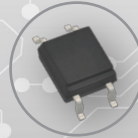
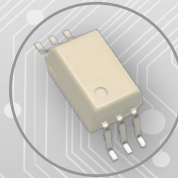
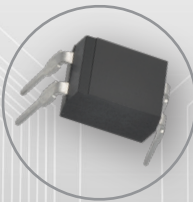
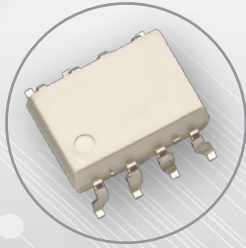
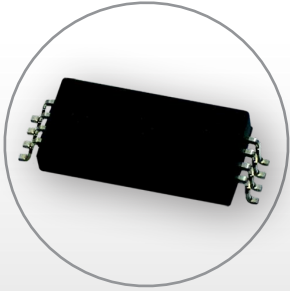


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CEL California Eastern Laboratories

OPTOCOUPLERS + SOLID STATE RELAYS | 2013



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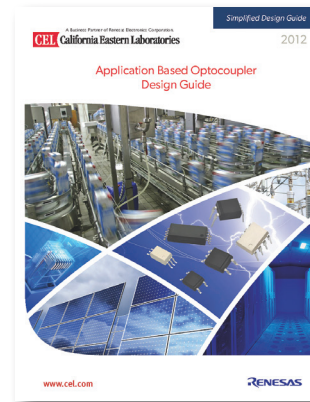
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Also available:

Our **Application Based Optocoupler Design Guide**, the most comprehensive tool for selecting the right Optocoupler to use in our focus applications. We have made selecting the right optocoupler as easy as 1-2-3.

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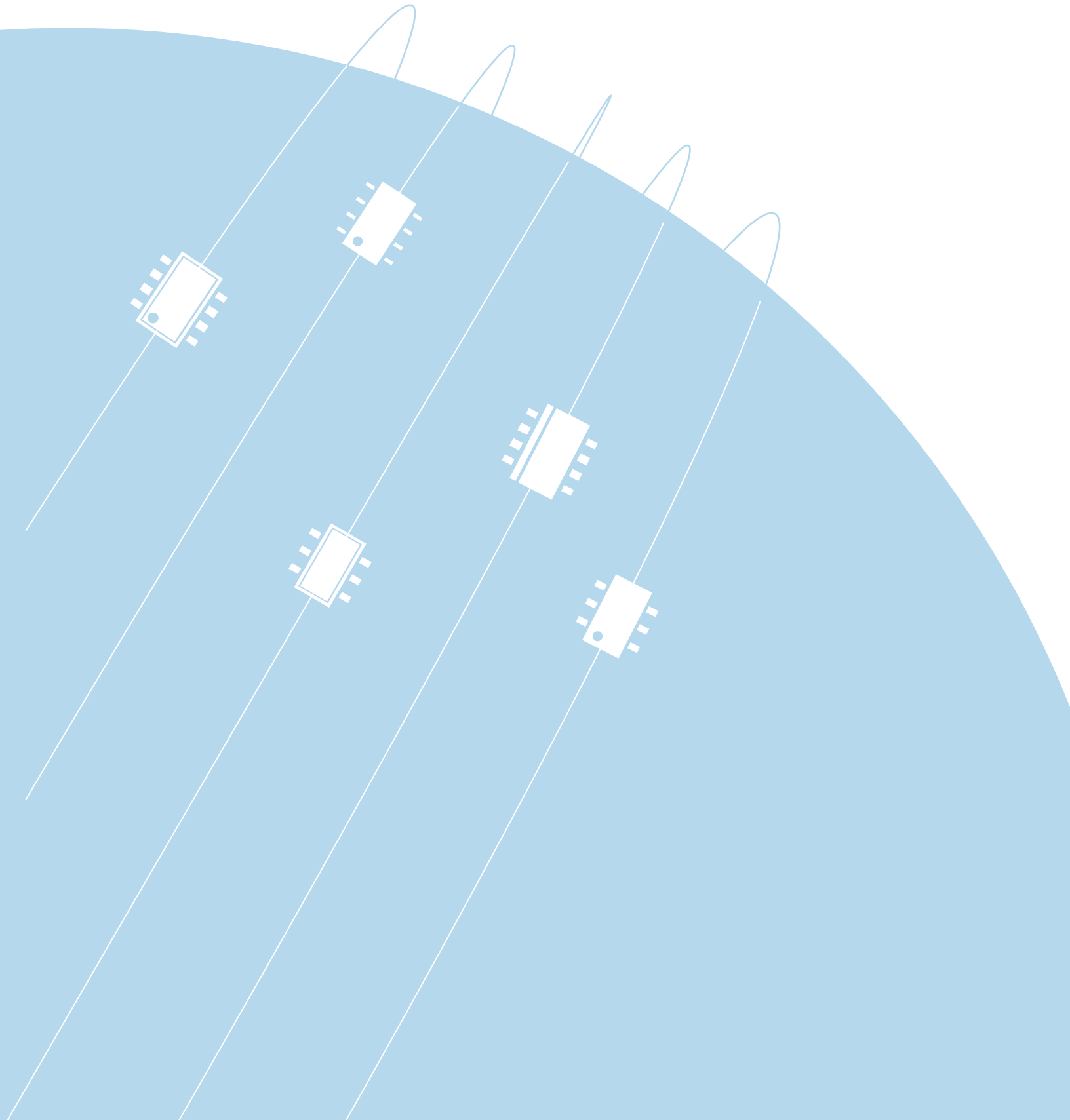
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All information included in this document is current as of the printed date on back. Information is subject to change without notice. Please refer to datasheets or contact your local CEL representative.

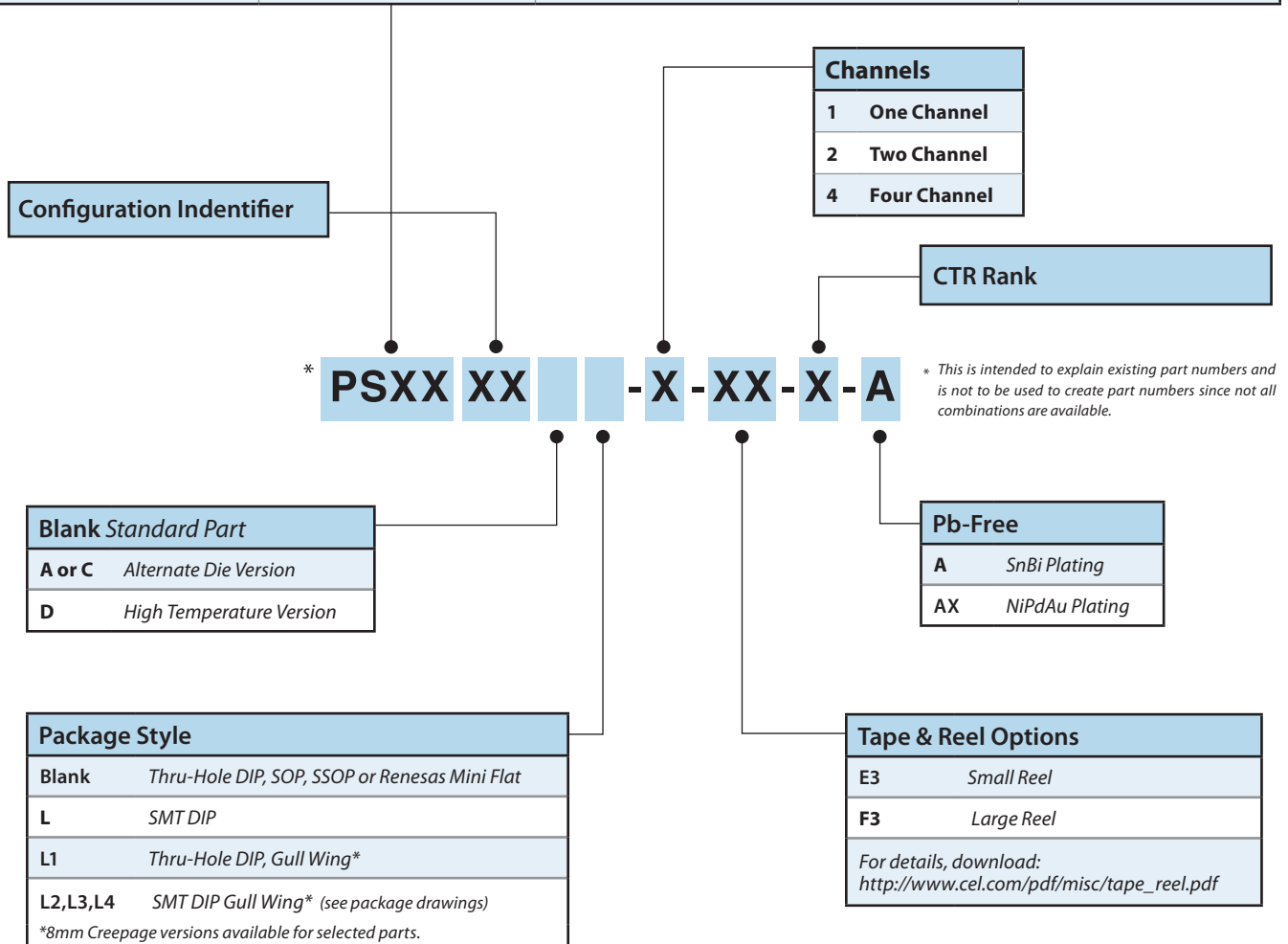
For information visit www.cel.com

Optocouplers



Optocoupler Families Overview, Package Styles and Part Numbering System

Part Number	Description	Package Styles Available	Package Drawing Page
PS23XX Series	Transistor Output	4 pin LSOP (2.54mm pin pitch)	24
PS24XX Series	Transistor Output	8 pin LSDIP	27
PS25XX Series	Transistor Output	4 and 16 pin DIP and DIP SMT	23-25
PS27XX Series	Transistor Output	4 pin SOP (2.54mm pin pitch)	25
PS28XX Series	Transistor Output	4,12 and 16 pin SSOP (1.27mm pin pitch)	25-26
PS29XX Series	Transistor Output	4 pin Mini Flat (flat lead, 1.27mm pin pitch)	26
PS81XX Series	High Speed Analog	5 pin SOP (1.27mm pin pitch)	26
PS83XX Series	High Speed Analog	6 pin SDIP SMT	27
PS85XX Series	High Speed Analog	8 pin DIP and SMT DIP	24
PS88XX Series	High Speed Analog	SO8	26
PS91XX Series	High Speed Digital	5 pin SOP (1.27mm pin pitch)	26
PS92XX Series	High Speed Digital	5 pin SOP (1.27mm pin pitch)	26
PS93XX Series	High Speed Digital	6 pin SDIP SMT	27
PS94XX Series	High Speed Digital	16 pin SSOP	26
PS95XX Series	High Speed Digital	8 pin DIP and SMT DIP	24
PS98XX Series	High Speed Digital	SO8	26
PS99XX Series	High Speed Digital	8-pin LSDIP	27



Transistor Output Series

Function		8-Pin LSDIP, 7.5 KV iso	4-Pin DIP, 5KV iso	SOP, 3.75KV iso	Small SOP, 2.5KV iso	4-Pin flat lead, 2.5KV iso
Input	Output					
DC	Single	–	–	PS2381 (Long Creepage, 5KV iso)	PS2801C	PS2911
DC	Single	PS2461-1	–	PS2701A	PS2811	PS2913
DC	Single	–	PS2513	PS2703	PS2841	–
DC	Single	–	PS2514	PS2711	PS2861B (3.75KV iso)	–
DC	Single	–	PS2561F	PS2761B	–	–
DC	Single	–	PS2561D	–	–	–
DC	Darlington	–	PS25x2	PS2702	PS2802	–
AC	Single	–	PS25x5	PS27x5	PS28x5	PS2915
AC	Single	–	–	PS2705A	PS2805C	–
AC	Darlington	–	PS2506	–	–	–
DC & Low input Current	Single	–	PS2503	PS271x	PS281x	PS291x
DC	High Collector to Emitter Voltage	–	PS253x	PS2733	PS2833	PS2933

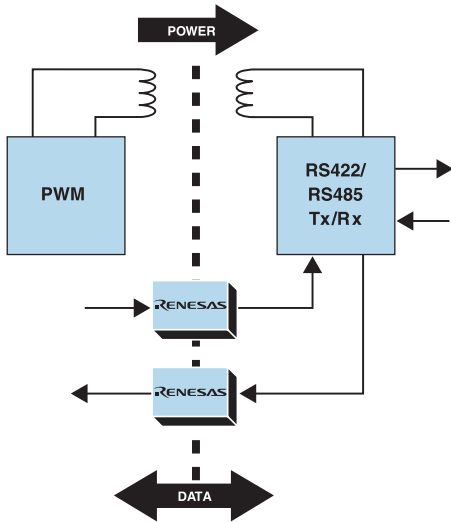
IC Output

Function			8-Pin DIP Creepage 8mm, 5KV iso	5-Pin SOP (SO-5), 3.75 KV iso	6-Pin SDIP Creepage 8mm, 5KV iso	8-Pin Small SOP (SO-8), 2.5KV iso	8-Pin LSDIP 7.5 KV iso
Category	Speed	Output					
High-Speed	1Mbps	Analog	PS8501	PS8101	PS8302 (TA=110°C)	PS8802-1/-2	–
High-Speed	1Mbps	Analog	PS8502	–	–	PS8821-1/-2	–
High-Speed	1Mbps	Digital	PS9513	PS9113	PS9303 (Active high)	PS9822-1/-2	–
High-Speed	1Mbps	Digital	–	PS9213 (Creepage 5.5mm)	PS9313 (TA=110°C)	–	–
High-Speed	1Mbps	Digital	–	PS9122	–	–	–
High-Speed	10Mbps	Digital	PS9587	PS9117A/PS9124	PS9317	PS9817A-1/-2	PS9924
High-Speed	15Mbps	Digital	–	PS9121	–	PS9821-1/-2	–
High-Speed	15Mbps	CMOS	–	PS9151	PS9351	PS9851-1/-2	–
High-Speed	15Mbps	Totem Pole Output	–	PS9123	–	–	–
Isolation Amplifier		Analog	PS8551	–	–	–	–
		Digital	PS9551	–	–	–	–

Motor Drive

Function		8-Pin DIP Creepage 8mm	5-Pin SOP (SO-5)	6-Pin SDIP Creepage 8mm	8-Pin SDIP Creepage 8mm	8-Pin LSDIP Creepage 14.5mm
Motor Drive (Inverter)		PS9513	PS9113	PS9309 (Active high) PS9303 (Active high)	–	–
		–	–	PS9313 (TA=110°C)	–	–
Isolated Gate Driver	0.6A	PS9506	–	PS9306L/PS9307	–	–
	2.0A	–	–	–	PS9308	–
	2.5A	PS9505	–	–	PS9305L	PS9905

Recommended Optocouplers by Application



RS422/485 Interface Isolation

The RS485 serial communications standard is commonly used in data acquisition applications. The standard supports 32 drivers and receivers in a 2- or 4-wire differential configuration with cable lengths up to 4000 feet. Galvanic isolation becomes critical in the prevention of ground loops, electrical noise, and power spikes in widely distributed systems.

