

Photo Coupler Product Introduction

- About Stack Die Package (SDP) Technology

Package Type

Face-to-face Construction		Dual in-line Construction		Stack Die	
Item	DIP Type	M Type	SML-S Type	SML-SL Type	
DIP4/6/8 (Dual In-line Package)					
Item	SOP Type	Item		P Type	W Type
SOP4/5 (Small Out-Line Package)		LSOP4/6 (Small Out-Line Package)			

Weakness of Conventional Photo Coupler Package

Transmitter & Receiver's	Face-to-face	Dual in-line	Remarks
Insulator Thickness	Difficult to control the insulator distance in the air. Require long distance.	Distance of lead frames determine the level of insulation and withstand voltage. The longest distance.	Because of distance restriction, package size can not be small.
Alignment Accurate	Difficult to align the transmitter and receiver in the air.	Although align the transmitter and receiver in line, deviations accumulate. Need high alignment accurate.	Impact manufacture yield
Light Receiving Method	Directly emitting and receiving light, but the distance is long.	Geometric constraints: All light receiving routes are refraction, reflection or scatter.	Impact light receiving efficiency and features

Performance Advantages of SDP Technology

Benchmark	SDP	Face-to-face	Dual in-line	Remarks
Speed	Fast	Standard	Lower to standard	Cheaper than high speed photocoupler
Energy Consumption	Low	5 ~ 10 mA	5 ~ 10 mA	Energy saving and environment friendly
Thickness	Thin (< 1.8 mm)	Can not be thinner	Difficult to be thinner	Simple structure
Width	Miniaturization (~ 1 mm)	Can not be miniaturized	Can not be miniaturized	If don't need safety regulation, it can be miniaturized.
Wafer level test	Test on wafer	Cannot be test before packaged	Cannot be test before packaged	
Used LED	Red Light LED	IR LED	IR LED	
Lead frame	1	2	2	
Yield	High	Medium to low	Medium	

- Product Line & Selection Guide

Product Portfolio

Product Line	MP		New	
Gate Driver	FSL-155E (0.8A), DIP4		FS-3150 (1.0A), DIP8	(APR)
	FSS-314 (0.8A), LSOP6		FS-3120 (2.5A), DIP8	(APR)
	FSS-341 (3.0A), LSOP6			
	FSS-343 (4.0A), LSOP6			
IPM Driver			FSS-480, LSOP6	(FEB)
High Speed	FSS-50L (1M), LSOP6		FS-6N136 (1M), DIP8	(APR)
			FS-6N137 (10M), DIP8	(APR)
			FSS-611 (10M), LSOP6	(FEB)
			FSS-M501 (1M), SOP5	(JUN)
			FSS-M601 (10M), SOP5	(JUN)
Trigger			FS-H11Lx , DIP6	(FEB)
			FSS-456, LSOP6	(FEB)
Photo TRIAC	FS-M3053 (RP), SOP4		FSS-305x (RP), DIP6	(APR)
	FS-M3063 (ZC), SOP4		FSS-306x (ZC), DIP6*	(APR)*
			FSS-M305x (RP), SOP4	(JUL)
			FSS-M306x (ZC), SOP4	(JUL)
Photo Transistor	FS-814, DIP4	FS-352, SOP4		
	FS-816, DIP4	FS-354, SOP4		
	FS-817, DIP4	FS-356, SOP4		
	FS-851, DIP4	FS-357, SOP4		
	FS-852, DIP4	FS-101, SOP4	FSS-101, LSOP4	(APR)

FSS = Stack Die / PhotoTriac ZC: ZERO CROSSING / PhotoTriac RP: RANDOM PHASE / PN in BLUE support SDP Technology/ (Sample Schedule)

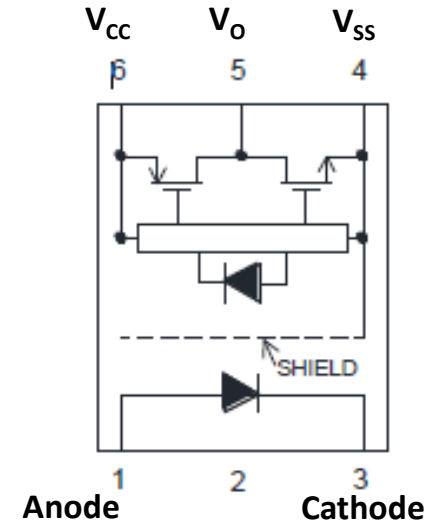
Gate Driver Product Line

- Description

- The FSS-314 series Photocoupler is ideally suited for driving power IGBTs and MOSFETs used in motor control inverter applications and inverters in power supply system. It contains an LED optically coupled to an integrated circuit with a power output stage.
- The Photocoupler operational parameters are guaranteed over the temperature range from $-40^{\circ}\text{C} \sim +110^{\circ}\text{C}$.

- Features

- 0.8A, 1A, 2.5A, 3A, 4A, maximum peak output current
- Rail-to-rail output voltage
- 110 ns maximum propagation delay
- Under Voltage Lock-Out protection (UVLO) with hysteresis
- Wide operating range: 10 to 30 Volts (VCC)
- Guaranteed performance over temperature $-40^{\circ}\text{C} \sim +110^{\circ}\text{C}$.
- Regulatory Approvals
 - UL - UL1577
 - VDE - EN60747-5-5(VDE0884-5)
 - CQC – GB4943.1, GB8898



- Applications

- Isolated IGBT/Power MOSFET gate drive
- Industrial Inverter
- AC brushless and DC motor drives
- Induction Heating

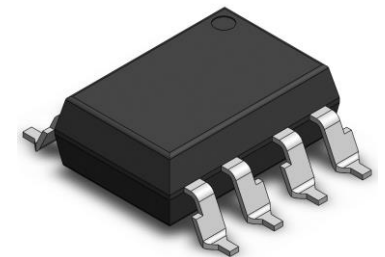
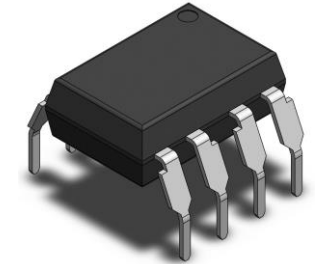
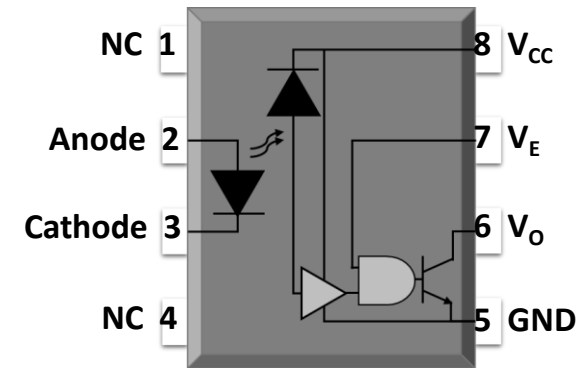
High Speed Product Line

- Description

- The 6N137, FS2601, FS2611 series combine an AlGaAs infrared emitting diode as the emitter which is optically coupled to a silicon high speed integrated photo-detector logic gate with a strobable output in a plastic DIP8 package with different lead forming options.

- Features

- 1M & 10M bit/s Max. Switching Speed
- High isolation 5000 VRMS
- DC input with logic gate output
- Operating temperature range - 55 °C to 100 °C
- REACH compliance
- Halogen free (Optional)
- MSL class 1
- Regulatory Approvals (Pending Approved)
 - UL - UL1577
 - VDE - EN60747-5-5(VDE0884-5)
 - CQC – GB4943.1, GB8898



- Applications

- Ground loop elimination
- LSTTL to TTL, LSTTL or CMOS
- Line receiver, data transmission
- Data multiplexing
- Switching power supply
- Pulse transformer replacement
- Computer-peripheral interface

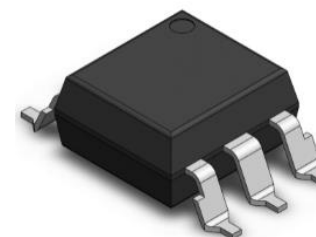
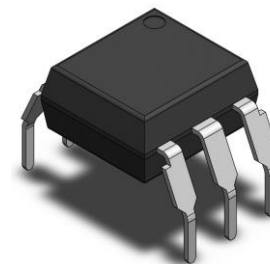
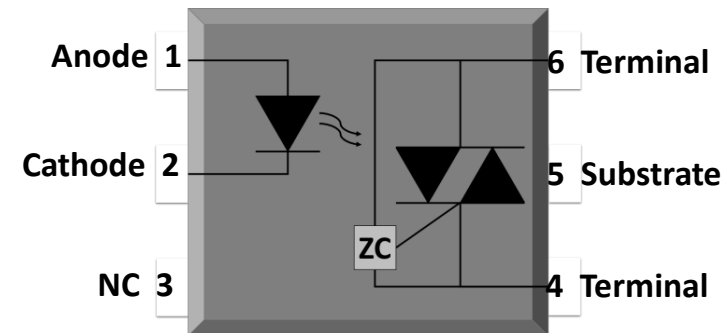
Photo TRIAC Product Line

- Description

- The FS303X, FS304X and FS306X series combine an AlGaAs infrared emitting diode as the emitter which is optically coupled to a monolithic silicon random-phase photo triac in a plastic DIP6 package with different lead forming options.
- The FS301X, FS302X and FS305X series combine an AlGaAs infrared emitting diode as the emitter which is optically coupled to a monolithic silicon random-phase photo triac in a plastic DIP6 package with different lead forming options.

