



**THE DATASHEET OF
PS9613L-E3-A**



PHOTOCOUPPLERS SELCTION GUIDE



SUITABLE PRODUCT FOR EACH APPLICATIONS

Renesas offers an array of flexible products suitable for a wide range of applications.

| Application Field | Application Name | Motor Drive | | Current/ Voltage monitor | Communication | | Transistor Output |
|----------------------|---------------------------------------|-------------|-----------|--------------------------|---------------|---|-------------------|
| | | IGBT drive | IPM drive | | Communication | | |
| | | | | Digital output | Analog output | | |
| Industry | AC Servo | • | • | • | • | • | • |
| | NC machine tools | • | • | • | • | • | • |
| | GAS / Water / Electric power Meter | | | | • | • | • |
| | Smart meter | | | | • | • | • |
| | Service Robot | | | | | | • |
| | Industrial Robot | • | • | • | • | • | • |
| | Buttery system | • | • | • | • | • | • |
| | Solar power conditioner | • | • | • | • | • | • |
| | UPS | • | • | • | • | • | • |
| | Welding machine | • | • | • | • | • | • |
| | Semiconductor manufacturing equipment | | | | • | • | • |
| | Tester / measurement device | • | • | | • | • | • |
| | PLC | • | • | | • | • | • |
| | Network Camera | | | | • | | • |
| | Vending machine | • | | | | • | • |
| | Electric tools | • | • | | • | • | • |
| | Security sensor , camera | | • | | • | • | • |
| Industrial LED light | | | | | | • | |
| Communication | Server | | | | | | • |
| | Network Switch | | | | • | • | • |
| | Router | | | | • | | • |
| | Wireless base station | | | | • | | • |
| | Line-phone | | | | • | | • |
| | Infrastructure Switch | | • | | • | | • |
| | Broadcast apparatus | | | | | | • |
| Consumer | Video / Audio | | • | | • | • | • |
| | TB | | | | • | | • |
| | STB | | | | | | • |
| | Camera | | • | | • | • | • |
| | Game(Portable / Stationary) | | | | | | • |
| | Pachinko | | | | • | • | • |
| | Air Conditioner | • | • | | • | • | • |
| | Lightings | | | | • | • | • |
| | Washing machine | | • | | • | • | • |
| | Refrigerator | • | | | | | • |
| IH Cooker | • | | | • | • | • | |
| OA | Scanner | | | | | | • |
| | HDD | | | | | | • |
| | POS | | | | • | • | • |
| | PPC / Printer | | | | • | | • |
| | Server / Workstation / Super Comsuter | • | • | | • | • | • |
| | Desktop PC | | | | • | | • |
| | Mobile PC / Tablet | | | | • | | • |
| Monitor | | | | | | • | |

PHOTOCOUPLER LINE-UP

Renesas offers photocouplers targeted to specific applications, from high-speed products for motor drive and communication to general-purpose Tr. output products.

Visit our website.



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IC-Output

Creepage Isolation Voltage Pin pitch

Motor drive and control

Communication



| DIP8 7/8 mm 5 kV 2.54 mm | SDIP 7/8 mm 5 kV 1.27 mm | LSDIP8 15 mm 7.5 kV 1.27 mm | LSO5 8 mm 5 kV 1.27 mm | S05 4.2 mm 3.75 kV 1.27 mm | LSS05 8.2 mm 5 kV 0.65 mm | S08 4 mm 2.5 kV 1.27 mm | S016 8 mm 5 kV 1.27 mm |
|-----------------------------------|-----------------------------------|--------------------------------------|---------------------------------|-------------------------------------|------------------------------------|----------------------------------|---------------------------------|
| PS9531 | PS9331 PS9332 | PS9905 | PS9031 | | RV1S9231A | | PS9402 |
| PS9506 | PS9307A | | | | RV1S9207A | | |
| PS9513 | PS9313 | | PS9013 RV1S9062A | PS9113 RV1S9162A | RV1S9213A RV1S9262A | | |
| | PS9303 PS9309 | | PS9009 RV1S9061A | RV1S9161A | RV1S9209A RV1S9261A | | |
| PS8551A | PS8352A | | | | | | |
| PS9551A | | | | | | | |
| | RV1S9353A | | | | | | |
| | PS9351 | | | PS9151 | | PS9851-1 PS9851-2 | |
| | | RV1S9960A | RV1S9060A | RV1S9160A | RV1S9260A | | |
| | | | | PS9123 | | | |
| PS9587 | PS9317 | | PS9001 | PS9117A | | PS9817A-1 PS9817A-2 | |
| | PS9324 | PS9924 | | PS9124 | | PS9821-1 PS9821-2 | |
| | | | | PS9122 | | PS9822-1 PS9822-2 | |
| PS8501 PS8502 | PS8302 | PS8902 | | PS8101 | | PS8802-1 PS8802-2 | |

Transistor-Output

Creepage Isolation Voltage Pin pitch



| DIP4 7/8 mm 5 kV 2.54 mm | LSOP 8 mm 5 kV 2.54 mm | SOP 5 mm 3.75 kV 2.54 mm | LSSOP 8.2 mm 5 kV 1.3 mm | SSOP 4/4.5/5 mm 1.5/2.5/3.75 kV 0.8/1.27 mm | Flat lead 4 mm 2.5 kV 1.27 mm |
|-----------------------------------|---------------------------------|-----------------------------------|-----------------------------------|--|--|
| | | PS2701A-1 | | PS2801C-1/4 | |
| PS2561D-1 PS2561F-1 | | PS2761B-1 | | PS2861B-1 | |
| | PS2381-1 | | RV1S2281A | | |
| | | PS2703-1 | | | PS2913-1 |
| | | PS2711-1 | RV1S2211A | PS2811-1/4 PS2841-4A/4B | PS2911-1 |
| PS2514-1 | | | | | |
| PS2562-1 | | PS2702-1 | | PS2802-1/4 | |
| PS2533-1 PS2535-1 | | PS2733-1 | | PS2833-1/4 | PS2933-1 |
| PS2565-1 | | PS2705A-1 | RV1S2285A | PS2805C-1/4 | |
| | | PS2715-1 | | PS2815-1/4 PS2845-4A | PS2915-1 |
| PS2506-1 | | PS2706-1 | | | |

PHOTOCOUPLER PRODUCTS

SELECTION GUIDE

IGBT Drive

| Function | Part No. | Output Peak Current [A] | Power Supply Voltage [V] | Package | | Isolation Voltage [Vr.m.s.] | Ta max. [°C] | Electrical Characteristics | | | | | Protection Functions | | |
|------------|-----------|-------------------------|--------------------------|---------------|------------------------|-----------------------------|--------------|----------------------------|----------------|-------------------|---------------|----------|----------------------|------|-------|
| | | | | Configuration | Creepage Distance [mm] | | | DC | SW | | | | Protection | | |
| | | | | | | | | | IFLH max. [mA] | tpHL,LH max. [ns] | PWD max. [ns] | PDD [ns] | CMR min. [kV/μs] | UVLO | Clamp |
| IGBT Drive | PS9307A | 0.6 | 10 to 30 | SDIP6 | L:7 L2:8 | 5000 | 125 | 5.0 | 150 | 50 | -80 to 80 | 50 | ○ | - | - |
| | RV1S9207A | | | LSS05 | 8.2 | 5000 | 125 | 5.0 | 150 | 50 | -80 to 80 | 50 | ○ | - | - |
| | PS9506 | | | DIP8 | -/L3:7 L1/L2:8 | 5000 | 110 | 7.0 | 400 | 250 | -300 to 300 | 25 | - | - | - |
| | PS9031 | 2.5 | 15 to 30 | LS05 | 8 | 5000 | 125 | 4.0 | 175 | 75 | -90 to 90 | 50 | ○ | - | - |
| | RV1S9231A | | | LSS05 | 8.2 | 5000 | 125 | 5.2 | 175 | 75 | -90 to 90 | 50 | ○ | - | - |
| | PS9331 | | | SDIP6 | L:7 L2:8 | 5000 | 125 | 4.0 | 175 | 75 | -90 to 90 | 50 | ○ | - | - |
| | PS9531 | | | DIP8 | -/L3:7 L1/L2:8 | 5000 | 125 | 4.0 | 175 | 75 | -90 to 90 | 50 | ○ | - | - |
| | PS9905 | | | LSDIP8 | 15 | 7500 | 110 | 6.0 | 150 | 75 | -100 to 100 | 25 | ○ | - | - |
| | PS9332 | 2 | 15 to 30 | SDIP8 | L:7 L2:8 | 5000 | 125 | 4.0 | 200 | 75 | -90 to 90 | 50 | ○ | ○ | - |
| | PS9402 | 2.5 | 15 to 30 | SO16 | 8 | 5000 | 110 | 5.0 | 200 | 100 | -100 to 100 | 25 | ○ | ○ | ○ |

