(650V/0.58Ω) PJF11N65N(650V/0.36Ω) PJF14N65N(650V/0.32Ω) PJF20N65N(650V/0.19Ω) PJB20N65ND(650V/0.19Ω) PMF04N70P(700V/2.7Ω) PMF08N70M(700V/1.05Ω) PMF11N70P(700V/1.1Ω)	PJP05N65N(650V/0.9Ω) PJP08N65N(650V/0.58Ω) PJP11N65N(650V/0.36Ω) PJP14N65N(650V/0.32Ω) PJP20N65N(650V/0.19Ω) PJF05N65N(650V/0.9Ω) PJF08N65N(650V/0.58Ω) PJF11N65N(650V/0.36Ω) PJF14N65N(650V/0.32Ω) PJF20N65N(650V/0.19Ω) PJB20N65ND(650V/0.19Ω) PJD05N65N(650V/0.9Ω) PJD08N65N(650V/0.58Ω) PJD11N65N(650V/0.36Ω) PJD14N65N(650V/0.32Ω)	PJP05N65N(650V/0.9Ω) PJP08N65N(650V/0.58Ω) PJP11N65N(650V/0.36Ω) PJP14N65N(650V/0.32Ω) PJP20N65N(650V/0.19Ω) PJF05N65N(650V/0.9Ω) PJF08N65N(650V/0.58Ω) PJF11N65N(650V/0.36Ω) PJF14N65N(650V/0.32Ω) PJF20N65N(650V/0.19Ω) PJB20N65ND(650V/0.19Ω) PJD05N65N(650V/0.9Ω) PJD08N65N(650V/0.58Ω) PJD11N65N(650V/0.36Ω) PJD14N65N(650V/0.32Ω)	PDC3964CZ(30V/3.7mΩ) PDC3902X(30V/1.6mΩ) PDC3960X(30V/2mΩ) PDC3984X(30V/2.4mΩ) PDC3990X(30V/1.4mΩ) PDC3056CX(30V/3.5mΩ) PDC40B4Z(40V/2.2mΩ) PDC4906X40V(2.8mΩ) PDC4964X(40V/3.2mΩ) PDC40B4X(40V/2.5mΩ) PDC49B8AX(40V/2.5mΩ) PDC40B8AX(40V/1.6mΩ) PDC49E8BX(40V/2mΩ) PDC6902X(60V/4.6mΩ) PDC6960X(60V/5.6mΩ) PDC6990BX(60V/2mΩ) PDC0978BX(100V/6.2m) PDC09D8BX(100V/3.6m) PDC09D8BHX(100V/4.1m)	PDC3904Z(30V/3.8mΩ) PDC3964Z(30V/4.5mΩ) PDC3964CZ(30V/3.7mΩ) PDC3902X(30V/1.6mΩ) PDC3960X(30V/2mΩ) PDC3964X(30V/4.5mΩ) PDC3984X(30V/2.4mΩ) PDC3990X(30V/1.4mΩ) PDC3094X(30V/4mΩ) PDC3056CX(30V/3.5mΩ) PDC40B4Z(40V/2.2mΩ) PDC4906X40V(2.8mΩ) PDC4964X(40V/3.2mΩ) PDC40B4X(40V/2.5mΩ) PDC49B8AX(40V/2.5mΩ) PDC40B8AX(40V/1.6mΩ) PDC49E8BX(40V/2mΩ) PDC6902X(60V/4.6mΩ) PDC6960X(60V/5.6mΩ) PDC6990BX(60V/2mΩ)	PDB3907Z(-30V/18mΩ) PDC3903Z(-30V/8.5mΩ) PDC3903AZ(-30V/8.2mΩ) PDC3905Z(-30V/15mΩ) PDC3907Z(-30V/20mΩ) PDC3963CZ(-30V/10mΩ) PDC3901X(-30V/3.3mΩ) PDC3903X(-30V/8.5mΩ) PDC3907X(-30V/19mΩ) PDC3907CX(-30V/17.8mΩ) PDC3959X(-30V/4.5mΩ) PDC3963CX(-30V/10mΩ) PDC3983X(-30V/5.9mΩ) PDC4903Z(-40V/14mΩ) PDC4963Z(-40V/15mΩ) PDC4903X(-40V/13mΩ) PDC4959X(-40V/5.8mΩ) PDC4963X(-40V/15mΩ) PDC6901X(-60V/8.6mΩ) PDC6903X(-60V/24mΩ)

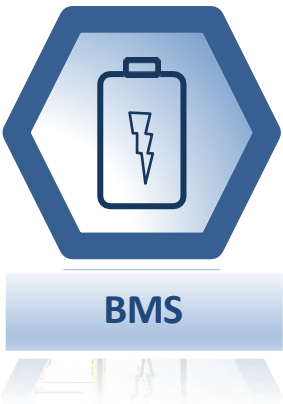


採用実績：AI/Data Server用電源

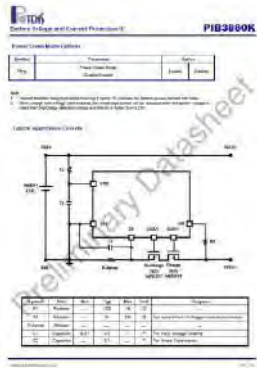
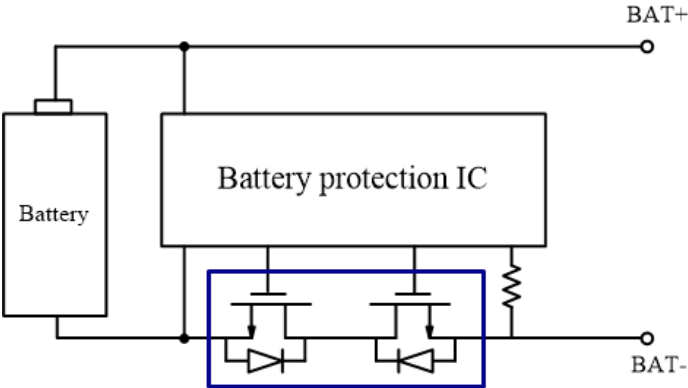


Totem pole bridgeless	PFC converter	PSFB converter	LLC converter
PJX50N60N(600V/0.07Ω) PJX30N60N(600V/0.115Ω) PJP11N65N(650V/0.36Ω) PJP14N65N(650V/0.32Ω) PJP20N65N(650V/0.19Ω) PJF11N65N(650V/0.36Ω) PJF14N65N(650V/0.32Ω) PJF20N65N(650V/0.19Ω) PEB15GC65HDS(650V/0.24Ω)	PJP11N65N(650V/0.36Ω) PJP14N65N(650V/0.32Ω) PJP20N65N(650V/0.19Ω) PJF11N65N(650V/0.36Ω) PJF14N65N(650V/0.32Ω) PJF20N65N(650V/0.19Ω) PJB20N65ND(650V/0.19Ω) PCP06S65Z(650V, 6A) PCP10S65Z(650V, 10A) PCP15S65Z(650V, 15A) PCP05S120Z(1200V, 5A) PCP12S120Z(1200V, 12A) PCX15S65Z(650V, 15A) PCX20S65Z(650V, 20A) PCX20S120Z(1200V, 20A) PCD08S65Z(650V 8A) PCH08S65Z(650V, 8A) PCH10S65Z(650V, 10A)	PJP11N65N(650V/0.36Ω) PJP14N65N(650V/0.32Ω) PJP20N65N(650V/0.19Ω) PJF11N65N(650V/0.36Ω) PJF14N65N(650V/0.32Ω) PJF20N65N(650V/0.19Ω) PJX30N60N(600V, 0.115Ω) PJX50N60N(600V, 0.7Ω)	PJP05N65N(650V/0.9Ω) PJP08N65N(650V/0.58Ω) PJP11N65N(650V/0.36Ω) PJP14N65N(650V/0.32Ω) PJP20N65N(650V/0.19Ω) PJF05N65N(650V/0.9Ω) PJF08N65N(650V/0.58Ω) PJF11N65N(650V/0.36Ω) PJF14N65N(650V/0.32Ω) PJF20N65N(650V/0.19Ω) PJB20N65ND(650V/0.19Ω) PJD05N65N(650V/0.9Ω) PJD08N65N(650V/0.58Ω) PJD11N65N(650V/0.36Ω) PJD14N65N(650V/0.32Ω) PJX30N60N(600V, 0.115Ω) PJX50N60N(600V, 0.7Ω)