- Features

- High isolation 5000 VRMS
- DC input with zero-cross/random-phase photo triac output
- Operating temperature range - 40 °C to 100 °C
- REACH & RoHS compliance
- MSL class 1
- Regulatory Approvals
 - UL - UL1577
 - VDE - EN60747-5-5(VDE0884-5)
 - CQC – GB4943.1, GB8898



- Applications

- Solenoid/valve controls
- Lighting controls
- Motor controls
- Temperature controls
- Static AC power switches
- Solid state relays
- Interfacing microprocessors to 115 to 240VAC peripherals

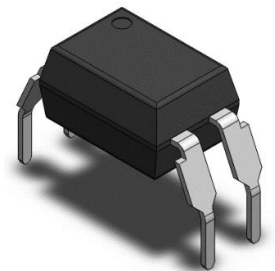
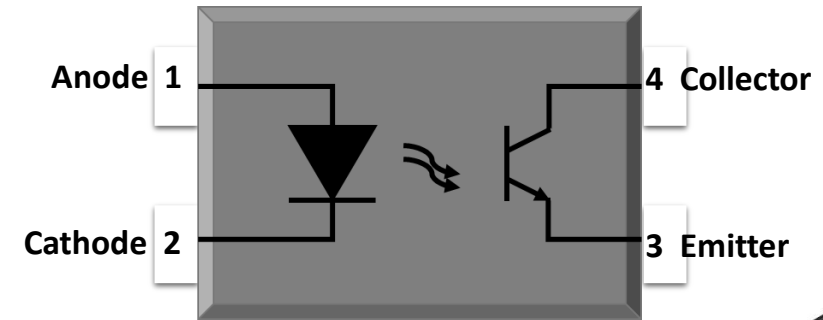
Photo Transistor Product Line

- Description

- The FS817X1 series combine an AlGaAs infrared emitting diode as the emitter which is optically coupled to a silicon planar phototransistor detector in a plastic DIP4 package with different lead forming options.
- With the robust coplanar double mold structure, FS817X1 series provide the most stable isolation feature.

- Features

- High isolation 5000 VRMS
- CTR 80 ~ 600%
- DC input with transistor output
- Operating temperature range - 55 °C to 110 °C
- RoHS & REACH Compliance
- MSL class 1
- Halogen free (Optional)
- Regulatory Approvals
 - UL - UL1577
 - VDE - EN60747-5-5(VDE0884-5)
 - CQC – GB4943.1, GB8898



- Applications

- Switch mode power supplies
- Programmable controllers
- Household appliances
- Office equipment

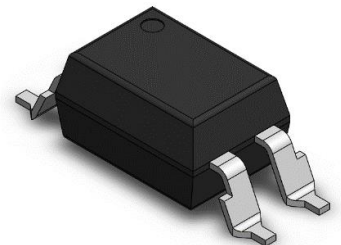


Photo Coupler(Opto) Key Parameter

- Gate Driver
 - V_{ISO} (Vrms) : Isolation Voltage
 - V_{CC} (V) : Supply Voltage
 - T_{PHL} (ns) : Propagation Delay Time to Output Low Level
 - T_{PLH} (ns) : Propagation Delay Time to Output High Level
 - $I_{O(PEAK)}$ (A) : Peak Output Current

- High Speed
 - V_{ISO} (Vrms) : Isolation Voltage
 - V_{CC} (V) : Supply Voltage
 - T_{PHL} (ns) : Propagation Delay Time to Output Low Level
 - T_{PLH} (ns) : Propagation Delay Time to Output High Level

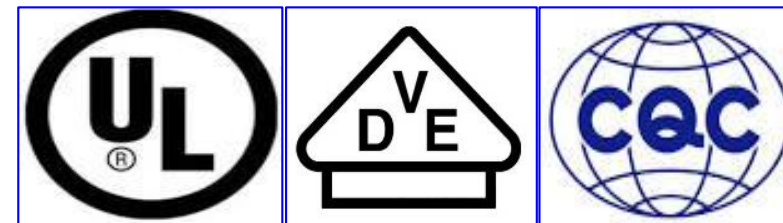
- Photo TRIAC
 - **Output** : ZERO CROSSING (Z.C) / RANDOM PHASE (R.P)
 - V_{ISO} (Vrms) : Isolation Voltage
 - I_{FT} (mA) : LED Trigger Current
 - V_{DRM} (V) : Off-state Output Terminal Voltage

- Photo Transistor
 - **Input** : DC / AC
 - V_{ISO} (Vrms) : Isolation Voltage
 - **CTR** (%) : Current Transfer Ratio
 - I_F (mA) : Forward Current

- Package Type :
 - DIP4/DIP6/DIP8 : M、 S、 SL、 SLM
 - SOP4/SOP5/LSOP6 : P、 W

- Packing Specifications
 - CARRIER TAPE
 - TUBE

- Safety Agency Certification
 - UL 1577 approved
 - VDE approved DIN_EN/IEC60747-5-2
 - CQC – GB4943.1, GB8898



Selection Table – High Performance

Gate Driver						
Product	Package	Peak Output Current (A)	V _{iso} (Vrms)	V _{CC} (V)	T _{PLH} /T _{PHL} (Max)	T _{OPR} (°C)
3120	DIP8	2.5	5000	15~30	300ns	-55~100
3150	DIP8	1	5000	15~30	300ns	-55~100
155E	SOP5	0.8	3750	10~30	300ns	-55~100
314	LSOP6	0.8	5000	10~30	110ns	-40~110
341	LSOP6	3	5000	15~30	110ns	-40~110
343	LSOP6	4	5000	15~30	110ns	-40~110
High Speed						
Product	Package	Feature	V _{iso} (Vrms)	V _{CC} (V)	T _{PLH} /T _{PHL} (Max)	T _{OPR} (°C)
6N136	DIP8	1M High Speed	5000	30	0.8us	-55~110
6N137	DIP8	10M High Speed	5000	3.3/5	75ns	-55~110
M501(T1)-G	SOP5	1M High Speed	3750	30	0.8us	-55~110
M601(T1)-G	SOP5	10M High Speed	3750	3.3/5	75ns	-55~110
611	LSOP6	10M High Speed	5000	3.3/5	75ns	-40~110
50L	LSOP6	1M High Speed	5000	30	0.8us	-55~110
480	LSOP6	IPM	5000	35	250ns	-55~110
456	LSOP6	Schmitt trigger	5000	3~16	4us	-55~110

Selection Table - Standard

Transistor Output						
Product	Package	Input	V_{iso} (Vrms)	CTR (%)	BV_{CEO} (V)	T_{OPR} (°C)
851	DIP4	DC	5000	50-600	350	-55~110
817	DIP4	DC	5000	50-600	35	-55~110
816	DIP4	DC	5000	50-600	80	-55~110
814	DIP4	AC	5000	20-300	80	-55~110
356	SOP4	DC	3750	50-600	80	-55~110
357	SOP4	DC	3750	50-600	35	-55~110
354	SOP4	AC	3750	20-300	80	-55~110
356	SOP4	DC	3750	50-600	80	-55~110
101X	LSOP4	DC	5000	50-600	80	-55~110
Darlington Output						
852	DIP4	DC	5000	600-7500	350	-55~110
352	SOP4	DC	3750	600-7500	350	-55~110
Photo TRIAC						
Product	Package	Feature	V_{iso} (Vrms)	I_{FT} (mA)	V_{DRM} (V)	T_{OPR} (°C)
305X	DIP6	R.P	5000	15,10,5	600	-55~110
306X	DIP6	Z.C	5000	15,10,5	600	-55~110
M305X	SOP4	R.P	3750	15,10,5	600	-55~110
M306X	SOP4	Z.C	3750	15,10,5	600	-55~110

- Cross Reference & Comparison Table

Cross Reference - High Performance Photo Coupler

Type	Package	Feature	PN	Liteon	Everlight	cosmo	CTMicro	BROADCOM	TOSHIBA	SHARP
Gate Driver	DIP8	2.5A	3120	LTV-3120	EL3120	KTLP350	*	HCPL-3120	TLP352	PC925LE*SZOF
Gate Driver	DIP8	1A	3150	LTV-3150	EL3150	KTLP250	*	HCPL-3150	TLP351H	
Gate Driver	SOP5	0.8A	155E	LTV-155E	*	*	*	*	*	PC925LE*SZOF
Gate Driver	LSOP6	0.8A	314	LTV-314	ELS3150	*	*	ACPL-P314	TLP5701	PC4L23EYIPOF
Gate Driver	LSOP6	3A	341	LTV-341	ELS3120	*		ACPL-P341	TLP5754	
Gate Driver	LSOP6	4A	343	*	*	*	*	ACPL-P343	TLP5754	
High Speed	DIP8	1M High Speed	6N136	6N136	6N136	KPC6N136	6N136	*	*	
High Speed	DIP8	10M High Speed	6N137	6N137	6N137	KPC6N137	6N137	HCPL-2601	TLP2962	
High Speed	SOP5	1M High Speed	M501	LTV-M501	ELM452	KPC457	CTM452	HCPL-M452	TLP2309	
High Speed	SOP5	10M High Speed	M601	LTV-M601	ELM601	KPC410	CTM601	ACPL-M483	TLP2348	
High Speed	LSOP6	10M High Speed	611	LTV-60L	ELS611	*	CTS601	ACPL-P483	TLP2748	
High Speed	LSOP6	1M High Speed	50L	LTV-50L	ELS511	*	CTS453	ACPL-W50L	TLP2719 (LF4)	
High Speed	LSOP6	IPM	480	LTV-480	ELS680	*	*	ACPL-P480	TLP2710	
High Speed	LSOP6	Schmitt trigger	456	*	*	*	*	ACPL-P456	TLP2704	