IPM Drive

| Function | Part No. | Output Type | Logic | Package | | Recommended Operating Conditions | Absolute Maximum Ratings | | Electrical Characteristics | | | | | | |
|-----------|-----------|-------------|-------------------|----------------|------------------------|----------------------------------|--------------------------|-----------------------------|----------------------------|------------|-------------------|-------------------|---------------|---------------|------------------|
| | | | | Configuration | Creepage Distance [mm] | | Power Supply Voltage [V] | Isolation Voltage [Vr.m.s.] | Ta max. [°C] | DC | SW | | | | |
| | | | | | | | | | | | IFHL/LH max. [mA] | tpHL/LH max. [ns] | PWD max. [ns] | PDD max. [ns] | CMR min. [kV/μs] |
| IPM Drive | RV1S9161A | Totem Pole | Active High | S05 | 4.2 | 4.5 to 30 | 3750 | 125 | 3.0 | 60 | 20 | 25 | 100 | | |
| | PS9009 | | | LS05 | 8 | 4.5 to 20 | 5000 | 125 | 3.0 | 200 | 80 | 100 | 50 | | |
| | RV1S9061A | | | | | 4.5 to 30 | 5000 | 125 | 4.5 | 60 | 20 | 25 | 100 | | |
| | RV1S9209A | | | LSS05 | 8.2 | 4.5 to 20 | 5000 | 125 | 3.8 | 200 | 80 | 100 | 50 | | |
| | RV1S9261A | | | | | 4.5 to 30 | 5000 | 125 | 4.0 | 60 | 20 | 25 | 100 | | |
| | PS9309 | | | | | SDIP6 | L:7 L2:8 | 4.5 to 20 | 5000 | 110 | 3.0 | 200 | 80 | 80 | 15 |
| | PS9303 | | | SDIP6 | L:7 L2:8 | 4.5 to 20 | 5000 | 100 | 5.0 | 500 | 350 | - | 15 | | |
| | RV1S9162A | | | Open Collector | Active Low | S05 | 4.2 | 4.5 to 30 | 3750 | 125 | 3.0 | 60 | 20 | 25 | 100 |
| | RV1S9062A | | | | | LS05 | 8 | 4.5 to 30 | 5000 | 125 | 4.1 | 60 | 20 | 25 | 100 |
| | RV1S9262A | | | | | LSS05 | 8.2 | 4.5 to 30 | 5000 | 125 | 4.0 | 60 | 20 | 25 | 100 |
| | PS9513 | DIP8 | -/L3:7 L1/L2:8 | | | 4.5 to 20 | 5000 | 100 | 5.0 | 500 750 | 650 | 650 | 15 | | |
| | PS9013 | LS05 | 8 | | | 4.5 to 25 | 5000 | 125 | 5.0 | 500 750 | 650 | 650 | 50 | | |
| | RV1S9213A | LSS05 | 8.2 | | | 4.5 to 25 | 5000 | 125 | 5.0 | 500/750 | 650 | 650 | 50 | | |
| | PS9313 | SDIP6 | L:7 L2:8 | | | 4.5 to 20 | 5000 | 110 | 5.0 | 500 750 | 650 | 650 | 15 | | |
| | PS9113 | S05 | 4.2 | | | 4.5 to 20 | 3750 | 100 | 5.0 | 500 750 | 650 | 650 | 15 | | |
| | | | | | | | | | | | | | | | |

Isolation Amplifiers

| Function | Part No. | Output | Package | | Absolute Maximum Ratings | | Electrical Characteristics | | | | | | | |
|---------------------|----------|--------|---------------|------------------------|-----------------------------|--------------|------------------------------------|-----------------|---------------------|-------------|----------|------------------|---------------|--------------|
| | | | Configuration | Creepage Distance [mm] | Isolation Voltage [Vr.m.s.] | Ta max. [°C] | Input Voltage Linearity Range [mV] | Gain typ. [V/V] | Gain Error Max. [%] | NL typ. [%] | VDD2 [V] | CMR min. [kV/μs] | fc typ. [kHz] | Output Type |
| Isolation amplifier | PS8551A | Analog | DIP8 | 8 | 5000 | 105 | -200 to 200 | 8 | 1 | 0.014 | 5 | 10 | 100 | Differential |
| | PS8352A | | SDIP8 | 8 | 5000 | 110 | -200 to 200 | 8 | 1 | 0.014 | 5 | 10 | 100 | Differential |

Δ-Σ Modulators

| Function | Part No. | Output | Package | | Absolute Maximum Ratings | | Electrical Characteristics | | | | | | |
|----------------|-----------|---------|---------------|------------------------|-----------------------------|--------------|------------------------------------|---------------------|----------------|----------|------------------|------------------|-----------------|
| | | | Configuration | Creepage Distance [mm] | Isolation Voltage [Vr.m.s.] | Ta max. [°C] | Input Voltage Linearity Range [mV] | Gain Error Max. [%] | INL typ. [LSB] | VDD2 [V] | ENOB typ. [bits] | CMR min. [kV/μs] | fCLK typ. [MHz] |
| Δ-Σ Modulators | PS9551A | Digital | DIP8 | 8 | 5000 | 105 | -200 to 200 | 1 | 3 | 5 | 12 | 15 | 10 |
| | RV1S9353A | | SDIP8 | 8 | 5000 | 110 | -200 to 200 | 0.5 | 3 | 3.3/5 | 13.8 | 15 | 10 |

High-Speed Communication (Analog)

| Function | Part No. | Speed [bps] | Output Type | Absolute Maximum Rated Power Supply Voltage [V] | Package | | Isolation Voltage [Vr.m.s.] | Ta max. [°C] | Electrical Characteristics | | | | | | | | | | |
|-----------------------------------|-------------|-------------|----------------|---|---------------|------------------------|-----------------------------|--------------|----------------------------|------------------|----------------|----------------|-----------------------------------|-------------------|------------------|-----|-------------|----------|----|
| | | | | | Configuration | Creepage Distance [mm] | | | Detector | | | | Coupled | | | | | | |
| | | | | | | | | | IOH @Vcc30V max. [μA] | VOL max. [V] | ICCL typ. [μA] | ICCH max. [μA] | CTR@ IF 16mA Vcc 4.5V Vo 0.4V [%] | tpHL/LH max. [ns] | CMR min. [kV/μs] | | | | |
| High-Speed Communication (Analog) | PS8101 | 1M | Open Collector | 35 | S05 | 4.2 | 3750 | 100 | 100 | 0.4 | 50 | 2 | 15 to 35 | 800/1200 | 15 | | | | |
| | PS8802-1/-2 | | | | | | | | S08 | 4.0 | 2500 | 100 | 100 | 0.4 | 100/200 | 2/4 | 15 and Over | 800/1200 | 15 |
| | PS8302 | | | | | | | | SDIP6 | L:7 L2:8 | 5000 | 110 | 100 | 0.4 | 150 | 1 | 15 and Over | 800/800 | 15 |
| | PS8501 | | | | | | | | DIP8 | -L3:7 L1/L2:8 | 5000 | 100 | 100 | 0.4 | 150 | 1 | 15 and Over | 800/800 | - |
| | PS8502 | | | | | | | | | | | | 100 | 0.4 | 150 | 1 | 15 and Over | 800/800 | 15 |
| | PS8902 | | | | | | | | LSDIP8 | 15 | 7500 | 110 | 100 | 0.4 | 50 | 2 | 15 to 35 | 800/1200 | 15 |

High-Speed Communication (Digital)

