

NEC ELECTRONICS OPTOCOUPLERS — 2008



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Support

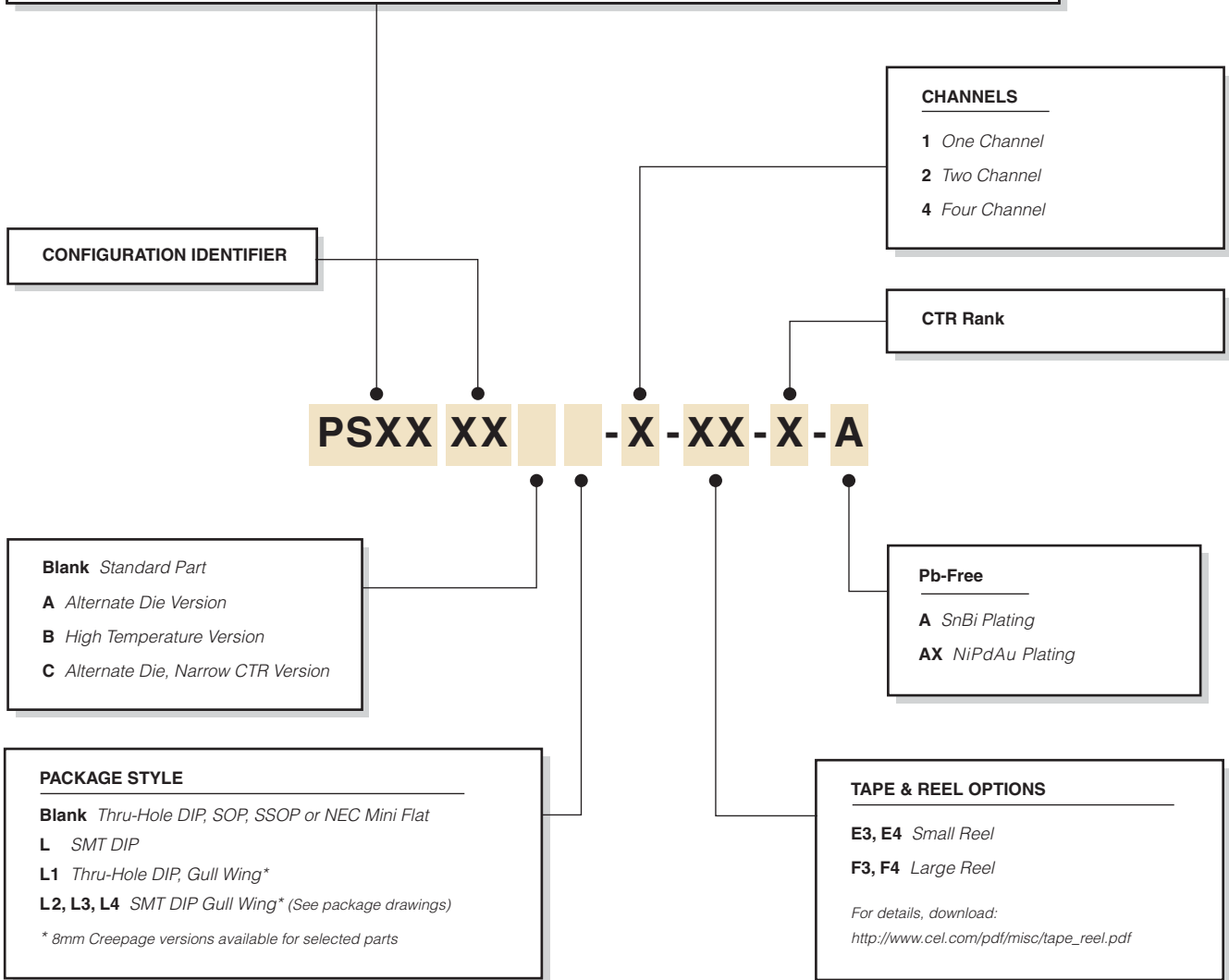
Product Selection Guides
Data Sheets
Product & Application Notes
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Cross References

For information visit www.cel.com

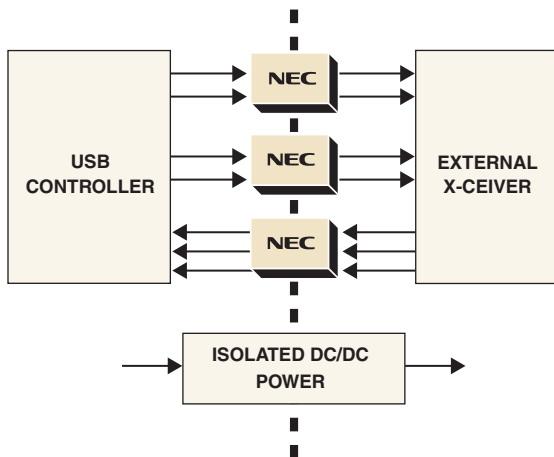
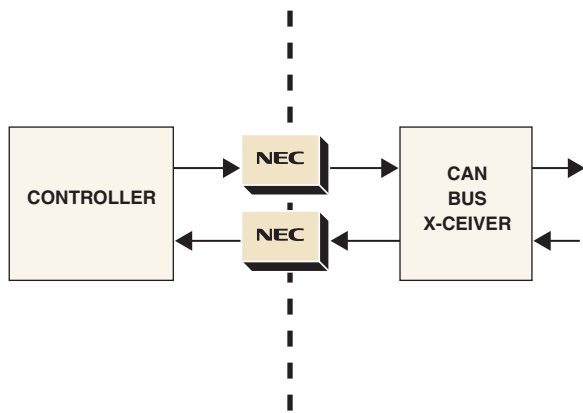
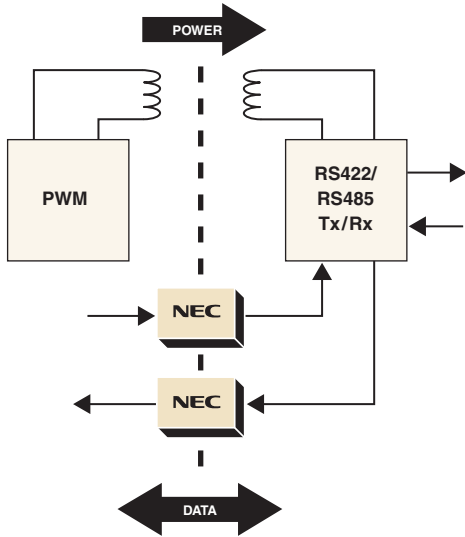
NEC Optocoupler Families

Overview, Package Styles and Part Numbering System

Part Number	Description	Package Styles Available	Package Drawing (Page No.)
PS25XX Series	Transistor Output	4 and 16 pin DIP and DIP SMT	19 – 21
PS27XX Series	Transistor Output	4 Pin SOP (2.54mm pin pitch)	21
PS28XX Series	Transistor Output	4, 12 and 16 pin SSOP (1.27mm pin pitch)	21 – 22
PS29XX Series	Transistor Output	4 pin Mini Flat (flat lead, 1.27mm pin pitch)	22
PS81XX Series	High Speed Analog	5 pin SOP (1.27mm pin pitch)	21
PS83XX Series	High Speed Analog	6 pin SDIP SMT	22
PS85XX Series	High Speed Analog	8 pin DIP and SMT DIP	20
PS88XX Series	High Speed Analog	S08	22
PS91XX Series	High Speed Digital	5 pin SOP (1.27mm pin pitch)	21
PS92XX Series	High Speed Digital	5 pin SOP (1.27mm pin pitch)	21
PS93XX Series	High Speed Digital	6 pin SDIP SMT	22
PS94XX Series	High Speed Digital	16 pin SSOP	22
PS95XX Series	High Speed Digital	8 pin DIP and SMT DIP	20
PS98XX Series	High Speed Digital	S08	22



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.

Key Application Requirements

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

Recommended NEC Optocouplers

Tx/Rx Input: **PS8802-1, 2, PS8821-1, 2** (1Mbps)

PS9121, PS9821-1, 2 (15Mbps)

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.

Key Application Requirements

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

Recommended NEC Optocouplers

PS9151, 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.

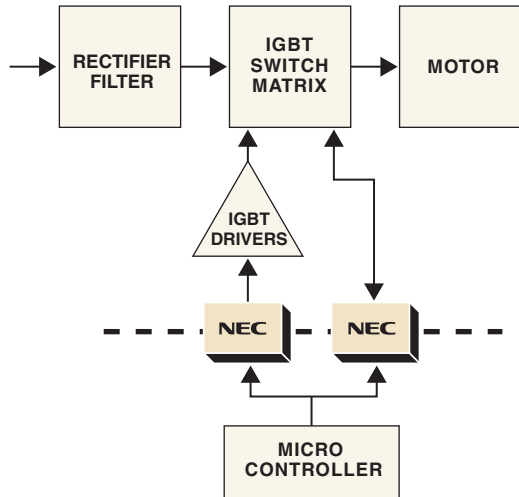
Key Application Requirements

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

Recommended NEC Optocouplers

PS9121, PS9151, 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.