採用実績：バッテリーパック



- ❑ High efficiency
- ❑ Low leakage Current



Battery Voltage and Current Protection IC.
Develop by

Part No	PKG Type	VDS[V]	Ron(max) @4.5V [mΩ]
PDC2306AZ	PPAK3X3	20	4.6
PDC2306Z	PPAK3X3	20	4.9
PDC2604Z	PPAK3X3	20	3.5
PDN2314S	SOT23-3S	20	25
PDC3056CX	PPAK5X6	30	4.9
PDC3904Z	PPAK3X3	30	5.5
PDC3906Z	PPAK3X3	30	9
PDC3908Z	PPAK3X3	30	12
PDC3910Z	PPAK3X3	30	18
PDC3960X	PPAK5X6	30	2.7
PDC3964X	PPAK5X6	30	6.4
PDC3964Z	PPAK3X3	30	6.4
PDC3984X	PPAK5X6	30	3.3
PDD3960	TO252	30	3.4
PDN3612S	SOT23-3S	30	36
PDN3914S	SOT23-3S	30	45
PDC4904Z	PPAK3X3	40	7

Part No	PKG Type	VDS[V]	Ron(max) @10V [mΩ]
PDC6990BX	PPAK5X6	60	2
PDD6902	TO252	60	4.5
PDEN2N7002S	SOT23-3S	60	3000
PDS6904	SOP8	60	12
PDC6982BX-5	PPAK5X6	65	4.4
PDD6986B-5	TO252	65	8.8
PDC09D8BHX	PPAK5X6	100	4.1
PDD0960	TO252	100	17
PDEN09A8S	SOT23-3S	100	5500
PDN0910S	SOT23-3S	100	200

Part No	PKG Type	VDS[V]	Ron(max) @10V [mΩ]
PDC3903X	PPAK5X6	-30	8.5
PDC3903AZ	PPAK3X3	-30	8.2
PDN3611S	SOT23-3S	-30	65
PDS3903	SOP8	-30	9.5
PDD6901	TO252	-60	9.2
PDS6903	SOP8	-60	30
PDD0959	TO252	-100	45
PDN0953S	SOT23-3S	-100	650
PDN02P15S	SOT23-3S	-150	750

採用実績：モータ駆動



Motor Driver

- ❑ Combo type
- ❑ High current capability
- ❑ Strong EAS

Part No	PKG Type	VDS[V]	Ron(max) @10V [mΩ]
PDC3908Z	PPAK3X3	30	7.8
PDC3944CZ	PPAK3X3	30	7.9
PDC6990BHX	PPAK5X6	60	2.1
PDD6902	TO252	60	4.5
PDS6904	SOP8	60	12
PDD6986B-5	TO252	65	8.8
PDC0986BX	PPAK5X6	100	22
PDD0956	TO252	100	115
PMD04N65P	TO252	650	2400

Part No	PKG Type	VDS[V]	Ron(max) @10V [mΩ]
PDC3903Z	PPAK3X3	-30	8.5
PDS3903	SOP8	-30	9.5
PDD6901	TO252	-60	9.2
PDS6903	SOP8	-60	30

Part No	PKG Type	VDS[V]	Ron(max) @10V [mΩ]
PDC3812V (Dual N+N)	PPAK3X3	30	20
PDC0810T (Dual N+N)	PPAK5X6	100	185

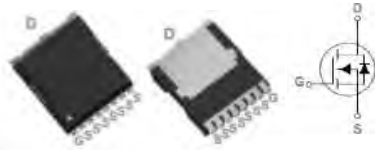
Part No	PKG Type	VDS[V]	Ron(max) @10V [mΩ]
PDC3708T (Dual N+P)	PPAK5X6	30	9
		-30	20
PDC3712T (Dual N+P)	PPAK5X6	30	18
		-30	48
PDC3714T (Dual N+P)	PPAK5X6	30	25
		-30	64
PDS3710 (Dual N+P)	SOP8	30	13
		-30	30
PDS4701 (Dual N+P)	SOP8	40	32
		-40	40
PDS6701 (Dual N+P)	SOP8	60	30
		-60	48

BVDSS	RDSON	ID
200V	2.5mΩ	350A



H-bridge : 35*40*5.3

TOLL : 10*12*2.3



PDT09E6BH

BVDSS	RDSON	ID
100V	1.5mΩ	300A

PDT100N20BH

BVDSS	RDSON	ID
200V	8.4mΩ	100A

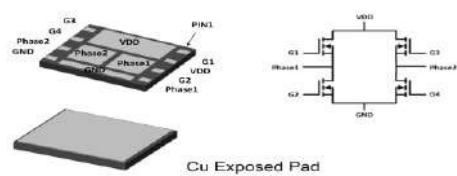
PDT89E6BH

BVDSS	RDSON	ID
80V	1.1mΩ	320A

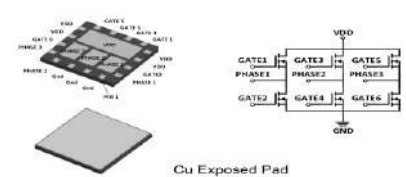
PDT150N15BH

BVDSS	RDSON	ID
150V	5.2mΩ	165A

F-bridge : 5*6*0.6



6 in 1 : 6*6*0.6



Part No.	Package Type
PDB3006HX4H	4 IN 1
PDB3008HX4H	4 IN 1
PDB3010HX4H	4 IN 1
PDB3012HX4H	4 IN 1
PDB3008HF6H	6 IN 1
PDB3012HF6H	6 IN 1
PDB40B8AF6H	6 IN 1

BVDSS	RDSON	ID
30V	18mΩ	23A

採用実績：車載電装品



- ❑ AEC-Q101 qualified and verification
- ❑ Family approval arrangement
- ❑ Wafer resource pre-reservation for automotive application