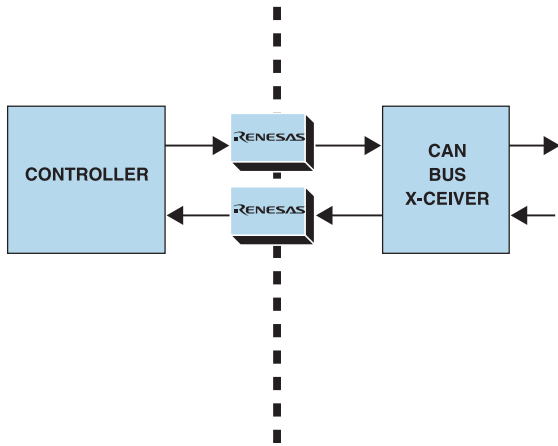
Application Requirements

- Wide range of data transfer rates: 1 Mbps to 15 Mbps
- High Common Mode Rejection Ratio (CMRR)
- Compact size
- Repeatability
- Reliability

Recommended Renesas Optocouplers

Tx/Rx Input: PS8802-1, 2, PS8821-1, 2 (1 Mbps)
 PS9117A, PS9124, PS9817A-1, 2, (10 Mbps)
 PS9121, PS9123, PS9821-1, 2, (15 Mbps)

Tx/Rx Output: PS2711 (Transistor Optocoupler)



CAN Interface Isolation

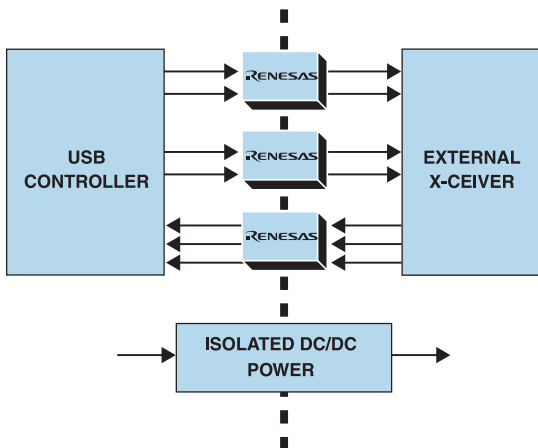
Controller Area Network (CAN) is a serial communications bus popular in industrial applications. Point-to-point and multi-point systems use it to coordinate and synchronize events. Isolation is required in these distributed systems to protect against over-voltage transients, prevent ground loops, and reduce signal distortion.

Application Requirements

- Accurate signal timing
- High Common Mode Rejection Ratio (CMRR)
- Compact size
- Repeatability
- Reliability

Recommended Renesas Optocouplers

PS9151, PS9123, PS9351, PS9851-1, 2



USB 2.0 Interface Isolation

USB is an inexpensive, high speed bus-integration interface used in computer-based systems. While the USB standard does not mandate isolation, designers recognize its importance in critical systems. Isolation protects USB interfaces from electrostatic discharge (ESD), ground loops, common mode noise, and EMI interference.

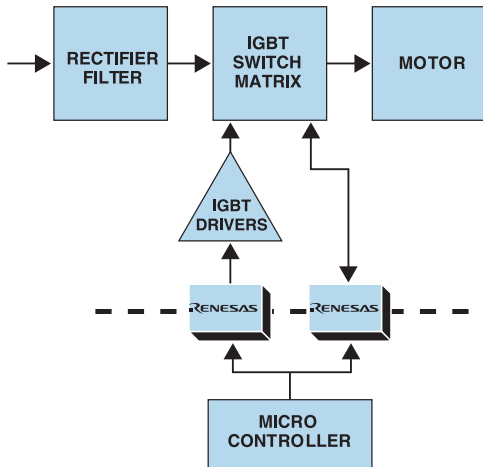
Application Requirements

- High CMRR
- Compact Size
- Low power consumption
- Data Transfer Rates: up to 15 Mbps
- Reliability

Recommended Renesas Optocouplers

PS9121, PS9123, PS9124, PS9151, PS9351, PS9821-1, 2, PS9851-1, 2

Recommended Optocouplers by Application



Motor Drive Control Isolation

Motor controllers combine low level logic with high voltage, high power electronics like Intelligent Power Modules (IPM). Isolation enables communication between the controllers and the drivers at both the high and low side power modules. Faults and other events are typically transferred across this isolation barrier as well.

Application Requirements

- Fast response time: $<0.8\mu\text{s}$
- High Common Mode Rejection Ratio (CMRR): $>10\text{kV}/\mu\text{s}$
- Isolation: typically 2500V AC
- Long creepage: up to 8mm

Recommended Renesas Optocouplers

PS9113, PS9301, PS9513, PS9305L, PS9505, PS9506, PS8551, PS9307, PS9308, PS9309, PS9402, PS9551, PS9905

Power Supply Isolation

Power supplies are used in a wide variety of applications. Galvanic isolation is required for safety and to allow independent secondary side isolation. High speed optocouplers are used to transfer gate drive and synchronous rectification signals from the controller to the switching elements.

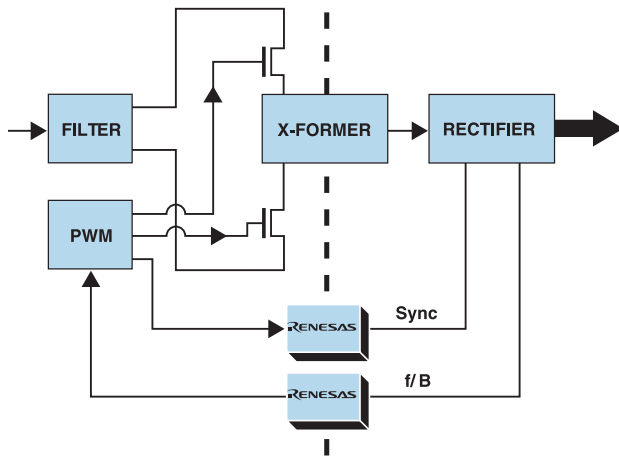
Application Requirements

- High temperature: up to 100°C
- Fast response time
- Low power consumption
- Compact size
- Repeatability

Recommended Renesas Optocouplers

Sync: PS8501, PS9817A-1, 2, PS9122

Feedback: PS2381, PS2561D, PS2911, PS2761B (Transistor Optocouplers)



802.3af Power over Ethernet (PoE)

PoE offers a simple, reliable, cost effective solution for power transmission. It can deliver 13W of power over existing Ethernet cabling in applications ranging from industrial IT to home office networks. To ensure safety, the 802.3af standard requires 1500V AC of galvanic isolation between the main switch circuitry and the Media Dependent Interface (RJ-45 terminal). The communication from the switch to the PSE chip occurs over an isolated I²C bus.

Application Requirements

- 3.3V and 5V operation
- 1500VAC minimum isolation
- Small size
- Standard Mode (100 Kbps data rate)
- Fast Mode (400 Kbps data rate)
- Fast Mode + (1Mbps)
- High Speed (3.4 Mbps)

Recommended Renesas Optocouplers

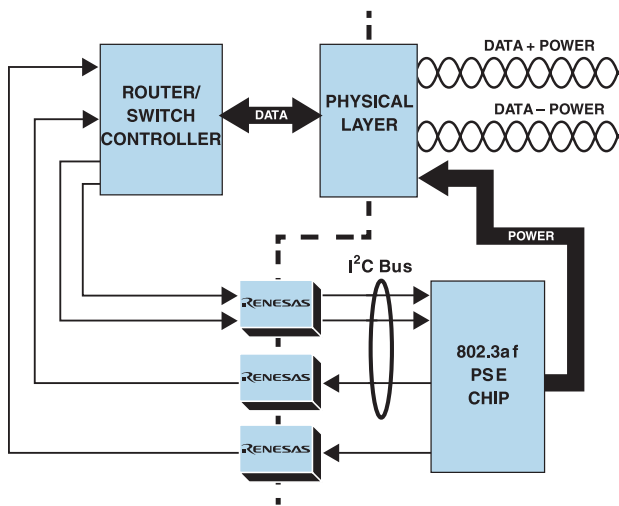
PS8821-1, 2, PS9122 (Standard Mode)

PS9121, PS9122 (Fast Mode)

PS9117A, PS9121, PS9821-1, 2, PS9817A (High Speed)

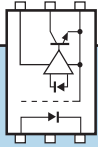
PS9122, PS9822 (Fast Mode +)

PS2841-4, PS2911 (Transistor Optocouplers)



High Speed Digital Optocouplers

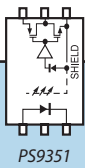
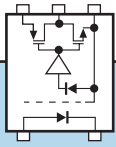
Package	Part Number	Speed (Mbps)	Vcc Range (V) Recommended	Absolute Max Rating			Typical		Safety Certification ¹
				BV (Vr.m.s.)	I _o (mA)	I _F (mA)	t _{PHL} (ns)	t _{PLH} (ns)	



Single channel, open collector output

Isolation for measurement equipment, plasma display panels and factory automation equipment

SOP5	PS9117A	10	4.5 to 5.5	3750	25	30	40	45	UL, VDE
SOP5	PS9121	15	2.7 to 3.6	3750	25	30	40	45	UL, VDE
SOP5 ²	PS9122	1	N = 2.7 to 3.6 L = 4.5 to 5.5	3750	10	25	500 max	700 max	UL, VDE
SOP5	PS9124	10	3.3 to 5.0	3750	25	25	40	45	UL, CSA, VDE

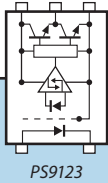
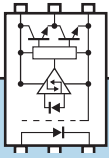


PS9351

Single channel, CMOS output, -40 to 100°C operation

Isolation for measurement equipment, plasma display panels and factory automation equipment

SOP5	PS9151	15	4.5 to 5.5	3750	2	20	35	35	UL, VDE
SDIP6	PS9351	15	4.5 to 5.5	5000	2	25	30	35	UL, CSA, VDE

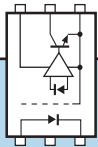


PS9123

Single channel, totem pole output, -40 to 100°C operation

Isolation for IPM Drives, Inverters

SDIP6 Gull Wing	PS9303L	1	4.5 to 20	5000	25	20	250	250	UL, CSA, VDE
SDIP6 8mm Creepage	PS9303L2								
SOP5	PS9123	15	4.5 to 5.5	3750	13	20	28	32q	US, CSA, VDE



Single channel, open collector output

Isolation for measurement equipment, plasma display panels and factory automation equipment

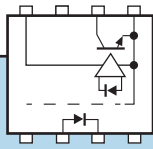
SDIP6 Gull Wing	PS9317L	10	4.5 to 5.5	5000	25	20	40	35	UL, CSA, VDE
SDIP6 8mm Creepage	PS9317L2								

NOTES: 1. Other safety certifications available, see data sheet. 2. -40 to 100°C operation.

Continued next page

High Speed Digital Optocouplers *Continued...*

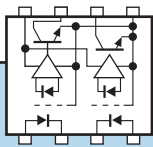
Package	Part Number	Speed (Mbps)	Vcc Range (V) Recommended	Absolute Max Rating			Typical		Safety Certification ¹
				BV (Vr.m.s.)	Io (mA)	If (mA)	t _{PHL} (ns)	t _{PLH} (ns)	



Single channel, open collector output

Isolation for measurement equipment, plasma display panels and factory automation equipment

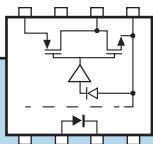
DIP8 Thru-Hole	PS9587	10	4.5 to 5.5	5000	25	30	35	45	UL, VDE
DIP8 Thru-Hole 8mm Creepage	PS9587L1								
SMT DIP8 8mm Creepage	PS9587L2								
SMT DIP8 Gull Wing	PS9587L3								
SO8	PS9817A-1	10	4.5 to 5.5	2500	25	20	40	45	UL, VDE
SO8	PS9821-1	15	2.7 to 3.6	2500	25	20	45	50	UL, VDE
SO8	PS9822-1	1	N = 2.7 to 3.3 L = 4.5 to 5.5	2500	25	20	500 max	700 max	UL, VDE
8pin LSDIP	PS9924	10	3.3 to 5.0	7500	25	25	40	50	UL, CSA, SEMKO, VDE



Two channel, open collector output

Isolation for measurement equipment, plasma display panels and factory automation equipment

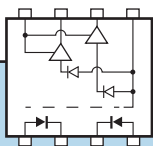
SO8	PS9817A-2	10	4.5 to 5.5	2500	25	15	40	45	UL, VDE
SO8	PS9821-2	15	2.7 to 3.6	2500	25	15	45	50	UL, VDE
SO8	PS9822-2	1	N = 2.7 to 3.3 L = 4.5 to 5.5	2500	25	15	500 max	700 max	UL, VDE



Single channel, CMOS output

Isolation for measurement equipment, plasma display panels and factory automation equipment

SO8	PS9851-1	15	4.5 to 5.5	2500	2	20	34	37	UL, VDE
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Two channel, CMOS output

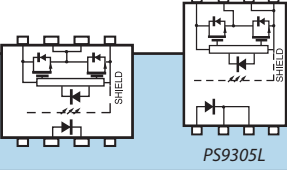
Isolation for measurement equipment, plasma display panels and factory automation equipment

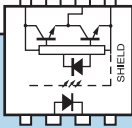
SO8	PS9851-2	15	4.5 to 5.5	2500	2	20	34	37	UL, VDE
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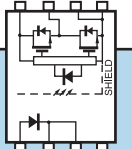
NOTES: 1. Other safety certifications available, see datasheet.