Key Application Requirements

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

Recommended NEC Optocouplers

PS9113, PS9213, PS9301, PS9401-2, PS9513, PS8551, PS9551, PS9552, PS9553

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.

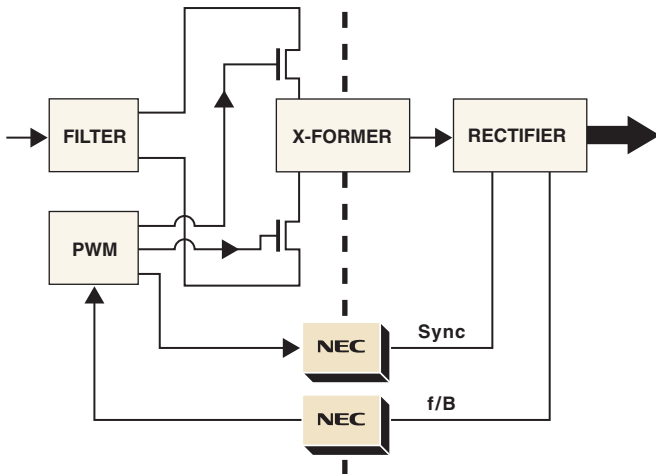
Key Application Requirements

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

Recommended NEC Optocouplers

Sync: **PS8501, PS9817-1, -2**

Feedback: **PS2561 A/B, 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.

Key Application Requirements

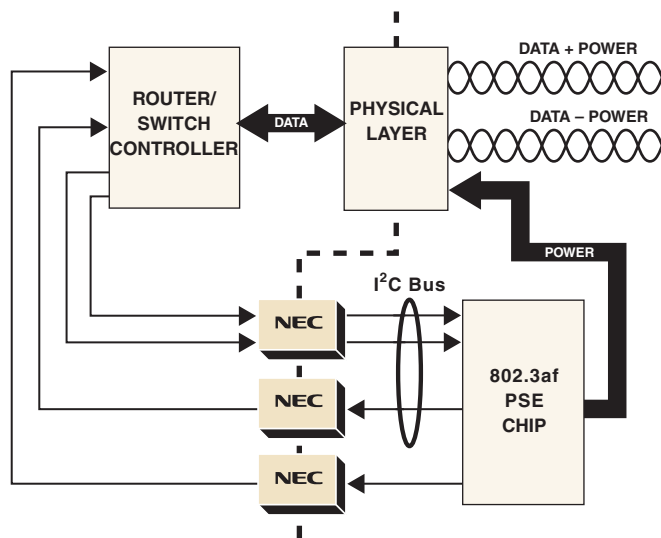
- 3.3V and 5V operation
- 1500V AC minimum isolation
- Small size
- Standard Mode (100kHz data rate)
- Fast Mode (400kHz data rate)

Recommended NEC Optocouplers

PS8821-1, 2 (Standard Mode)

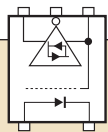
PS9121, PS9821-1, 2 (Fast Mode)

PS2841-4, PS2911 (Transistor Optocouplers)



High Speed Digital Optocouplers

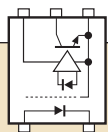
Package	Part Number	Speed (Mbps)	V _{CC} Range (V) <i>Recommended</i>	Absolute Max Rating			Typ		Safety Certification ¹
				BV (V _{r.m.s.})	IO (mA)	IF (mA)	t _{PHL} (ns)	t _{PLH} (ns)	



Single channel, totem pole output

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

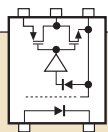
SSOP5	PS9115	10	4.5 to 5.5	3750	13	30	33	40	UL, VDE
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Single channel, open collector output

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

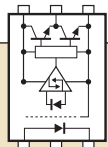
SOP5	PS9117A	10	4.5 to 5.5	3750	25	30	40	45	UL, VDE
SOP5	PS9121	15	2.7 to 3.6	3750	25	30	40	45	UL, VDE
SOP5 ²	PS9122	1	N = 2.7 to 3.6 L = 4.5 to 5.5	3750	10	25	500 max	700 max	UL, VDE
SOP5 5.5mm Creepage ²	PS9213	1	4.5 to 30	2500	15	25	250	520	UL, VDE
SOP5 5.5mm Creepage	PS9214	10	4.5 to 5.5	2500	25	30	54	51	UL, VDE



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

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

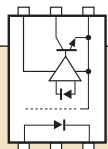
SOP5	PS9151	15	4.5 to 5.5	3750	2	20	35	35	UL, VDE
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Single channel, totem pole output, -40 to 100°C operation

Isolation for IPM Drivers, Inverters

SDIP6 Gull Wing	PS9303L	1	4.5 to 20	5000	25	20	250	250	UL, VDE, CSA
SDIP6 8mm Creepage	PS9303L2								



Single channel, open collector output

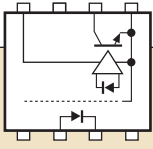
Isolation for measurement equipment, plasma display panels and factory automation equipment

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

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

High Speed Digital Optocouplers *Continued...*

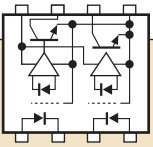
Package	Part Number	Speed (Mbps)	Vcc Range (V) <i>Recommended</i>	Absolute Max Rating			Typ		Safety Certification ¹
				BV (V _{r.m.s.})	IO (mA)	IF (mA)	t _{PHL} (ns)	t _{PLH} (ns)	



Single channel, open collector output

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

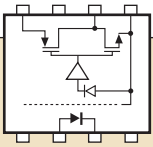
DIP8 Thru-Hole	PS9587	10	4.5 to 5.5	5000	25	30	35	45	UL, VDE
DIP8 Thru-Hole 8mm Creepage	PS9587L1								
SMT DIP8 8mm Creepage	PS9587L2								
SMT DIP8 Gull Wing	PS9587L3								
S08	PS9817A-1	10	4.5 to 5.5	2500	25	20	40	45	UL, VDE
S08	PS9821-1	15	2.7 to 3.6	2500	25	20	45	50	UL, VDE
S08	PS9822-1	1	N = 2.7 to 3.3 L = 4.5 to 5.5	2500	25	20	500 max	700 max	UL, VDE



Two channel, open collector output

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

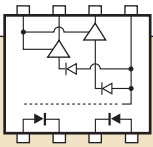
S08	PS9817A-2	10	4.5 to 5.5	2500	25	15	40	45	UL, VDE
S08	PS9821-2	15	2.7 to 3.6	2500	25	15	45	50	UL, VDE
S08	PS9822-2	1	N = 2.7 to 3.3 L = 4.5 to 5.5	2500	25	15	500 max	700 max	UL, VDE



Single channel, CMOS output

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

S08	PS9851-1	15	4.5 to 5.5	2500	2	20	34	37	UL, VDE
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Two channel, CMOS output

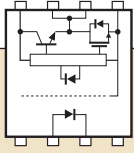
Isolation for measurement equipment, plasma display panels, and factory automation equipment

S08	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 data sheet.