| Function | Part No. | Speed [bps] | Output Type | Power Supply Voltage [V] | Package | | Isolation Voltage [Vr.m.s.] | Ta max. [°C] | DC | | | AC | | | | |
|------------------------------------|--------------|-------------|----------------|--------------------------|---------------|------------------------|-----------------------------|--------------|--------------|--------------|------------------|----------------|-------------------|---------------|----------------|------------------|
| | | | | | Configuration | Creepage Distance [mm] | | | VOL max. [V] | VOH min. [V] | ICCL/H max. [mA] | IFHL max. [mA] | tpHL/LH max. [ns] | PWD max. [ns] | tpsk max. [ns] | CMR min. [kV/μs] |
| High-Speed Communication (Digital) | PS9122 | 1M | Open Collector | N 2.7~3.6, L 4.5~5.5 | S05 | 4.2 | 3750 | 100 | 0.6 | - | 3.5/2.5 | 5.0 | 500/700 | 200 | - | 15 |
| | PS9822-1/-2 | | | | S08 | 4.0 | 2500 | 100 | 0.6 | - | 3.5/2.5 | 5.0 | 500/700 | 200 | - | - |
| | PS9124 | | | | S05 | 4.2 | 3750 | 110 | 0.6 | - | 10/7 | 3.0 | 100/100 | 35 | 40 | 10 |
| | PS9324 | 10M | Open Collector | 2.7~3.6 & 4.5~5.5 | SDIP6 | L:7 L2:8 | 5000 | 110 | 0.6 | - | 10/7 | 3.0 | 100/100 | 35 | 40 | 15 |
| | PS9924 | | | | LSDIP8 | 15 | 7500 | 110 | 0.6 | - | 10/7 | 5.0 | 100/100 | 35 | 40 | 15 |
| | PS9821-1/-2 | | | | S08 | 4.0 | 2500 | 85 | 0.6 | - | 10/7 | 5.0 | 100/100 | 35 | 40 | 15 |
| | PS9587 | | | | DIP8 | -L3:7 L1/L2:8 | 5000 | 85 | 0.6 | - | 11/8 | 5.0 | 100/100 | 50 | 60 | 15 |
| | PS9317 | | | | SDIP6 | L:7 L2:8 | 5000 | 85 | 0.6 | - | 10/7 | 5.0 | 75/75 | 35 | 40 | 15 |
| | PS9001 | | | | LS05 | 8.0 | 5000 | 125 | 0.6 | - | 2/2 | 4.0 | 100/100 | 50 | 60 | 50 |
| | PS9117A | S05 | 4.2 | 3750 | 85 | 0.6 | - | 10/7 | 5.0 | 100/100 | 35 | 40 | 15 | | | |
| | PS9817A-1/-2 | S08 | 4.0 | 2500 | 85 | 0.6 | - | 10/7 | 5.0 | 100/100 | 35 | 40 | 15 | | | |
| | PS9123 | 15M | Totem Pole | 4.5~5.5 | S05 | 4.2 | 3750 | 100 | 0.6 | 2.4 | 10/7 | 5.0 | 60/60 | 30 | - | 15 |
| | PS9151 | | | | S05 | 4.2 | 3750 | 100 | 0.1 | 4.0 | 5/5 | 5.0 | 60/60 | 30 | 40 | 15 |
| | RV1S9160A | | CMOS | 4.5~5.5 | S05 | 4.2 | 3750 | 125 | 0.1 | VDD-0.1 | 2/2 | 2 | 60/60 | 20 | 25 | 50 |
| | PS9851-1/-2 | | | | S08 | 4.0 | 2500 | 100 | 0.1 | 4.0 | 5/5 | 6.0 | 60/60 | 30 | 40 | 10 |
| | RV1S9060A | | | | LS05 | 8 | 5000 | 125 | 0.1 | VDD-0.1 | 2/2 | 2.2 | 60/60 | 20 | 25 | 50 |
| | RV1S9260A | | | | LSS05 | 8.2 | 5000 | 125 | 0.1 | VDD-0.1 | 2/2 | 2.6 | 60/60 | 20 | 25 | 50 |
| PS9351 | SDIP6 | | | | L:7 L2:8 | 5000 | 100 | 0.1 | 4.0 | 5/5 | 5.0 | 60/60 | 30 | 40 | 15 | |
| RV1S9960A | LSDIP8 | | | | 15 | 7500 | 110 | 0.1 | VDD-0.1 | 2/2 | 3.8 | 60/60 | 20 | 25 | 50 | |

Transistor-Output (DC Input) Single

| Function | Part No. | Output Type | Package | | Absolute Maximum Ratings | | | | Electrical Characteristics | | | | |
|------------------------------|------------|-------------|---------------|------------------------|--------------------------|--------------|-----------------------------|--------------|----------------------------|--------------|--------------|---------------|----------------|
| | | | Configuration | Creepage Distance [mm] | VCEO max. [V] | IC max. [mA] | Isolation Voltage [Vr.m.s.] | Ta max. [°C] | DC | SW | | | |
| | | | | | | | | | CTR % | tr typ. [µs] | tf typ. [µs] | ton typ. [µs] | toff typ. [µs] |
| Transistor-Output (DC Input) | PS2561D-1 | Single | DIP4 | -/L:7 L1/L2:8 | 80 | 50 | 5000 | 110 | 50 to 400 | 3 | 5 | – | – |
| | PS2561F-1 | | DIP4 | 7 | 80 | 50 | 5000 | 110 | 300 to 600 | 5 | 7 | – | – |
| | PS2514-1 | | DIP4 | 7 | 40 | 20 | 5000 | 100 | 50 to 200 | – | – | 15 | 15 |
| | PS2381-1 | | LSOP4 | 8 | 80 | 50 | 5000 | 115 | 50 to 400 | 4 | 5 | – | – |
| | RV1S2281A | | LSSOP | 8.2 | 80 | 30 | 5000 | 115 | 50 to 400 | 4 | 5 | – | – |
| | PS2701A-1 | | SOP4 | 5 | 70 | 30 | 3750 | 100 | 50 to 300 | 5 | 7 | 8 | 10 |
| | PS2761B-1 | | SOP4 | 5 | 70 | 50 | 3750 | 110 | 50 to 400 | 4 | 5 | 8 | 5 |
| | PS2703-1 | | SOP4 | 5 | 120 | 30 | 3750 | 100 | 50 to 400 | 10 | 10 | 13 | 11 |
| | PS2711-1 | | SOP4 | 5 | 40 | 40 | 3750 | 100 | 100 to 400 | 4 | 5 | – | – |
| | PS2801C-1 | | SSOP4 | 4.5 | 80 | 30 | 2500 | 100 | 50 to 400 | 5 | 7 | 10 | 7 |
| | PS2801C-4 | | SSOP16 | 4.5 | 80 | 30 | 2500 | 100 | 50 to 400 | 5 | 7 | 10 | 7 |
| | PS2861B-1 | | SSOP4 | 5 | 70 | 50 | 3750 | 110 | 50 to 300 | 4 | 5 | 5 | 5 |
| | PS2811-1 | | SSOP4 | 4.5 | 40 | 40 | 2500 | 100 | 100 to 400 | 4 | 5 | 7 | 5 |
| | PS2811-4 | | SSOP16 | 4.5 | 40 | 40 | 2500 | 100 | 100 to 400 | 4 | 5 | 7 | 5 |
| | RV1S2211A | | LSSOP | 8.2 | 40 | 40 | 5000 | 115 | 100 to 400 | 4 | 5 | – | – |
| | PS2841-4A | | SSOP12 | 4 | 70 | 20 | 1500 | 100 | 100 to 400 | – | – | 20 | 110 |
| | PS2841-4B | | SSOP12 | 4 | 70 | 20 | 1500 | 100 | 100 to 400 | – | – | 20 | 110 |
| | PS2911-1 | | Flat Leads | 4 | 40 | 40 | 2500 | 100 | 100 to 400 | 5 | 10 | 40 | 120 |
| PS2913-1 | Flat Leads | 4 | 120 | 30 | 2500 | 100 | 50 to 200 | 10 | 10 | 80 | 50 | | |

Transistor-Output (DC Input) Darlington

| Function | Part No. | Output Type | Absolute Maximum Ratings | | Package | | Isolation Voltage [Vr.m.s.] | Ta max. [°C] | Electrical Characteristics | | | | | | |
|------------------------------|----------|-------------|--------------------------|------------|---------------|------------------------|-----------------------------|--------------|----------------------------|--------------|-------------|--------------|--------------|---------------|----------------|
| | | | VCEO [V] | IC [mA/ch] | Configuration | Creepage Distance [mm] | | | DC | | | SW | | | |
| | | | | | | | | | CTR min. [%] | CTR max. [%] | VCE SAT [V] | tr typ. [µs] | tf typ. [µs] | ton typ. [µs] | toff typ. [µs] |
| Transistor-Output (DC Input) | PS2802-1 | Darlington | 40 | 90 | SSOP4 | 4.5 | 2500 | 100 | 200 | – | 1.0 | 200 | 200 | – | – |
| | PS2802-4 | | | 100 | SSOP16 | 4.5 | 2500 | 100 | 200 | – | 1.0 | 200 | 200 | – | – |
| | PS2562-1 | | | 200 | DIP4 | 7 | 5000 | 100 | 200 | – | 1.0 | 100 | 100 | – | – |
| | PS2702-1 | | | 200 | SOP4 | 5 | 3750 | 100 | 200 | – | 1.0 | 70 | 60 | 90 | 60 |
| | PS2833-1 | | 350 | 60 | SSOP4 | 4.5 | 2500 | 100 | 400 | 4500 | 1.0 | 20 | 5 | – | – |
| | PS2833-4 | | | 60 | SSOP16 | 4.5 | 2500 | 100 | 400 | 4500 | 1.0 | 20 | 5 | – | – |
| | PS2535-1 | | | 120 | DIP4 | 7 | 5000 | 100 | 400 | 5500 | 1.0 | 18 | 5 | – | – |
| | PS2533-1 | | | 150 | DIP4 | 7 | 5000 | 100 | 1500 | 6500 | 1.0 | 100 | 100 | – | – |
| | PS2733-1 | | | 150 | SOP4 | 5 | 2500 | 100 | 1500 | – | 1.0 | 100 | 100 | – | – |
| | PS2933-1 | | | 60 | Flat Leads | 4 | 2500 | 100 | 400 | 4500 | 1.0 | 20 | 5 | – | – |