Cross Reference - Standard Photo Coupler

Type	Package	Feature	PN	Liteon	Everlight	cosmo	CTMicro	BROADCOM	TOSHIBA
Photo TRIAC	DIP6	R.P	305X	MOC3053	EL3053	KMOC3063	CT3053	*	*
Photo TRIAC	DIP6	Z.C	306X	MOC306X	EL306X	KMOC306X	CT306X	*	*
Photo TRIAC	SOP4	R.P	M305X	LTV-305X	ELM305X	KTLP160J	CTM305X	*	*
Photo TRIAC	SOP4	Z.C	M306X	LTV-306X	ELM306X	KTLP161J	CTM306X	*	*
Darlington Output	DIP4	DC	852	LTV-852	EL852	KP4010	CT852		
Darlington Output	SOP4	DC	352	LTV-352T	EL452	KPC452	*		
Transistor Output	DIP4	DC 350V	851	*	EL851	KP1210	*		
Transistor Output	DIP4	DC	817	LTV-817	EL817	K1010	CT817		
Transistor Output	DIP4	DC	816	LTV-816	EL816	K1010	CT816		
Transistor Output	DIP4	AC	814	LTV-814	EL814	K3010	CT814		
Transistor Output	SOP4	DC	356	LTV-356T	EL357N	KPC357NT	CT357		
Transistor Output	SOP4	DC	357	LTV-357T	EL357N	KPC357NT	CT357		
Transistor Output	SOP4	AC	354	LTV-354T	EL354N	KPC354NT	CT354		
Transistor Output	LSOP4	DC	101X	LTV-100X	EL101X	KT101X	CT101X		

Comparison Table - Gate Driver: FSS-314

PARAMETER	FSS-314	TLP-5701	ACPL-314
Input Threshold Current(IFLH)	2mA	5mA	7mA
Input Forward Voltage with Temperature Coefficient	-1.2mV/°C	-1.8mV/°C	-1.6mV/°C
High Level Output Voltage(VOH)	29.69V	(VCC-1.6)V	(VCC-1.8)V
Low Level Output Voltage(VOL)	0.17V	0.3V	0.4V
High Level Output Current(IOH)	0.8A	0.3A	0.2A
Low Level Output Current(IOL)	0.8A	0.3A	0.2A
Under Voltage Lockout(UVLO)	Yes	Yes	No
UVLO hysteresis	0.9V	0.3V	N/A
Withstand Insulation Test Voltage(V _{ISO})	5KV	5KV	3.75KV(P314) 5KV(W314)
Maximum propagation delay	110ns	500ns	700ns
Common Mode Transient Immunity	20kV/μs	20kV/μs	20kV/μs

Comparison Table - Gate Driver: FSS-341

PARAMETER	FSS-341	TLP-5754	ACPL-341
Input Threshold Current(IFLH)	2mA	4mA	4mA
Input Forward Voltage with Temperature Coefficient	-1.237mV/°C	-1.8mV/°C	-1.7mV/°C
High Level Output Voltage(VOH)	29.88V	(VCC-0.1)V	(VCC-0.2)V
Low Level Output Voltage(VOL)	0.1V	0.07V	0.1V
High Level Output Current(IOH)	4.0A	4.0A	3.0A
Low Level Output Current(IOL)	4.0A	4.0A	3.0A
Under Voltage Lockout(UVLO)	Yes	Yes	Yes
UVLO hysteresis	1.4V	1.0V	1.0V
Withstand Insulation Test Voltage(V _{ISO})	5KV	5KV	3.75KV(P314) 5KV(W314)
Maximum propagation delay	110ns	150ns	200ns
Common Mode Transient Immunity	20kV/μs	35kV/μs	35kV/μs

Comparison Table - Gate Driver: FSS-343

PARAMETER	FSS-343	TLP-5754	ACPL-343
Input Threshold Current(IFLH)	2mA	4mA	4mA
Input Forward Voltage with Temperature Coefficient	-1.2mV/°C	-1.8mV/°C	-1.7mV/°C
High Level Output Voltage(VOH)	29.88V	(VCC-0.1)V	(VCC-0.2)V
Low Level Output Voltage(VOL)	0.1V	0.07V	0.1V
High Level Output Current(IOH)	3.0A	4.0A	4A
Low Level Output Current(IOL)	3.0A	4.0A	4A
Under Voltage Lockout(UVLO)	Yes	Yes	Yes
UVLO hysteresis	1.4V	1.0V	1.0V
Withstand Insulation Test Voltage(V _{ISO})	5KV	5KV	3.75KV(P314) 5KV(W314)
Maximum propagation delay	110ns	150ns	200ns
Common Mode Transient Immunity	20kV/μs	35kV/μs	35kV/μs

Thank You!

Market Information

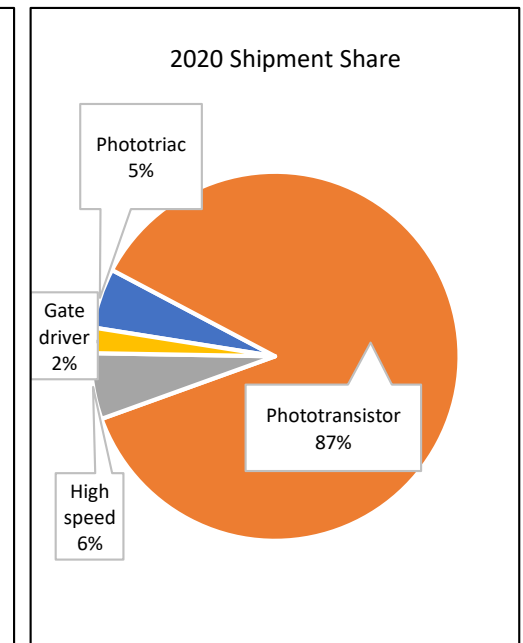
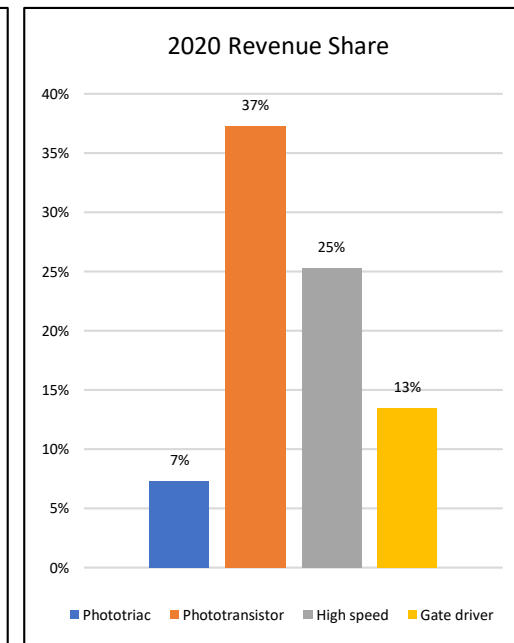
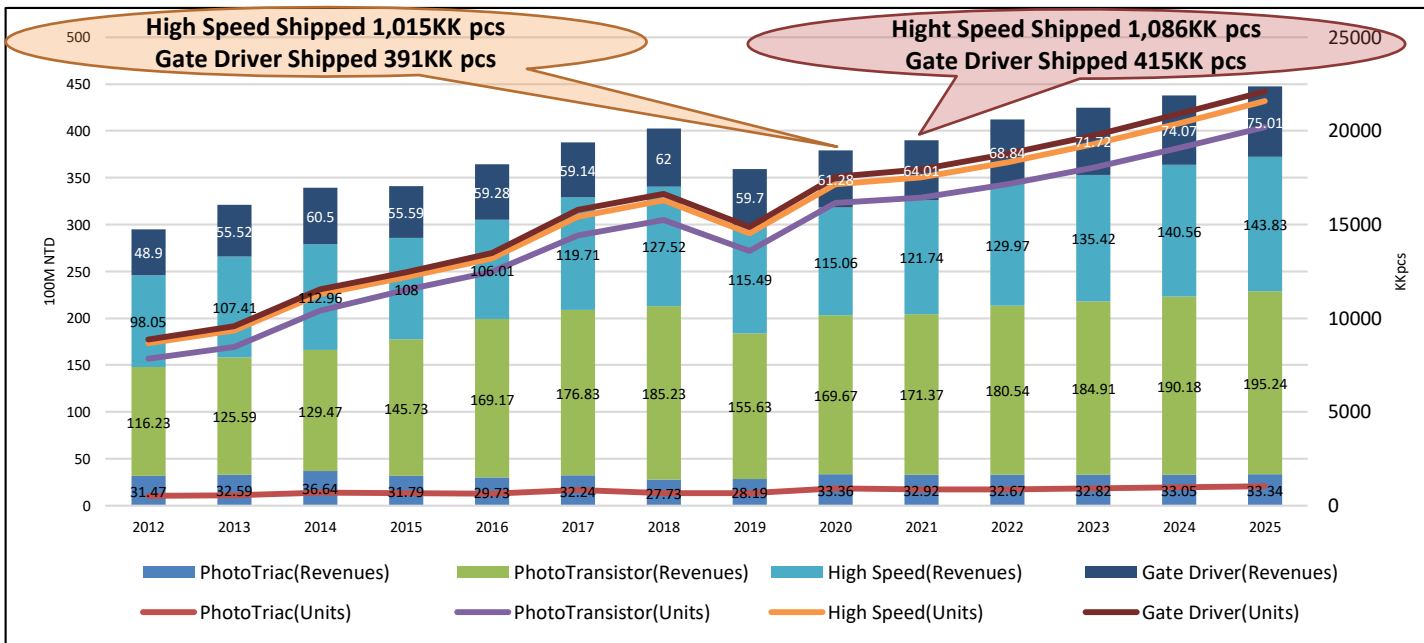
Market Share by Product Segment - 2020