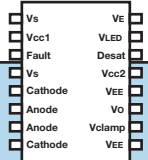
Digital Optocouplers for IGBT and MOSFET Motor Drive Applications

Package	Part Number	Vcc Range (V)	t _{PHL} - t _{PLH} (ns) max	Typical		BV (Vr.m.s.)	Safety Certification
				t _{PHL} (ns)	t _{PLH} (ns)		

 <p>PS9305L</p>		<p>Single channel for MOSFET, IGBT driver isolation</p> <p>Features - 2.5A Output Current, High CMR(25kV/us), UVLO (Under Voltage Lock Out) protection with hysteresis</p>					
8-Pin LSDIP Gull Wing	PS9905	15 to 30	75	100	90	7500	UL, CSA, SEMKO, VDE
DIP8 Thru-Hole	PS9505	15 to 30	100	180	180	5000	UL, VDE, CSA
DIP8 Thru-Hole 8mm Creepage	PS9505L1						
SMT DIP8 Gull Wing 8mm Creepage	PS9505L2						
SMT DIP8 Gull Wing	PS9505L3						
SDIP8 Gull Wing	PS9305L						

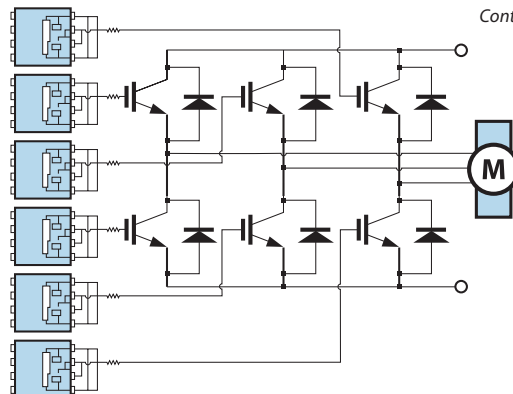
		<p>Single channel for MOSFET, IGBT driver isolation</p> <p>Features - 0.6A Output Current, High CMR(25kV/us)</p>					
DIP8 Thru-Hole	PS9506	10 to 30	150	180	180	5000	UL, VDE, CSA
DIP8 Thru-Hole 8mm Creepage	PS9506L1						
SMT DIP8 Gull Wing 8mm Creepage	PS9506L2						
SMT DIP8 Gull Wing	PS9506L3						

		<p>Single channel for MOSFET, IGBT driver isolation, Industrial inverter, induction heating</p> <p>Features - 2.0A Output Current, High CMR (25kV/us), UVLO (Under Voltage Lock Out) protection with hysteresis</p>					
SDIP6 Gull Wing	PS9308L	15 to 30	100	100	180	5000	UL, VDE, CSA
SDIP6 with 8mm Creepage	PS9308L2						

		<p>Single channel for MOSFET, IGBT driver isolation, Industrial inverter, induction heating</p> <p>Features - 2.5A Output Current, High CMR(25kV/us), UVLO (Under Voltage Lock Out) protection with hysteresis, desaturation detection, Miller clamping</p>					
16 pin SSOP	PS9402	15 to 30	100	100	100	5000	UL, CSA, VDE

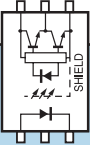
Motor Drive Isolation

Motor drive applications demand more voltage and current than most ICs and microcontrollers can provide. A variety of devices have been developed to address the problem such as IGBTs, MOSFETs and Intelligent Power Modules (IPMs). These high power drivers use optocouplers to isolate other ICs and components from the power spikes and electrical noise that their motors generate.

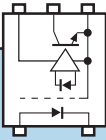
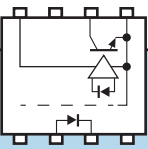
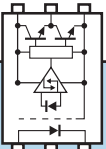


Continued next page

Digital Optocouplers for IGBT and MOSFET Motor Drive Applications *Continued...*

Package	Part Number	Vcc Range (V)	$t_{PHL} - t_{PLH}$ (ns) max	Typical		BV (Vr.m.s.)	Safety Certification
				t_{PHL} (ns)	t_{PLH} (ns)		
 <p>Single channel for MOSFET, IGBT driver isolation Features - 0.6A Output Current, High CMR (25kV/us)</p>							
6 pin SDIP Gull Wing	PS9306L	10 to 30	150	180	180	5000	UL, VDE, CSA
6 pin SDIP Gull Wing 8 mm Creepage	PS9306L2						
6 pin SDIP Gull Wing	PS9307L	10 to 30	120	90	75	5000	UL, CSA, SEMKO, VDE
6 pin SDIP Gull Wing 8 mm Creepage (minimum CMR=±50kV/μs, Tλ=125°C MAX)	PS9307L2						

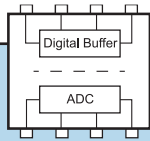
Digital High Functionality Optocouplers for Motor Drive Applications

Package	Part Number	Vcc Range (V) Recommended	Absolute Max Rating			Typical		Safety Certification ¹
			BV (Vr.m.s.)	I _o (mA)	I _F (mA)	t_{PHL} (ns)	t_{PLH} (ns)	
 <p>Single channel, open collector output, high temp operation <i>Isolation for intelligent power module drivers, inverters</i></p>								
SOP5 ²	PS9113	4.5 to 35	3750	15	25	250	520	UL, VDE
SDIP6 Gull Wing ³	PS9313L	-0.5 to 35	5000	15	25	240	460	UL, VDE, CSA
SDIP6 Gull Wing 8mm Creepage ³	PS9313L2							
SDID6 Gull Wing	PS9309L	4.5 to 20	5000	25	20	124	113	UL, CSA, SEMKO, VDE
SDID 6 Gullwing 8mm Creepage	PS9309L2							
 <p>Single channel, open collector output, -40 to 100°C operation <i>Isolation for intelligent power module drivers, inverters</i></p>								
DIP8 Thru-Hole	PS9513	4.5 to 35	5000	15	25	250	520	UL, VDE, CSA, BSI
DIP8 Thru-Hole 8mm Creepage	PS9513L1							
SMT DIP8 Gull Wing 8mm Creepage	PS9513L2							
SMT DIP8 Gull Wing	PS9513L3							
 <p>Single channel, totem pole output, 1Mbps <i>Isolation for intelligent power module drivers, inverters</i></p>								
SMT DIP6 Gull Wing	PS9303L	4.5 to 5.0	5000	25	20	185	240	UL, CSA, VDE
SDIP6 Gull Wing 8mm Creepage	PS9303L2							

NOTES: 1. Other safety certifications available, see data sheet. 2. -40 to 100°C operation. 3. -40 to 110°C operation.

Isolation Amplifier – Digital

Package	Part Number	Vcc Range (V) Recommended	Input Supply Current I_{DD1} (mA max)	Output Supply Current I_{DD2} (mA max)	Resolution (bits min)	Output Clock Frequency (MHz typ)	BV (Vr.m.s.)	Safety Certification ¹
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Digital isolation amplifier for motor drive applications

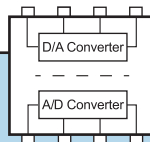
Isolation for intelligent power module drivers, inverters

SMT DIP8 Gull Wing 8mm Creepage	PS9551L4	4.5 to 5.5	14	10	15	10	5000	UL, CSA, BSI
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NOTES: 1. Other safety certifications available, see data sheet.

Isolation Amplifier – Analog

Package	Part Number	Absolute Max Rating		Input Supply Current I_{DD1} (mA max)	Output Supply Current I_{DD2} (mA max)	Output Bandwidth (kHz typ)	Gain V/V (typ)	Gain Error (%)	Safety Certification ¹
		BV (Vr.m.s.)	Vcc (V)						



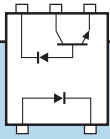
Analog isolation amplifier for motor drive applications, -40 to 100°C operation

SMT DIP8 Gull Wing 8mm Creepage	PS8551L4	5000	5.5	18	16	100	8	±3%	UL, CSA, BSI
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NOTES: 1. Other safety certifications available, see data sheet.

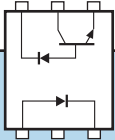
High Speed Analog Optocouplers

Package	Part Number	Speed (Mbps)	Absolute Max Ratings				Typical		CTR ¹ (N = Full range) Rank (%)	Safety Certification ²
			BV (Vr.m.s.)	Vcc (V)	IC (mA)	IF (mA)	t _{PHL} (ns)	t _{PLH} (ns)		



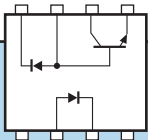
Single channel for power supplies, inverters, computers, peripherals, -55 to 100°C operation

SOP5	PS8101	1	3750	35	8	25	500	600	N = 15 to 35 K = 20 to 35	UL, CSA, BSI
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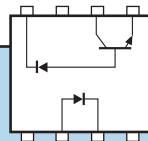
Single channel for power supplies, inverters, computers, peripherals, -40 to 110°C operation

SDIP6 SMT Gull Wing	PS8302L	1	5000	35	8	25	220	350	15 min	UL, VDE, CSA
SDIP6 SMT Gull Wing 8mm Creepage	PS8302L2									



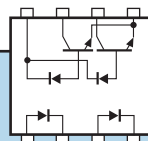
Single channel for measurement and control equipment, modems, inverters, -55 to 100°C operation

DIP8 Thru-Hole	PS8501	1	5000	35	8	25	220	350	15 min	UL, CSA, BSI
DIP8 Thru-Hole 8mm Creepage	PS8501L1									
SMT DIP8 Gull Wing 8mm Creepage	PS8501L2									
SMT DIP8 Gull Wing	PS8501L3									



Single channel for measurement and control equipment, modems, inverters, -55 to 100°C operation

DIP8 Thru-Hole	PS8502	1	5000	35	8	25	220	350	15 min	UL, CSA, BSI
DIP8 Thru-Hole 8mm Creepage	PS8502L1									
SMT DIP8 Gull Wing 8mm Creepage	PS8502L2									
SMT DIP8 Gull Wing	PS8502L3									
SO8	PS8802-1	1	2500	35	8	25	300	600	N = 15 to 35	UL, VDE
	PS8821-1	1	2500	7	8	25	300	500	N = 20 to... ³	UL, VDE



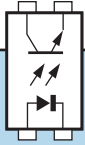
Two channel for measurement and control equipment, modems, inverters, -55 to 100°C operation

SO8	PS8802-1	1	2500	35	8	25	300	600	N = 15 to 35	UL, VDE
	PS8821-1	1	2500	7	8	25	300	500	N = 20 to... ³	UL, VDE

NOTES: 1. CTR measured at Vcc = 4.5V, IF = 16 mA. 2. Other safety certifications available, see data sheet. 3. CTR measured at Vcc = 3.3V, IF = 16 mA.

Single Transistor, General Purpose DC Optocouplers

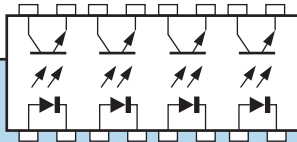
Package	Part Number	Absolute Max Ratings				CTR (N = Full range) Rank (%)	Safety Certification
		BV (Vr.m.s.)	VCEO (V)	IF (mA)	IC (mA)		



Single channel DC device for low-speed logic applications

CTR measured @ VCE = 5V, IF = 5mA

SOP4 For high temp applications see PS2761B, page 18	PS2701A	3750	70	30	30	N = 15 to 35 P = 150 to 300 L = 100 to 300 M = 50 to 150	UL, CSA, BSI
SSOP4 For high temp applications see PS2861B, page 18	PS2801C	2500	80	30	30	N = 50 to 400 L = 100 to 300 M = 100 to 400 P = 150 to 300	UL, VDE, CSA



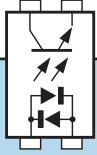
Four channel DC device for low-speed logic applications

CTR measured @ VCE = 5V, IF = 5mA

DIP16 Thru-Hole	PS2501-4	5000	80	80	50	N = 80 to 600	UL
SMT DIP16	PS2501L-4						
SSOP16	PS2801C-4	2500	80	30	30	N = 50 to 400 M = 100 to 400	UL, CSA

Single Transistor, General Purpose AC Optocouplers

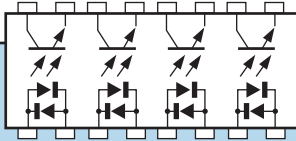
Package	Part Number	Absolute Max Ratings				CTR (N = Full range) Rank (%)	Safety Certification
		BV (Vr.m.s.)	VCEO (V)	IF (mA)	IC (mA)		



Single channel AC devices with high isolation voltage

CTR measured @ VCE = 5V, IF = 5mA

DIP4 Thru-Hole	PS2505	5000	80	± 80	50	N = 80 to 600	UL
SMT DIP4	PS2505L						
SOP4	PS2705A	3750	70	± 30	30	N = 50 to 300 L = 100 to 300 M = 50 to 150	UL, VDE, CSA
SSOP4	PS2805C	2500	80	± 30	30	N = 50 to 400 M = 100 to 400	UL, VDE, CSA



Four channel AC devices with high isolation voltage

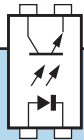
CTR measured @ VCE = 5V, IF = 5mA

DIP16 Thru-Hole	PS2505-4	5000	80	± 80	50	N = 80 to 600	UL
SMT DIP16	PS2505L-4						
SSOP16	PS2805C-4	2500	80	± 30	30	N = 50 to 400 M = 100 to 400	UL, VDE, CSA

NOTE: Other safety certifications available, see datasheet.

Single Transistor DC & AC Optocouplers, Characterized for low input current (1 mA)

Package	Part Number	Absolute Max Ratings				CTR (N = Full range) Rank (%)	Safety Certification
		BV (Vr.m.s.)	VCEO (V)	IF (mA)	IC (mA)		



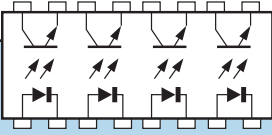
Single channel DC device optimized for power supply applications

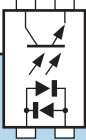
CTR measured @ VCE = 5V, IF = 1mA

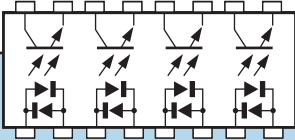
DIP4 Thru-Hole	PS2503	5000	40	80	30	N = 100 to 400 K = 200 to 400 L = 150 to 300 M = 100 to 200	UL, CSA
SMT DIP4	PS2503L						
DIP4 Thru-Hole	PS2513	5000	120	60	30	N = 25 to 100	UL, VDE
SMT DIP4	PS2513L						
SOP4	PS2711	3750	40	50	40	N = 100 to 400 K = 200 to 400 L = 150 to 300 M = 100 to 200	UL, VDE
SSOP4	PS2811	2500	40	50	40	N = 100 to 400 K = 200 to 400 L = 150 to 300 M = 100 to 200	UL, VDE
4 Pin Mini Flat	PS2911	2500	40	50	40	N = 100 to 400 K = 200 to 400 L = 150 to 300 M = 100 to 200	UL, VDE, BSI
4 Pin Mini Flat	PS2913	2500	120	50	30	N = 50 to 200 K = 100 to 200 L = 75 to 150 M = 50 to 100	UL, VDE, BSI

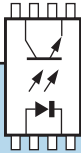
Single Transistor DC & AC Optocouplers, Characterized for low input current (1 mA) *Continued...*

Package	Part Number	Absolute Max Ratings				CTR (N = Full range) Rank (%)	Safety Certification
		BV (Vr.m.s.)	VCEO (V)	IF (mA)	IC (mA)		

	<i>Four channel DC device optimized for power supply applications</i>					<i>CTR measured @ VCE = 5V, IF = 1mA</i>	
SSOP16	PS2811-4	2500	40	50	40	N = 100 to 400	UL, VDE

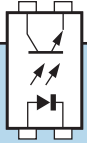
	<i>Single channel AC devices optimized for power supply applications</i>					<i>CTR measured @ VCE = 5V, IF = ±1mA</i>	
SOP4	PS2715	3750	40	±50	40	N = 100 to 400	UL, VDE, BSI
SSOP4	PS2815	2500	40	±50	40	N = 100 to 400	UL, VDE
4 Pin Mini Flat	PS2915	2500	40	±50	40	N = 100 to 400	UL, VDE, BSI

	<i>Four channel AC device optimized for power supply applications</i>					<i>CTR measured @ VCE = 5V, IF = ±1mA</i>	
SSOP16	PS2815-4	2500	40	±50	40	N = 100 to 400	UL, VDE

	<i>Single Channel DC Devices, high temp, high isolation voltage, 14.5mm creepage</i>					<i>CTR measured @ VCE = 5V, IF = 5.0mA</i>	
8 Pin LSDIP	PS2461-1	7.5	80	25	50	N = 50 to 600	UL, CSA, VDE

Single Transistor DC Optocouplers, Guaranteed 0.4mm Insulation

Package	Part Number	Absolute Max Ratings				CTR (N = Full range) Rank (%)	Safety Certification ¹
		BV (Vr.m.s.)	VCEO (V)	IF (mA)	IC (mA)		



Single channel DC devices, high isolation voltage

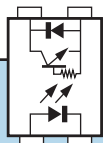
CTR measured @ VCE = 5V, IF = 5mA

4 pin LSOP stretched Gull Wing 8mm Creepage -40°C to +115°C operation	PS2381	5000	80	60	50	N = 50 to 400 L = 100 to 300 M = 50 to 150 W = 130 to 260	UL, VDE, CSA
DIP4 Thru-Hole 110°C operation	PS256D1	5000	80	40	50	N = 50 to 400 H = 80 to 160 L = 200 to 400 Q = 100 to 200 W = 130 to 260	UL, VDE, BSI, CSA
SMT DIP4 110°C operation	PS2561DL						
DIP4 Thru-Hole Gull Wing 110°C operation	PS2561DL1						
SMT DIP4 Gull Wing 110°C operation	PS2561DL2						
DIP4 Thru-Hole 110°C operation	PS2561F	5000	80	30	50	K = 300 to 600	UL
SOP4 110°C operation	PS2761B	3750	70	25	40	N = 50 to 400 K = 200 to 400 M = 50 to 150 L = 100 to 300	UL, BSI
SSOP4 110°C operation	PS2861B	3750	70	50	50	N = 50 to 400	UL, BSI, CSA, VDE

NOTES: 1. Other safety certifications available, see datasheet.