Transistor-Output (AC Input)

| Function | Part No. | Output Type | Package | | Absolute Maximum Ratings | | | | Electrical Characteristics | | | | |
|------------------------------|-----------|-------------|---------------|------------------------|--------------------------|--------------|-----------------------------|--------------|----------------------------|--------------|--------------|---------------|----------------|
| | | | Configuration | Creepage Distance [mm] | VCEO max. [V] | IC max. [mA] | Isolation Voltage [Vr.m.s.] | Ta max. [°C] | DC | SW | | | |
| | | | | | | | | | CTR % | tr typ. [µs] | tf typ. [µs] | ton typ. [µs] | toff typ. [µs] |
| Transistor-Output (AC Input) | PS2565-1 | Single | DIP4 | 7 | 80 | 50 | 5000 | 100 | 80 to 400 | 3 | 5 | – | – |
| | PS2705A-1 | | SOP4 | 5 | 70 | 30 | 3750 | 100 | 50 to 300 | 5 | 7 | 8 | 10 |
| | PS2715-1 | | SOP4 | 5 | 40 | 40 | 3750 | 100 | 100 to 400 | 4 | 5 | – | – |
| | PS2805C-1 | | SSOP4 | 4.5 | 80 | 30 | 2500 | 100 | 50 to 400 | 5 | 7 | 10 | 7 |
| | PS2805C-4 | | SSOP16 | 4.5 | 80 | 30 | 2500 | 100 | 50 to 400 | 5 | 7 | 10 | 7 |
| | PS2815-1 | | SSOP4 | 4.5 | 40 | 40 | 2500 | 100 | 100 to 400 | 4 | 5 | 7 | 5 |
| | PS2815-4 | | SSOP16 | 4.5 | 40 | 40 | 2500 | 100 | 100 to 400 | 4 | 5 | 7 | 5 |
| | RV1S2285A | | LSSOP | 8.2 | 80 | 30 | 5000 | 115 | 50 to 400 | 4 | 5 | – | – |
| | PS2845-4A | | SSOP12 | 4 | 70 | 20 | 1500 | 100 | 100 to 400 | – | – | 20 | 110 |
| | PS2915-1 | | Flat Leads | 4 | 40 | 40 | 2500 | 100 | 100 to 400 | 5 | 10 | 40 | 120 |
| | PS2506-1 | | Darlington | DIP4 | 7 | 40 | 200 | 5000 | 100 | 200 min. | 100 | 100 | – |
| | PS2706-1 | SOP4 | | 5 | 40 | 200 | 3750 | 100 | 200 min. | 200 | 200 | – | – |

PACKAGE DIMENSIONS 1

Unit : mm

| LS05 | DIP8 | SDIP6 (L) |
|-----------|-----------|------------|
| | | |
| LSDIP8 | DIP8 (L1) | SDIP6 (L2) |
| | | |
| S016 | DIP8 (L3) | SDIP8 (L) |
| | | |
| DIP8 (L4) | DIP8 (L2) | SDIP8 (L2) |
| | | |

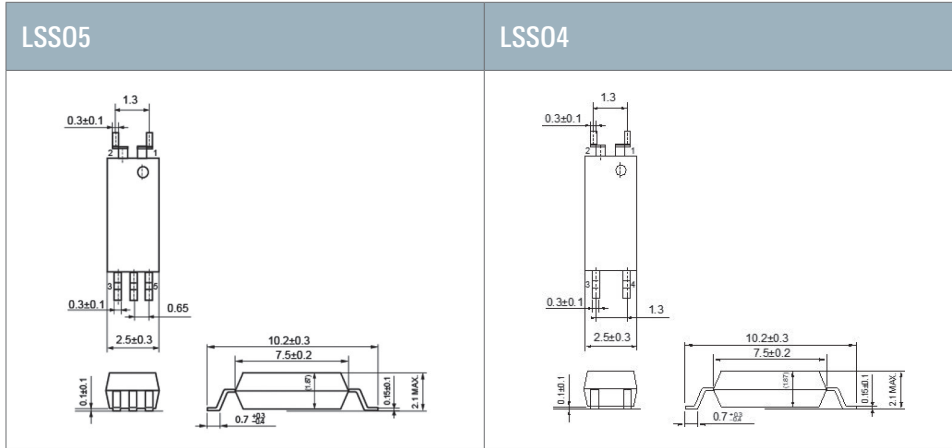
PACKAGE DIMENSIONS 2

Unit : mm

| S05 | DIP4 | SSOP4 |
|------|-----------|-----------|
| | | |
| S08 | DIP4 (L) | SSOP16 |
| | | |
| SOP | DIP4 (L1) | SSOP12 |
| | | |
| LSOP | DIP4 (L2) | Flat lead |
| | | |

PACKAGE DIMENSIONS 3

Unit : mm



PACKAGE MARKING

| LS05 | S05 |
|--|---|
|  <p>R : An initial of "Renesas" 9031 : Part Number N340 : Assembly Lot No.</p> <p>N 3 40 Weekly Serial Code Last one-digit of assembled year Rank Code</p> <p>○ : No.1 pin mark</p> |  <p>9124 : Part Number N231 : Assembly Lot No.</p> <p>N 2 31 Weekly Serial Code Last one-digit of assembled year Rank Code</p> <p>Ⓜ : Pb free Ⓞ : No.1 pin mark An initial of "Renesas" (Carved marking)</p> |
| LSDIP8 | SDIP6 |
|  <p>R : An initial of "Renesas" 9905 : Part Number N131 : Assembly Lot No.</p> <p>N 1 31 Weekly Serial Code Last one-digit of assembled year Rank Code</p> <p>○ : No.1 pin mark</p> |  <p>R : An initial of "Renesas" 9331 : Part Number N320 : Assembly Lot No.</p> <p>N 3 20 Weekly Serial Code Last one-digit of assembled year Rank Code</p> <p>○ : No.1 pin mark</p> |
| S08 | S016 |
|  <p>9817A-1 : Part Number NT131 : Assembly Lot No.</p> <p>N T 1 31 Weekly Serial Code Last one-digit of assembled year Internal Symbol (T:Pb free, Ni/Pd/Au plating on the electrode) Rank Code</p> <p>Ⓞ : No.1 pin mark An initial of "Renesas" (Carved marking)</p> |  <p>R : An initial of "Renesas" 9402 : Part Number NT231 : Assembly Lot No.</p> <p>N T 2 31 Weekly Serial Code Last one-digit of assembled year Internal Symbol (T:Pb free) Rank Code</p> <p>○ : No.1 pin mark</p> |
| SDIP8 | DIP8 |
|  <p>R : An initial of "Renesas" 9332 : Part Number N340 : Assembly Lot No.</p> <p>N 3 04 Weekly Serial Code Last one-digit of assembled year Rank Code</p> <p>○ : No.1 pin mark</p> |  <p>R : An initial of "Renesas" 9531 : Part Number NT331 : Assembly Lot No.</p> <p>N T 3 31 Weekly Serial Code Last one-digit of assembled year Internal Symbol (T:Pb free) Rank Code</p> <p>○ : No.1 pin mark</p> |

DIP4 SOP



R : An initial of "Renesas"
 2561D : Part Number as excluding "PS2"
 NR031 : Assembly Lot No.
 N R 0 31
 Weekly Serial Code
 Last one-digit of assembled year
 Internal Symbol
 (R : Assembly in Japan, Y: Assembly in TAIWAN)
 Rank Code
 ○ : No.1 pin mark



R : An initial of "Renesas"
 701A : Part Number as excluding "PS2"
 N301 : Assembly Lot No.
 N 3 01
 Weekly Serial Code
 Last one-digit of assembled year
 Rank Code
 ○ : No.1 pin mark

| | | | | |
|-------------------|--------|--------|-------|-------|
| Assembled Country | TAIWAN | TAIWAN | JAPAN | JAPAN |
| Halogen Free | | ○ | | ○ |
| *1, *2: Marking | | | | |

SSOP4 SSOP16



R1C : An initial of "Renesas" and Part Number
 R 1C
 Last 2 digits of Part Number (*1)
 *1: When the second digit from bottom of Part Number is "0", only marked last 1 digit.
 An initial of "Renesas"
 301 : Assembly Lot No.
 3 01
 Weekly Serial Code
 Last one-digit of assembled year

| | | | | |
|-------------------|--------|--------|-------|-------|
| Assembled Country | TAIWAN | TAIWAN | JAPAN | JAPAN |
| Halogen Free | | ○ | | ○ |
| *2: Marking | | | | |



R : An initial of "Renesas"
 PS2801C-4 : Part Number
 NL301 : Assembly Lot No.
 N 3 01
 Weekly Serial Code
 Last one-digit of assembled year
 Internal Symbol
 L: Pb Free
 Rank Code
 ○ : No.1 pin mark
 □ : Assembled Country

LSOP Flat lead



R : An initial of "Renesas"
 2381 : Part Number as excluding "PS"
 N031 : Assembly Lot No.
 N 0 31
 Weekly Serial Code
 Last one-digit of assembled year
 Rank Code
 ○ : No.1 pin mark



R : An initial of "Renesas"
 11 : Part Number as excluding "PS29"
 ex) PS2911 -> 11
 601 : Assembly Lot No.
 6 01
 Weekly Serial Code
 Last one-digit of assembled year
 = : Pb free