High Performance	Shipment	Unit (KK)	Gate Driver	Shipment	Unit (KK)	High Speed	Shipment	Unit (KK)
Broadcom	32%	449	Broadcom	37%	146	Broadcom	30%	305
Toshiba	31%	435	Toshiba	33%	129	Toshiba	30%	305
Lite-ON	9%	133	Lite-ON	11%	43	Lite-ON	9%	90
ON Semi	7%	98	On Semi	5%	21	Renesas	8%	82
Everlight	6%	79	Everlight	2%	7	Everlight	7%	72
Cosmo	1%	10	Cosmo	0%	0.02	Cosmo	1%	10
Other	14%	203	Other	12%	46	Other	14%	142
Total	100%	1406	Total	100%	1015	Total	100%	391
Triac	Shipment	Unit (KK)	Transistor	Shipment	Unit (KK)	Relay	Shipment	Unit (KK)
Lite-ON	26%	240	Lite-ON	46%	7,000	Toshiba	22%	119
ON Semi	15%	138	Everlight	37%	5,600	Panasonic	20%	108
Everlight	13%	120	Toshiba	5%	761	IXYS (Littelfuse)	15%	81
Toshiba	5%	48	Renesas	4%	533	OMRON	12%	65
Vishay	5%	46	Vishay	3%	457	Fujitsu	10%	54
Cosmo	3%	30	Broadcom	1%	152	Broadcom	8%	43
			Cosmo	1%	220	Lite On	1%	7
						Cosmo	0.60%	3
						Everlight	0.40%	2
Other	32%	299	Other	3%	502	Other	11%	59
Total	100%	921	Total	100.00%	15,226	Total	100%	540

Market & Advantage

- ✓ Overview: Photo Coupler is continuing growth; US\$2B of Global sales in 2022
- ✓ Growth in 2021:
 - 100% in Gate Driver products
 - 15% in High Speed products
- ✓ Achievement:
 - 10% market share of global Photo Coupler product
 - The largest shipment of high-end photocoupler IC design house in the world

- ✓ Market Share:
 - 80% + in non-IDM high-end Photo Coupler
 - 50% + in medium-end Photo Coupler
- ✓ Various product lines, 16 chips
 - 3 major segments: Gate Driver, IPM, High Speed
- ✓ Customers:
 - Top 10 photocoupler makers in the world
 - Top 3 industrial automatic control
 - Top 1 telecommunication and PV inverter in China



Why Foxconn-Socle Photo Coupler

Wafer process experience 【晶圓工藝經驗】

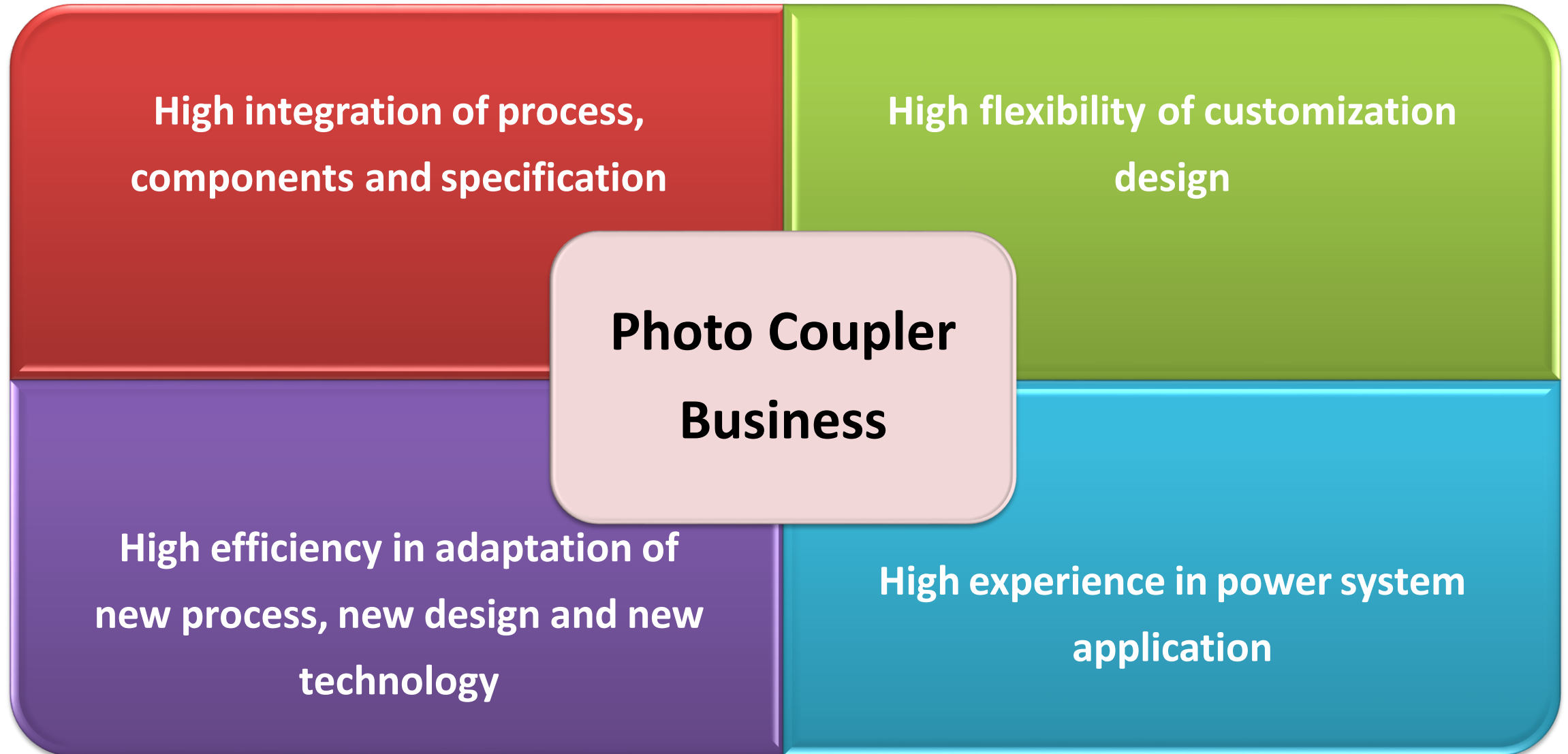
Leading-edge technology 【領先的技術】

Optical/Mechanism/Electrical system integration 【光學/機構/電氣系統集成】

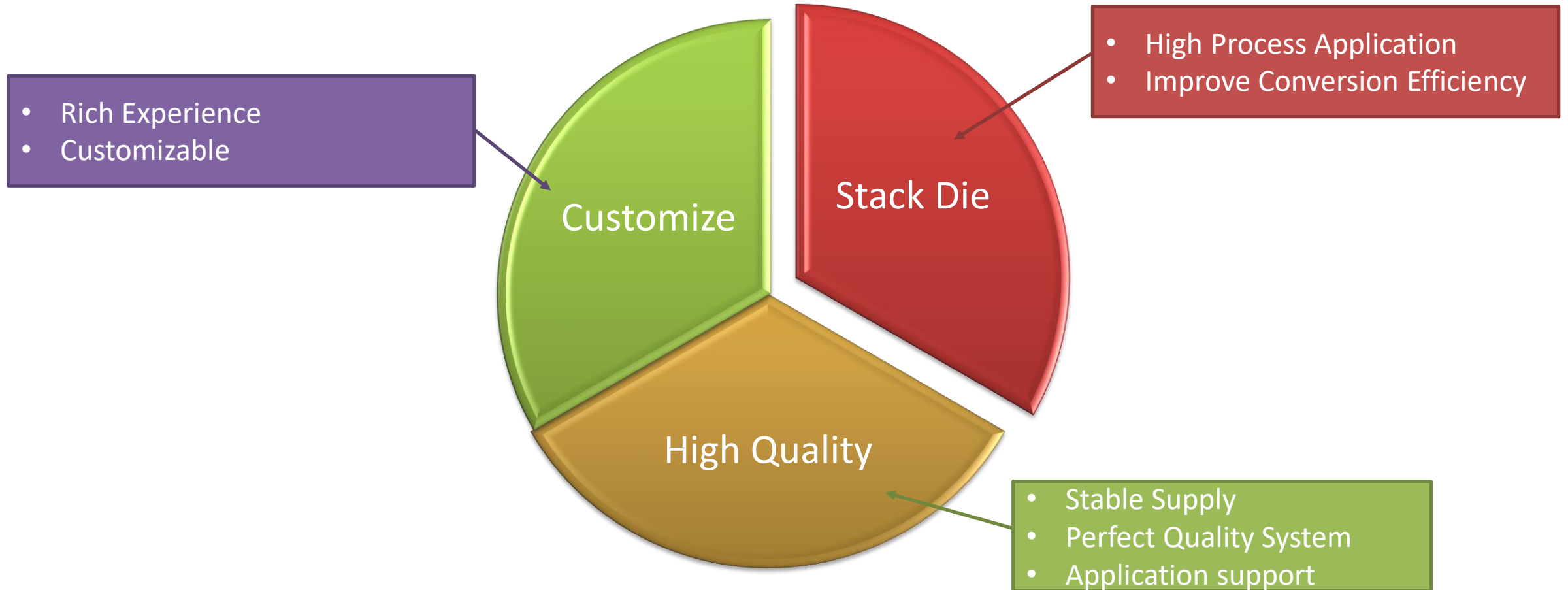
Efficient and supportive customized design 【高效支持的客制化設計】