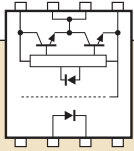
Digital Optocouplers for MOSFET and IGBT Driver Isolation

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



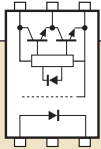
Single channel for MOSFET, IGBT driver isolation, -40 to 100°C operation

DIP8 Thru-Hole	PS9552	15 to 30	5000	2500	25	300	300	UL, VDE, CSA, BSI
DIP8 Thru-Hole 8mm Creepage	PS9552L1							
SMT DIP8 Gull Wing 8mm Creepage	PS9552L2							
SMT DIP8 Gull Wing	PS9552L3							



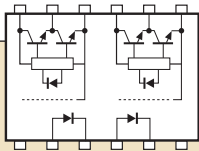
Single Channel for MOSFET, IGBT driver isolation, -40 to 100°C operation

DIP8 Thru-Hole	PS9553	10 to 30	5000	600	25	200	200	UL, CSA, BSI
DIP8 Thru-Hole 8mm Creepage	PS9553L1							
SMT DIP8 Gull Wing 8mm Creepage	PS9553L2							
SMT DIP8 Gull Wing	PS9553L3							



Single channel for IGBT, MOSFET drivers, inverters, induction heating, and plasma display panels, -40 to 100°C operation

SDIP6 Gull Wing	PS9301L	10 to 30	5000	600	25	200	200	UL, CSA, BSI
SDIP6 Gull Wing 8mm Creepage	PS9301L2							

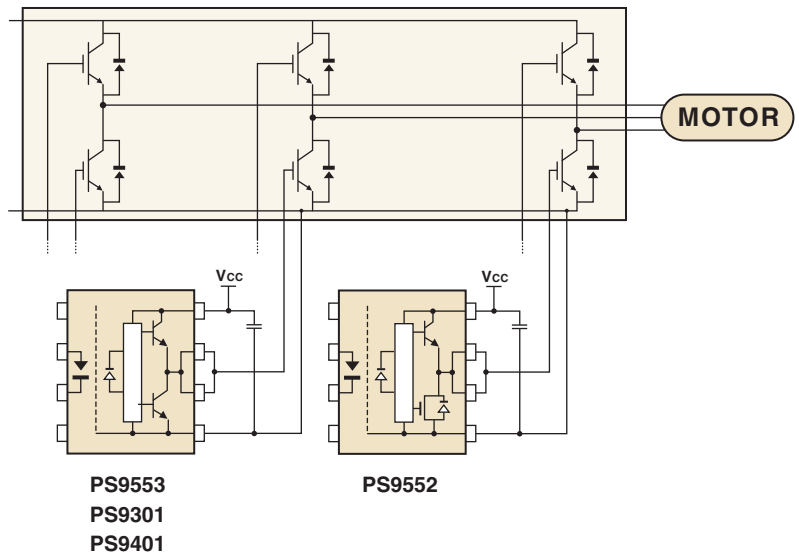


Two channel for IGBT, MOSFET drivers, inverters, induction heating, and plasma display panels, -40 to 100°C operation

SSOP16	PS9401-2	10 to 30	5000	600	25	200	200	UL, CSA, BSI
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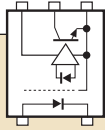
NOTES: 1. Other safety certifications available, see data sheet.

Motor drive applications demand higher voltages and current than most ICs and microcontrollers can handle. To address the problem a variety of new IGBT and MOSFET drivers have been developed. These drivers depend on the galvanic isolation that NEC optocouplers provide to protect their microcontrollers from the power surges, ground loops, and electrical noise their motors generate. NEC's PS9552 Series devices feature high common mode transient immunity, large peak output current, and fast switching speeds. *Under Voltage Lockout Protection (UVLO)* is also a standard feature, plus all PS9552 devices are housed in special RoHS-compliant white epoxy packages designed to limit heat absorption in high current applications.



Digital High Functionality Optocouplers for Motor Drive Applications

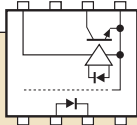
Package	Part Number	V _{CC} Range (V) <i>Recommended</i>	Absolute Max Ratings			Typ		Safety Certification ¹
			BV (V _{r.m.s.})	I _O (mA)	I _F (mA)	t _{PHL} (ns)	t _{PLH} (ns)	



Single channel, open collector output, high temp operation

Isolation for intelligent power module drivers, inverters

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							



Single channel, open collector output, -40 to 100°C operation

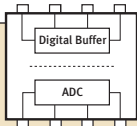
Isolation for intelligent power module drivers, inverters

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							

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	V _{DD} Range (V) <i>Recommended</i>	Input Supply Current I _{DD1} (mA max)	Output Supply Current I _{DD2} (mA max)	Resolution (bits min)	Output Clock Frequency (MHz typ)	BV (V _{r.m.s.})	Safety Certification ¹
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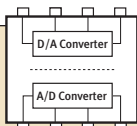
Digital isolation amplifier for motor drive applications

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 (V _{r.m.s.})	V _{CC} (V)						



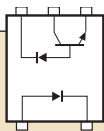
Analog isolation amplifier for motor drive applications, -40 to 100°C operation

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.

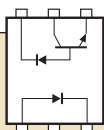
High Speed Analog Optocouplers

Package	Part Number	Speed (Mbps)	Absolute Maximum Ratings				Typical		CTR ¹ (N = Full Range) Rank (%)	Safety Certification ²
			BV (V _{r.m.s.})	V _{CC} (V)	I _C (mA)	I _F (mA)	t _{PHL} (ns)	t _{PLH} (ns)		



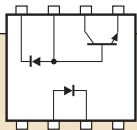
Single channel for power supplies, inverters, computers, peripherals, -55 to 100°C operation

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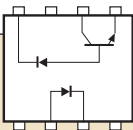
Single channel for power supplies, inverters, computers, peripherals, -40 to 110°C operation

SDIP6 SMT Gull Wing SDIP6 SMT Gull Wing 8mm Creepage	PS8302L PS8302L2	1	5000	35	8	25	220	350	15 min	UL, VDE, CSA
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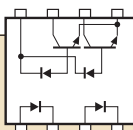
Single channel for measurement and control equipment, modems, inverters, -55 to 100°C operation

DIP8 Thru-Hole DIP8 Thru-Hole 8mm Creepage SMT DIP8 Gull Wing 8mm Creepage SMT DIP8 Gull Wing	PS8501 PS8501L1 PS8501L2 PS8501L3	1	5000	35	8	25	220	350	15 min	UL, CSA, BSI
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Single channel for measurement and control equipment, modems, inverters, -55 to 100°C operation

DIP8 Thru-Hole DIP8 Thru-Hole 8mm Creepage SMT DIP8 Gull Wing 8mm Creepage SMT DIP8 Gull Wing	PS8502 PS8502L1 PS8502L2 PS8502L3	1	5000	35	8	25	220	350	15 min	UL, CSA, BSI
S08	PS8802-1	1	2500	35	8	25	300	600	(N = 15 to 35)	UL, VDE
S08	PS8821-1	1	2500	7	8	25	300	500	(N = 20 to ...) ³	UL, VDE



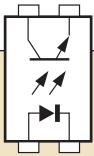
Two channel for measurement and control equipment, modems, inverters, -55 to 100°C operation

S08	PS8802-2	1	2500	35	8	25	300	600	(N = 15 to 35)	UL, VDE
S08	PS8821-2	1	2500	7	8	25	300	500	(N = 20 to ...) ³	UL, VDE

NOTES: 1. CTR measured at V_{CC} = 4.5V, I_F = 16 mA. 2. Other safety certifications available, see data sheet. 3. CTR measured at V_{CC} = 3.3V, I_F = 16 mA.

Single Transistor, General Purpose DC Optocouplers

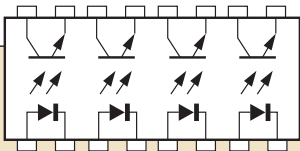
Package	Part Number	Absolute Maximum Ratings				CTR (N = Full Range) Rank (%)	Safety Certification
		BV(V _{r.m.s.})	V _{CEO} (V)	I _F (mA)	I _C (mA)		



Single channel DC device for low-speed logic applications

CTR measured @ V_{CE} = 5V, I_F = 5mA

DIP4 Thru-Hole SMT DIP4	PS2501 PS2501L	5000	80	80	50	N = 80 to 600 K = 300 to 600 L = 200 to 400 M = 80 to 240 D = 100 to 300 H = 80 to 160 W = 130 to 260 Q = 100 to 200	UL
PS2501 w/ alternate die DIP4 Thru-Hole SMT DIP4 <i>For high temp applications see PS2561B, page 14</i>	PS2501A PS2501AL	5000	70	30	30	N = 50 to 400 H = 80 to 160 W = 130 to 260 Q = 100 to 200 L = 200 to 400 K = 300 to 600	UL
SOP4	PS2701	3750	40	50	80	N = 50 to 300 P = 150 to 300 L = 100 to 300 M = 50 to 150	UL, VDE, BSI
PS2701 w/ alternate die SOP4 <i>For high temp applications see PS2761B, page 14</i>	PS2701A	3750	70	30	30	N = 50 to 300 P = 150 to 300 L = 100 to 300 M = 50 to 150	UL, VDE
SSOP4	PS2801	2500	80	50	50	N = 80 to 600 K = 300 to 600 L = 100 to 300 P = 150 to 300	UL, VDE, BSI, CSA
PS2801 w/ alternate die SSOP4 <i>For high temp applications see PS2861B, page 14</i>	PS2801C	2500	80	30	30	N = 50 to 400 L = 100 to 300 M = 100 to 400 P = 150 to 300	UL, VDE



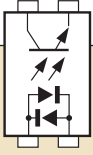
Four channel DC device for low-speed logic applications