Single Transistor, with internal base-emitter resistor to increase the switching time

Package	Part Number	Absolute Max Ratings				CTR (N = Full range) Rank (%)	Safety Certification
		BV (Vr.m.s.)	VCEO (V)	IF (mA)	IC (mA)		



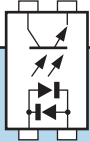
Single channel DC device with internal base-emitter resistor to increase the switching time

CTR measured @ VCE = 5V, IF = 5mA

DIP4 Thru-Hole	PS2514	5000	40	30	20	N = 50 to 200	UL, VDE, CSA
SMT DIP4	PS2514L						

Single Transistor AC Optocouplers, Guaranteed 0.4mm Insulation (BSI)

Package	Part Number	Absolute Max Ratings				CTR (N = Full range) Rank (%)	Safety Certification ¹
		BV (Vr.m.s.)	VCEO (V)	IF (mA)	IC (mA)		



Single channel AC devices, high isolation voltage

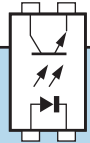
CTR measured @ VCE = 5V, IF = 5mA

DIP4 Thru-Hole	PS2565	5000	80	±80	50	N = 80 to 400	UL, VDE, BSI, CSA
SMT DIP4	PS2565L						
DIP4 Thru-Hole Gull Wing	PS2565L1						
SMT DIP4 Gull Wing	PS2565L2						

NOTES: 1. Other safety certifications available, see datasheet.

Single Transistor, High Performance DC Optocouplers

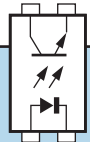
Package	Part Number	Absolute Max Ratings				CTR (N = Full range) Rank (%)	Safety Certification
		BV (Vr.m.s.)	VCEO (V)	IF (mA)	IC (mA)		



Single channel DC device, high drive current, high isolation voltage

CTR measured @ VCE = 3V, IF = 100mA

DIP4 Thru-Hole	PS2521	5000	80	150	50	N = 20 to 80	UL, CSA
SMT DIP4	PS2521L						

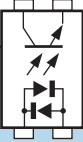


Single channel DC devices, high VCE

CTR measured @ VCE and IF as noted

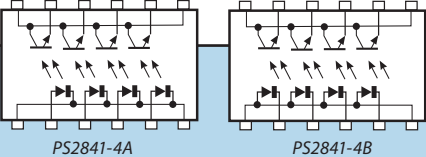
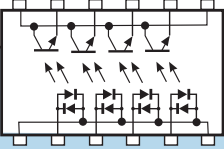
DIP4 Thru-Hole	PS2503	5000	40	80	30	VCE = 5V, IF = 1mA N = 100 to 400 K = 200 to 400 L = 150 to 300 M = 100 to 200	UL, CSA
SMT DIP4	PS2503L						
DIP4 Thru-Hole	PS2513	5000	120	60	30	VCE = 5V, IF = 5mA N = 50 to 200	UL, VDE
SMT DIP4	PS2513L						
SOP4	PS2703	3750	120	50	30	VCE = 5V, IF = 5mA N = 50 to 400 K = 200 to 400 L = 100 to 300 M = 50 to 150	UL, VDE, BSI, CSA
4 Pin Mini Flat	PS2913	2500	120	50	30	VCE = 5V, IF = 1mA N = 50 to 200 K = 100 to 200 L = 75 to 150 M = 50 to 100	UL, VDE, BSI

Single Transistor, High Performance AC Optocouplers

Package	Part Number	Absolute Max Ratings				CTR (N = Full range) Rank (%)	Safety Certification
		BV (Vr.m.s.)	VCEO (V)	IF (mA)	IC (mA)		
		<i>Single channel AC devices, high drive current, high isolation voltage</i>				<i>CTR measured @ VCE = 3V, IF = 100mA</i>	
DIP4 Thru-Hole	PS2525	5000	80	±150	50	N =20 to 80	UL, CSA
SMT DIP4	PS2525L						

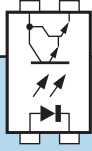
NOTES: 1. Other safety certifications available, see datasheet.

Single Transistor Optocouplers in Miniature Quad Packages

Package	Part Number	Absolute Max Ratings				CTR (N = Full range) Rank (%)	Safety Certification
		BV (Vr.m.s.)	VCEO (V)	IF (mA)	IC (mA)		
		<i>Four channel, DC devices</i>				<i>CTR measured @ VCE = 0.4V, IF = 1mA</i>	
SSOP12	PS2841-4A	1500	70	20	20	N = 100 to 400	UL
SSOP12	PS2841-4B						
		<i>Four channel, AC device</i>				<i>CTR measured @ VCE = 0.4V, IF = 1mA</i>	
SSOP12	PS2845-4A	1500	70	±20	20	N = 100 to 400	UL

Darlington Transistor, General Purpose Optocouplers

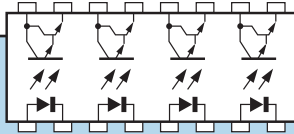
Package	Part Number	Absolute Max Ratings				CTR (N = Full range) Rank (%)	Safety Certification
		BV (Vr.m.s.)	VCEO (V)	IF (mA)	IC (mA)		



Single channel DC devices, high isolation voltage

CTR measured @ VCE = 2V, IF = 1mA

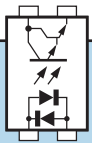
DIP4 Thru-Hole	PS2502	5000	40	80	200	N = 200 min K = 2000 min L = 700 to 3400 M = 200 to 1000	UL
SMT DIP4	PS2502L						
SOP4	PS2702	3750	40	50	200	N = 200 min K = 2000 min L = 700 to 3400 M = 200 to 1000	UL, VDE, BSI
SSOP4	PS2802	2500	40	50	90	N = 200 min K = 2000 min L = 700 to 3400 M = 200 to 1000	UL, VDE, BSI, CSA



Four channel DC devices, high isolation voltage

CTR measured @ VCE = 2V, IF = 1mA

DIP16 Thru-Hole	PS2502-4	5000	40	80	160	N = 200 min	UL
SMT DIP16	PS2502L-4						
SSOP16	PS2802-4	2500	40	50	100	N = 200 min	UL, VDE, BSI, CSA



Single channel AC device, high isolation voltage

CTR measured @ VCE = 2V, IF = ±1mA

DIP4 Thru-Hole	PS2506	5000	40	±80	200	N = 200 min	UL
SMT DIP4	PS2506L						

Darlington Transistor Optocouplers, Guaranteed 0.4mm insulation (BSI)

Package	Part Number	Absolute Max Ratings				CTR (N = Full range) Rank (%)	Safety Certification ¹
		BV (Vr.m.s.)	VCEO (V)	IF (mA)	IC (mA)		



Single channel DC device, high isolation voltage

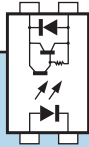
CTR measured @ VCE = 2V, IF = 1mA

DIP4 Thru-Hole	PS2562	5000	40	80	200	N = 200 min	UL, VDE, BSI, CSA
SMT DIP4	PS2562L					K = 2000 to 3400	
DIP4 Thru-Hole Gull Wing	PS2562L1					L = 700 to 3400	
SMT DIP4 Gull Wing	PS2562L2					M = 200 to 1000	

NOTES: 1. Other safety certifications available, see datasheet.

Darlington Transistor, High VCEO DC Optocouplers

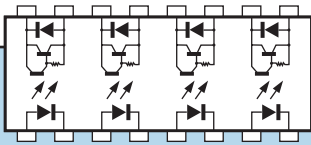
Package	Part Number	Absolute Max Ratings				CTR (N = Full range) Rank (%)	Safety Certification ¹
		BV (Vr.m.s.)	VCEO (V)	IF (mA)	IC (mA)		



Single channel DC devices

CTR measured @ VCE = 2V, IF = 1mA

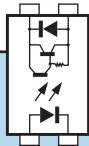
DIP4 Thru-Hole	PS2533	5000	350	80	150	N = 1500 to 6500	UL, VDE, BSI
SMT DIP4	PS2533L						
SOP4	PS2733	2500	350	50	150	N = 1500 min	UL, VDE, BSI
SSOP4	PS2833	2500	350	50	60	N = 400 to 4500	UL
4 Pin Mini Flat	PS2915	2500	350	50	60	N = 400 to 4500	UL, VDE, BSI



Four channel DC device

CTR measured @ VCE = 2V, IF = 1mA

SSOP16	PS2833-4	2500	350	50	60	N = 400 to 4500	UL
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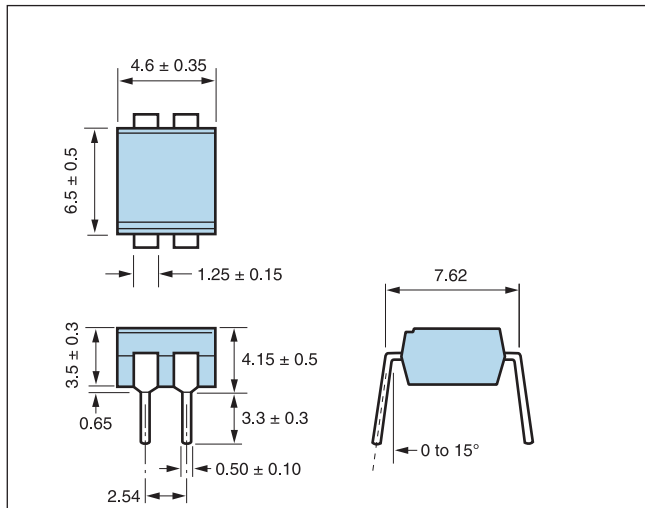
Single channel DC devices

CTR measured @ VCE = 2V, IF = 1mA

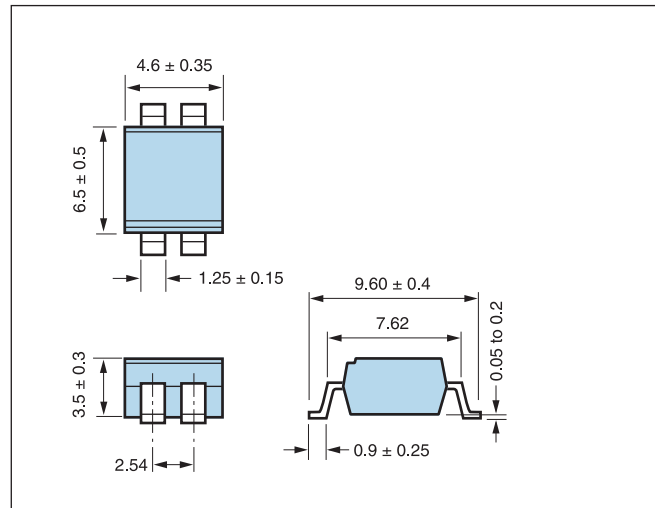
DIP4 Thru-Hole	PS2535	5000	350	50	120	N = 400 to 5500	UL, VDE, BSI
SMT DIP4 Gull Wing	PS2535L					L = 1500 to 5500	

Optocoupler Package Dimensions *Dimensions in millimeters. Dimensions are nominal, please refer to datasheets.*