Integrate supply chain resource 【整合供應鏈資源】

Core Competence

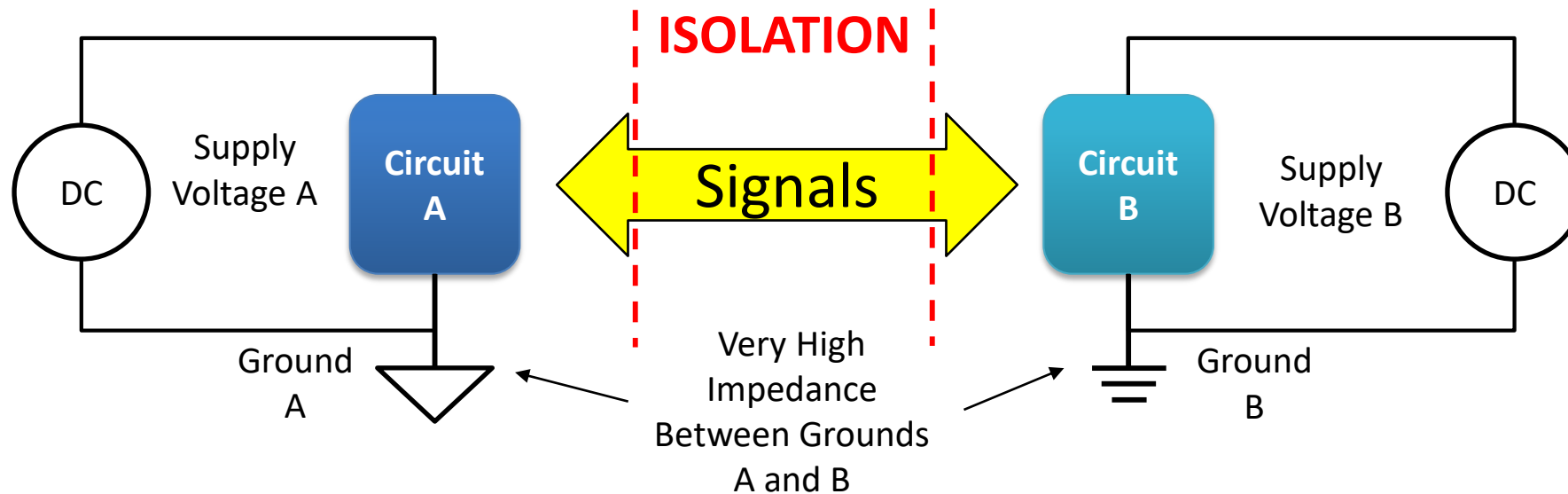


Competitive Advantage



Why Stack Die Package (SDP) Technology

What is Isolation ?



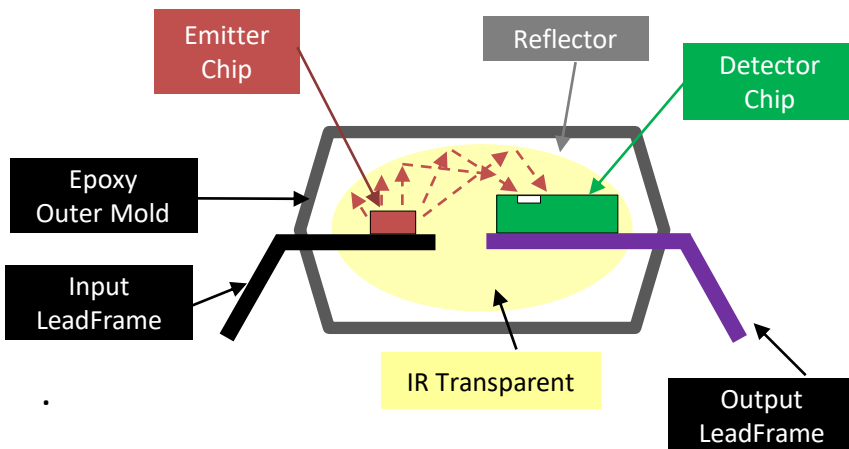
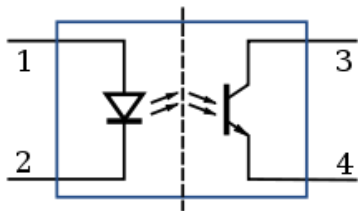
Galvanic isolation

- No current flow from one circuit to another
- Signal information passes from one circuit to another

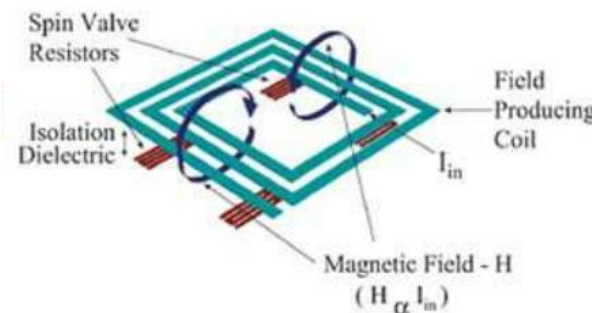
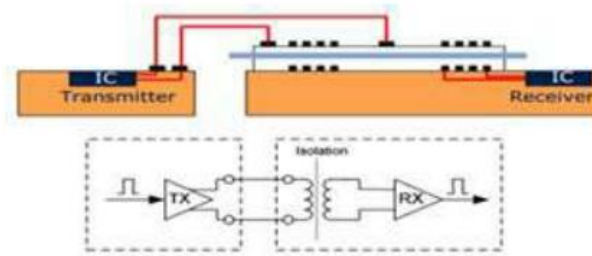
Isolation Type

Photo Coupler – Signal transmission with light (LED) in a transparent non-conductive insulating layer (current->light->current)

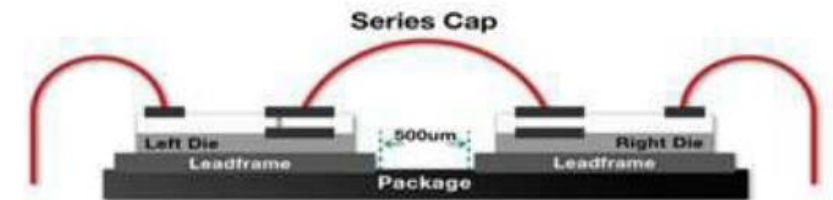
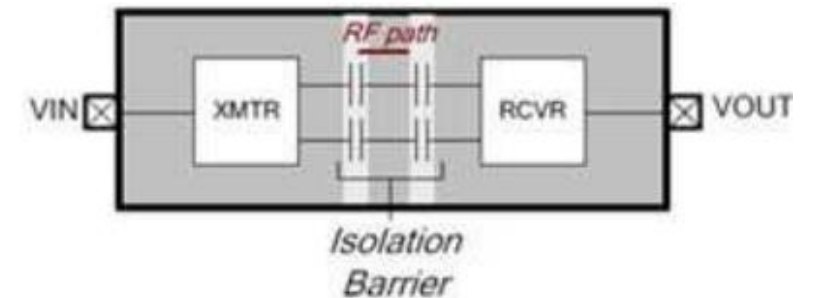
- PhotoTransistor (PT) / PhotoTRIAC (TR)
- High Speed (HS) / Gate Driver (GD)



Inductive Coupler – Inductive coupling transmission using transformer coil design (Δ current \rightarrow magnetic field \rightarrow Δ current)

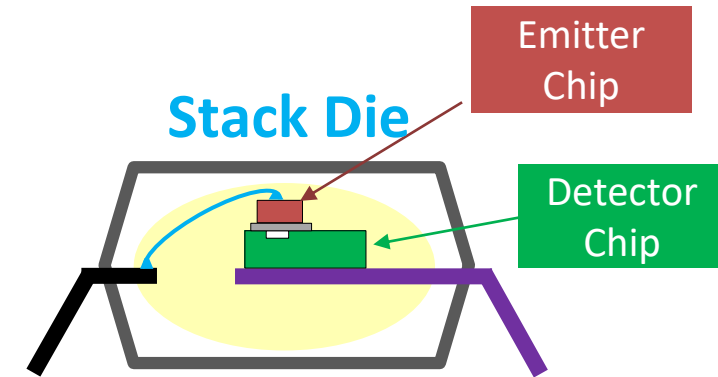


Conductive Coupler – Use a variable electric field to transfer energy through the capacitor, with high speed and relatively small package characteristics (Δ voltage \rightarrow Δ voltage)