CTR measured @ V_{CE} = 5V, I_F = 5mA

DIP16 Thru-Hole SMT DIP16	PS2501-4 PS2501L-4	5000	80	80	50	N = 80 to 600	UL
SSOP16	PS2801-4	2500	80	50	50	N = 80 to 600	UL, VDE, BSI, CSA
PS2801-4 w/ alternate die SSOP16	PS2801C-4	2500	80	30	30	N = 50 to 400 M = 100 to 400	UL

Single Transistor, General Purpose AC Optocouplers

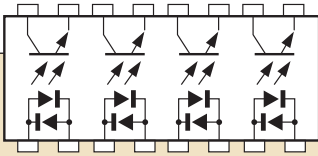
Package	Part Number	Absolute Maximum Ratings				CTR (N = Full Range) Rank (%)	Safety Certification
		BV (V _{r.m.s.})	V _{CEO} (V)	I _F (mA)	I _C (mA)		



Single channel AC devices with high isolation voltage

CTR measured @ V_{CE} = 5V, I_F = ±5mA

DIP4 Thru-Hole SMT DIP4	PS2505 PS2505L	5000	80	±80	50	N = 80 to 600	UL
SOP4	PS2705	3750	40	±50	80	N = 50 to 300 P = 150 to 300 L = 100 to 300 M = 50 to 150	UL, VDE, BSI, CSA
PS2705 w / alternate die							
SOP4	PS2705A	3750	70	±30	30	N = 50 to 300 L = 100 to 300 M = 50 to 150	UL, VDE
SSOP4	PS2805	2500	80	±50	50	N = 80 to 600	UL, VDE, BSI, CSA
PS2805 w / alternate die							
SSOP4	PS2805C	2500	80	±30	30	N = 50 to 400 M = 100 to 400	UL, VDE



Four channel AC devices with high isolation voltage

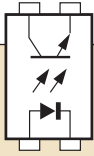
CTR measured @ V_{CE} = 5V, I_F = ±5mA

DIP16 Thru-Hole SMT DIP16	PS2505-4 PS2505L-4	5000	80	±80	50	N = 80 to 600	UL
SSOP16	PS2805-4	2500	80	±50	50	N = 80 to 600	UL, VDE, BSI, CSA
PS2805-4 w / alternate die							
SSOP16	PS2805C-4	2500	80	±30	30	N = 50 to 400 M = 100 to 400	UL, VDE

NOTES: 1. Other safety certifications available, see data sheet.

Single Transistor DC & AC Optocouplers, Optimized for Power Supplies

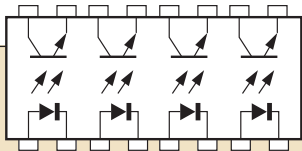
Package	Part Number	Absolute Maximum Ratings				CTR (N = Full Range) Rank (%)	Safety Certification
		BV (V _{r.m.s.})	V _{CE0} (V)	I _F (mA)	I _C (mA)		



Single channel DC devices optimized for power supply applications

CTR measured @ V_{CE} = 5V, I_F = 1mA

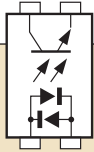
SOP4	PS2711	3750	40	50	40	N = 100 to 400 K = 200 to 400 L = 150 to 300 M = 100 to 200	UL, VDE
SSOP4	PS2811	2500	40	50	40	N = 100 to 400 K = 200 to 400 L = 150 to 300 M = 100 to 200	UL, VDE
4 Pin Mini Flat	PS2911	2500	40	50	40	N = 100 to 400 K = 200 to 400 L = 150 to 300 M = 100 to 200	UL, VDE, BSI



Four channel DC device
optimized for power supply applications

CTR measured @ V_{CE} = 5V, I_F = 1mA

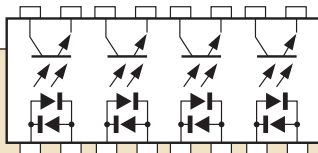
SSOP16	PS2811-4	2500	40	50	40	N = 100 to 400	UL, VDE
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Single channel AC devices optimized for power supply applications

CTR measured @ V_{CE} = 5V, I_F = 1mA

SOP4	PS2715	3750	40	±50	40	N = 100 to 400	UL, VDE
SSOP4	PS2815	2500	40	±50	40	N = 100 to 400	UL, VDE
4 Pin Mini Flat	PS2915	2500	40	±50	30	N = 100 to 400	UL, VDE, BSI



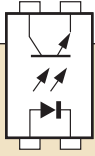
Four channel AC device
optimized for power supply applications

CTR measured @ V_{CE} = 5V, I_F = 1mA

SSOP16	PS2815-4	2500	40	±50	40	N = 100 to 400	UL, VDE
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Single Transistor DC Optocouplers, Guaranteed 0.4mm Insulation (BSI)

Package	Part Number	Absolute Maximum Ratings				CTR (N = Full Range) Rank (%)	Safety Certification ¹
		BV(V _{r.m.s.})	V _{CEO} (V)	I _F (mA)	I _C (mA)		



Single channel DC devices, high isolation voltage

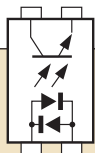
CTR measured @ V_{CE} = 5V, I_F = 5mA

DIP4 Thru-Hole SMT DIP4 DIP4 Thru-Hole Gull Wing	PS2561 PS2561L PS2561L1	5000	80	80	50	N = 80 to 400 L = 200 to 400 M = 80 to 240 D = 100 to 300 H = 80 to 160 W = 130 to 260	UL, VDE, BSI
PS2561 w/alternate die DIP4 Thru-Hole SMT DIP4 DIP4 Thru-Hole Gull Wing SMT DIP4 Gull Wing	PS2561A PS2561AL PS2561AL1 PS2561AL2	5000	70	30	30	N = 50 to 400 L = 200 to 400 H = 80 to 160 Q = 100 to 200 W = 130 to 260	UL, VDE, BSI
PS2561 110°C operation DIP4 Thru-Hole SMT DIP4 DIP4 Thru-Hole Gull Wing SMT DIP4 Gull Wing	PS2561B PS2561BL PS2561BL1 PS2561BL2	5000	80	40	50	N = 100 to 400 Q = 100 to 200 W = 130 to 260 D = 100 to 300 L = 200 to 400	UL, VDE
DIP4 Thru-Hole 8mm Creepage SMT DIP4 8mm Creepage	PS2581L1 PS2581L2	5000	80	80	50	N = 80 to 400 L = 200 to 400 M = 80 to 240 D = 100 to 300 H = 80 to 160 W = 130 to 260	UL, VDE, BSI
DIP4 Thru-Hole 8mm Creepage SMT DIP4 8mm Creepage	PS2581AL1 PS2581AL2	5000	70	30	30	N = 50 to 300 L = 200 to 400 H = 80 to 160 Q = 100 to 200 W = 130 to 260	UL, VDE, BSI
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	In process

NOTES: 1. Other safety certifications available, see data sheet.

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

Package	Part Number	Absolute Maximum Ratings				CTR (N = Full Range) Rank (%)	Safety Certification ¹
		BV(V _{r.m.s.})	V _{CEO} (V)	I _F (mA)	I _C (mA)		



Single channel AC devices, high isolation voltage

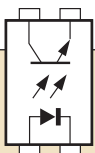
CTR measured @ V_{CE} = 5V, I_F = 5mA

DIP4 Thru-Hole SMT DIP4 DIP4 Thru-Hole Gull Wing SMT DIP4 Gull Wing	PS2565 PS2565L PS2565L1 PS2565L2	5000	80	±80	50	N = 80 to 400	UL, VDE, BSI
SOP4	PS2765	3750	40	±50	40	N = 50 to 400	UL, VDE, BSI
SSOP4	PS2865	2500	40	±50	40	N = 50 to 400	UL, VDE, BSI

NOTES: 1. Other safety certifications available, see data sheet.