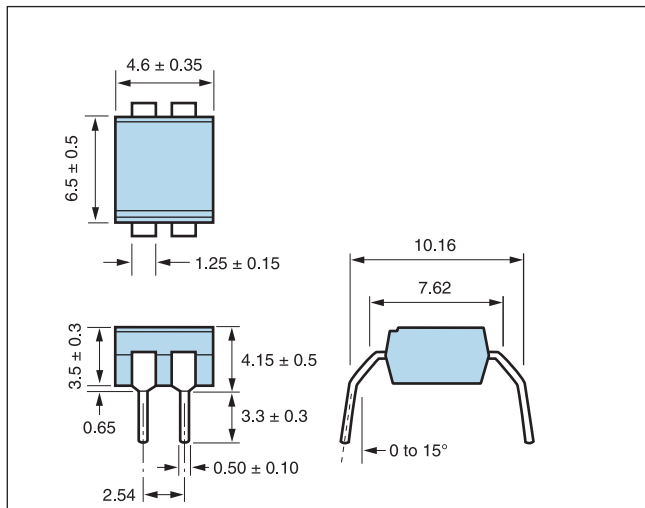
DIP4 Thru-Hole



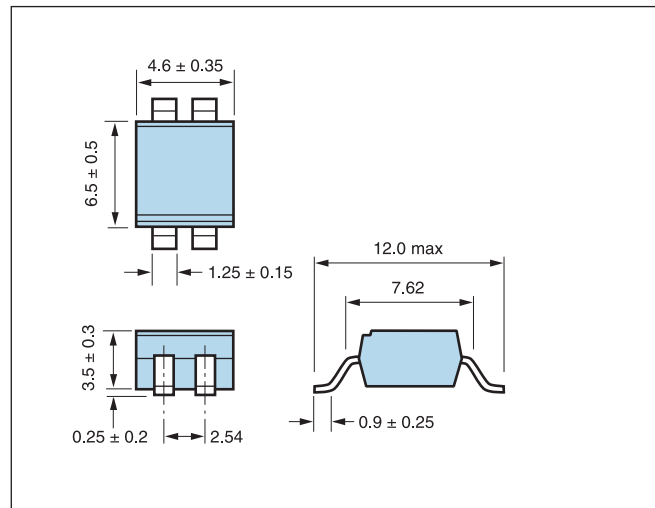
L — SMT DIP4



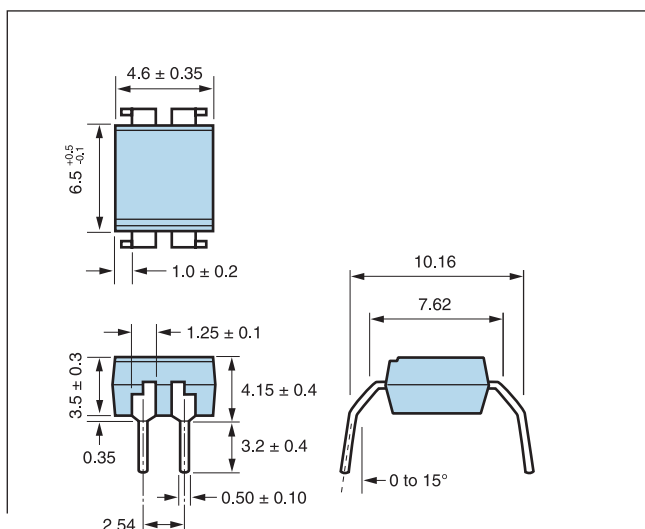
L1 — DIP4 Thru-Hole Gull Wing



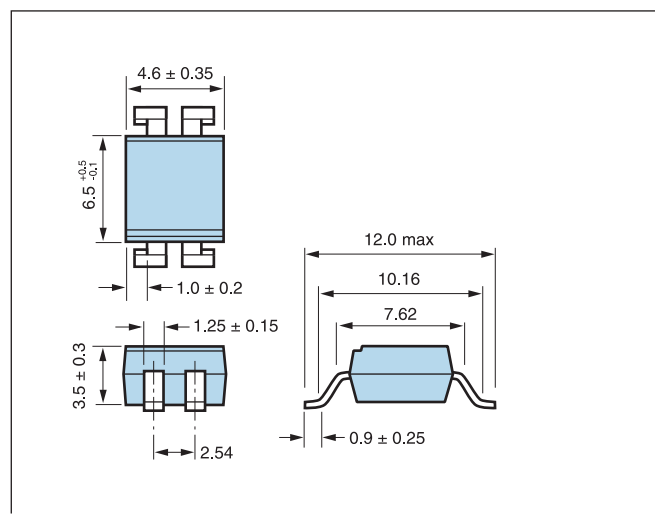
L2 — SMT DIP4 Gull Wing



L1 — DIP4 Thru-Hole Gull Wing with 8mm Creepage

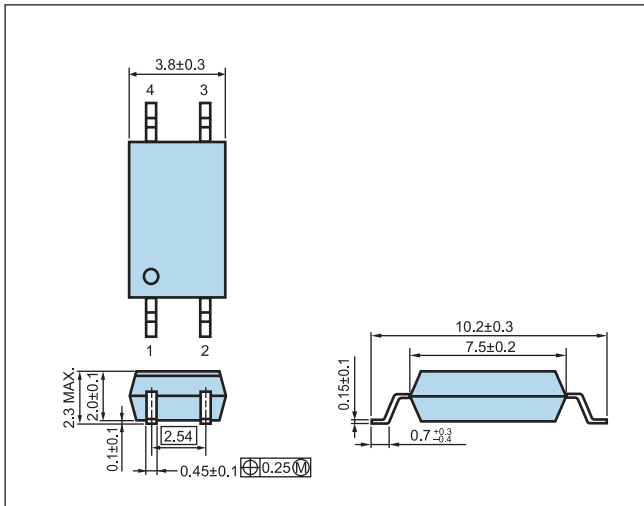


L2 — SMT DIP4 Gull Wing with 8mm Creepage

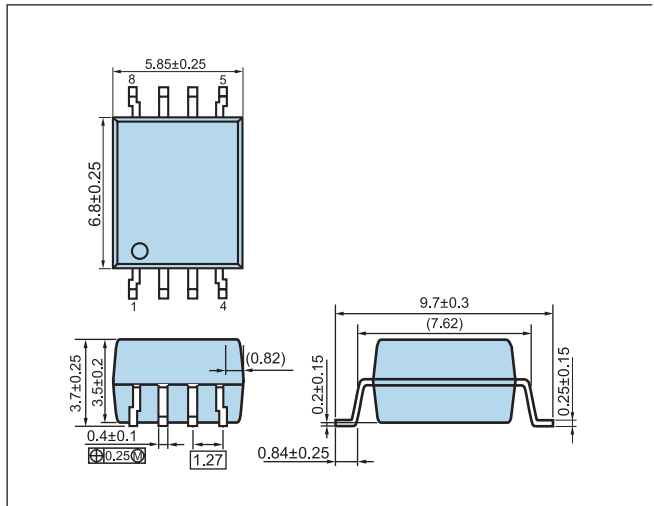


Optocoupler Package Dimensions *Continued...* Dimensions in millimeters. Dimensions are nominal, please refer to datasheets.

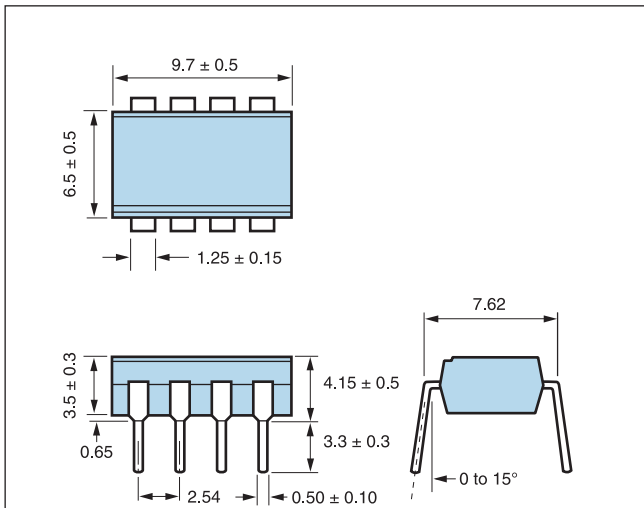
4-Pin LSOP



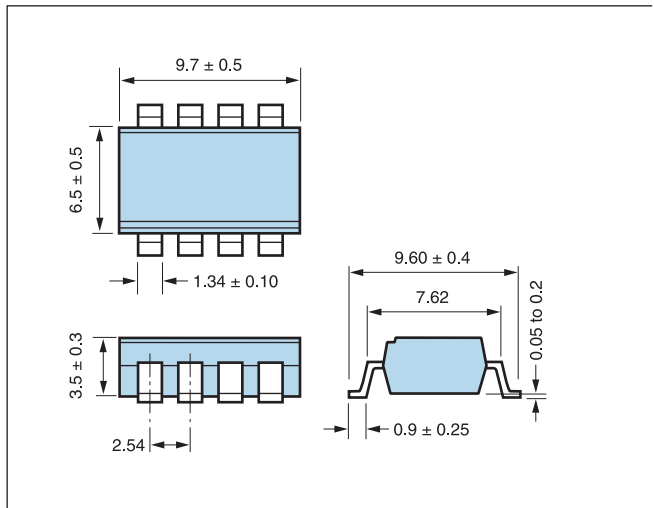
8-Pin SDIP



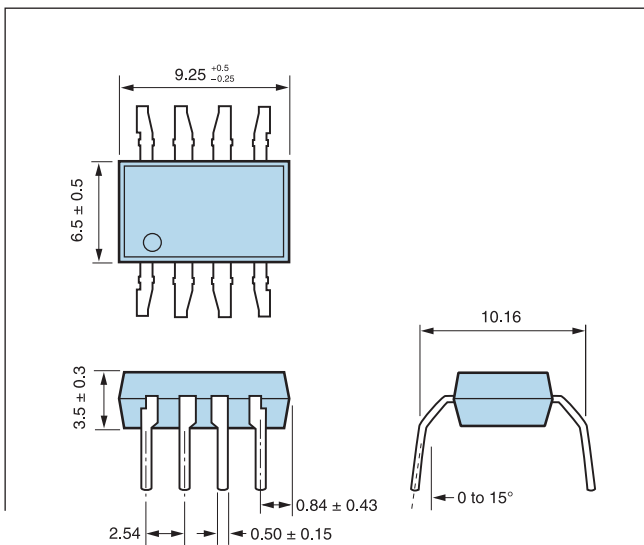
DIP8 Thru-Hole



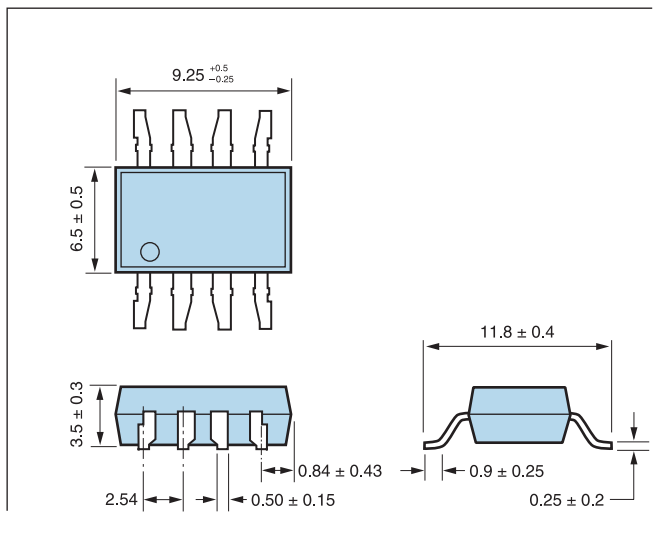
L — SMT DIP8



L1 — DIP8 Thru-Hole with 8mm Creepage

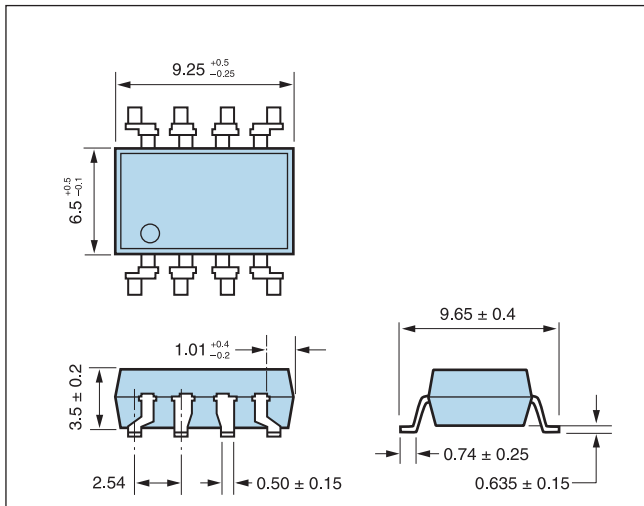


L2 — SMT DIP8 Gull Wing with 8mm Creepage

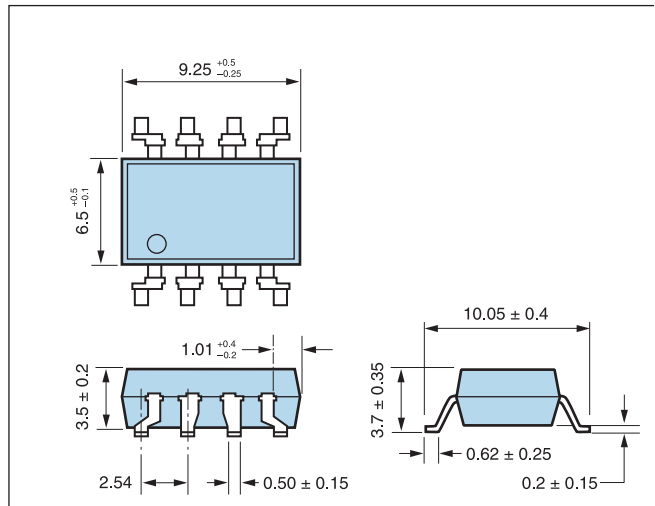


Optocoupler Package Dimensions *Continued...* Dimensions in millimeters. Dimensions are nominal, please refer to datasheets.

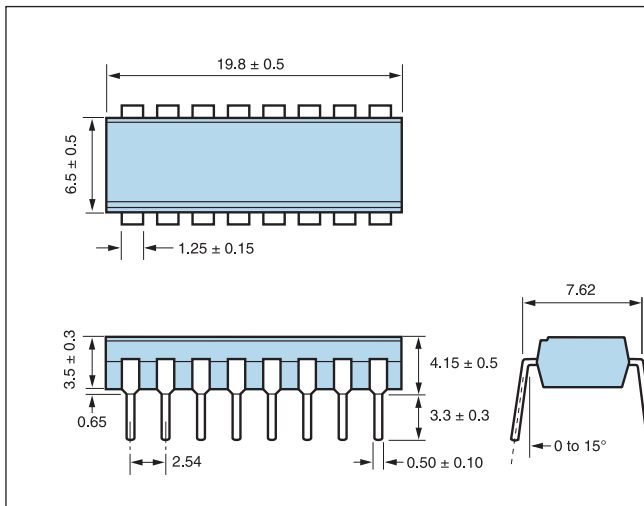
L3 — SMT DIP8 Gull Wing



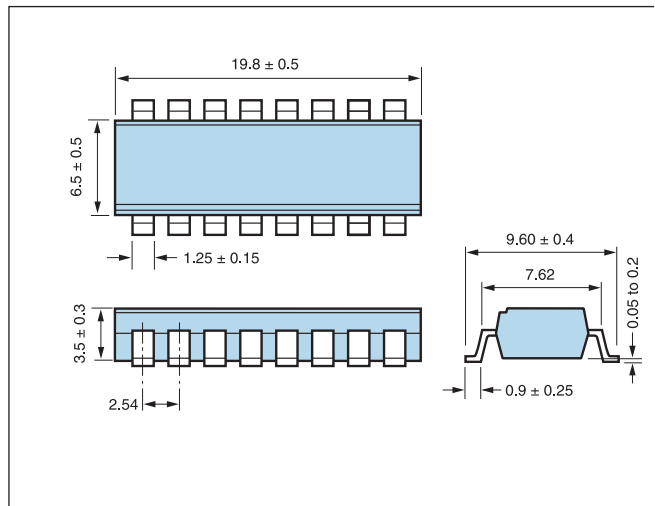
L4 — SMT DIP8 Gull Wing with 8mm Creepage