SSOP12 LSSOP / LSS05



R : An initial of "Renesas"
 2841A : Part Number as underlined of PA2841-4A
 NL601 : Assembly Lot No.
 N L 6 01
 Weekly Serial Code
 Last one-digit of assembled year
 Internal Symbol
 L: Pb Free
 Rank Code
 ○ : No.1 pin mark



R : An initial of "Renesas"
 2281 : Part Number
 9261 : Part Number
 N744 : Assembly Lot No.
 N 7 44
 Weekly Serial Code
 Last one-digit of assembled year
 Rank Code
 ○ : No.1 pin mark

PACKAGE STRUCTURE 1

| Package | | LSDIP8 | LS05 | S05 | S016 | DIP8 (L4) | SDIP8 (L2) | |
|--------------------|--------------|---|---|--|--------|------------------------|--------------------------|--|
| Structure | | | | | | | | |
| Package | | LSDIP8 | LS05 | S05 | S016 | DIP8 (L4) | SDIP8 (L2) | |
| Air Distance | [mm] | 14.5 | 8 | 4.2 | 8 | 8 | 8 | |
| Creepage | [mm] | 14.5 | 8 | 4.2 | 8 | 8 | 8 | |
| Isolation Distance | [mm] | 0.4 | 0.15 | 0.2 | 0.4 | 0.4 | 0.4 | |
| CTI | [-] | 175 | 400 | 175 | 175 | 175 | 175 | |
| Isolation Voltage | [Vr.m.s.] | 7500 | 5000 | 3750 | 5000 | 5000 | 5000 | |
| VIORM | [Vpeak] | 1600 | 1130 | 707 | 1130 | 1130 | 1130 / 1500 * | |
| VIOTM | [Vpeak] | 12000 | 8000 | 6000 | 8000 | 8000 | 8000 | |
| Part Number | VDE (Option) | PS9905 PS9924 PS8902 RV1S9960A | PS9031 PS9009 PS9013 PS9001 RV1S9060A RV1S9061A RV1S9062A | PS9113 PS9151 PS9123 PS9117A PS9124 PS9122 PS8101 RV1S9160A RV1S9161A RV1S9162A | PS9402 | PS8551AL4 PS9551AL4 | PS8352AL2 * RV1S9353A | |

| Package | | DIP8 | DIP8 (L1) | DIP8 (L3) | DIP8 (L2) | SDIP6 (L) | SDIP6 (L2) | SDIP8 (L) | SDIP8 (L2) | S08 |
|--------------------|--------------|--|--|--|--|--|---|-----------|------------|--|
| Structure | | | | | | | | | | |
| Package | | DIP8 | DIP8 (L1) | DIP8 (L3) | DIP8 (L2) | SDIP6 (L) | SDIP6 (L2) | SDIP8 (L) | SDIP8 (L2) | S08 |
| Air Distance | [mm] | 7 | 8 | 7 | 8 | 7 | 8 | 7 | 8 | 4 |
| Creepage | [mm] | 7 | 8 | 7 | 8 | 7 | 8 | 7 | 8 | 4 |
| Isolation Distance | [mm] | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.2 |
| CTI | [-] | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 |
| Isolation Voltage | [Vr.m.s.] | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 2500 |
| VIORM | [Vpeak] | 1130 | 1130 | 1130 | 1130 | 1130 | 1130 | 1130 | 1130 | 566 |
| VIOTM | [Vpeak] | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 | 4000 |
| Part Number | VDE (Option) | PS9531 PS9506 PS9513 PS9587 PS8501 PS8502 | PS9531L1 PS9506L1 PS9513L1 PS9587L1 PS8501L1 PS8502L1 | PS9531L3 PS9506L3 PS9513L3 PS9587L3 PS8501L3 PS8502L3 | PS9531L2 PS9506L2 PS9513L2 PS9587L2 PS8501L2 PS8502L2 | PS9307AL PS9331L PS9317L PS9313L PS9303L PS9309L PS9351L PS9324L PS8302L | PS9307AL2 PS9331L2 PS9317L2 PS9313L2 PS9303L2 PS9309L2 PS9351L2 PS9324L2 PS8302L2 | PS9332L | PS9332L2 | PS9817A-1 PS9817A-2 PS9851-1 PS9851-2 PS9821-1 PS9821-2 PS9822-1 PS9822-2 |

| Package | | DIP4 | | | DIP4 (L1) | | DIP4 (L) | | | DIP4 (L2) | | LSOP | |
|--------------------|---------------|---|----------|----------|-------------|--------------------------|---|-----------|-----------|-------------|--------------------------|----------|--|
| Structure | | | | | | | | | | | | | |
| Package | | DIP4 | | | DIP4 (L1) | | DIP4 (L) | | | DIP4 (L2) | | LSOP | |
| Air Distance | [mm] | 7 | 7 | 7 | 8 | 7 | 7 | 7 | 7 | 8 | 7 | 8 | |
| Creepage | [mm] | 7 | 7 | 7 | 8 | 7 | 7 | 7 | 7 | 8 | 7 | 8 | |
| Isolation Distance | [mm] | 0.4 | 0.3 | 0.3 | 0.4 | 0.4 | 0.4 | 0.3 | 0.3 | 0.4 | 0.4 | 0.4 | |
| CTI | [-] | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | 175 | |
| Isolation Voltage | [Vr.m.s.] | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 | |
| VIORM | [Vpeak] | 890 | 890 | — | 1130 | 890 | 890 | 890 | — | 1130 | 890 | 1130 | |
| VIOTM | [Vpeak] | 8000 | 8000 | — | 8000 | 8000 | 8000 | 8000 | — | 8000 | 8000 | 8000 | |
| Part Number | VDE (Option) | PS2561D-1 PS2533-1 PS2535-1 PS2565-1 | PS2514-1 | | PS2561DL1-1 | PS2562L1-1 PS2565L1-1 | PS2561DL-1 PS2533L-1 PS2535L-1 PS2565L-1 | PS2514L-1 | | PS2561DL2-1 | PS2562L2-1 PS2565L2-1 | PS2381-1 | |
| | No VDE Option | PS2561F-1 | | PS2506-1 | | | PS2561FL-1 | | PS2506L-1 | | | | |

| Package | | SOP | | | SSOP4 | | SSOP16 | SSOP12 | | Flat lead | |
|--------------------|---------------|--|----------|-----------|---|-----------|---|-------------------------------------|--|--|--|
| Structure | | | | | | | | | | | |
| Package | | SOP | | | SSOP4 | | SSOP16 | SSOP12 | | Flat lead | |
| Air Distance | [mm] | 5 | 5 | 5 | 4.5 | 5 | 4.5 | 4 | | 4 | |
| Creepage | [mm] | 5 | 5 | 5 | 4.5 | 5 | 4.5 | 4 | | 4 | |
| Isolation Distance | [mm] | 0.3 | 0.3 | 0.4 | 0.1 | 0.4 | 0.1 | 0.4 | | 0.4 | |
| CTI | [-] | 175 | 175 | 175 | 175 | 175 | 175 | 175 | | 175 | |
| Isolation Voltage | [Vr.m.s.] | 3750 | 2500 | 3750 | 2500 | 3750 | 2500 | 1500 | | 2500 | |
| VIORM | [Vpeak] | 707 | 707 | 707 | 705 | 710 | 705 | — | | 570 | |
| VIOTM | [Vpeak] | 6000 | 4000 | 6000 | 6000 | 6000 | 6000 | — | | 4000 | |
| Part Number | VDE (Option) | PS2701A-1 PS2703-1 PS2702-1 PS2705A-1 PS2706-1 PS2711-1 PS2715-1 | PS2733-1 | PS2761B-1 | PS2801C-1 PS2811-1 PS2833-1 PS2802-1 PS2805C-1 PS2815C-1 | PS2861B-1 | PS2801C-4 PS2811-4 PS2833-4 PS2802-4 PS2805C-4 PS2815C-4 | | | PS2911-1 PS2913-1 PS2915-1 PS2933-1 | |
| | No VDE Option | | | | | | | PS2841-4A PS2841-4B PS2845-4A | | | |

Internal Structure is a reference image

PACKAGE STRUCTURE 2

| Package | | LSS05 | LSS0P |
|--------------------|--------------|--|--|
| Structure | | <p>Outer Epoxy Resin Inner Epoxy Resin LED Potting Resin Photo IC Lead</p> | <p>Outer Epoxy Resin Inner Epoxy Resin LED Potting Resin Photo Transistor Lead</p> |
| Package | | LSS05 | LSS0P |
| Air Distance | [mm] | 8.2 | 8.2 |
| Creepage | [mm] | 8.2 | 8.2 |
| Isolation Distance | [mm] | 0.15 | 0.15 |
| CTI | [-] | 400 | 400 |
| Isolation Voltage | [Vr.m.s.] | 5000 | 5000 |
| VIORM | [Vpeak] | 1075 | 1100 |
| VIORM | [Vpeak] | 8000 | 8000 |
| Part Number | VDE (Option) | RV1S9207A RV1S9209A RV1S9213A RV1S9231A RV1S9260A RV1S9261A RV1S9262A | RV1S2211A RV1S2281A RV1S2285A |

SAFETY STANDARD APPROVAL LIST 1

Visit our website.