Technology

- Detector Chip is design
 - Increase the photoelectric signal adjustment by 20%
 - The design can be customized. And can have better performance.
- Stack Die technology is first applied to Analog IC and successfully MP.
 - Compared the Face-to-face Luminous flux have up 50%
 - Compared the Dual in-line Luminous flux have up 100%

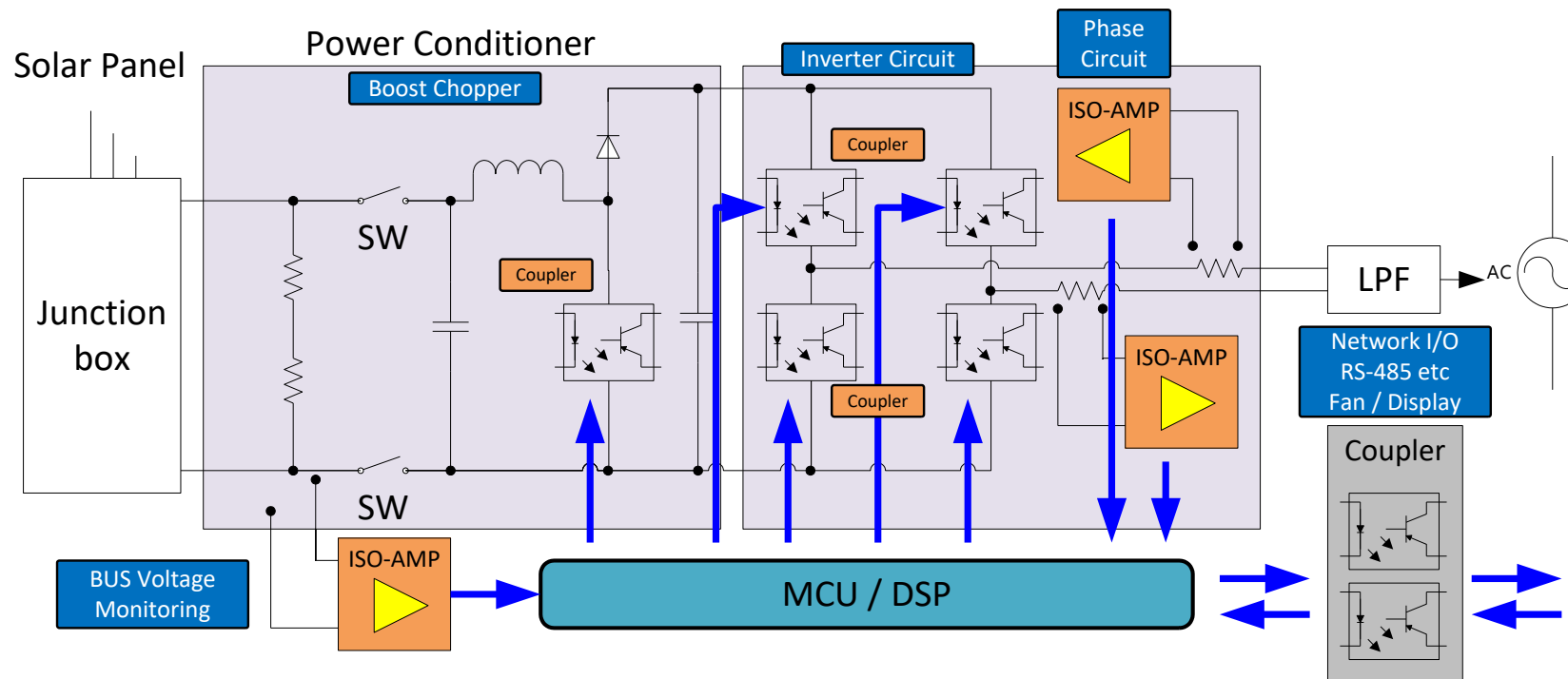


Test Item	Symbol	Stack-Die	Face-to-Face	Condition
Input Threshold Current	I_{FHL} (mA)	0.161	1.3	
Propagation delay time to output high level	T_{PLH} (ns)	53	127	If=5mA
Propagation delay time to output low level	T_{PHL} (ns)	68	122	If=5mA

Emitter To Detector	Stack-Die
Distance	The distance and withstand voltage is defined by Insulator layer on chip.
Mark	The Die bond will be easy. (2D bond)
Light Direction	Direct
Process	Similar to general semiconductor package

Application Note

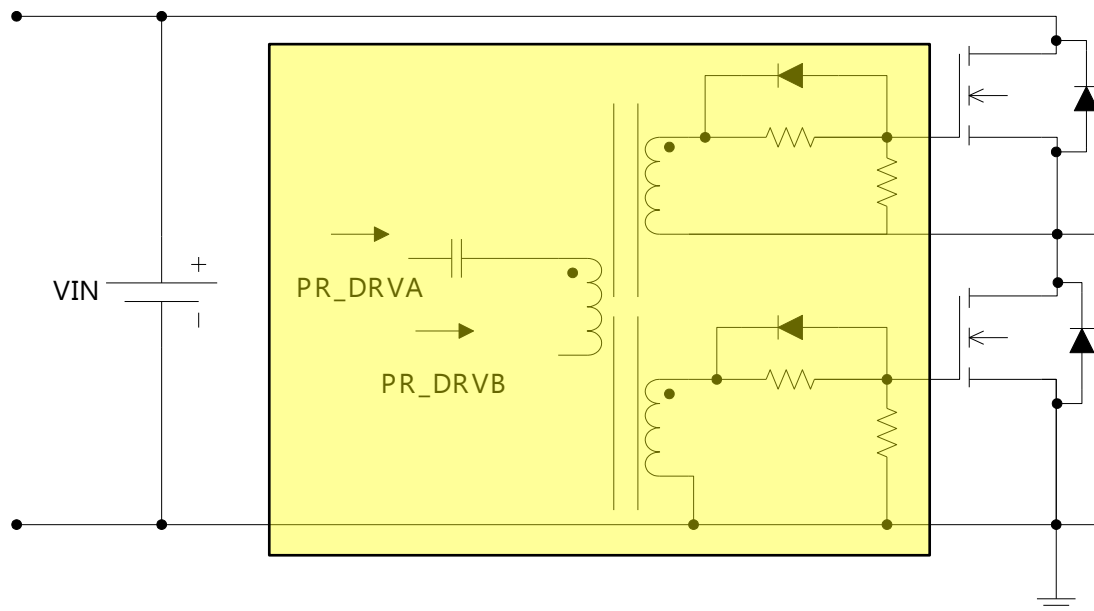
Application Note - Solar Power



Inverter circuit Boost chopper	Gate driver coupler	DIP8	3150(1A), 3120(2.5A)
		LSOP6	314(1A), 341(2.5A)
		SOP5	155E(1A)
Voltage / Current monitoring	Isolation Amplifier	Under development	
Network I/O(RS-485, etc) FAN/Display Feedback	High speed coupler	DIP8	6N136(1M), 6N137(10M)
		DIP6	305x(R.P 600V), 306x(Z.C 600V)
	TRIAC. coupler	SOP4	M305x(R.P 600V), M306x(Z.C 600V)