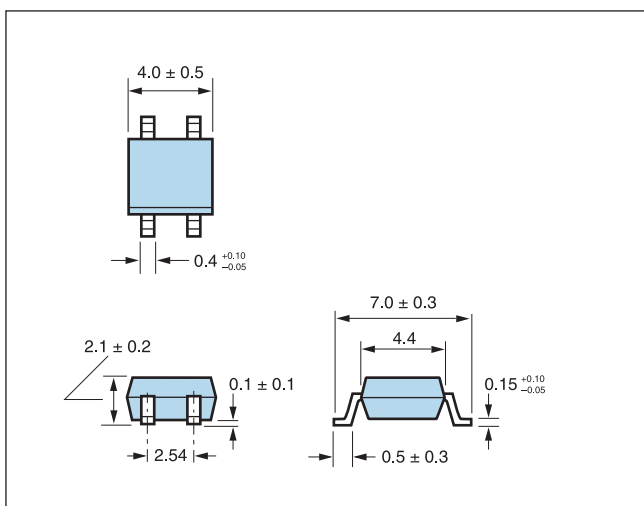
DIP16 Thru-Hole



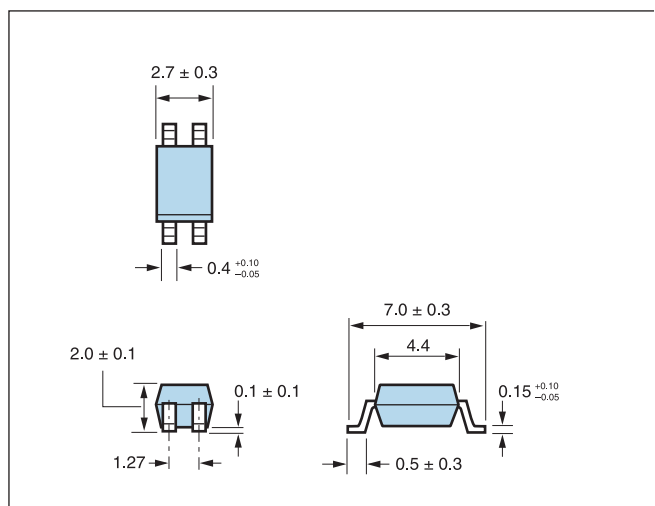
L — SMT DIP16



SOP4 2.54mm pin pitch

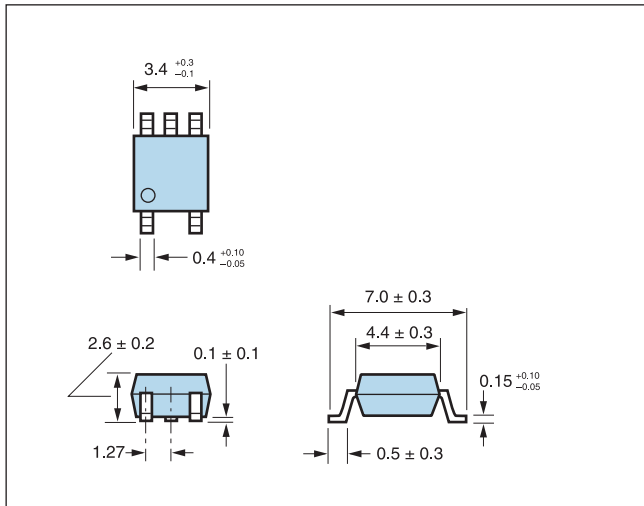


SSOP4 1.27mm pin pitch

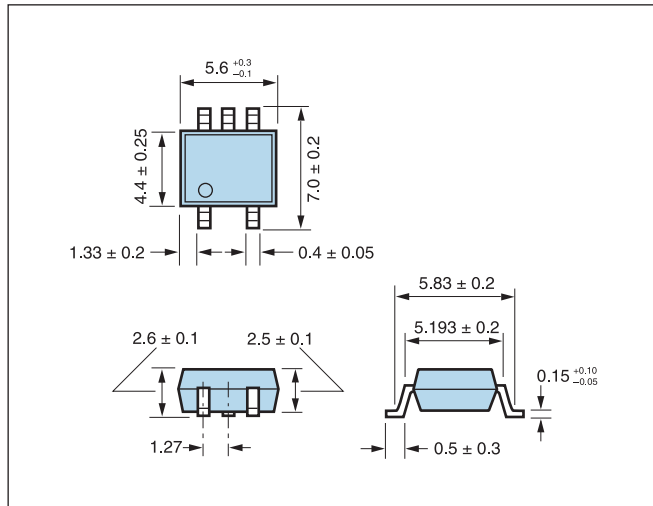


Optocoupler Package Dimensions *Continued...* Dimensions in millimeters. Dimensions are nominal, please refer to datasheets.

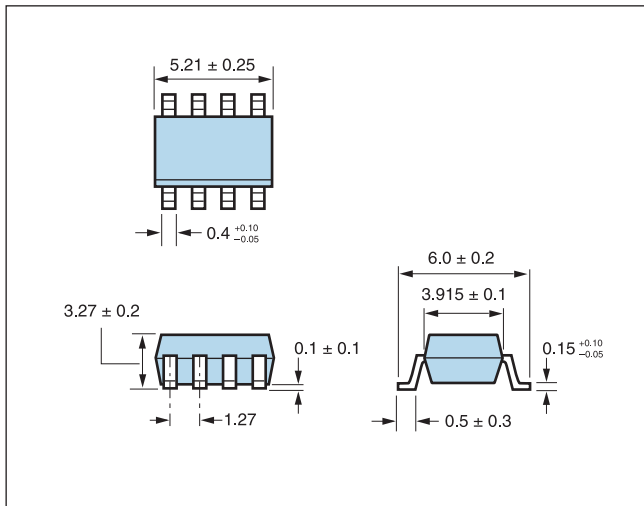
SOP5 1.27mm pin pitch



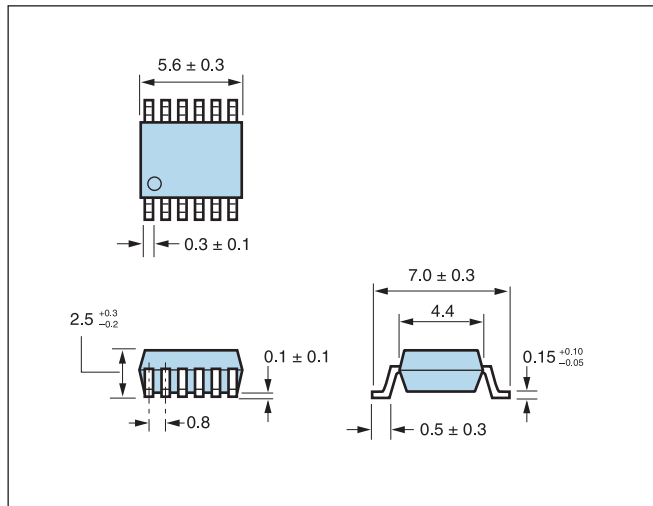
SOP5 1.27mm pin pitch with 5.5mm Creepage



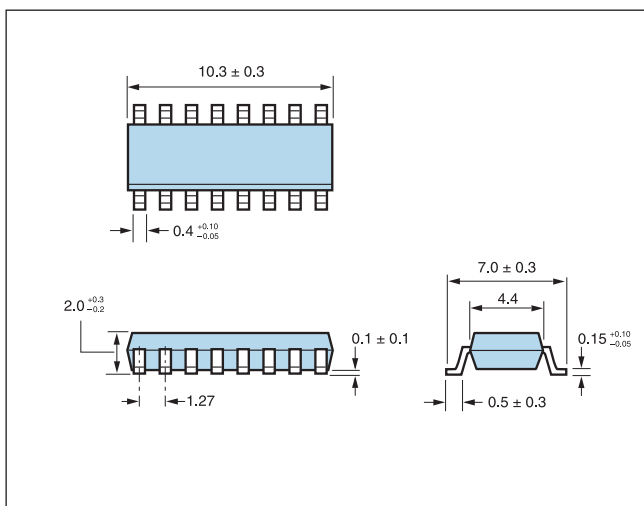
S08 1.27mm pin pitch



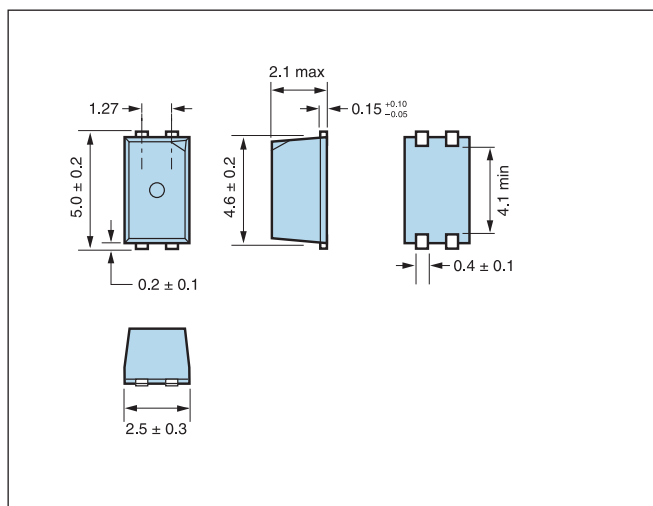
SSOP12 Mini Quad 1.27mm pin pitch



SSOP16 1.27mm pin pitch

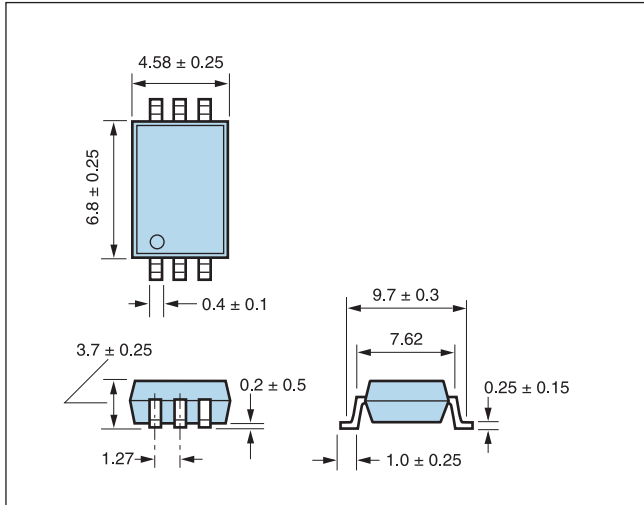


4-Pin Mini Flat

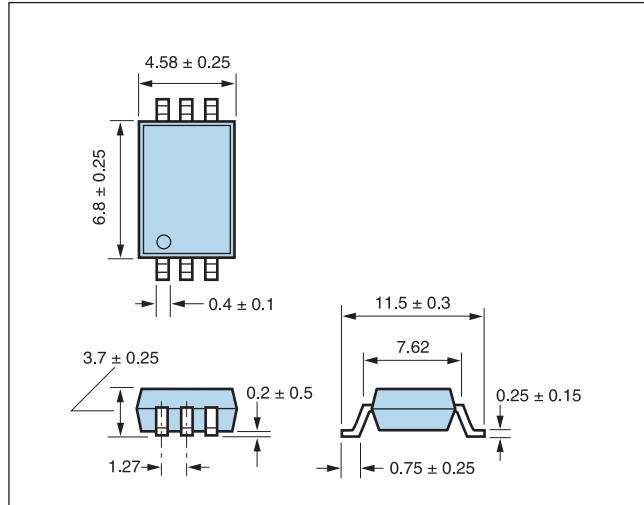


Optocoupler Package Dimensions *Continued...* Dimensions in millimeters. Dimensions are nominal, please refer to datasheets.

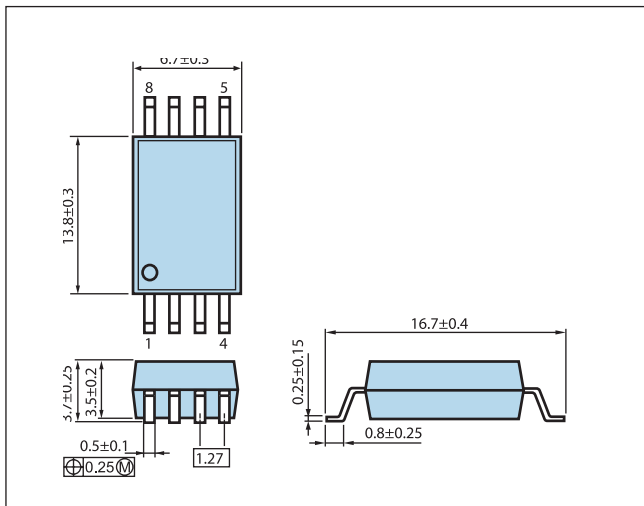
L — SDIP6 SMT Gull Wing



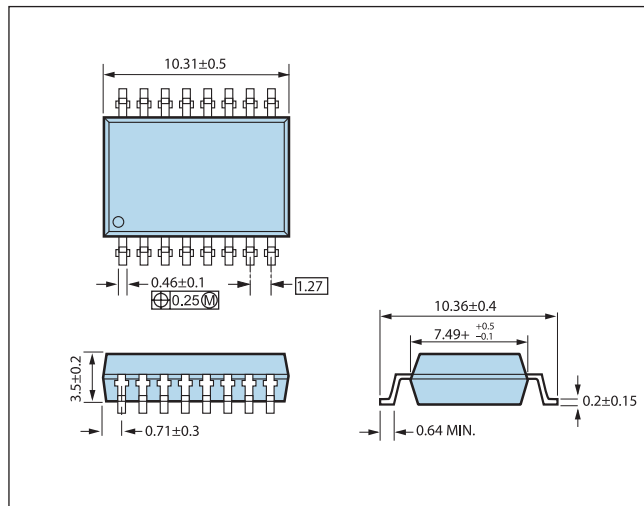
L2 — SDIP6 SMT Gull Wing with 8mm Creepage



8-Pin LSDIP



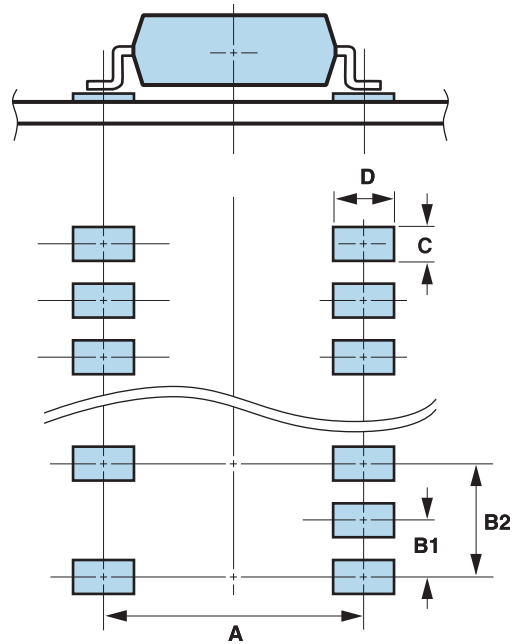
16-Pin SSOP



Mounting Pad Dimensions for Optocouplers & Solid State Relays

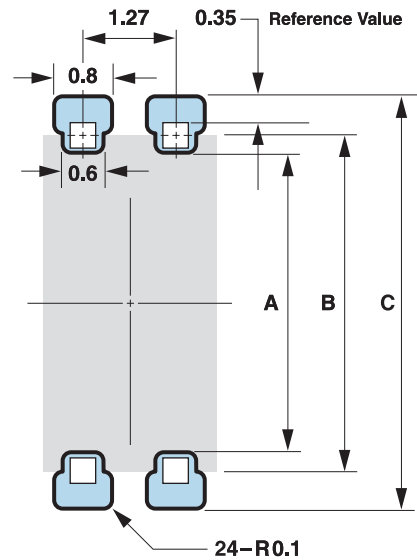
Package	A	B1	B2	C	D
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Surface Mount DIP, SOP and SSOP Packages (mm)					
DIP (SMT) 4, 6, 8, 12, 16 Pin	8.2	-	2.54	1.7	2.2
DIP (L2 – SMT) 4, 6, 8, 16 Pin	10.2	-	2.54	1.7	2.2
SOP 4, 8, 16 Pin	6.25	-	2.54	0.8	1.45
SOP 5 Pin	6.25	1.27	2.54	0.8	1.45
SSOP 4, 16 Pin 1.27mm Pitch	6.25	-	1.27	0.8	1.45
SSOP 8 Pin (SO-8) 1.27mm Pitch	5.25	-	1.27	0.8	1.45
SSOP 12 Pin 0.8mm Pitch	6.25	-	0.8	0.5	1.45
LSDIP 8 Pin	16.6	-	1.27	0.9	2
SDIP 6 Pin	9.2	-	1.27	0.8	2.2