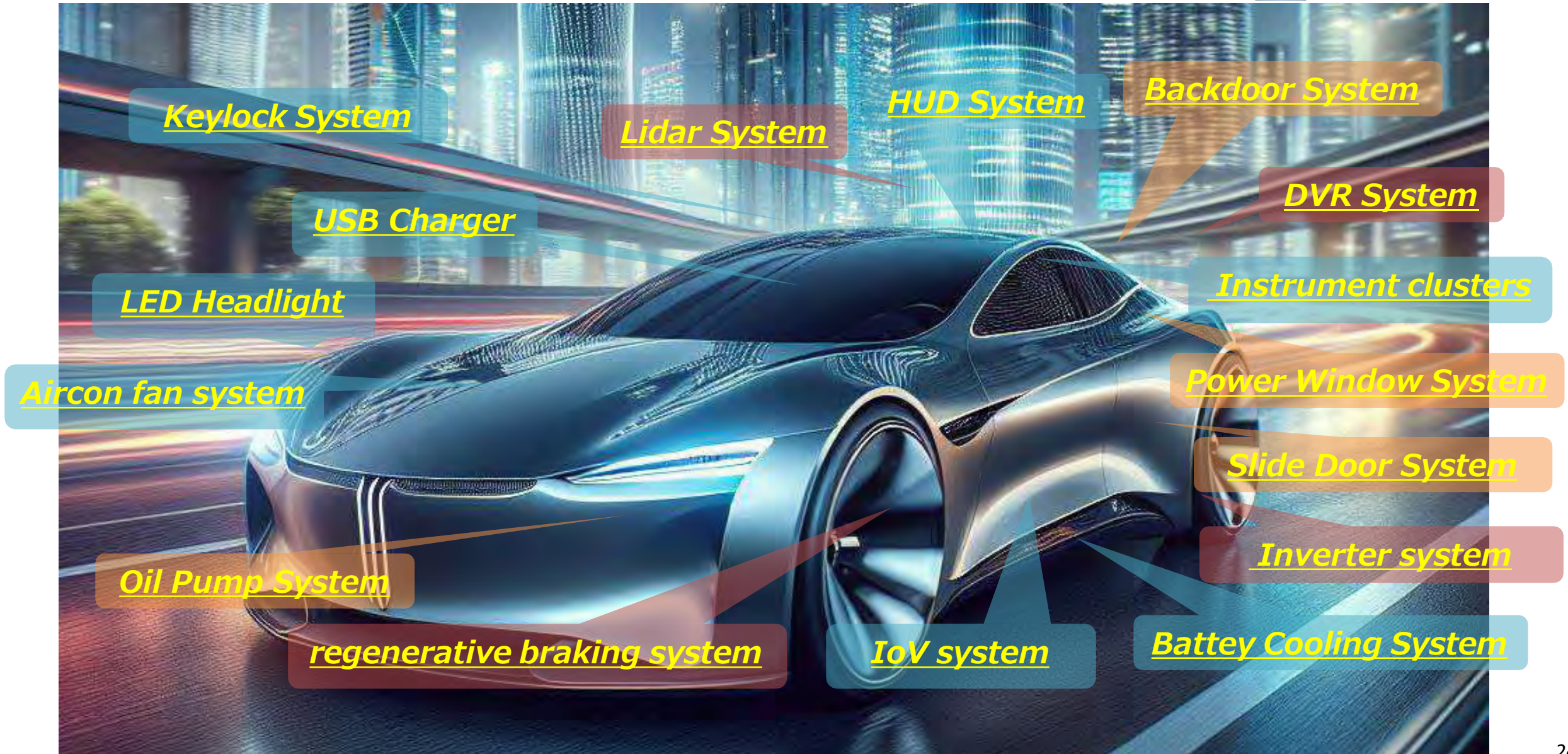
Automotive

UMOS P-ch						
UMOS N-ch						
SGT N-ch						
L Ciss N-ch						
	20V	30V	40V	60V	65V	100V Releasing soon



Package					
	TO263	PPAK3X3	TO252	SOP8	PPAK5X6

Part No	PKG Type	VDS[V]	Ron(max) [mΩ]	Cfg.	Type
PDC6986Z-5M	PPAK3x3	65	8.3	Single	N
PDH6990BH-M	TO263	60	24	Single	N
PDC4903Z-M	PPAK3x3	-40	14	Single	P
PDEC3908Z-M	PPAK3x3	30	8.5	Single	P
PDC4806T-M	PPAK5x6	40	9	Dual	N+N
PDS3808-M	SOP8	30	11	Dual	N+N
PDD4903-M	TO252	-40	15	Single	P



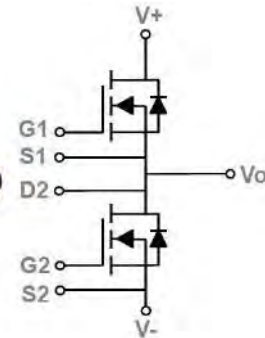
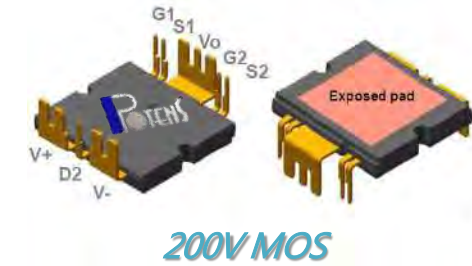
モジュール製品(200V)



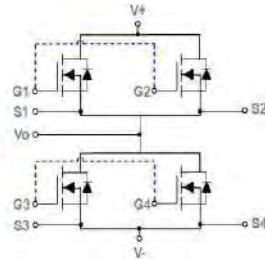
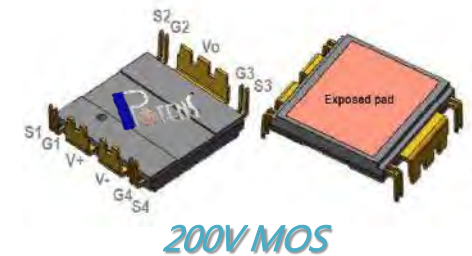
SOT227



T2 Module



N2 Module



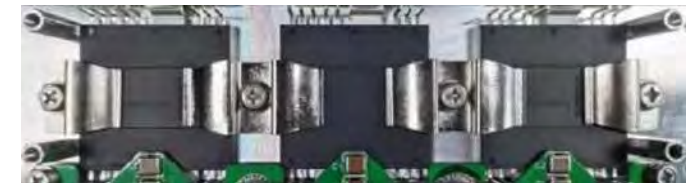
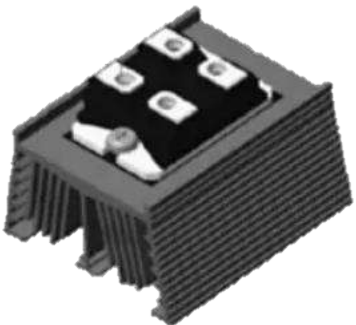
◆ 200V Low RDS(ON) and High Current MOSFET Module

SOT227 – 4.8mΩ / 230A

T2 Module – 4.8mΩ / 250A

N2 Module – 2.5mΩ / 350A

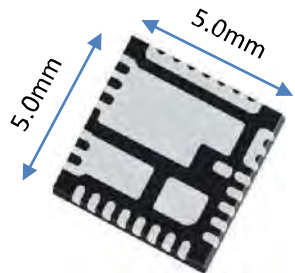
◆ High Thermal Conductivity Assembly Design



Dr.MOS AIサーバ用途向け

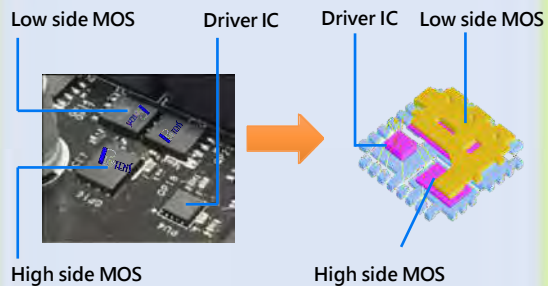


Dr.MOS



Key Feature

Integrated Power Stage Solution



High Power Density

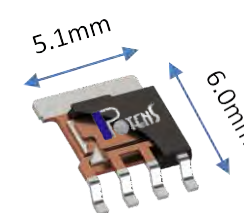
- Include 30V MOSFET and driver IC
- 5 mm x 5 mm package for 60 A applications
- Reduce the PCB size