Single Transistor, High Performance DC Optocouplers

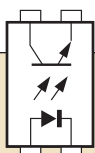
Package	Part Number	Absolute Maximum Ratings				CTR (N = Full Range) Rank (%)	Safety Certification
		BV(V _{r.m.s.})	V _{CEO} (V)	I _F (mA)	I _C (mA)		



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

CTR measured @ V_{CE} = 3V, I_F = 100mA

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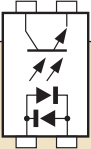


Single channel DC devices, high speed, high V_{CE}

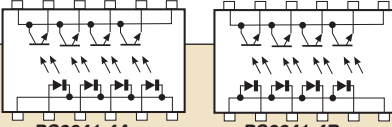
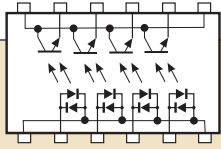
CTR measured @ V_{CE} and I_F as noted

DIP4 Thru-Hole SMT DIP4	PS2503 PS2503L	5000	40	80	30	V_{CE} = 5V, I_F = 1mA N = 100 to 400 K = 200 to 400 L = 150 to 300 M = 100 to 200	UL, CSA
DIP4 Thru-Hole	PS2513	5000	120	60	30	V_{CE} = 5V, I_F = 5mA N = 50 to 200	UL, VDE
SMT DIP4	PS2513L	5000	120	60	30	V_{CE} = 5V, I_F = 1mA N = 25 to 100	UL, VDE
SOP4	PS2703	3750	120	50	30	V_{CE} = 5V, I_F = 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	V_{CE} = 5V, I_F = 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

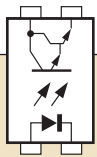
Package	Part Number	Absolute Maximum Ratings				CTR (N = Full Range) Rank (%)	Safety Certification
		BV (V _{r.m.s.})	V _{CEO} (V)	I _F (mA)	I _C (mA)		
 <p><i>Single channel AC devices, high drive current, high isolation voltage</i> <i>CTR measured @ V_{CE} = 3 V, I_F = 100 mA</i></p>							
DIP4 Thru-Hole SMT DIP4	PS2525 PS2525L	5000	80	±150	50	N = 20 to 80	UL, CSA

Single Transistor Optocouplers in Miniature Quad Packages

Package	Part Number	Absolute Maximum Ratings				CTR (N = Full Range) Rank (%)	Safety Certification
		BV (V _{r.m.s.})	V _{CEO} (V)	I _F (mA)	I _C (mA)		
 <p><i>Four channel, DC devices</i> <i>CTR measured @ V_{CE} = 5 V, I_F = 1 mA</i></p>							
SSOP12 SSOP12	PS2841-4A PS2841-4B	1500	70	20	20	N = 100 to 400	UL
 <p><i>Four channel, AC device</i> <i>CTR measured @ V_{CE} = 5 V, I_F = 1 mA</i></p>							
SSOP12	PS2845-4A	1500	70	±20	20	N = 100 to 400	UL

Darlington Transistor, General Purpose Optocouplers

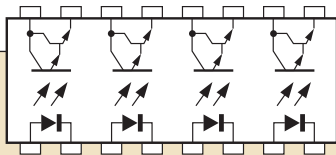
Package	Part Number	Absolute Maximum Ratings				CTR (N = Full Range) Rank (%)	Safety Certification
		BV(V _{r.m.s.})	V _{CEO} (V)	I _F (mA)	I _c (mA)		



Single channel DC devices, high isolation voltage

CTR measured @ V_{CE} = 2V, I_F = 1mA

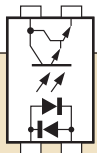
DIP4 Thru-Hole SMT DIP4	PS2502 PS2502L	5000	40	80	200	N = 200 min K = 2000 min. L = 700 to 3400 M = 200 to 1000	UL
SOP4	PS2702	3750	40	50	200	N = 200 min K = 2000 min. L = 700 to 3400 M = 200 to 1000	UL, VDE, BSI
SSOP4	PS2802	2500	40	50	90	N = 200 min K = 2000 min. L = 700 to 3400 M = 200 to 1000	UL,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



Four channel DC devices, high isolation voltage

CTR measured @ V_{CE} = 2V, I_F = 1mA

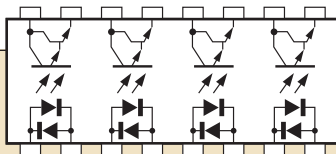
DIP16 Thru-Hole SMT DIP16	PS2502-4 PS2502L-4	5000	40	80	160	N = 200 min	UL
SSOP16	PS2802-4	2500	40	50	100	N = 200 min	UL, VDE, BSI, CSA



Single channel AC device, high isolation voltage

CTR measured @ V_{CE} = 2V, I_F = ±1mA

DIP4 Thru-Hole SMT DIP4	PS2506 PS2506L	5000	40	±80	200	N = 200 min	UL
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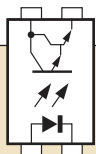
Four channel AC device, high isolation voltage

CTR measured @ V_{CE} = 2V, I_F = ±1mA

DIP16 Thru-Hole SMT DIP16	PS2506-4 PS2506L-4	5000	40	±80	160	N = 200 min	UL
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Darlington Transistor Optocouplers, Guaranteed 0.4mm Insulation (BSI)

Package	Part Number	Absolute Maximum Ratings				CTR (N = Full Range) Rank (%)	Safety Certification ¹
		BV(V _{r.m.s.})	V _{CEO} (V)	I _F (mA)	I _C (mA)		



Single channel DC device, high isolation voltage

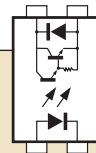
CTR measured @ V_{CE} = 2V, I_F = 1mA

DIP4 Thru-Hole SMT DIP4 DIP4 Thru-Hole Gull Wing SMT DIP4 Gull Wing	PS2562 PS2562L PS2562L1 PS2562L2	5000	40	80	200	N = 200 min K = 2000 to 3400 L = 700 to 3400 M = 200 to 1000	UL, VDE, BSE
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NOTES: 1. Other safety certifications available, see data sheet.

Darlington Transistor, High V_{CEO} DC Optocouplers

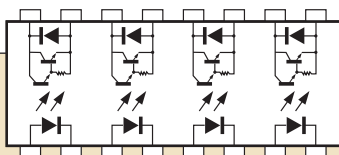
Package	Part Number	Absolute Maximum Ratings				CTR (N = Full Range) Rank (%)	Safety Certification
		BV(V _{r.m.s.})	V _{CEO} (V)	I _F (mA)	I _C (mA)		



Single channel DC devices

CTR measured @ V_{CE} = 2V, I_F = 1mA

DIP4 Thru-Hole SMT DIP4	PS2533 PS2533L	5000	350	80	150	N = 1500 to 6500	UL, VDE, BSI
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	PS2933	2500	350	50	60	N = 400 to 4500	UL, VDE, BSI

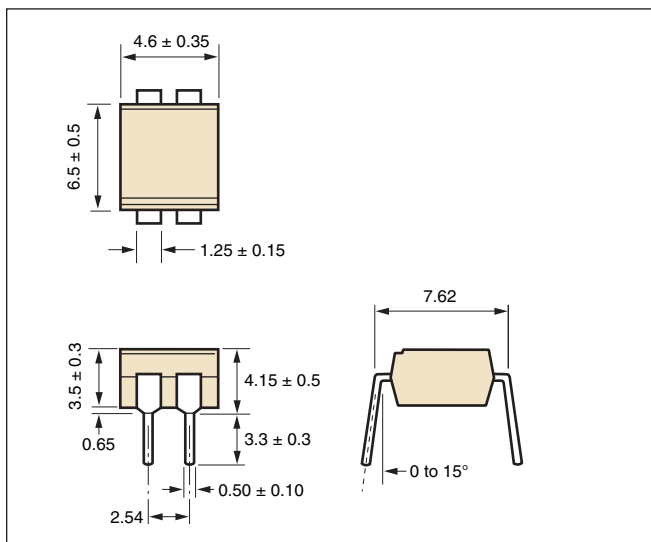


Four channel DC device

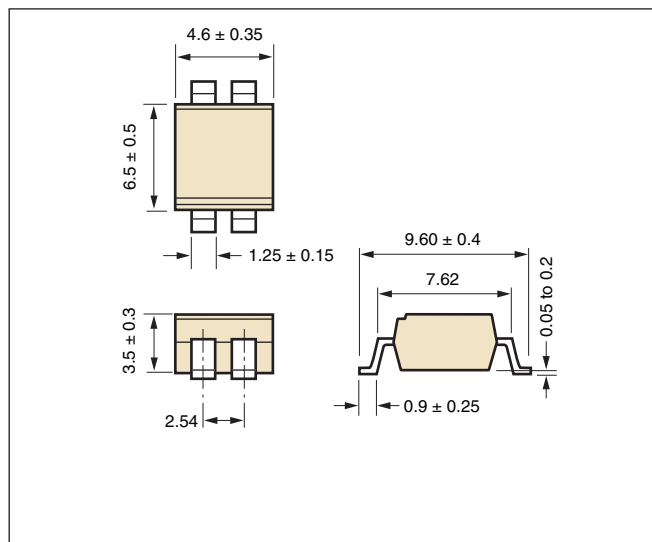
CTR measured @ V_{CE} = 2V, I_F = 1mA

SSOP16	PS2833-4	2500	350	50	60	N = 400 to 4500	UL
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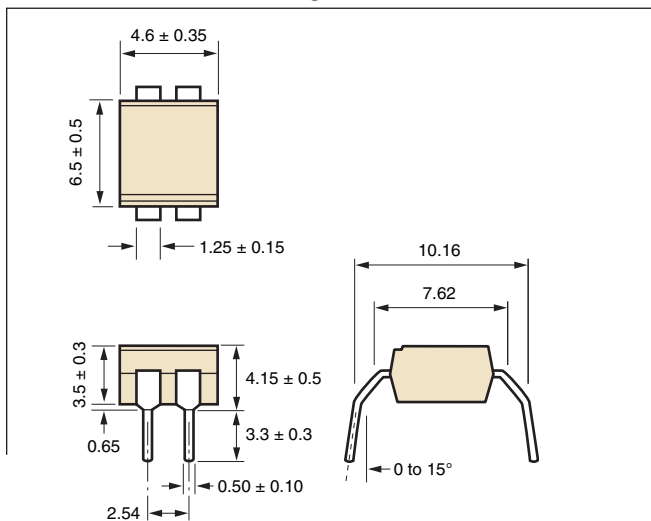
DIP4 Thru-Hole