Package	A	B	C
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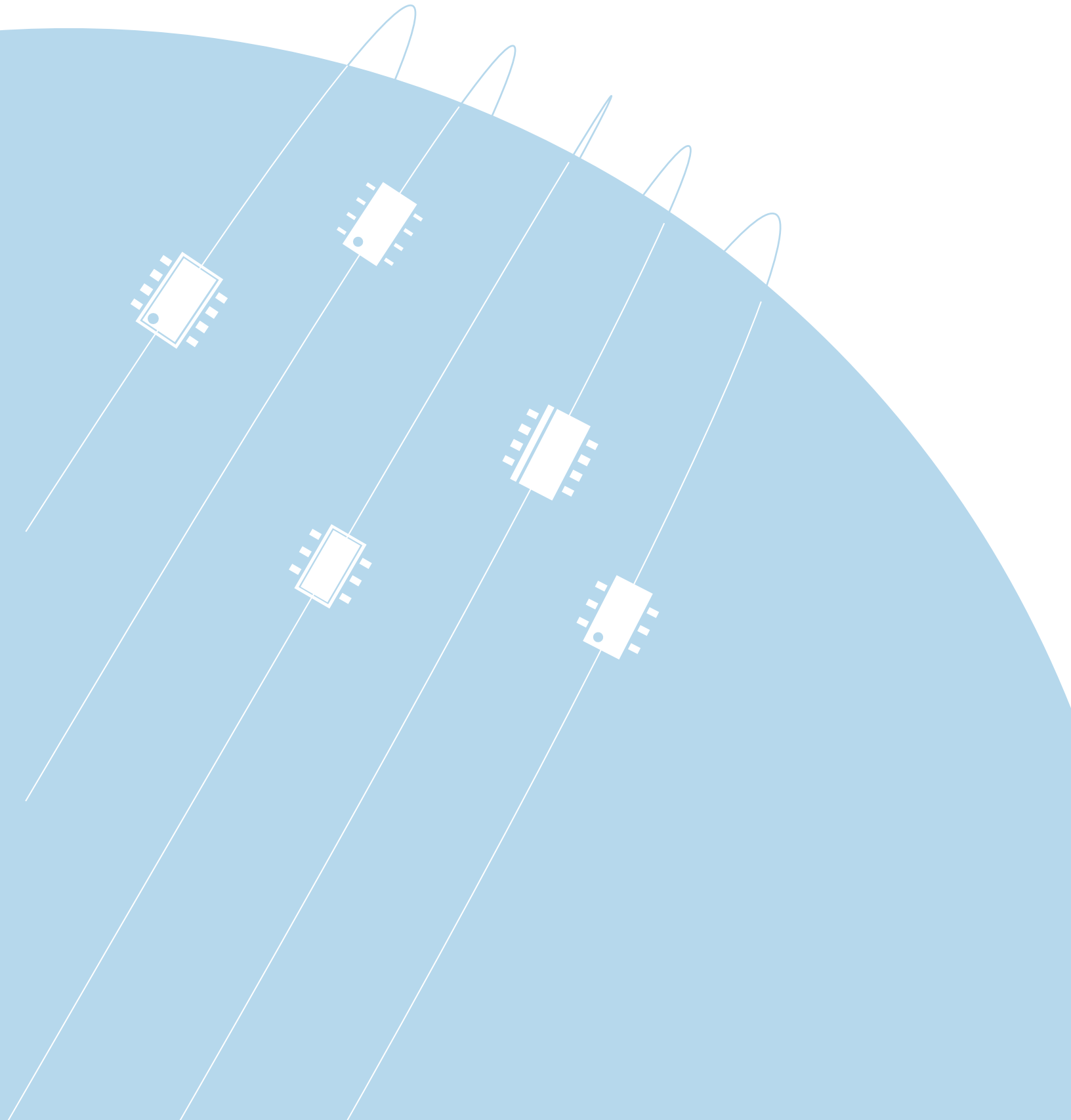
Mini Flat Packages (mm)			
Optocoupler Version PS29xx, 1.27mm Pitch	4.14	4.7	5.7
SSR Version PS78xx, 1.27mm Pitch	3.6	4.4	5.3



NOTES: The Mini Flat package meets the 4.0mm air distance and outer creepage requirement.

All dimensions are subject to change without notice. Please contact CEL to ensure that you have the latest version of this document.

Solid State Relays

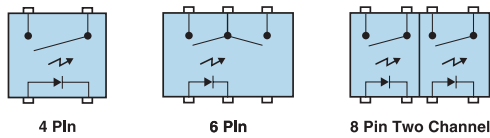


Solid State Relays — Introduction

Solid State Relays (SSRs) are semiconductor-based switching devices that operate optically rather than mechanically. They incorporate three major components: A GaAs LED on the input side, a photovoltaic diode array, and a FET switch on the output side. Renesas Solid State Relays are available in a standard *Normally Open* configuration:

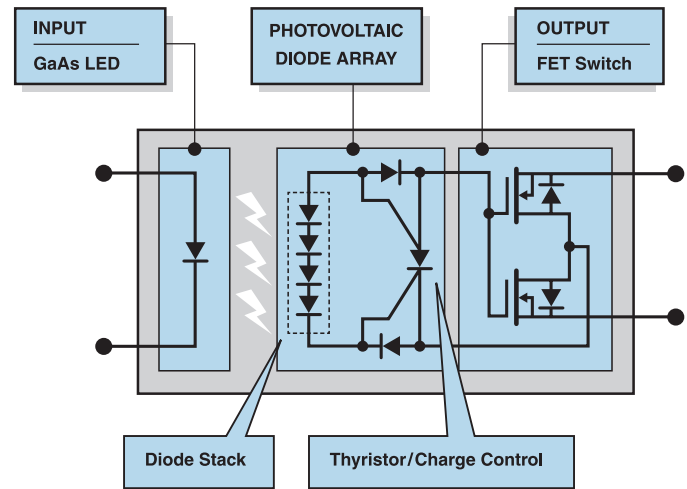
FORM A “Normally Open”

In a FORM A relay, when no input current is present, the FET switch on the output side is nonconductive, or “open.” When current is applied, the LED lights and the photovoltaic diode array responds by producing a voltage that’s applied to the gates of the FET. When the gates’ voltage threshold is reached the FET switch becomes conductive - or closes - effectively switching the relay’s load. When the current is removed, the light stops and blocking diodes prevent charge from leaving the gates of the FET.

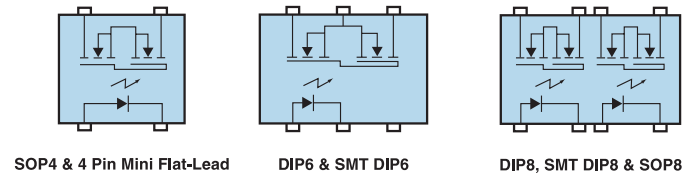


As voltage from the photovoltaic array is reduced across the blocking diodes, it reaches a level that triggers a thyristor. The charge is then quickly removed from the gates and the FET goes nonconductive — returning the relay to its *Normally Open* state.

SOLID STATE RELAY: Basic Components



TYPICAL PIN CONFIGURATION



Why switch from Electro-Mechanical Relays (EMRs) to Solid State Relays?

- No moving parts
- High resistance to shock and vibration
- No arcing or contact bounce
- No Cross Talk
- Extremely fast
- Will switch AC or DC, output conduction is unrelated to input current levels
- Stable RON over the life of the device
- Proven reliability: 150X better than EMRs

CEL offers a wide variety of Renesas SSRs for a broad range of applications: These include low CxR devices for high frequency signal control, low RON devices for high current control, and devices designed specifically to handle high voltages. SSR input logic is compatible with a variety of control schemes and can be driven directly by low voltage microcontrollers. With Renesas’s broad product offering, it’s easy to find an SSR that meets your specific needs.

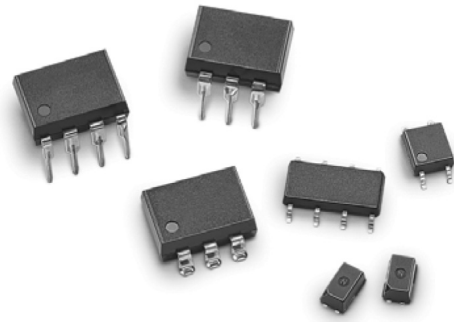
Applications:

- Telecom/Datacom
- Test & Measurement
- Programmable Logic Control
- Instrumentation
- Power Switching
- Motor Drive Interfaces

Package Styles

Renesas SSRs are available in a variety of industry-standard DIP and SOP packages. Many are pin-for-pin compatible with other devices on the market.

For space-constrained designs Renesas offers a number of relays in a 4.6 x 2.64 x 1.85 mm Mini Flat-Lead package. The smallest in the industry, it enables extremely high placement densities, while its shortened signal paths help minimize the parasitic effects of the traces. See pages 37 and 38 for package drawings and dimensions.



Renesas Mini Flat-Lead
SSR package is the industry's smallest

Manufacturing and Safety Certification

Renesas production line is located at Kyushu Denshi, Japan, where all processes, from initial die loading to final QA and package marking, are fully-automated. This helps to speed production and lower manufacturing costs, while assuring the superior quality and consistency you've come to expect from Renesas.

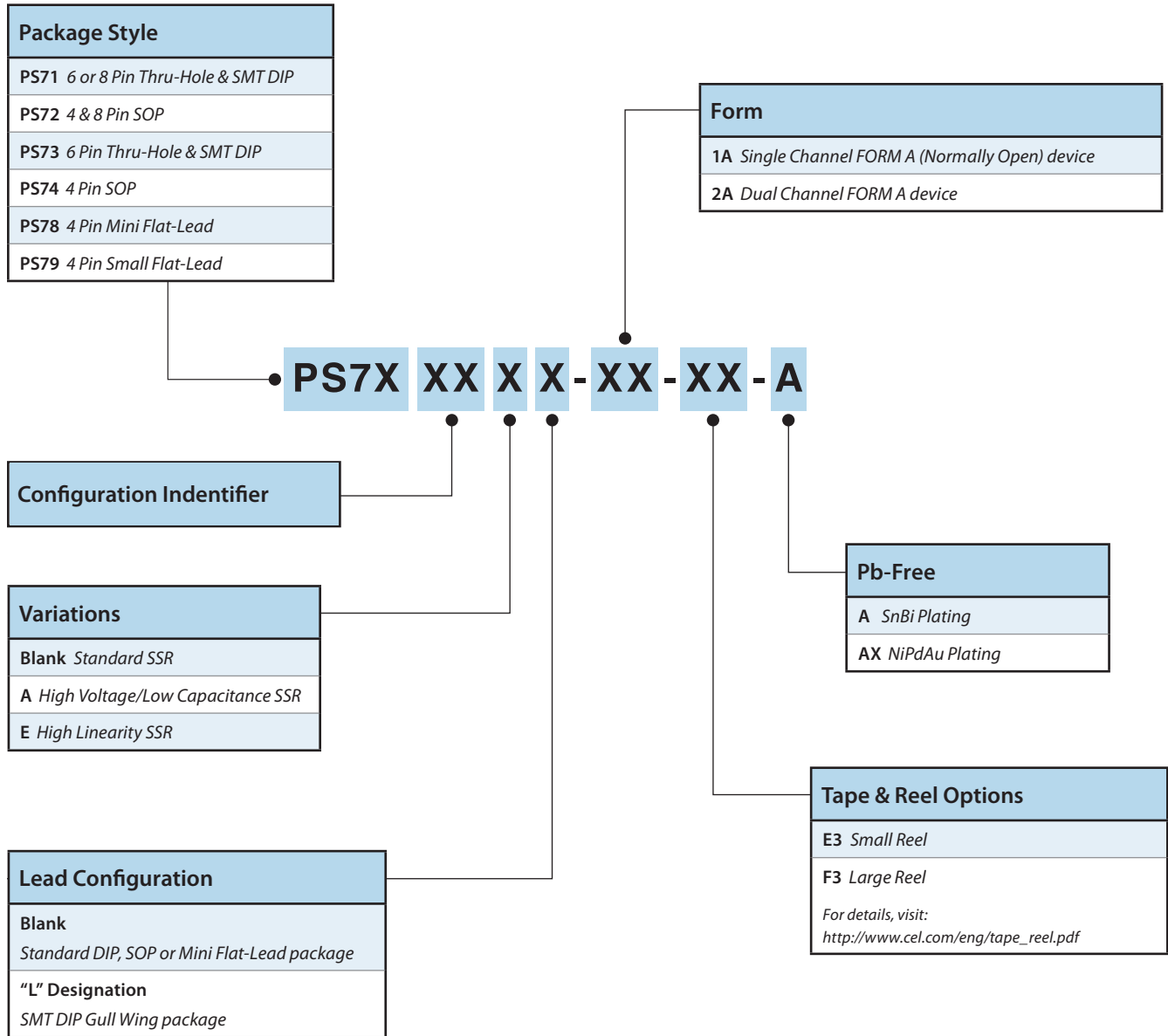
Renesas SSRs are typically UL, CSA, BSI and VDE Part 2 certified. Other international certifications are also available, please refer to data sheets or contact CEL for specifics.