Under development

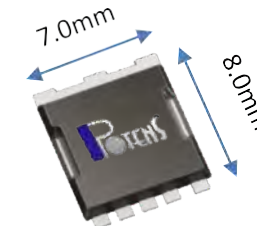
Potens Confidential Information



LFPAK5x6

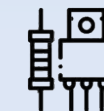


sTOLL



Key Feature

Ultra Low On Resistance



- Under 1mΩ at 40V / 60V
- Low parasitic inductance
- Best in class performance

Thermal Performance



- Copper clip technology
- High power density

High Current Rating

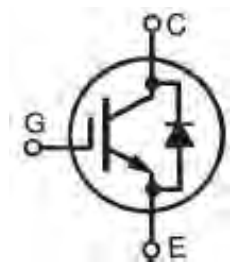
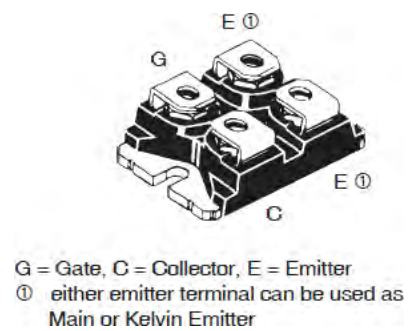


- Up to 300A current rating
- High current and short circuit capability

IGBT製品ラインナップ



- 1. Support for IGBT
- 2. Voltage Range : 600V ~1250V and above
- 3. Application: Industrial application, Automotive



SOT227



IAP Half Bridge



TO244AB

P/N	Package	VCE	IC (100°C)	FRED
PBY100F65Z	SOT227	650V	100A	YES
PBY75F125Z	SOT227	1250V	75A	YES
PBY100F125Z	SOT227	1250V	100A	YES
PBY150F125Z	SOT227	1250V	150A	No
PBY100F65W2	IAP Half Bridge	650V	100A	YES
PBY75F125W2	IAP Half Bridge	1250V	75A	YES
PBY100F125W2	IAP Half Bridge	1250V	100A	YES
PBY150F125W2	IAP Half Bridge	1250V	150A	YES

Products

Features

GaN SBD
SiC SBD

Common/Standard



TO220/D2PAK 5A~12A

SiC MOSFET

Common/Standard



TOLL/QFN 32mΩ ~105mΩ 650V

GaN MOSFET

Small size



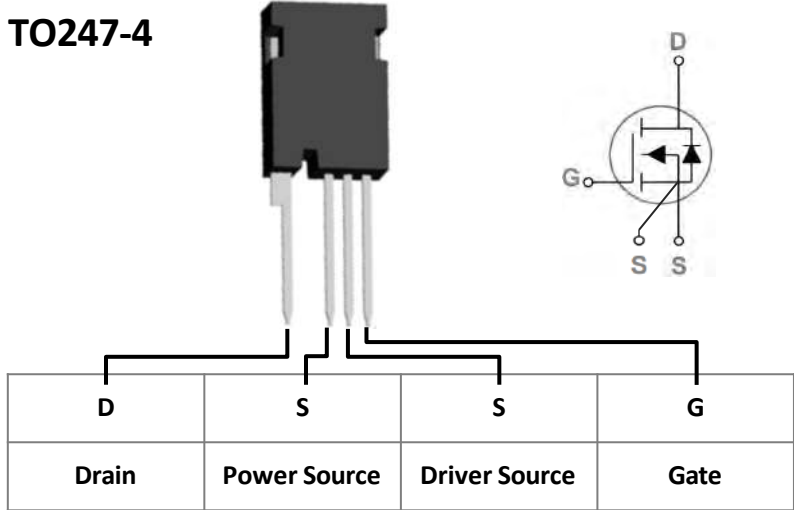
TOLL/QFN 4mΩ ~11mΩ 50V >100V

Sic-MOSFETラインナップ



➤ Silicon Carbide MOSFET

P/N	Package	BVDSS	RDSON
PDX017C065Z	TO247-3	650V	17mΩ
PDX030C065Z	TO247-3	650V	30mΩ
PDX050C065Z	TO247-3	650V	50mΩ
PDX018C120Z	TO247-3	1200V	18.5mΩ
PDX030C120Z	TO247-3	1200V	30mΩ
PDX040C120Z	TO247-3	1200V	40mΩ
PDX080C120Z	TO247-3	1200V	80mΩ
PDX150C120Z	TO247-3	1200V	150mΩ
PDX020C170Z	TO247-3	1700V	20mΩ
PDX040C170Z	TO247-3	1700V	40mΩ
PDT080C120Z	TOLL	1200V	80mΩ
PDX018C120Z-F	TO247-4	1200V	18.5mΩ
PDX030C120Z-F	TO247-4	1200V	30mΩ
PDX040C120Z-F	TO247-4	1200V	40mΩ
PDX080C120Z-F	TO247-4	1200V	80mΩ



Sic-SBDラインナップ



➤ Silicon Carbide Schottky Barrier Diode

● 650V
▲ 1200V

TO247-3L											 PCX20SD065R	 PCX40SD065R	
											 PCX20SD120R	 PCX30SD120R	 PCX40SD120R
TO247-2L										 PCX16S065R-T	 PCX20S065R-T	 PCX40S065R-T	 PCX50S065R-T
										 PCX15S120R-T	 PCX20S120R-T	 PCX40S120R-T	
TO263-2L	 PCH02S065R	 PCH04S065R	 PCH06S065R	 PCH08S065R	 PCH10S065R	 PCH16S065R	 PCH20S065R						
TO220F-2L	 PCF02S065R	 PCF04S065R	 PCF06S065R	 PCF08S065R	 PCF10S065R								
TO220-2L	 PCP02S065R	 PCP04S065R	 PCP06S065R	 PCP08S065R	 PCP10S065R	 PCP16S065R	 PCP20S065R						
	 PCP02S120R	 PCP04S120R	 PCP06S120R	 PCP08S120R	 PCP10S120R	 PCP15S120R	 PCP20S120R						
TO252-2L	 PCD02S065R	 PCD04S065R	 PCD04S065R	 PCD08S065R	 PCD10S065R								
	 PCD02S120R	 PCD04S120R	 PCD06S120R	 PCD08S120R									
PPAK5X6		 PCC04S065XR	 PCC06S065XR	 PCC08S065XR	 PCC10S065XR								

2A

4A

6A

8A

10A

15A

16A

20A

30A

40A

50A

Sic製品ロードマップ



Year		2023	2024		2025		2026	
Product Type	Voltage	2H	1H	2H	1H	2H	1H	2H
SiC SBD	650V	2A/4A/6A 8A/10A/16A 20A/30A/40A	50A					
	1200V	2A/4A/6A 8A/10A/15A 20A/30A/40A	100A	2A/4A/6A 8A/10A/15A 20A/30A/40A	Vf<1.3V	2A/4A/6A 8A/10A/15A 20A/30A/40A	Vf<1.2V	
	1700V				10A/20A/50A	Vf<1.3V	10A/20A/50A	Vf<1.2V
	2000V	10A/20A						
	3300V		1A/7A					
SiC MOSFET	650V	17mΩ 30mΩ 50mΩ						
	750V	18mΩ	30mΩ/40mΩ/60mΩ 80mΩ/150mΩ/220mΩ		14mΩ/20mΩ			
	1200V	18.5mΩ/30mΩ 40mΩ/80mΩ 150mΩ						
	1700V		20mΩ/40mΩ/80mΩ					
	2000V			100mΩ/200mΩ				

GaN製品ロードマップ

No.	Implementation	2022	2023				2024		
		Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
1	650V/15A/240mΩ Case code D-mode GaN TO220 		WS			ES			CS
2	650V/15A/240mΩ Case code D-mode GaN DFN8X8 		WS			ES			
3	650V/6A GaN Diode TO220 		WS			ES			
4	D-mode GaN HEMT+Gate Driver		WS			ES			