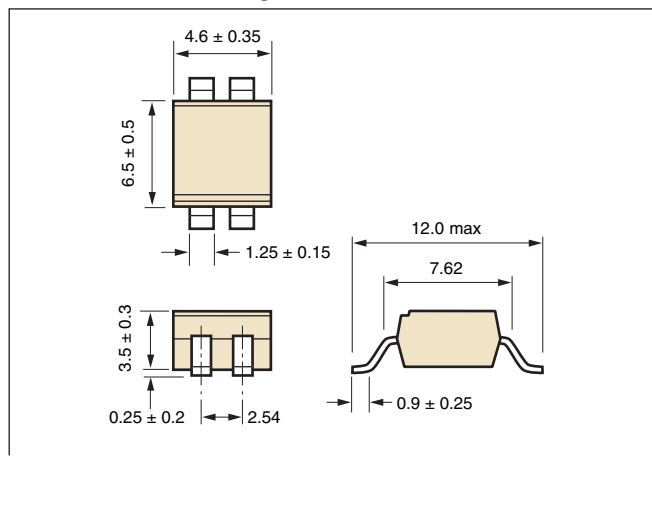
L — SMT DIP4



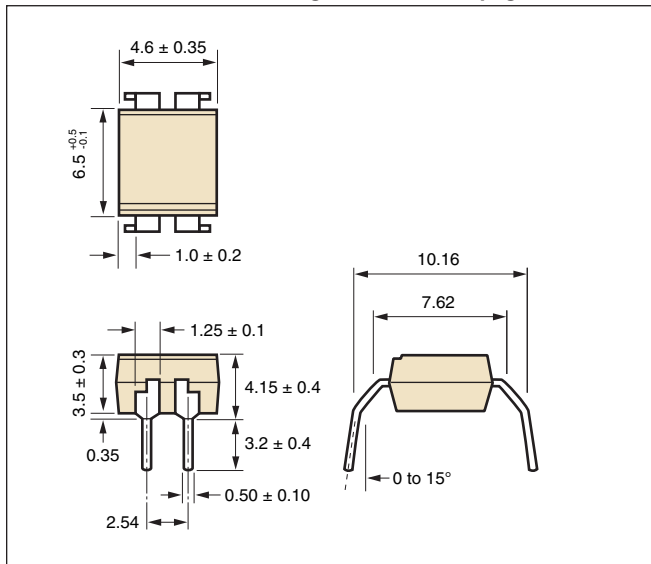
L1 — DIP4 Thru-Hole Gull Wing



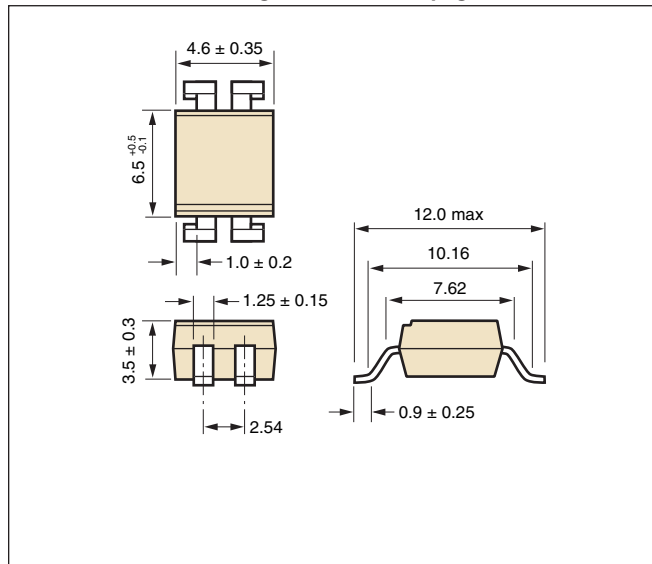
L2 — SMT DIP4 Gull Wing



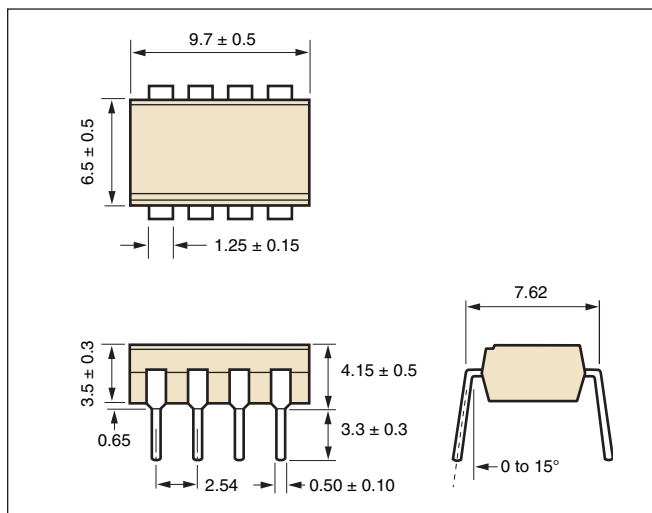
L1 — DIP4 Thru-Hole Gull Wing with 8mm Creepage



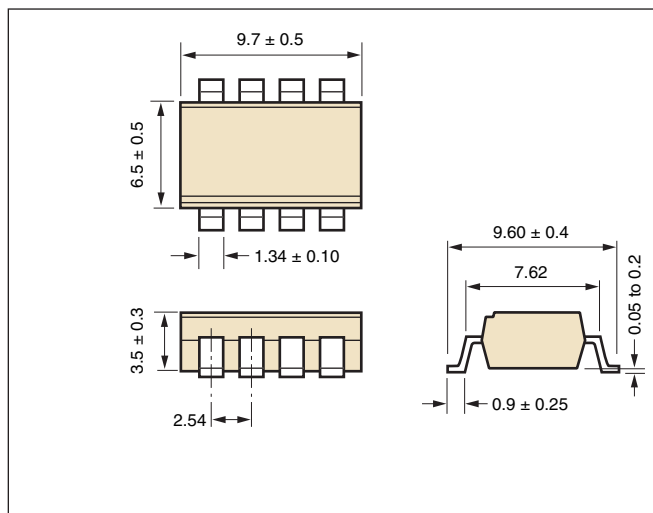
L2 — SMT DIP4 Gull Wing with 8mm Creepage