Solid State Relay Product Families

<p>POWER and INDUSTRIAL APPLICATIONS</p>	<p>PS7113 Series <i>High Current, Low RON devices in Thru-Hole and SMT DIP packages</i></p> <p>PS7206 <i>High Current, Low RON devices in SOP4 packages</i></p>
<p>TELECOM APPLICATIONS <i>(Line Voltage)</i></p>	<p>PS7160, PS7360 Series <i>600V Load Voltage devices in Thru-Hole and SMT DIP packages</i></p> <p>PS714x, PS724x, PS734x Series <i>400V Load Voltage, 120 - 200mA Load Current devices in Thru- Hole and SMT DIP and SOP packages</i></p>
<p>INSTRUMENTATION and ATE <i>(Automated Test Equipment)</i></p>	<p>PS7200 Series <i>Low CxR devices in SOP4 packages</i></p> <p>PS780x Series <i>Low CxR devices ultra-miniature Mini Flat-Lead packages</i></p> <p>PS790x Series <i>Low CxR devices small-miniature Mini Flat-Lead packages</i></p>

SSR Part Numbering System

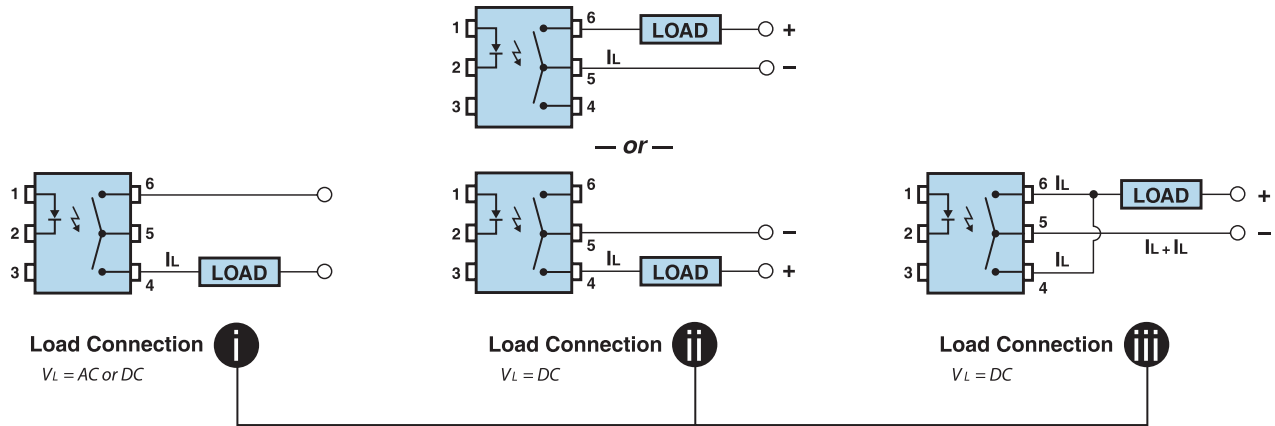


Product Lineup

Function	6-pin DIP (1-ch)	8-pin DIP (2-ch)	4-pin SOP (1-ch)	8-pin SOP (2-ch)	4-pin Flat-Lead	4-pin small Flat-Lead
Standard Normally Open	PS7113-1A PS7141E-1A PS7160-1A	PS7113-2A PS7141-2A PS7141E-2A PS7160-2A	PS7241E-1A	PS7241-2A	-	-
Low CxR	-	-	-	-	PS7802A-1A	-
Low On-State Resistance	-	-	PS7206-1A	-	PS7804-1A	PS7904-1A
Low Offset Voltage	-	-	PS7200A-1A	-	PS7801D-1A PS7801F-1A	PS7901D-1A
High Isolation Voltage	PS7341-1A PS7360-1A	-	-	-	-	-

SSRs for Power and Industrial Applications

In power and industrial applications, 6 pin SSRs can be configured to switch loads in a variety of ways. The Maximum Load Current specifications in the tables below are provided for these configurations:



Package	Part Number	Form	Max. Load Current I_L (mA)	Max. Load Voltage V_L (V)	Typical Ratings				Safety Certification
					R_{ON} (Ω)	C_{OUT} (pF) Norm. Open	t_{ON} (ms)	t_{OFF} (ms)	
Single Channel, 1500 Vr.m.s. Breakdown Voltage									
DIP6 Thru-Hole	PS7113-1A	A	i 350	100	0.9	250	1.3	0.06	UL, BSI
SMT DIP6 Gull Wing	PS7113L-1A		ii 450						
			iii 700						
DIP6 Thru-Hole	PS7160-1A	A	i 90	600	42	110	0.8	0.06	UL, BSI, CSA
SMT DIP6 Gull Wing	PS7160L-1A		ii 130						
			iii 200						
SOP4	PS720C-1A	A	1250	60	0.1	230	2.0	0.05	UL
SOP4	PS7206-1A	A	600	60	0.6	70	0.4	0.08	UL, BSI
Dual Channel, 1500 Vr.m.s. Breakdown Voltage									
DIP8 Thru-Hole	PS7113-2A	A	i 350	100	0.9	250	1.3	0.06	UL, BSI, CSA
SMT DIP8 Gull Wing	PS7113L-2A		ii 450						
			iii 700						
DIP6 Thru-Hole	PS7160-2A	A	i 90	600	42	110	0.8	0.06	UL, BSI, CSA
SMT DIP6 Gull Wing	PS7160L-2A		ii 130						
			iii 200						
Single Channel, 3750 Vr.m.s. Breakdown Voltage									
DIP6 Thru-Hole	PS7360-1A	A	i 90	600	41	110	0.6	0.03	UL, BSI, CSA
SMT DIP6 Gull Wing	PS7360L-1A		ii 130						
			iii 200						

SSRs for Telecom Applications

Max Load Current specified using Load Connection ① (page 35) See individual data sheets for specifications for Load Connections ② & ③

Package	Part Number	Form	Isolation Voltage BV (Vr.m.s.)	Max. Load Voltage VL (V)	Typical Ratings				Safety Certification
					RON (Ω)	COUT (pF) Norm. Open	ton (ms)	toff (ms)	

Single Channel, 400V Load Voltage

DIP6 Thru-Hole	PS7141E-1A ¹	A	1500	120	37	36	0.5	0.07	UL, BSI
SMT DIP6 Gull Wing	PS7141EL-1A ¹								
SOP4	PS7241E-1A	A	1500	120	22	18	0.5	0.07	UL, BSI, VDE
DIP6 Thru-Hole	PS7341-1A	A	3750	150	20	65	0.35	0.03	UL, BSI, CSA
SMT DIP6 Gull Wing	PS7341L-1A ¹								

Two Channel, 400V Load Voltage

DIP8 Thru-Hole	PS7141E-2A	A	1500	100	36	36	0.4	0.07	UL, BSI
SMT DIP8 Gull Wing	PS7141EL-2A								
SOP8	PS7241-2A	A	1500	120	21	65	0.2	0.02	UL, BSI

NOTES: 1. High Linearity Relay.

SSRs for ATE and Instrumentation

Low CxR, miniature SOP and Mini Flat-Lead packages

Package	Part Number	Form	Isolation Voltage BV (Vr.m.s.)	Max. Load Voltage VL (V)	Typical Ratings				Safety Certification
					RON (Ω)	COUT (pF) Norm. Open	ton (ms)	toff (ms)	

Single Channel, 500 Vr.m.s. Breakdown Voltage

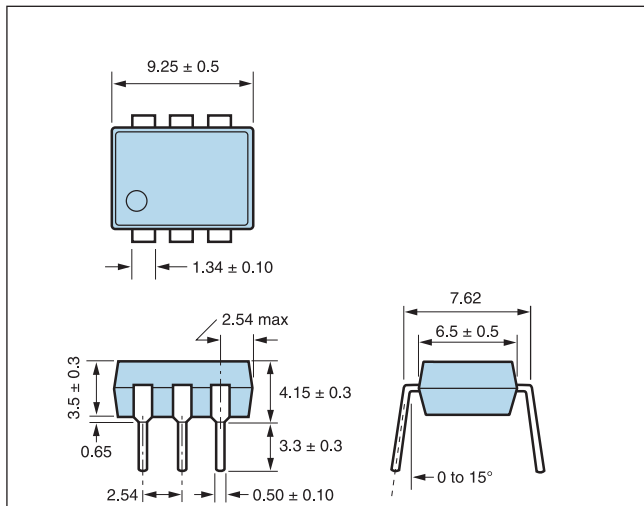
4 Pin Mini Flat-Lead	PS7801D-1A	A	120	40	12	0.6	0.01	0.1	UL
4 Pin Mini Flat-Lead	PS7801F-1A	A	130	50	9.5	0.03	0.03	0.05	UL
4 Pin Mini Flat-Lead	PS7802B-1A	A	240	40	2.5	2.5	0.2	0.05	-
4 Pin Mini Flat-Lead	PS7804-1A	A	400	60	1.1	27	0.15	0.05	UL

Single Channel, 1500 Vr.m.s. Breakdown Voltage

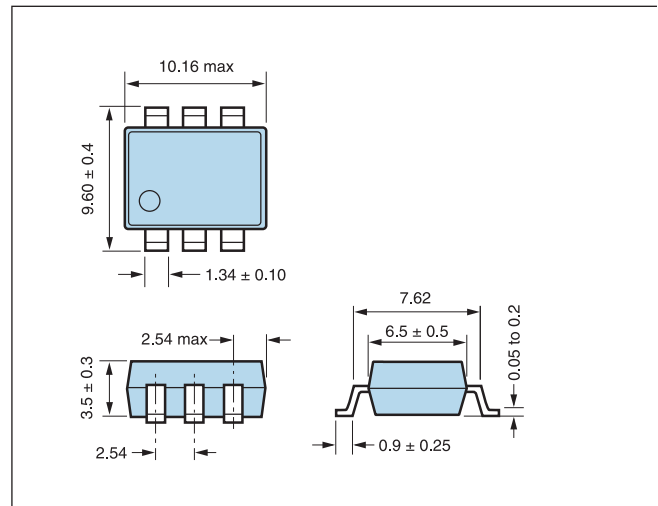
4 Pin Small Flat-Lead	PS7904-1A	A	400	60	1.1	27	0.15	0.15	UL
4 Pin Small Flat-Lead	PS7902-1A	A	250	40	1.1	11.5	0.1	0.1	UL

SSR Package Dimensions Dimensions in millimeters. Dimensions are nominal, please refer to datasheets.

DIP6 Thru-Hole

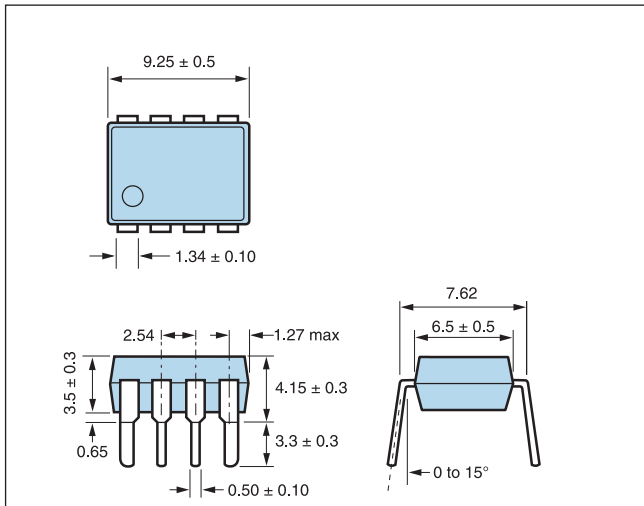


SMT DIP6 Gull Wing

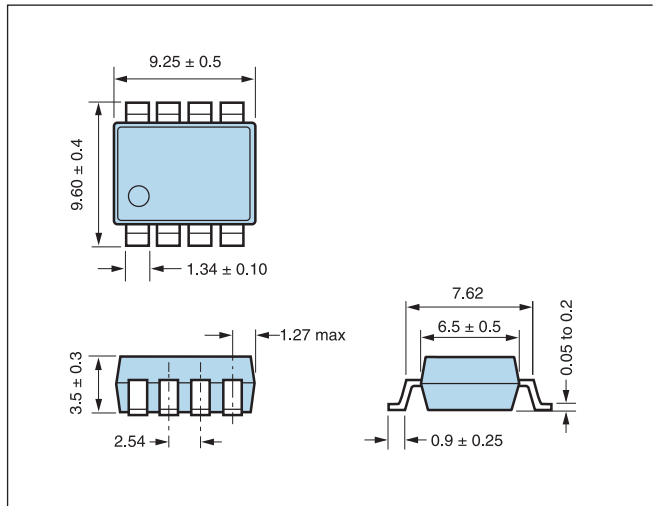


SSR Package Dimensions *Continued... Dimensions in millimeters. Dimensions are nominal, please refer to datasheets.*

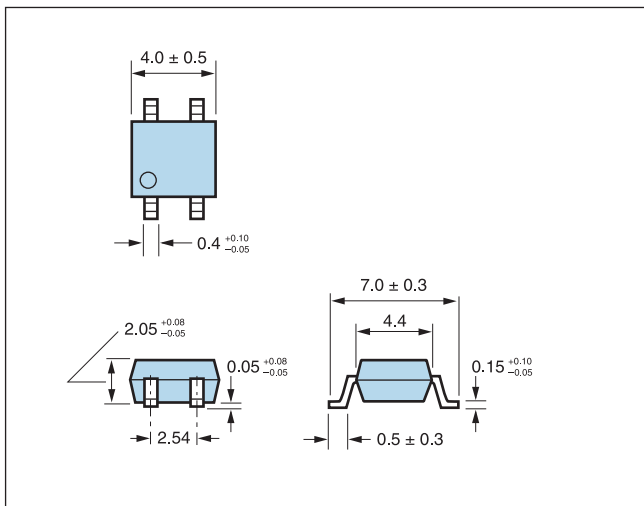
DIP8 Thru-Hole



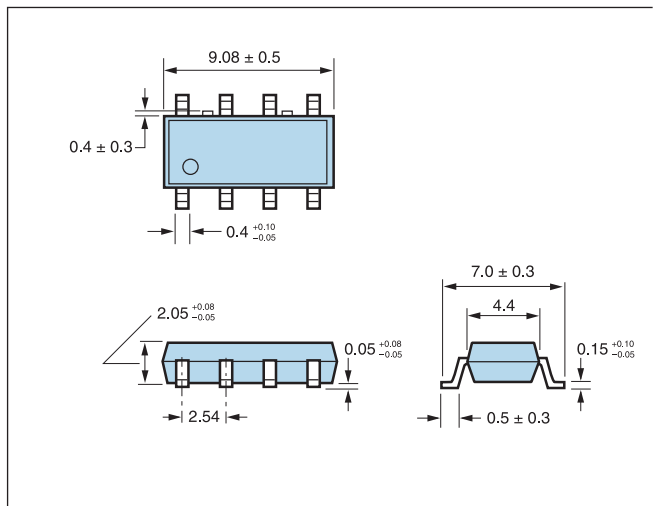
SMT DIP8 Gull Wing



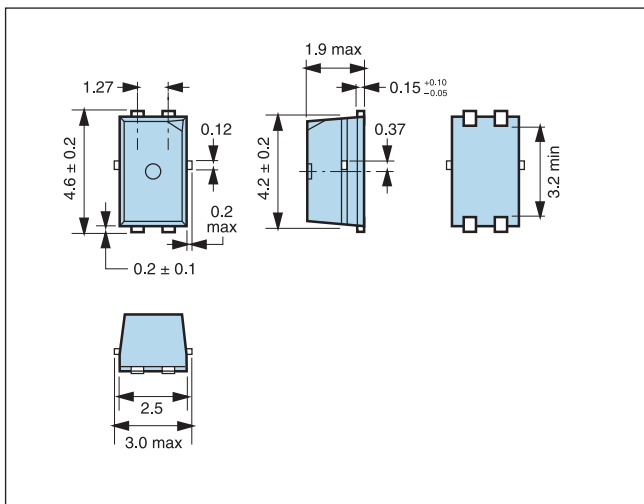
SOP4



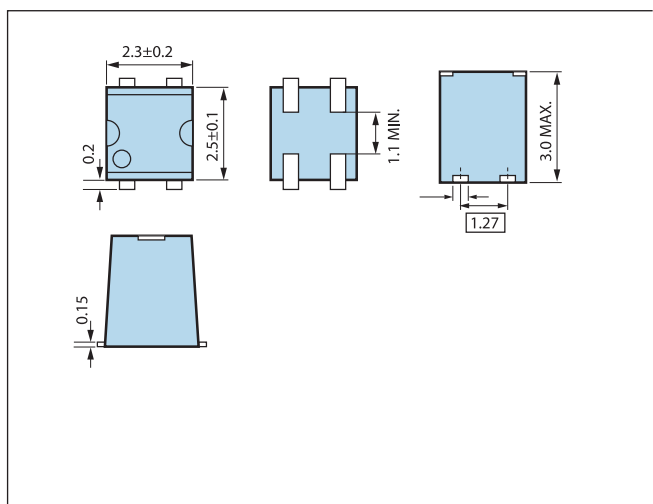
SOP8



4-Pin Mini Flat-Lead



4-Pin Small Flat-Lead



Notes

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