WS: Working Sample



ES: Engineering Sample



CS: Commercial Sample

DC to DC Converter IC Selection Guide

2023/7/23

Part No.	Topology	Vin Range (V)	Vout Range (V)	Duty (Max) (%)	V _{FB} (Typ) (V)	I _Q (Typ) (mA)	Frequency (kHz)	Feature
PIS3478	Boost DC/DC Controller	2.97~40	---	85	1.26	0.005	100~1000	Internal Soft-Start Current Limit Protection /OTP
PIS3481	Boost/SEPIC DC/DC Controller	2.97~40	---	85	1.275	0.005	100~1000	Internal Soft-Start Current Limit Protection / OTP Adjustable Input UVLO Threshold Voltage
PIS3675	Full Bridge Buck-Boost DC/DC Controller	3.5~60	0.8~55	---	0.8	1.65	100~600	Programmable Soft Start Current Limit Protection / OTP Programmable Input UVLO

LDO Selection Guide

2023/7/23

Series Part No.	Spec.				Package Type
	Vin	Iout	IQ	Vout	
PIR2530	1V~6V	3000mA	900uA	0.8V~4.0V (Adjustable)	DFN 3*3 10L SOP8EP
PIR2504	2.5V~6V	500mA	1.5uA	0.8V~4.0V (Adjustable)	SOT235 DFN1*1
PIR2105	7V~100V	50mA	20uA	1.2V~90V (Adjustable)	ESOP8 SOT235 SOP8
PIR2202	2.7V~24V	150mA	2uA	Vout can trim from 1.5V to 5.5V (0.1V/step)	SOT893 SOT233
PIR2205	2.7V~24V	500mA	2uA	Vout can trim from 1.5V to 5.5V	SOT235 SOT233 SOT893
PIR78L33	7V~30V	100mA	300uA	3.3V	SOT893 SOT233
PIR78L05	7V~30V	100mA	300uA	5V	SOT893 SOT233
PIR2402	2.7V~40V	250mA	1.5uA	Vout can trim from 1.5V to 5.5V (0.1V/step)	SOT893 SOT233 SOT235
PIR2601	2.7V~60V	150mA	2.2uA	Vout can trim from 1.2V to 4.0V (0.1V/step)	SOT233 SOP8EP DFN1*1
PIR2502	2.5V~6V	300mA	100nA	Vout can trim from 1.2V to 4.0V (0.1V/step)	SOT893 SOT233 SOT235
PIR2503L	2.5V~6V	300mA	300nA	Vout can trim from 1.2V to 4.0V (0.1V/step)	DFN1*1 SOT893 SOT233 SOT235
PIR2503	2.5V~6V	300mA	500nA	Vout can trim from 1.2V to 4.0V (0.1V/step)	DFN1*1 SOT893 SOT233 SOT235 DFN1*1

Battery Protection IC Selection Guide

PIB3860 Series

Part No.			PIB3600D-00Z00	PIB3600D-01Z00
Package Type			DFN1.6X1.6	DFN1.6X1.6
Detection/Release Voltage				
Overcharge Detection Voltage	V _{det1}	V	4.475	4.475
Overcharge Release Voltage	V _{det1Rel}	V	4.275	4.275
Overdischarge Detection Voltage	V _{det2}	V	2.5	2.5
Overdischarge Release Voltage	V _{det2Rel}	V	2.9	2.9
Discharge Overcurrent Detection Voltage	V _{det3}	mV	15	15
Charge Overcurrent Detection Voltage	V _{det4}	mV	-15	-15
Load Short Circuit Detection Voltage	V _{short}	mV	33	33
0V Battery Charge Inhibition Battery Voltage	V _{0INH}	V	0.9	0.9
0V Battery Charge Permission Battery Voltage	V _{0CHG}	V	---	---
Protection Mode				
0V Battery Charge Inhibition Battery Voltage	V _{0INH}	Enable/Disable	Enable	Enable
0V Battery Charge Permission Battery Voltage	V _{0CHG}	Enable/Disable	Disable	Disable
Overcharge Release Voltage Latch	V _{det1RelEn}	Enable/Disable	Disable	Disable
Overcharge Release Voltage Hysteresis	V _{det1RelHEn}	Enable/Disable	Enable	Enable
Power Down Mode	M _{PD}	Enable/Disable	Disable	Enable
Delay Time				
Overcharge Detection Delay Time	t _{Vdet1}	s	1.00	1.00
Overcharge Release Delay Time	t _{Vdet1Rel}	ms	16.0	16.0
Overdischarge Detection Delay Time	t _{Vdet2}	ms	19.0	19.0
Overdischarge Release Delay Time	t _{Vdet2Rel}	ms	1.50	1.50
Discharge Overcurrent Detection Delay Time	t _{Vdet3}	ms	68.0	68.0
Discharge Overcurrent Release Delay Time	t _{Vdet3Rel}	ms	6.00	6.00
Charge Overcurrent Detection Delay Time	t _{Vdet4}	ms	16.0	16.0
Charge Overcurrent Release Delay Time	t _{Vdet4Rel}	ms	4.50	4.50
Load Short Circuit Detection Delay Time	t _{Vshort}	us	250	250

応用技術サポート



開発技術 AAEチーム



Chief Strategy Officer (Quality Proj. Leader)



Alan Huang
Ph. D.

Joined invent events with >100 patents among engineering fields

1996~2006: ITRI Advanced Project Member
2006~2011: Flextronics (Power Systems) R&D Director
2011~2013: Chicony (Group) Advanced Tech. Center G.M.
2013~2020: Chicony (CPT) R&D Head A.V.P.
2020~Now: POTENS Chief Strategy Officer

Application & Advanced Eng. Director



Tim Chen
Ph. D.

Joined invent events with >30 patents

1999~2002: Taipei Rapid Transit Corporation Engineer
2002~2003: Procomp Informatics EV Department Senior Engineer
2004~2012: Tunghnan University EE Department Assistant Professor
2012~2020: Chicony (CPT) Japan Power Business Senior Manager
2020~Now: POTENS Application & Advanced Eng. Director

Application & Advanced Sr. Manager



Phoenix Lee
Ph. D. candidate

Joined invent events with >30 patents

2001~2007: COTEK Electronic R&D Engineer
2007~2011: Flextronics(Power Systems) Advanced R&D Engineer
2011~2020: Chicony (CPT) Engineering Project Manager (E.P.M.)
2020~Now: POTENS Application & Advanced Eng. Sr. Manager

*PMP certification 2019

Application & Advanced Sr. Manager



Dave Tsai
Eng. Bachelor

Joined invent events with >10 patents

1998~2006: Phihong Electronic R&D Engineer
2007~2011: Flextronics(Power Systems) Electronic R&D Engineer
2012~2020: Chicony (CPT) Power Business Project Manager
2023~Now: POTENS Application & Advanced Eng. Sr. Manager

Application & Advanced Deputy Manager



Ted Yu
Eng. Master

Joined invent events with >4 patents & 5 published papers

2004~2005: National Skill Contest 1st Place(Recommended to NTNU)
2006~2011: Flextronics(Power Systems) Assistant Engineer
2014~2019: Chicony (CPT) Advanced Verification Design Engineer
2019~Now: POTENS Application & Advanced Eng. Deputy Manager