1. ●: certified, R: reinforced insulation, S: supplementary insulation, B: basic insulation
 2. A special ordering number is required for VDE-conformant products.

<https://www.renesas.com/products/interface-connectivity/optoelectronics/photocouplers-optocouplers-safety-standards-classification-chart-ul-csa-bsi-vde-approval>

| Part Number | Safety Standards | | | | | | | | | |
|---|------------------------------------|--------|----------------------|-----------------------|---|-----------------------|----------------------|-----------------------|--|-----------------------|
| | UL | | | | CSA | | BSI | | VDE | |
| | UL1577 Single/Double Protection | | | | CAN/CSA C22.2 62368-1 IEC 62368-1 | | BS EN 62368-1 | | DIN EN 60747-5-5 DIN EN IEC 60747-5-5 | |
| | Single | Double | Assembly in JAPAN | Assembly in TAIWAN | Assembly in JAPAN | Assembly in TAIWAN | Assembly in JAPAN | Assembly in TAIWAN | Assembly in JAPAN | Assembly in TAIWAN |
| RV1S2211A | ● | ● | ● | — | ●R | — | — | — | ● | — |
| RV1S2281A | ● | ● | ● | — | ●R | — | — | — | ● | — |
| RV1S2285A | ● | ● | ● | — | ●R | — | — | — | ● | — |
| PS2381-1 | ● | ● | ● | — | ●R | — | — | — | ● | — |
| PS2506-1, PS2506L-1 | ● | ● | ● | — | — | — | — | — | — | — |
| PS2514-1, PS2514L-1 | ● | ● | ● | ● | ●B/R | ●B/R | — | — | ● | ● |
| PS2533-1, PS2533L-1 | ● | ● | ● | — | ●R | — | ●R | — | ● | — |
| PS2535-1, PS2535L-1 | ● | ● | ● | — | — | — | ●R | — | ● | — |
| PS2561D-1, PS2561DL-1 PS2561DL1-1, PS2561DL2-1 | ● | ● | ● | ● | ●R | ●R | ●R | ●R | ● | ● |
| PS2561F-1, PS2561FL-1 | ● | ● | ● | ● | — | — | — | — | — | — |
| PS2562-1, PS2562L-1 PS2562L1-1, PS2562L2-1 | ● | ● | ● | — | ●R | — | ●R | — | ● | — |
| PS2565-1, PS2565L-1 PS2565L1-1, PS2565L2-1 | ● | ● | ● | ● | ●R | ●R | ●R | ●R | ● | ● |
| PS2701A-1 | ● | — | ● | ● | ●B/S | ●B/S | ●B/S | ●B/S | ● | ● |
| PS2702-1 | ● | — | ● | ● | ●B/S | ●B/S | ●B/S | ●B/S | ● | ● |
| PS2703-1 | ● | — | ● | ● | ●B/S | ●B/S | ●B/S | ●B/S | ● | ● |
| PS2705A-1 | ● | — | ● | ● | ●B/S | ●B/S | — | — | ● | ● |
| PS2706-1 | ● | — | ● | — | ●B/S | — | ●B/S | — | ● | — |
| PS2711-1 | ● | — | ● | — | ●B/S | — | — | — | ● | — |
| PS2715-1 | ● | — | ● | — | ●B/S | — | — | — | ● | — |
| PS2733-1 | ● | — | ● | — | ●B/S | — | ●B/S | — | ● | — |
| PS2761B-1 | ● | ● | ● | ● | ●R | ●R | ●R | ●R | ● | ● |
| PS2801C-1 | ● | — | ● | ● | ●B | ●B | ●B/S | ●B/S | ● | ● |
| PS2801C-4 | ● | — | ● | — | ●B | — | — | — | ● | — |
| PS2802-1, -4 | ● | — | ● | — | ●B | — | ●B/S | — | ● | — |
| PS2805C-1 | ● | — | ● | ● | ●B | ●B | ●B/S | ●B/S | ● | ● |
| PS2805C-4 | ● | — | ● | — | ●B | — | — | — | ● | — |
| PS2811-1 | ● | — | ● | ● | ●B | ●B | — | — | ● | ● |
| PS2811-4 | ● | — | ● | — | ●B | — | — | — | ● | — |
| PS2815-1 | ● | — | ● | ● | ●B | ●B | — | — | ● | ● |
| PS2815-4 | ● | — | ● | — | ●B | — | — | — | ● | — |
| PS2833-1 | ● | — | ● | — | ●B | — | — | — | ● | — |
| PS2833-4 | ● | — | ● | — | ●B | — | — | — | ● | — |
| PS2841-4A, -4B | ● | — | ● | — | — | — | — | — | — | — |
| PS2845-4A | ● | — | ● | — | — | — | — | — | — | — |
| PS2861B-1 | ● | — | ● | ● | ●R | ●R | ●R | ●R | ● | ● |
| PS2911-1 | ● | — | ● | — | — | — | ●S | — | ● | — |
| PS2913-1 | ● | — | ● | — | — | — | ●S | — | ● | — |
| PS2915-1 | ● | — | ● | — | — | — | ●S | — | ● | — |
| PS2933-1 | ● | — | ● | — | — | — | ●S | — | ● | — |
| PS8101 | ● | — | ● | — | ●B | — | — | — | ● | — |
| PS8302L, PS8302L2 | ● | ● | ● | — | ●R | — | — | — | ● | — |
| PS8352AL2 | ● | ● | ● | — | ●R | — | — | — | ● | — |

SAFETY STANDARD APPROVAL LIST 2

1. ●: certified, R: reinforced insulation, S: supplementary insulation, B: basic insulation

2. A special ordering number is required for VDE-conformant products.

| Part Number | Safety Standards | | | | | | | | | |
|--|------------------------------------|--------|----------------------|-----------------------|---|-----------------------|----------------------|-----------------------|---------------------------------------|-----------------------|
| | UL | | | | CSA | | BSI | | VDE | |
| | UL1577 Single/Double Protection | | | | CAN/CSA C22.2 62368-1 IEC 62368-1 | | BS EN 62368-1 | | DIN EN 60747-5-5 DIN IEC 60747-5-5 | |
| | Single | Double | Assembly in JAPAN | Assembly in TAIWAN | Assembly in JAPAN | Assembly in TAIWAN | Assembly in JAPAN | Assembly in TAIWAN | Assembly in JAPAN | Assembly in TAIWAN |
| PS8501, PS8501L1 PS8501L2, PS8501L3 | ● | ● | ● | — | ●R | — | ●R | — | ● | — |
| PS8502, PS8502L1 PS8502L2, PS8502L3 | ● | ● | ● | — | ●R | — | ●R | — | ● | — |
| PS8551AL4 | ● | ● | ● | — | ●R | — | — | — | ● | — |
| PS8802-1, -2 | ● | — | ● | — | ●B | — | — | — | ● | — |
| PS8902 | ● | ● | ● | — | ●R | — | — | — | ● | — |
| PS9001 | ● | ● | ● | — | ●R | — | — | — | ● | — |
| PS9009 | ● | ● | ● | — | ●R | — | — | — | ● | — |
| PS9013 | ● | ● | ● | — | ●R | — | — | — | ● | — |
| PS9031 | ● | ● | ● | — | ●R | — | — | — | ● | — |
| RV1S9060A | ● | ● | ● | — | ●R | — | — | — | ● | — |
| RV1S9061A | ● | ● | ● | — | ●R | — | — | — | ● | — |
| RV1S9062A | ● | ● | ● | — | ●R | — | — | — | ● | — |
| PS9113 | ● | — | ● | — | ●B | — | — | — | ● | — |
| PS9117A | ● | — | ● | — | ●B | — | — | — | ● | — |
| PS9122 | ● | — | ● | — | — | — | — | — | ● | — |
| PS9123 | ● | — | ● | — | ●B | — | — | — | ● | — |
| PS9124 | ● | — | ● | — | ●B | — | — | — | ● | — |
| PS9151 | ● | — | ● | — | — | — | — | — | ● | — |
| RV1S9160A | ● | ● | ● | — | ●B | — | — | — | ● | — |
| RV1S9161A | ● | ● | ● | — | ●B | — | — | — | ● | — |
| RV1S9162A | ● | ● | ● | — | ●B | — | — | — | ● | — |
| RV1S9207A | ● | ● | ● | — | ●R | — | — | — | ● | — |
| RV1S9209A | ● | ● | ● | — | ●R | — | — | — | ● | — |
| RV1S9213A | ● | ● | ● | — | ●R | — | — | — | ● | — |
| RV1S9231A | ● | ● | ● | — | ●R | — | — | — | ● | — |
| RV1S9260A | ● | ● | ● | — | ●R | — | — | — | ● | — |
| RV1S9261A | ● | ● | ● | — | ●R | — | — | — | ● | — |
| RV1S9262A | ● | ● | ● | — | ●R | — | — | — | ● | — |
| PS9303L, PS9303L2 | ● | ● | ● | — | ●R | — | — | — | ● | — |
| PS9307AL, PS9307AL2 | ● | ● | ● | — | ●R | — | — | — | ● | — |
| PS9309L, PS9309L2 | ● | ● | ● | — | ●R | — | — | — | ● | — |
| PS9313L, PS9313L2 | ● | ● | ● | — | ●R | — | — | — | ● | — |
| PS9317L, PS9317L2 | ● | ● | ● | — | ●R | — | — | — | ● | — |
| PS9324L, PS9324L2 | ● | ● | ● | — | ●R | — | — | — | ● | — |
| PS9331L, PS9331L2 | ● | ● | ● | — | ●R | — | — | — | ● | — |
| PS9332L, PS9332L2 | ● | ● | ● | — | ●R | — | — | — | ● | — |
| PS9351L, PS9351L2 | ● | ● | ● | — | ●R | — | — | — | ● | — |
| PS9352AL2 | ● | ● | ● | — | ●R | — | — | — | ● | — |
| RV1S9353A | ● | ● | ● | — | ●R | — | — | — | ● | — |
| PS9402 | ● | ● | ● | — | ●R | — | — | — | ● | — |
| PS9506, PS9506L1 PS9506L2, PS9506L3 | ● | ● | ● | — | ●R | — | — | — | ● | — |
| PS9513, PS9513L1 PS9513L2, PS9513L3 | ● | ● | ● | — | ●R | — | ●R | — | ● | — |