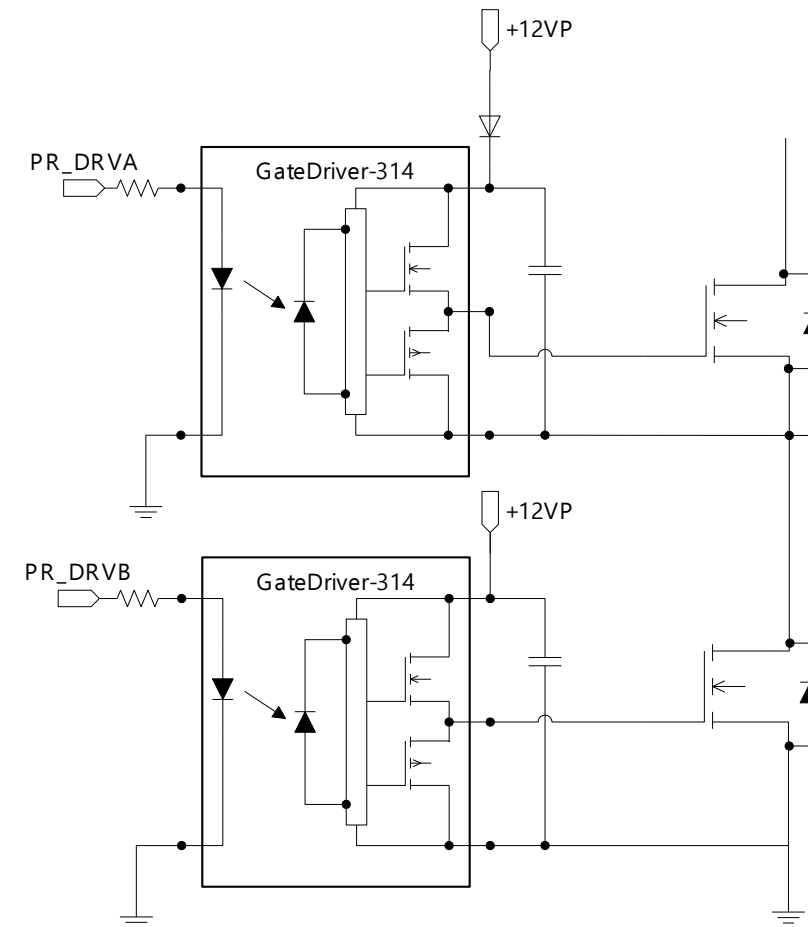
Application Note - LLC

Pulse Transformer

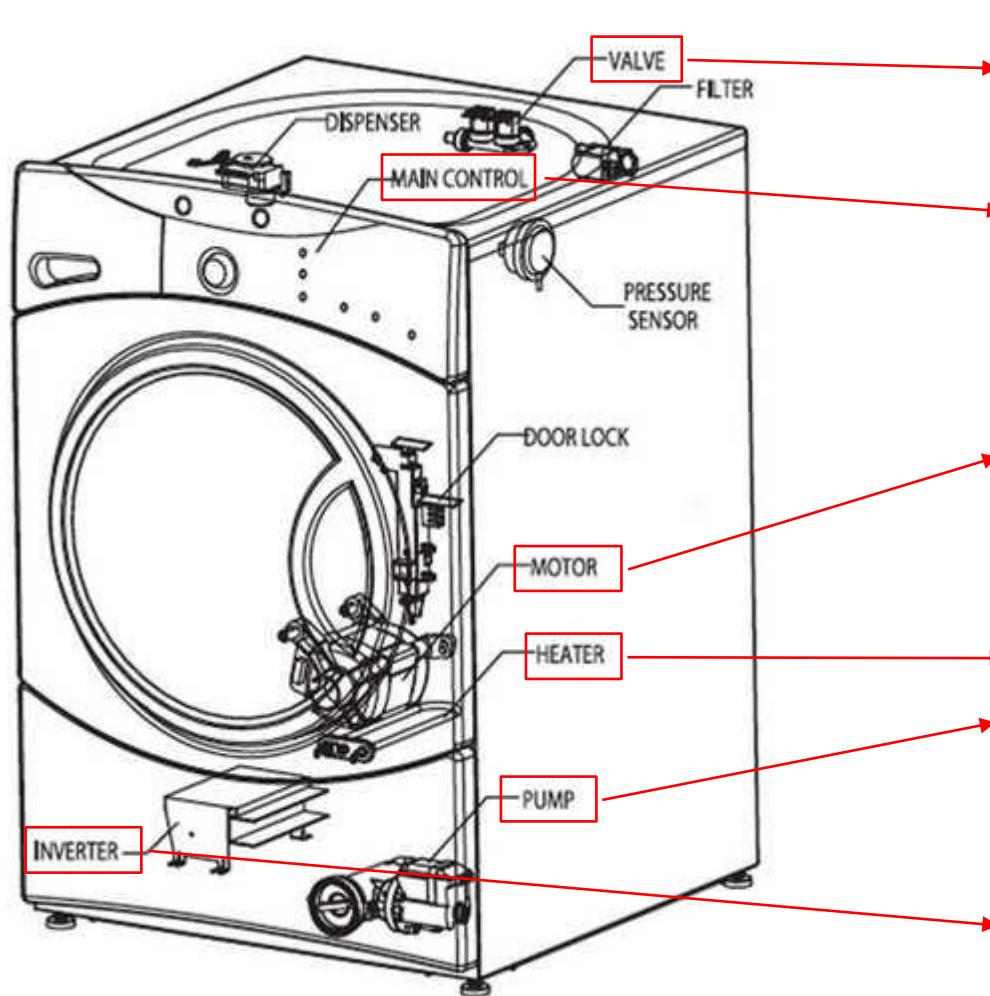


Pulse transformer is not good reliability for system, and the material of Cu/ Iron cost up recently, PhotoCoupler Gate Driver – 0.8A(314) would be better choice for customer.

PhotoCoupler Gate Driver - 0.8A (314)

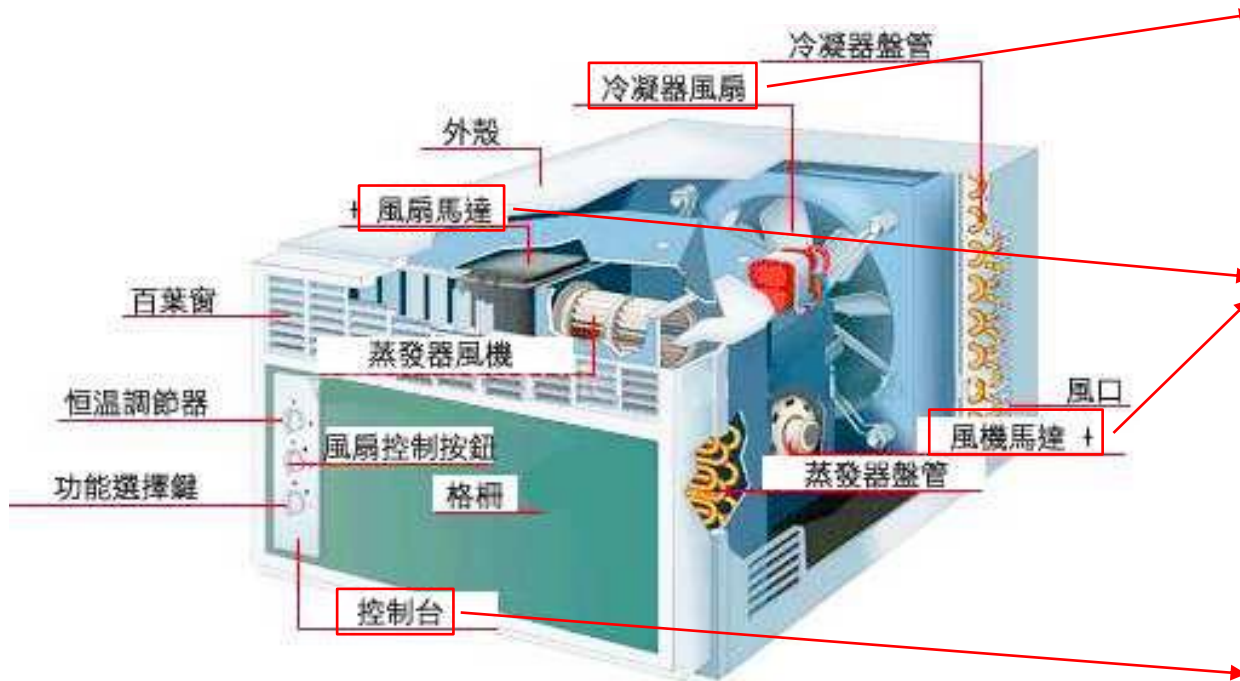


Application Note - Wash Machine



VALVE	PhotoTransistor	DIP4	81x
		SOP4	35x, 101x
MAIN CONTROL	High Speed	DIP8	6N13x
		SOP5	Mx01
MOTOR	PhotoTRIAC	DIP6	305x, 306x
		SOP4	M305x, M306x
	Gate Driver	DIP4	155E
		DIP8	31x0
		LSOP6	314, 341, 343
HEATER	PhotoTRIAC	SOP4	M305x, M306x
PUMP	PhotoTRIAC	SOP4	M305x, M306x
INVERTER	Gate Driver	DIP4	155E
		DIP8	31x0
		LSOP6	314, 341, 343
	High Speed	DIP8	6N13x
		SOP5	Mx01

Application Note - Air Condition



CONDENSER FAN	PhotoTRIAC	SOP4	M305x, M306x
FAN MOTOR	PhotoTRIAC	DIP6	305x, 306x
		SOP4	M305x, M306x
	High Speed	DIP8	6N13x
		SOP5	Mx01
Gate Driver	Gate Driver	DIP4	155E
		DIP8	31x0
		LSOP6	314, 341, 343
MAIN CONTROL	PhotoTransistor	DIP4	81x
		SOP4	35x, 101x

Product Ordering & Marking Format

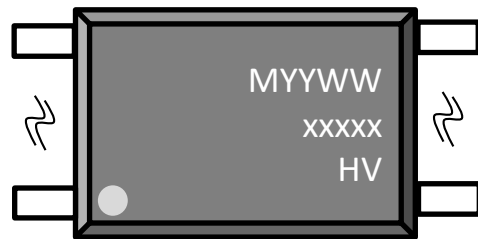
Product Ordering & Marking Format

ZZZ-xxxxx(Y)(Z)-(F)(G)(V)

ZZZ	Company Abbr.
xxxxx	Part Number (Coding in the same industry)
Y	Lead Form Option (M/S/SL/SLM/None)
Z	Tape and Reel Option (T1/T2/T3/T4)
F	Leadframe Option (F:Iron, None:Copper)
G	Green Option (G or None)
V	VDE Option (V or None)

ZZZS-xxxxx(P/W)-(Z)(V)

ZZZ	Company Abbr.
S	Stack Die
xxxxx	Part Number (Coding in the same industry)
P/W	Lead Form Option (P-9mm Clearance or W-11mm Clearance)
Z	Tape and Reel Option (T1/T2/T3/T4)
V	VDE Option (V or None)