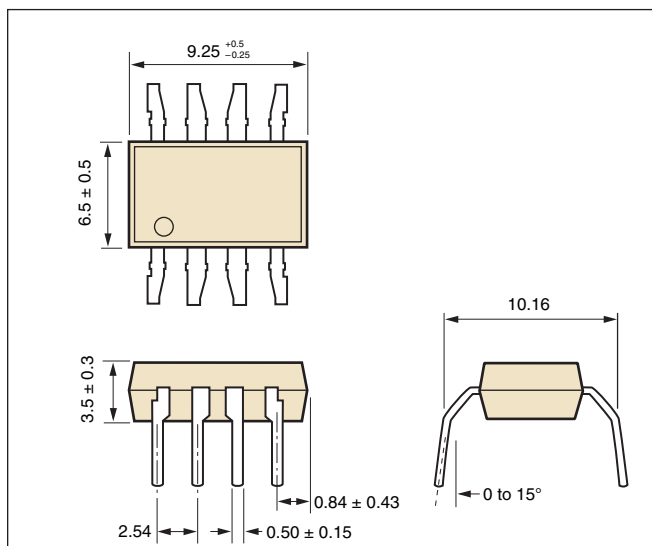
DIP8 Thru-Hole



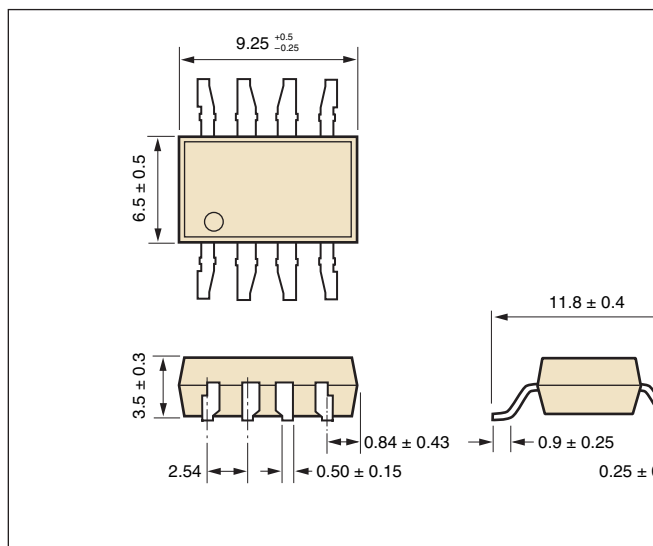
L — SMT DIP8



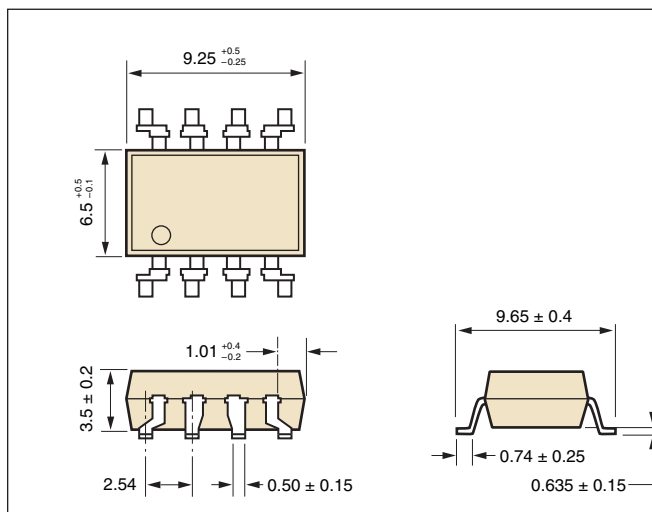
L1 — DIP8 Thru-Hole with 8mm Creepage



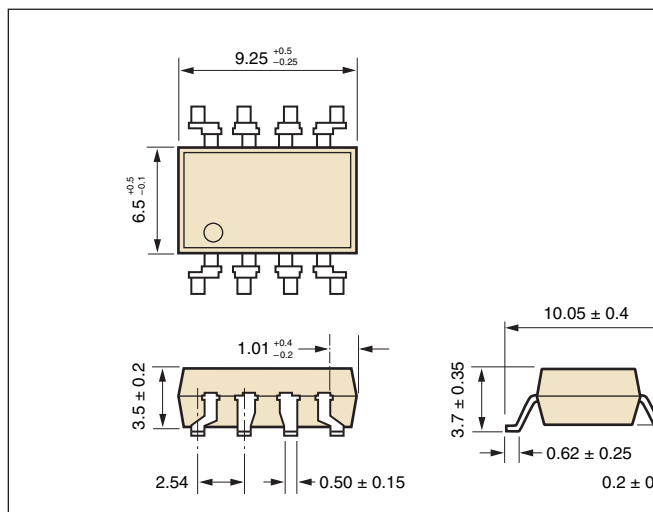
L2 — SMT DIP8 Gull Wing with 8mm Creepage



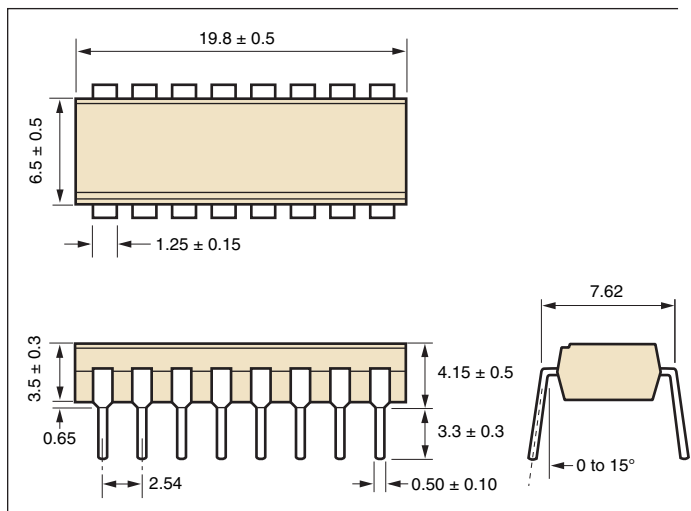
L3 — SMT DIP8 Gull Wing



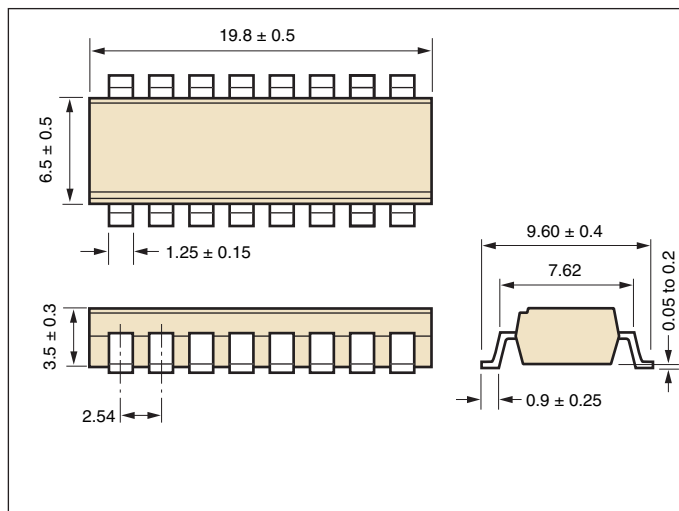
L4 — SMT DIP8 Gull Wing with 8mm Creepage