お客様ニーズに応じた技術サポート

各設計段階のニーズに応じた技術を提供

電源回路等のノウハウ提供

応用回路別に最適なデバイスを推奨

応用回路での解析サポート

EMCのデバッグサポート

他社品とのベンチマーク解析等
レポート各種提供



電源回路等のノウハウ提供

AAEチームが保有する回路設計等のノウハウを提供する事でデバイスをお使い頂くお客様の新規設計のスピードアップをサポートします。既存のトレンチ、プランナーMosFet、アナログICを使った回路はもとより次世代半導体製品に向けたサポートも実施します。



応用回路別に最適なデバイスを推奨

各種電源回路に最適な部品をAAEチームが選定し、選定理由を含めてお客様回路に最適なデバイスを推奨します。既存部品からの置き換え時は、回路構成、乗数含めて情報を頂ける場合は、当社でシミュレーションした結果を共有いたします。



応用回路の動作解析・EMCデバッグサポート

部品単体だけではなく、お客様の応用回路の動作解析、各パラメータ解析のサポートをします。解析結果をお客様と共有した上で要望に応じて目指すスペックレベルへ改定するサポートをいたします。

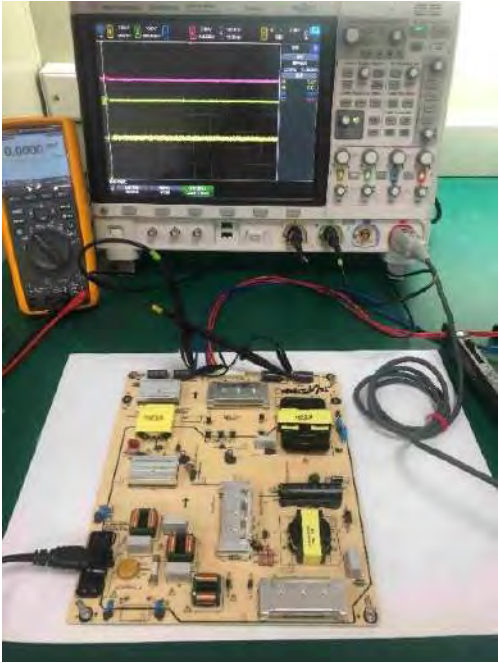
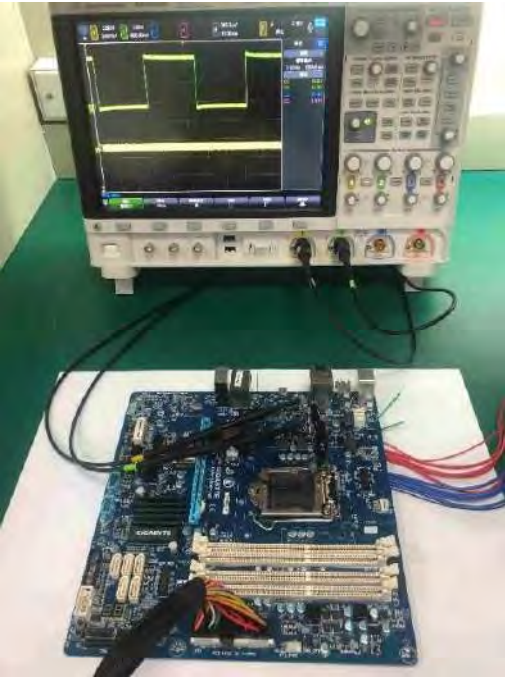
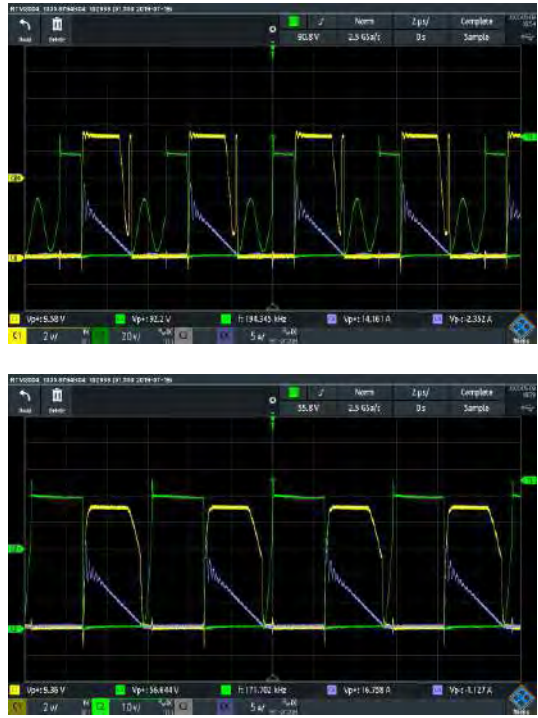
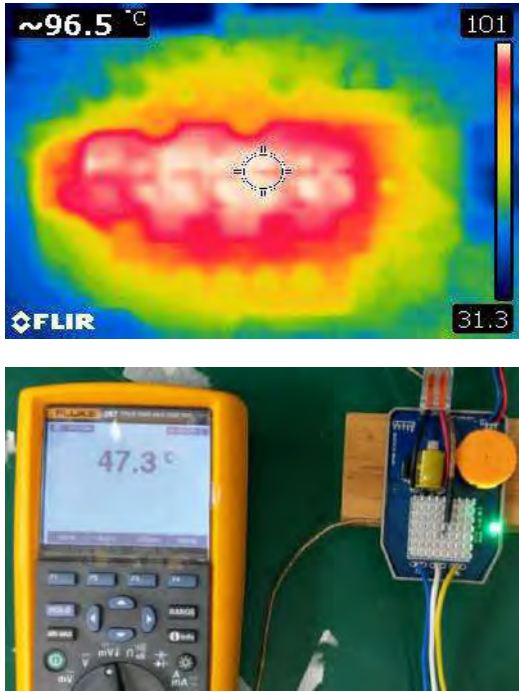


解析レポート各種提供

上記の各種解析レポート、他社とのベンチマークレポートを提供します。必要に応じて当社で事前に各スペックをシミュレーションする事で検討結果をお客様が事前に予測でき、お客様の切替検討の時間を可能な限り短縮する事をめざします。

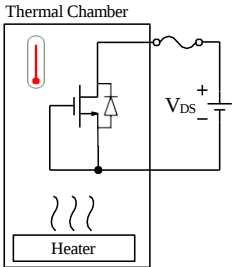
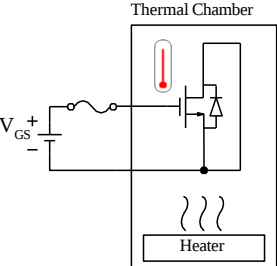
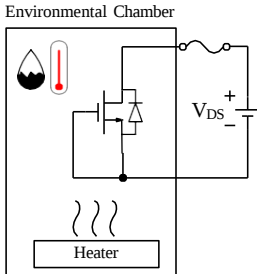
アプリケーションの解析サポート



SR application (映像製品向け)	Vcore application (マザーボード向け)	部品ストレステスト	サーマルテスト
			
電源効率改善	電力損失改善	安全動作領域 (SOA) 確認	発熱低減確認

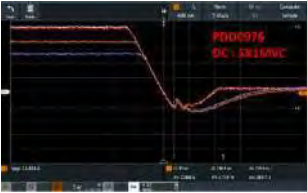
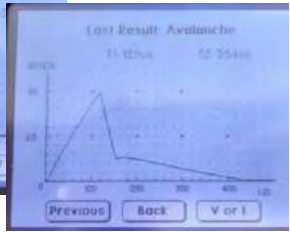
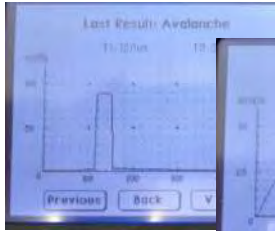
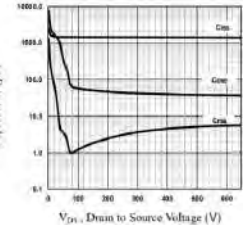
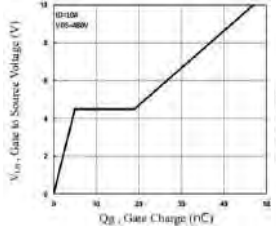
信頼性試験設備 HTRB/HTGB/H3TRB/HAST