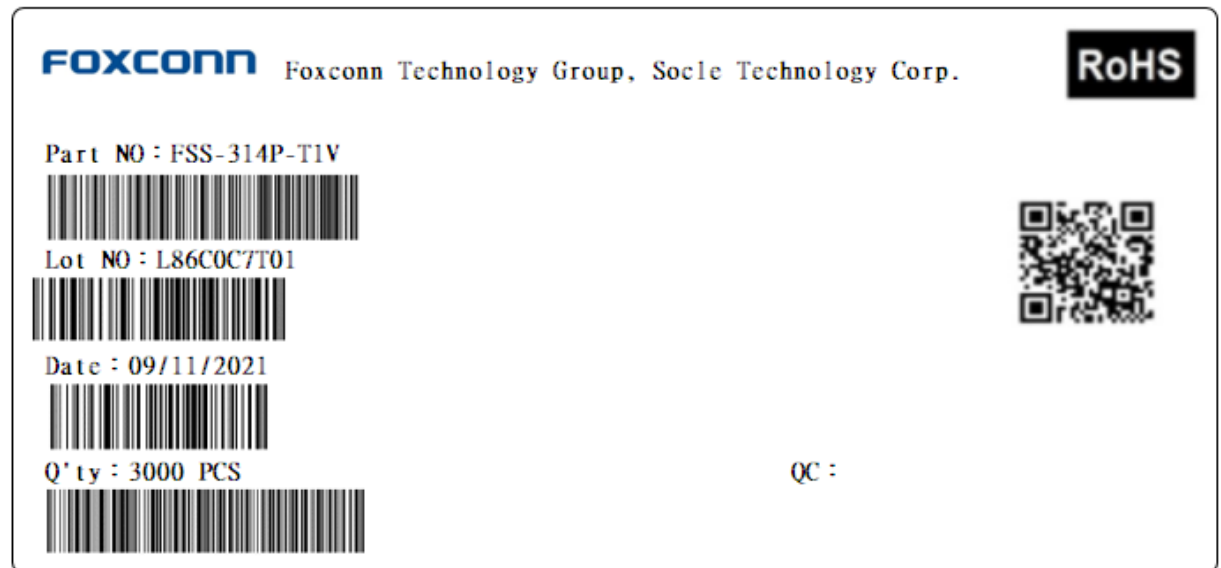
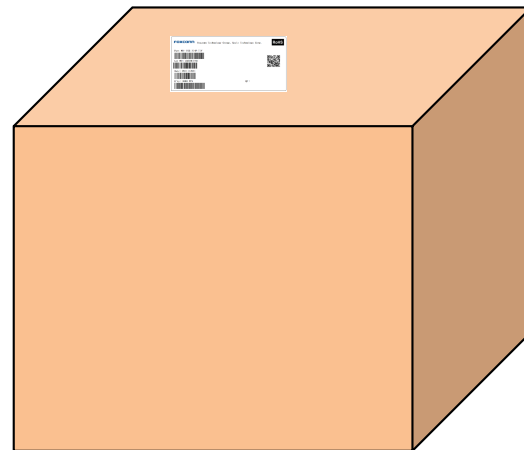


M	Company Abbr.
YY	Year date code
WW	2-digit work week
xxxxx	Part Number (Coding in the same industry)
H	Factory identification mark
V	VDE Identification(Option)

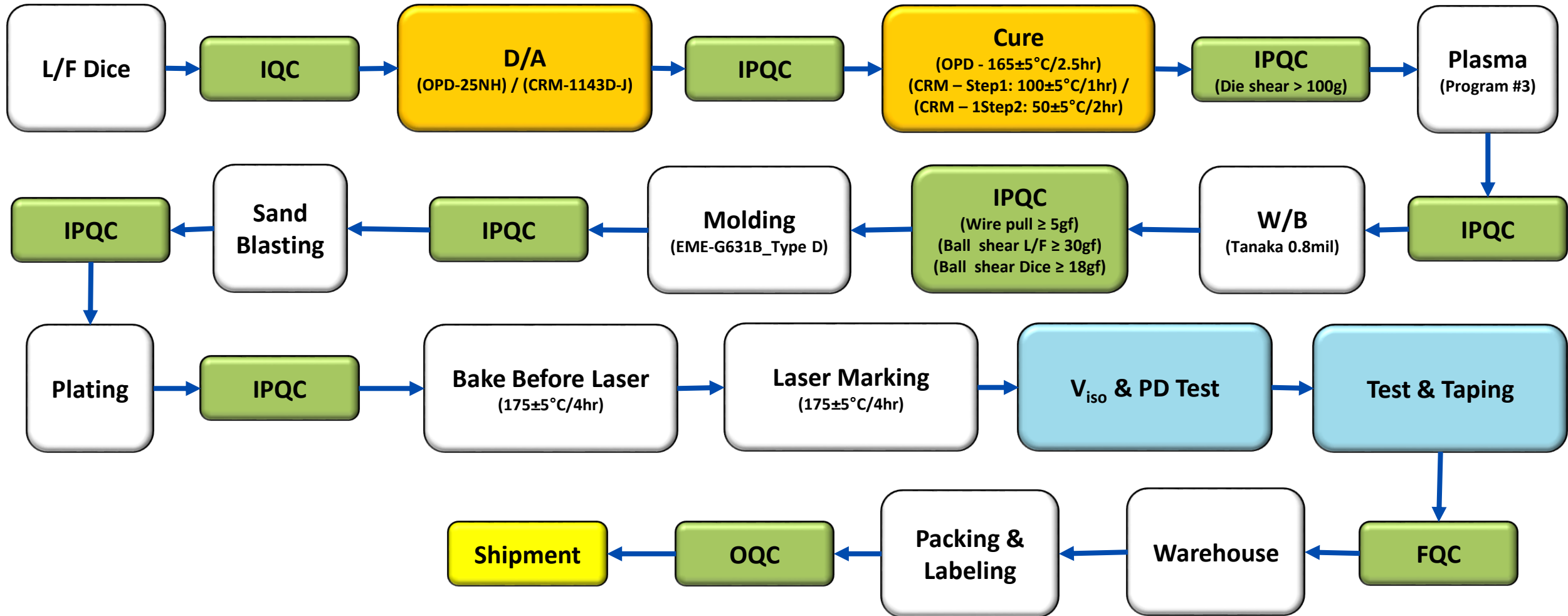
Box & Label Information

Outer Box	Vacuum Package Size	Inner Box Size	Outer Box Size
5pcs Inner Box	490 x 420 mm	470 x 410 x 56 mm	480 x 420 x 275 mm

Label Size	1D code Content	QR code Content
100 x 50 mm	xxxS-314W/P-T1V L86C0C7T01 09/11/2021 2103	xxxS-314W/P-T1V ; L86C0C7T01 ; 09/11/2021 ; 2103

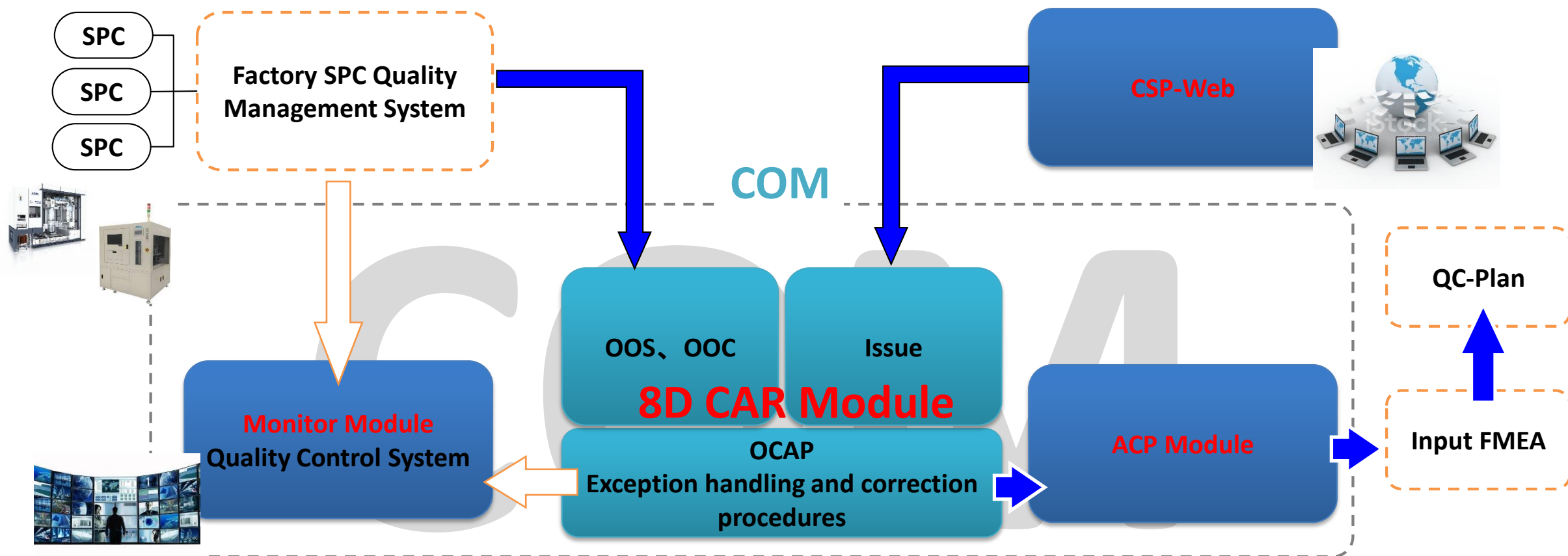


Package Refer Process Flow Chart



Quality Assurance

Automatic Quality Assurance System (AQAS)



Subcontract Quality Assurance through Control Plan