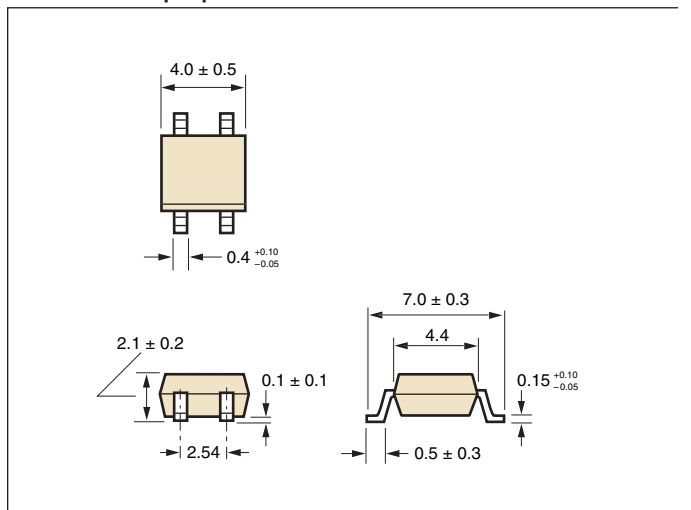
DIP16 Thru-Hole



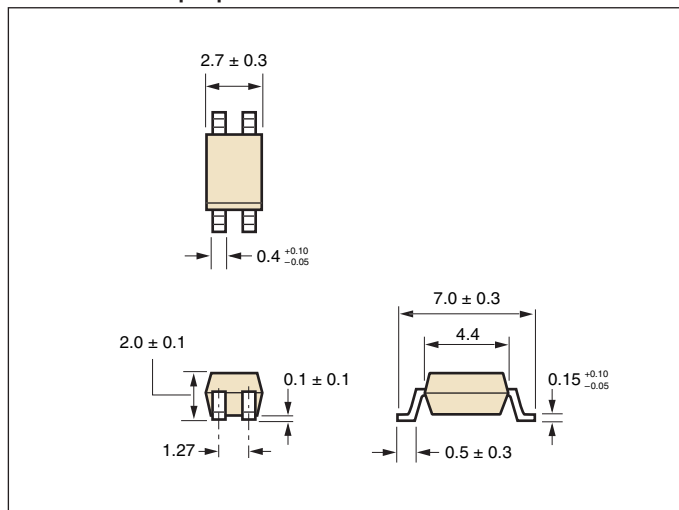
L — SMT DIP16



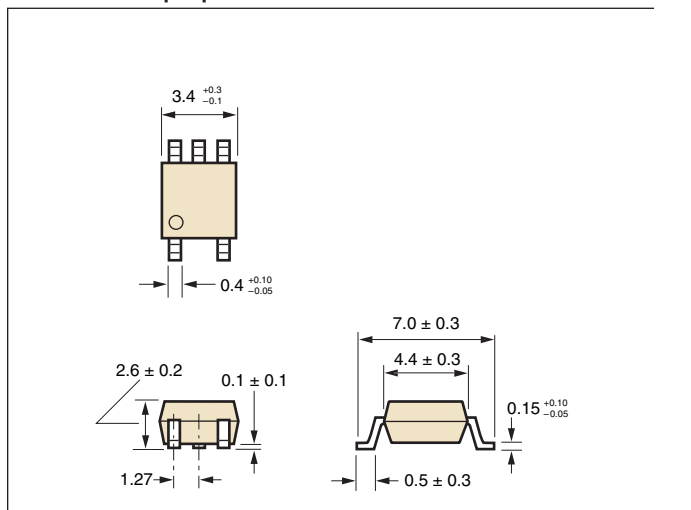
SOP4 2.54mm pin pitch



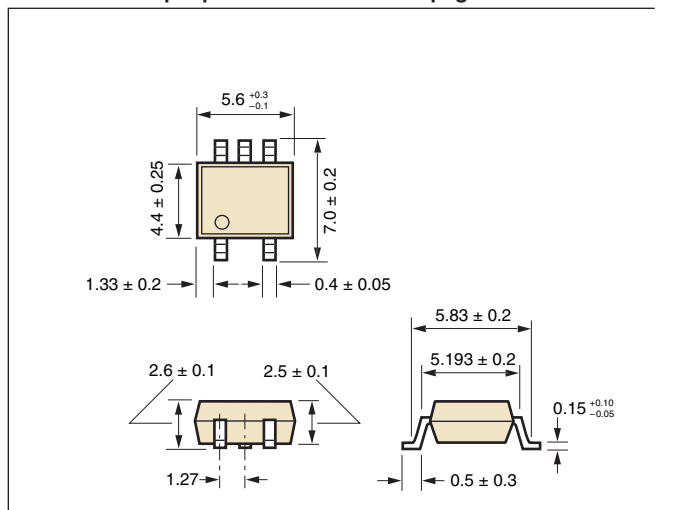
SSOP4 1.27mm pin pitch



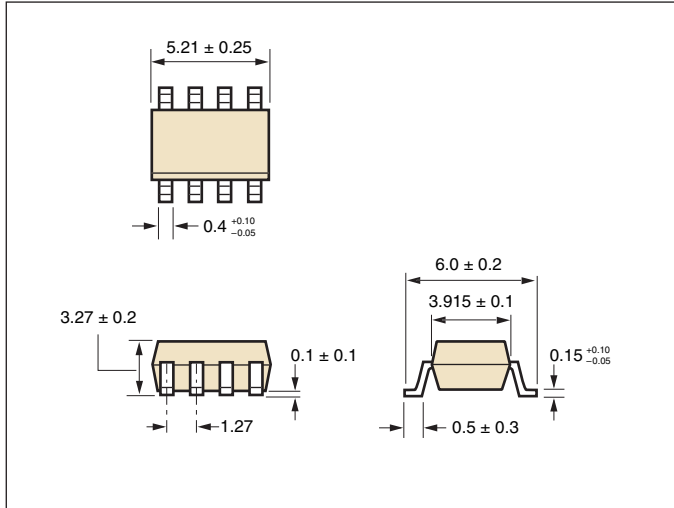
SOP5 1.27mm pin pitch



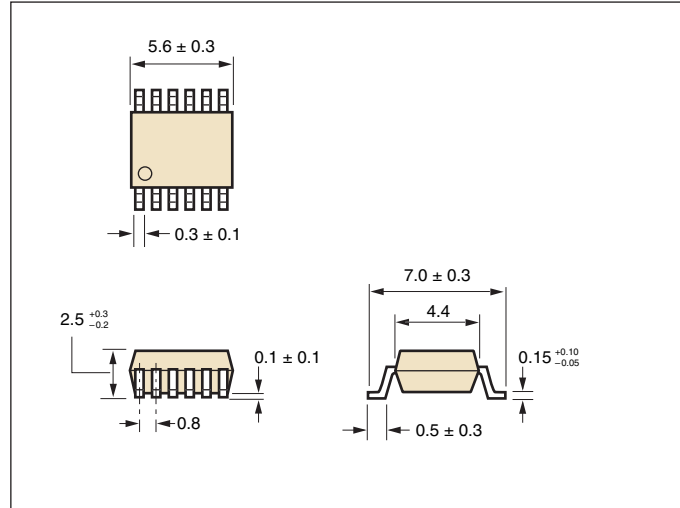
SOP5 1.27mm pin pitch with 5.5mm Creepage



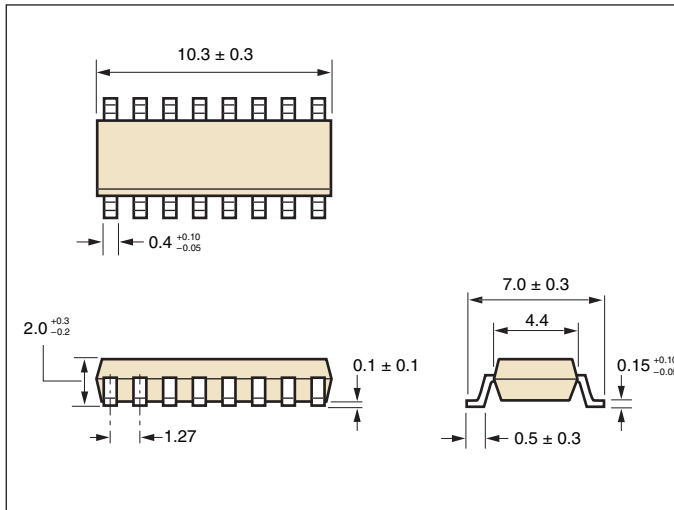
S08 1.27mm pin pitch



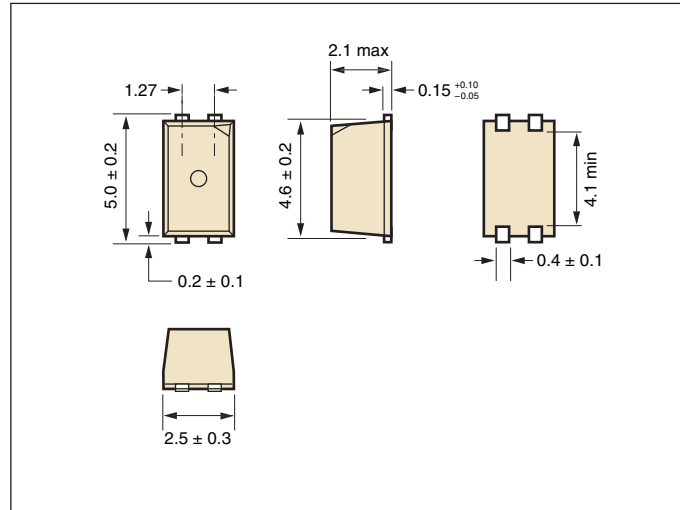
SSOP12 Mini Quad 1.27mm pin pitch



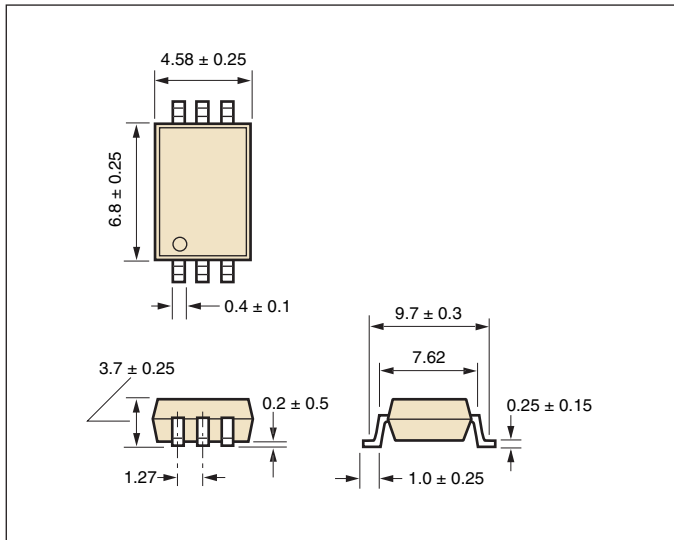
SSOP16 1.27mm pin pitch



4 Pin Mini Flat



L — SDIP6 SMT Gull Wing



L2 — SDIP6 SMT Gull Wing with 8mm Creepage