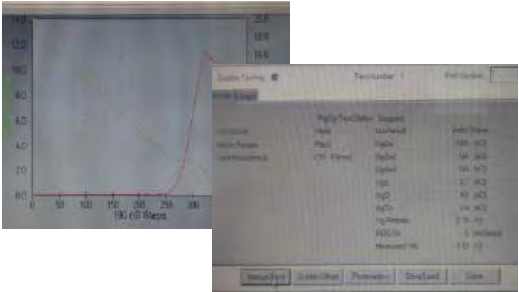
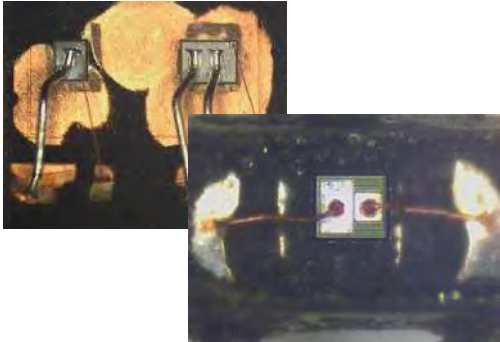
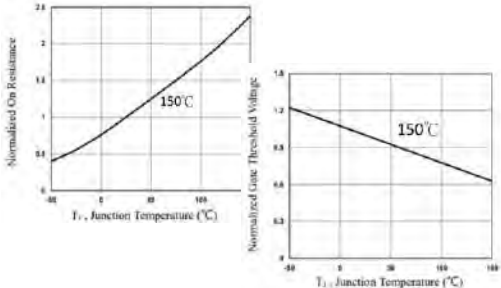


Item	Tests for the Product Qualification		
HTRB	Thermal Chamber 	Test condition: VDS = 80% Max rating VGS = 0 V 150°C/175°C, 1000 hours	
HTGB	Thermal Chamber 	Test condition: VGS = 80% Max rating VDS = 0 V 150°C/175°C, 1000 hours	
H3TRB	Environmental Chamber 	Test condition: VDS = 80% Max rating VGS = 0 V 85°C, 85%rH, 1000 hours	

HAST chamber



Reverse Recovery Tester	DC Parameter Tester	Inductive Parametric Tester	Power Device Analyzer
			
• T_{rr} • Q_{rr} 	• ID_{SS} • IG_{SS} • Breakdown Voltage • $V_{gs(th)}$ • $R_{ds(on)}$ • VSD • G_{fs} 	• Single-Pulse Avalanche Stress (EAS) • Repetitive Avalanche Energy (EAR) 	• Breakdown Voltage Curve • $R_{ds(on)} - V_{gs}$ Curve • $IG_{SS} - V_{gs}$ Curve • $ID_{SS} - V_{ds}$ Curve • VSD Curve • $C_{iss} / C_{oss} / C_{rss}$ Curve • $Q_g / Q_{gs} / Q_{gd}$ Curve 

Parametric Curve Tracer	Gate Charge Tester	Electrical Microscope	Chamber
			
- Breakdown Voltage Curve - Rdson Curve - IGSS Curve - IDSS Curve - VSD Curve 	- Qg - Qgs - Qgd - Rg - Vgs(th) 	- Wafer pattern observation - Epi fluorescence observation 	- Curve of electrical characteristics with 150°C & 175°C. - Customer request condition checking 

動作不良品解析

Co-work with



MA-tek



Electrical Characteristics Measurement

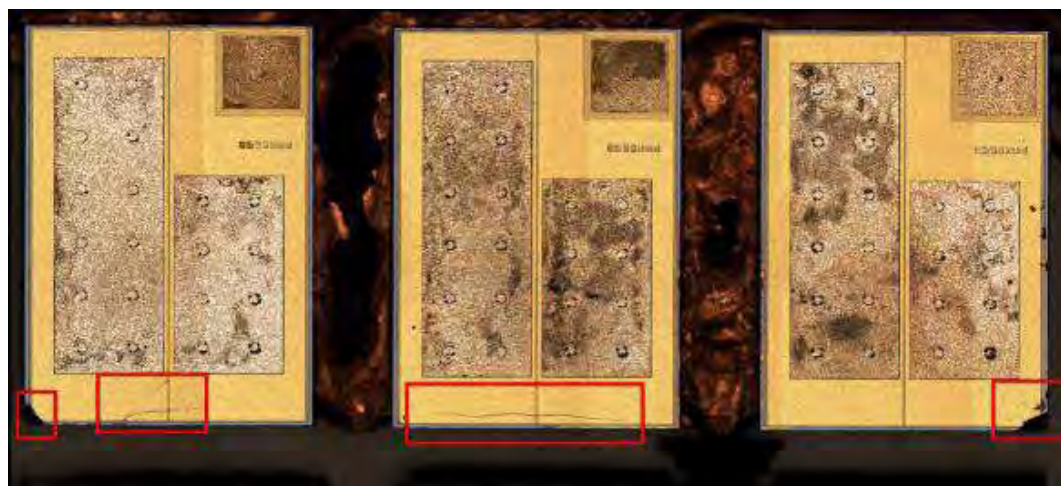
- I-V Curve Measurement
- Auto Curve Tracer (ACT)
- Probe Measurement
- TLP Measurement of ESD Protection Devices
- ...

Non-Destructive Analysis

- Non-Destructive Analysis
- 3D OM
- Scanning Acoustic Tomography (SAT)
- X-ray Inspection (2D X-ray)
- High Resolution 3D X-Ray Microscope
- ...

Sample Preparation

- IC / MOSFET De-capsulation
- IC/ MOSFET Delayer
- Cross-Section & Backside Polish
- Ion Beam Cross-Section Polisher (CP)
- ...



技術のオープンイノベーション(BCPM)



② 技術堅持/跨國界跨領域的Patents Filing

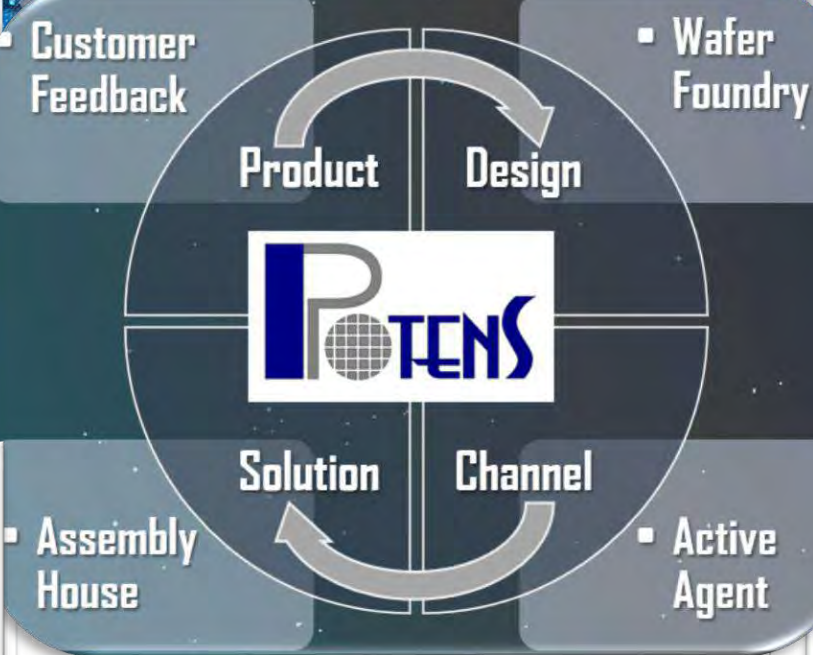
New filing patents, since 2021 →
Taiwan, USA, JP, Korea and others >25 patents
for AI, IoT, 5G, Cloud Computing, EV and Satellite fields utilization...