SAFETY STANDARD APPROVAL LIST 3

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| Part Number | Safety Standards | | | | | | | | | |
|--|------------------------------------|--------|----------------------|-----------------------|---|-----------------------|----------------------|-----------------------|--|-----------------------|
| | UL | | | | CSA | | BSI | | VDE | |
| | UL1577 Single/Double Protection | | | | CAN/CSA C22.2 62368-1 IEC 62368-1 | | BS EN 62368-1 | | DIN EN 60747-5-5 DIN EN IEC 60747-5-5 | |
| | Single | Double | Assembly in JAPAN | Assembly in TAIWAN | Assembly in JAPAN | Assembly in TAIWAN | Assembly in JAPAN | Assembly in TAIWAN | Assembly in JAPAN | Assembly in TAIWAN |
| PS9531, PS9531L1 PS9531L2, PS9531L3 | • | • | • | – | •R | – | – | – | • | – |
| PS9551AL4 | • | • | • | – | •R | – | – | – | • | – |
| PS9587, PS9587L1 PS9587L2, PS9587L3 | • | • | • | – | •R | – | •R | – | • | – |
| PS9817A-1, -2 | • | – | • | – | •B | – | – | – | • | – |
| PS9821-1, -2 | • | – | • | – | •B | – | – | – | • | – |
| PS9822-1, -2 | • | – | • | – | – | – | – | – | • | – |
| PS9851-1, -2 | • | – | • | – | – | – | – | – | • | – |
| PS9905 | • | • | • | – | •R | – | – | – | • | – |
| PS9924 | • | • | • | – | •R | – | – | – | • | – |
| RV1S9960A | • | • | • | – | •R | – | – | – | • | – |

RECOMMENDED LAND PATTERN

Unit : mm

| LS05 | DIP4 (L) | SDIP6 |
|-----------|-----------|------------|
| | | |
| LSDIP8 | DIP4 (L2) | SDIP6 (L2) |
| | | |
| S016 | DIP8 (L3) | SDIP8 (L) |
| | | |
| DIP8 (L4) | DIP8 (L2) | SDIP8 (L2) |
| | | |

Unit : mm

| S05 | SSOP4 | LSS05 |
|------------------------------------|---|--------------------------------------|
| <p>1.27 0.8 1.45 6.25 2.54</p> | <p>0.8 1.45 6.25 1.27</p> | <p>0.65 0.35 1.3 9.5 1.3 0.4</p> |
| S08 | SSOP16 | LSSOP |
| <p>1.27 0.8 1.45 5.25</p> | <p>1.27 0.8 1.45 6.25</p> | <p>0.4 1.3 9.5 1.3</p> |
| SOP | SSOP12 | |
| <p>0.8 1.45 6.25 2.54</p> | <p>0.80 0.5 1.45 6.25</p> | |
| LSOP | Flat lead | |
| <p>0.8 1.3 9.5 2.54</p> | <p>0.8 0.6 1.27 0.35 4.14 1.3 5.7 24-R0.1</p> | |

TAPING & REEL SPECIFICATIONS



Direction of Product Inserted in Tape


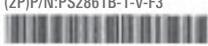
| LS05 | S05 | S08 | S016 |
|------------|--------------|--------------|-----------------|
| | | | |
| LSDIP | SDIP6 (L,L2) | SDIP8 (L,L2) | DIP8 (L2,L3,L4) |
| | | | |
| DIP (L,L2) | SOP | LSOP | Flat lead |
| | | | |
| SSOP4 | SSOP16 | SSOP12 | LSS05 / LSSOP |
| | | | |

| Reel Dimensions | | | | | |
|------------------------------------|------|----------------|-----------|-----------|------------|
| Symbol | Unit | Tape Width (W) | | | |
| | | 12 mm | 16 mm | 16 mm | 24 mm |
| A | mm | Ø330±2.0 | Ø330±2.0 | Ø330±2.0 | Ø330±2.0 |
| W1 | mm | 13.4±1.0 | 17.4±1.0 | 17.4±1.0 | 25.4±1.0 |
| W2 | mm | 17.4±1.0 | 21.4±1.0 | 21.4±1.0 | 29.4±1.0 |
| B | mm | Ø100±1.0 | Ø100±1.0 | Ø80±1.0 | Ø100±1.0 |
| C | mm | Ø13.0±0.2 | Ø13.0±0.2 | Ø13.0±0.2 | Ø13.0±0.2 |
| D | mm | Ø21.0±0.8 | Ø21.0±0.8 | Ø21.0±0.8 | Ø21.0±0.8 |
| E | mm | 2.0±0.5 | 2.0±0.5 | 2.0±0.5 | 2.0±0.5 |
| Package (IC output coupler) | | S05 | DIP8 (L3) | | DIP8 (L2) |
| | | S08 | DIP8 (L4) | | SDIP6 (L2) |
| | | | SDIP6 (L) | | SDIP8 (L2) |
| | | | SDIP8 (L) | | LSDIP8 |
| | | | LS05 | | SO16 |
| Package (Tr. output coupler) | | SOP | DIP4 (L) | | DIP4 (L2) |
| | | Flat leads | LSOP | | |
| | | | LSSOP | | |
| | | SSOP12 | SSOP4 | SSOP16 | |