② 技術堅持/跨國界跨領域的Paper Published



① 品質堅持/AI 人工智慧導入生產系統管理



② 技術堅持/跨國界跨領域的Paper Published



産官学連携の強化

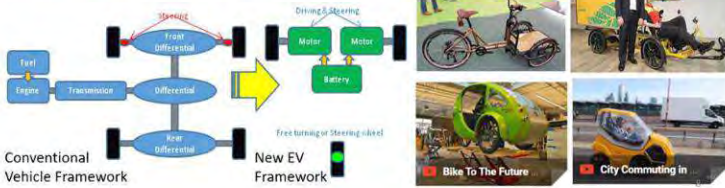
研 産 学 官

Work out 3rd gen-based solutions
Get all Needs
Seize It Counts

Production dedication
Industrial cross partnership
Development resource cooperation
Advanced concept implementation

Innovative Applications :

- ### “Electrified Automotive?” → Real EV
- Motor==Gen. Set to form a “Pure Electrical CVT”
 - Motor==Motor Set to form a “Conjugated Dual Motor Drive” → “Pure Electrical Active Differential Drive”
 - Lighter Weight, Energy Saving, New Flexible Driving Mode
 - Greener EV Integrated with Hybrid (Human) Power



Potens previous research results and being published in one book's chapter (Sensors & Transducers, vol. 259, no. 5, pp. 75-81, 2022)



Potens Semiconductor uses ESD to develop power devices and services

Power components play an important role in a variety of electronic devices, well-designed power supply components can not only ensure stable operation of the equipment, but also provide environment optimized functionality.

Quality: 1st important

Japan market product releasing by internet (Linkers 株式会社)



EMC 電波暗室及環測設備

- 1 測試頻段 20kHz 到 3GHz
- 2 7米x5米x5米 EMI 電波室二座
(調教成相當於標準10米電波室)
- 3 100A LISN傳導干擾測試
- 4 ESD模擬測試場地及測試場地EIS1000-4-2)
- 5 高低溫環測設備



Reliability Testing: BCI +EFT +ESD+PFMF



BCI test environment
(ISO 11452-4: 2011)



EFT test environment
(IEC 61000-4-4: 2012)



ESD test environment
(ISO 10605: 2008)



PFMF test environment
(IEC 61000-4-8)

カスタム電源設計事業



For Example:

Phase Shift Full bridge converter (800W~4kW)	Bridgeless PFC converter (300W~2kW)	Flyback converter (1W~200W)	Synchronous buck converter (10W~150W)
Motor drive/Inverter (500W~10kW)	LLC converter (150W~800W)	BMS (500W~10kW)	Buck boost converter (10W~150W)

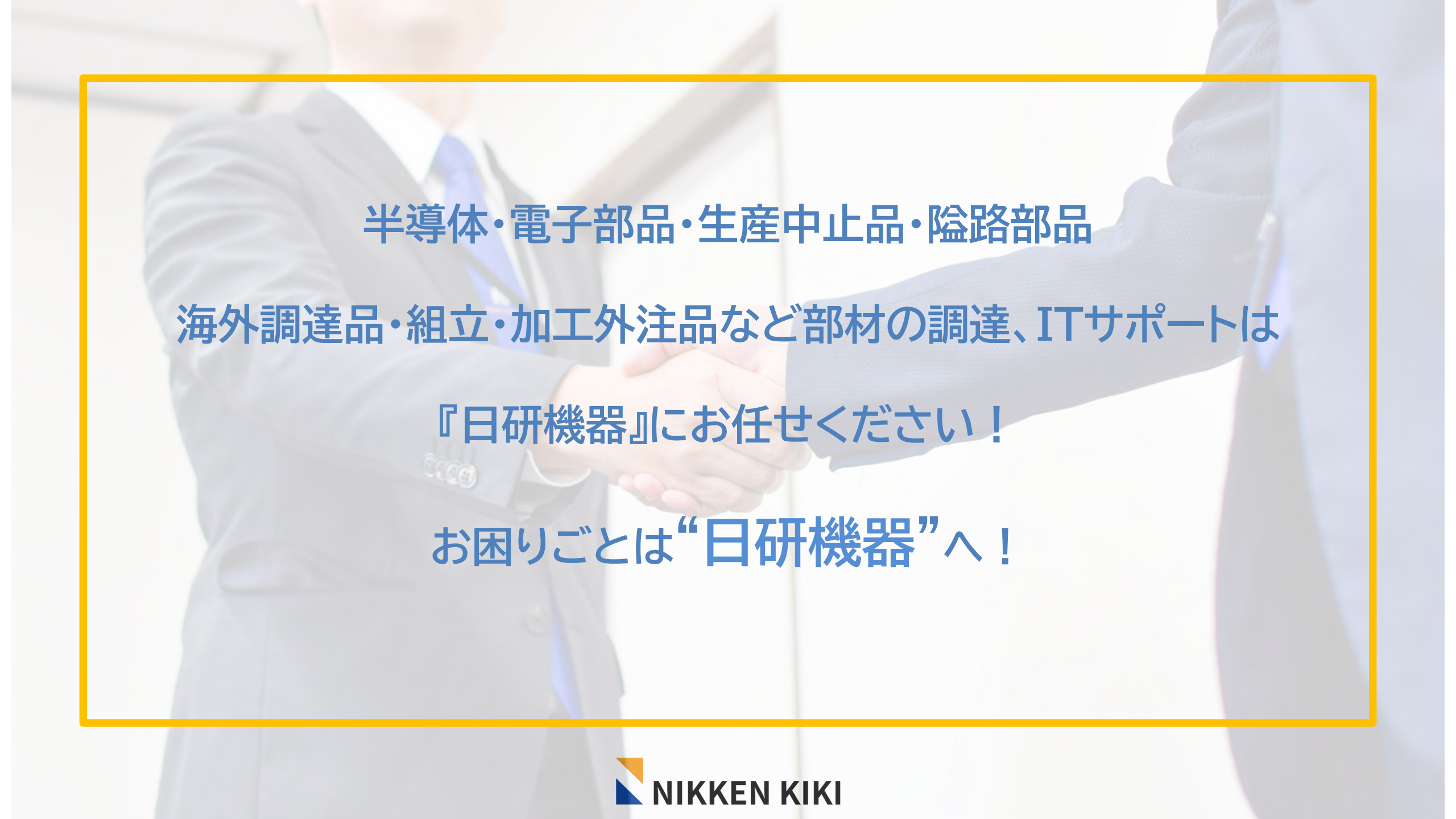




Enhancing everyday life

Potens' MOSFETs

LOGIC MOSFETs

A background image showing two men in business suits shaking hands, symbolizing a partnership or agreement. The image is faded and serves as a backdrop for the text.

半導体・電子部品・生産中止品・隘路部品

海外調達品・組立・加工外注品など部材の調達、ITサポートは

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日研機器株式会社

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FAX 029-272-7005

公式ウェブサイト

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