| Tape Dimensions (IC Output Coupler) | | | | | | | | | | | | | | |
|-------------------------------------|------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Symbol | Unit | S05 | S08 | DIP8 (L3) | DIP8 (L4) | SDIP6 (L) | SDIP8 (L) | LS05 | LSS05 | DIP8 (L2) | SDIP6 (L2) | SDIP8 (L2) | LSDIP8 | SO16 |
| A0 | mm | 3.9±0.1 | 6.4±0.1 | 10.3±0.1 | 9.95±0.1 | 5.08±0.1 | 6.35±0.1 | 4.3±0.1 | 2.85±0.1 | 10.4±0.1 | 5.08±0.1 | 6.35±0.1 | 7.2±0.1 | 10.9±0.1 |
| B0 | mm | 7.4±0.1 | 5.56±0.1 | 10.4±0.1 | 10.55±0.1 | 10.2±0.1 | 10.2±0.1 | 10.7±0.1 | 10.7±0.1 | 12.5±0.1 | 12.0±0.1 | 12.0±0.1 | 17.2±0.1 | 10.8±0.1 |
| K0 | mm | 3.0±0.1 | 3.6±0.1 | 4.75±0.1 | 4.2±0.1 | 4.05±0.1 | 4.05±0.1 | 2.3±0.1 | 2.1±0.1 | 4.1±0.1 | 4.05±0.1 | 4.05±0.1 | 4.05±0.1 | 3.8±0.1 |
| P1 | mm | 8.0±0.1 | 8.0±0.1 | 12.0±0.1 | 12.0±0.1 | 8.0±0.1 | 8.0±0.1 | 8.0±0.1 | 4.0±0.1 | 12.0±0.1 | 8.0±0.1 | 8.0±0.1 | 12.0±0.1 | 16.0±0.1 |
| D1 | mm | Ø1.55±0.1 | Ø1.7±0.1 | Ø1.55±0.1 | Ø1.55±0.1 | Ø1.55±0.1 | Ø1.55±0.1 | Ø1.55±0.1 | Ø1.55±0.1 | Ø2.05±0.05 | Ø2.05±0.1 | Ø2.05±0.1 | Ø2.0±0.2 | Ø1.55±0.1 |
| J | mm | Ø1.5+0.1/-0 | Ø1.5+0.1/-0 | Ø1.5+0.1/-0 | Ø1.5+0.1/-0 | Ø1.5+0.1/-0 | Ø1.5+0.1/-0 | Ø1.5+0.1/-0 | Ø1.5+0.1/-0 | Ø1.5+0.1/-0 | Ø1.5+0.1/-0 | Ø1.5+0.1/-0 | Ø1.5+0.1/-0 | Ø1.5+0.1/-0 |
| H | mm | 4.0±0.1 | 4.0±0.1 | 4.0±0.1 | 4.0±0.1 | 4.0±0.1 | 4.0±0.1 | 4.0±0.1 | 4.0±0.1 | 4.0±0.1 | 4.0±0.1 | 4.0±0.1 | 4.0±0.1 | 4.0±0.1 |
| E | mm | 1.75±0.1 | 1.75±0.1 | 1.75±0.1 | 1.75±0.1 | 1.75±0.1 | 1.75±0.1 | 1.75±0.1 | 1.75±0.1 | 1.75±0.1 | 1.75±0.1 | 1.75±0.1 | 1.75±0.1 | 1.75±0.1 |
| G | mm | 2.0±0.05 | 2.0±0.05 | 2.0±0.1 | 2.0±0.1 | 2.0±0.1 | 2.0±0.1 | 2.0±0.1 | 2.0±0.1 | 2.0±0.1 | 2.0±0.1 | 2.0±0.1 | 2.0±0.1 | 2.0±0.1 |
| F | mm | 5.5±0.1 | 5.5±0.1 | 7.5±0.1 | 7.5±0.1 | 7.5±0.1 | 7.5±0.1 | 7.5±0.1 | 7.5±0.1 | 11.5±0.1 | 11.5±0.1 | 11.5±0.1 | 11.5±0.1 | 11.5±0.1 |
| W | mm | 12.0±0.2 | 12.0±0.2 | 16.0±0.3 | 16.0±0.3 | 16.0±0.3 | 16.0±0.3 | 16.0±0.3 | 16.0±0.3 | 24.0±0.3 | 24.0±0.3 | 24.0±0.3 | 24.0±0.3 | 24.0±0.3 |
| t | mm | 0.3±0.05 | 0.3 | 0.35 | 0.3 | 0.35 | 0.35 | 0.3 | 0.3 | 0.3±0.05 | 0.35 | 0.35 | 0.35 | 0.4 |
| x | pcs | 2500 | 1500 | 1000 | 1000 | 2000 | 2000 | 3000 | 3500 | 1000 | 2000 | 2000 | 1000 | 850 |

| Tape Dimensions (Tr. Output Coupler) | | | | | | | | | | |
|--------------------------------------|------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Symbol | Unit | SOP | Flat Leads | SSOP12 | DIP4 (L) | LSOP | LSSOP | SSOP4 | SSOP16 | DIP4 (L2) |
| A0 | mm | 4.4±0.1 | 2.9±0.1 | 6.0±0.1 | 5.3±0.1 | 4.3±0.1 | 2.85±0.1 | 2.85±0.1 | 8.3±0.1 | 5.3±0.1 |
| B0 | mm | 7.4±0.1 | 5.3±0.1 | 7.4±0.1 | 10.3±0.1 | 10.7±0.1 | 10.7±0.1 | 7.55±0.1 | 10.7±0.1 | 12.5±0.1 |
| K0 | mm | 2.4±0.1 | 2.4±0.1 | 2.85±0.1 | 4.0±0.1 | 2.3±0.1 | 2.1±0.1 | 2.3±0.1 | 2.3±0.1 | 4.05±0.1 |
| P1 | mm | 8.0±0.1 | 4.0±0.1 | 8.0±0.1 | 8.0±0.1 | 8.0±0.1 | 4.0±0.1 | 4.0±0.1 | 12.0±0.1 | 8.0±0.1 |
| D1 | mm | Ø1.55±0.1 | Ø1.55±0.05 | Ø1.55±0.1 | Ø1.55±0.1 | Ø1.55±0.1 | Ø1.55±0.1 | Ø1.55±0.1 | Ø1.55±0.1 | Ø2.05±0.1 |
| J | mm | Ø1.5+0.1/-0 | Ø1.5+0.1/-0 | Ø1.5+0.1/-0 | Ø1.5+0.1/-0 | Ø1.5+0.1/-0 | Ø1.5+0.1/-0 | Ø1.5+0.1/-0 | Ø1.5+0.1/-0 | Ø1.5+0.1/-0 |
| H | mm | 4.0±0.1 | 4.0±0.1 | 4.0±0.1 | 4.0±0.1 | 4.0±0.1 | 4.0±0.1 | 4.0±0.1 | 4.0±0.1 | 4.0±0.1 |
| E | mm | 1.75±0.1 | 1.75±0.1 | 1.75±0.1 | 1.75±0.1 | 1.75±0.1 | 1.75±0.1 | 1.75±0.1 | 1.75±0.1 | 1.75±0.1 |
| G | mm | 2.0±0.05 | 2.0±0.05 | 2.0±0.05 | 2.0±0.1 | 2.0±0.1 | 2.0±0.1 | 2.0±0.1 | 2.0±0.1 | 2.0±0.1 |
| F | mm | 5.5±0.05 | 5.5±0.05 | 5.5±0.1 | 7.5±0.1 | 7.5±0.1 | 7.5±0.1 | 7.5±0.1 | 7.5±0.1 | 11.5±0.1 |
| W | mm | 12.0±0.2 | 12.0±0.2 | 12.0±0.2 | 16.0±0.3 | 16.0±0.3 | 16.0±0.3 | 16.0±0.3 | 16.0±0.3 | 24.0±0.3 |
| t | mm | 0.3 | 0.3 | 0.3 | 0.4 | 0.3 | 0.3 | 0.3 | 0.25 | 0.4 |
| x | pcs | 3500 | 3500 | 2500 | 2000 | 3000 | 3500 | 3500 | 2500 | 1000 |

LABEL PRINT EXAMPLES

| OUTER PACKING BOX | REAL |
|--|--|
|  <p style="text-align: center;">LABEL</p> |  <p style="text-align: center;">LABEL</p> |
| LABEL on OUTER PACKING BOX | LABEL on TAPING REEL |
| <p>Assembly in JAPAN</p> <p style="text-align: right;">Marking of Safety Standards</p> <div style="border: 1px solid black; padding: 5px;">  <p style="text-align: center;">Pb-Free T. RENESAS</p> <p>D/N PS2861B1YVF3A/0118B/R2 MC:JPJP SPN PS2861B-1Y-V-F3-A 002G116NR2 MADE IN JAPAN CTR rank</p> <hr/> <p>PN PS2861B-1-V-F3 2014/01/10 PID 124446105V-001 QTY 7000 Quantity (ex. 2reels) PCD 0000184865 T/C 1402 123QA4567 S.LOT YL2209K801</p>  </div> | <p>Assembly in JAPAN</p> <div style="border: 1px solid black; padding: 5px;"> <p>(2P)P/N:PS2861B-1-V-F3  Pb-Free T. RENESAS MC:JPJP L-179V2</p> <p>(P)INTP:PS2861B-1Y-V-F3-A  MC:JPJP L-179V2 (S)BOX ID:L2K9005FB</p> <p>(1P)INTS:PS2861B-1Y-V-F3-A Z/S/NO:NR2 (Q)QTY:3500 CTR rank Quantity</p> <p>(1T)LOT:123QA4567 </p> <p style="text-align: right;">Marking of Safety Standards</p> </div> |
| <p>Assembly in TAIWAN</p> <p style="text-align: right;">Marking of Safety Standards</p> <div style="border: 1px solid black; padding: 5px;">  <p style="text-align: center;">Pb-Free T. RENESAS</p> <p>D/N PS2861B1YVF3A/0118B/R2 MC:JPTWTW SPN PS2861B-1Y-V-F3-A 002G116NR2 ASSEMBLED IN TAIWAN FROM WAFERS OF JAPAN CTR rank</p> <hr/> <p>PN PS2861B-1-V-F3 2014/01/10 PID 124446105V-001 QTY 7000 Quantity (ex. 2reels) PCD 0000184865 T/C 1402 123WB4567 S.LOT YL2209K801</p>  </div> | <p>Assembly in TAIWAN</p> <div style="border: 1px solid black; padding: 5px;"> <p>(2P)P/N:PS2861B-1-V-F3  Pb-Free T. RENESAS MC:JPJP L-179V2</p> <p>(P)INTP:PS2861B-1Y-V-F3-A  MC:JPJP L-179V2 (S)BOX ID:L2K9005FB</p> <p>(1P)INTS:PS2861B-1Y-V-F3-A Z/S/NO:NY2 (Q)QTY:3500 CTR rank Quantity</p> <p>(1T)LOT:123QA4567 </p> <p style="text-align: right;">Marking of Safety Standards</p> </div> |

PART NUMBER GUIDE

Part number guide = P/N starting with "RV1S" =



*) P/N with "Q" at "Version" indicates products for automotive use. In this case, there are digits that do not follow the definition on this page.

Part number guide = P/N starting with "PS" =



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