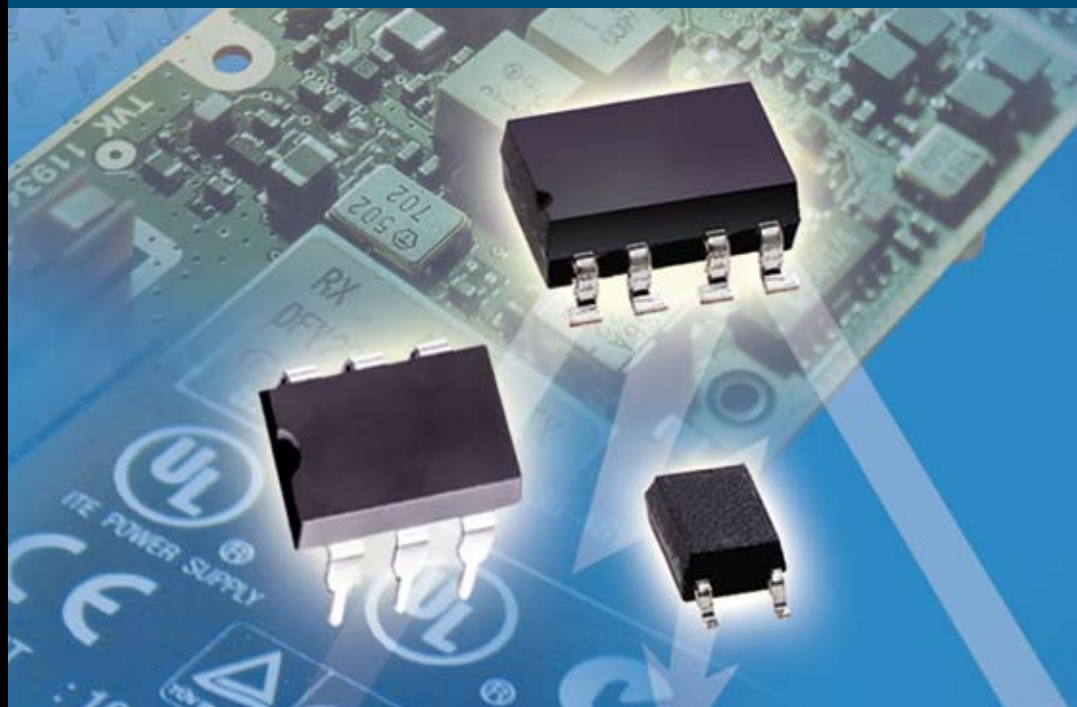




VISHAY INTERTECHNOLOGY, INC.

OPTOELECTRONICS

SELECTOR GUIDE



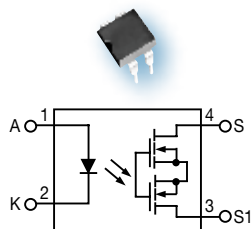
HIGH VOLTAGE SOLID STATE RELAYS



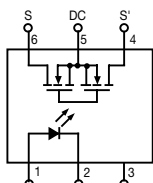
High Voltage Solid State Relays

Protection Through Optical Isolation

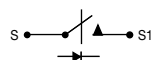
**4-Pin
MiniFlat**



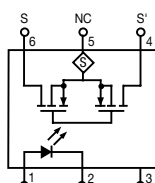
1 Form A*



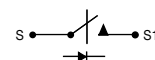
1 Form A



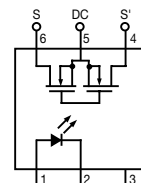
1 Form A*



1 Form A



1 Form B*



1 Form B

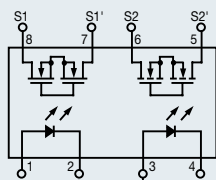


**6-Pin
DIP/SMD**

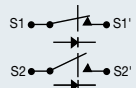


* Form A "normally open";
Form B "normally closed"

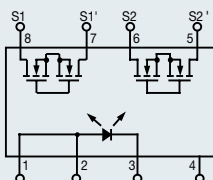
1 Form A/B, C



1 Form A, B, C



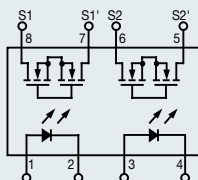
2 Form A*



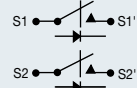
2 Form A



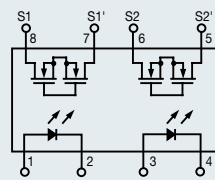
Dual 1 Form A*



Dual 1 Form A



Dual 1 Form B*



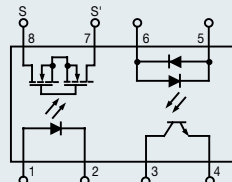
Dual 1 Form B



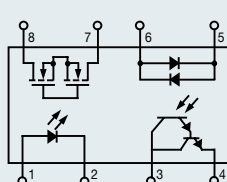
**8-Pin
DIP/SMD**



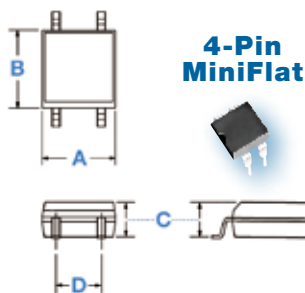
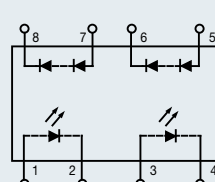
1 Form A/Optocoupler



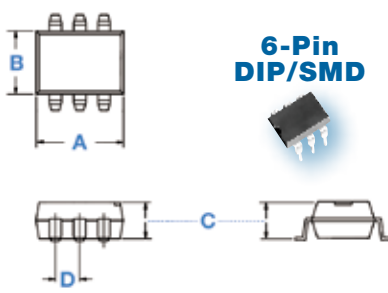
1 Form A/Darlington



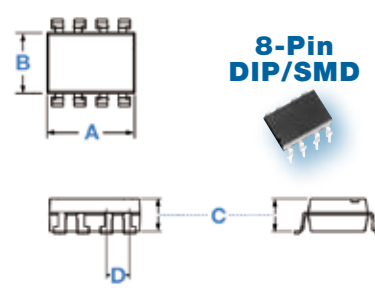
MOSFET Driver



**4-Pin
MiniFlat**



**6-Pin
DIP/SMD**



**8-Pin
DIP/SMD**

MiniFlat	4-Pin*	8-Pin*
A	0.174 (0.442)	0.374 (9.61)
B	0.180 (4.70)	0.180 (4.70)
C	0.080 (2.03)	0.080 (2.03)
D	0.100 (2.54)	0.100 (2.54)

Typical* dimensions = inches (mm)

SMD/DIP	4-Pin*	6-Pin*	8-Pin*
A	0.261 (6.62)	0.343 (8.60)	0.385 (9.78)
B	0.300 (7.62)	0.300 (7.62)	0.300 (7.62)
C	0.140 (3.35)	0.140 (3.30)	0.140 (3.30)
D	0.100 (2.54)	0.100 (2.54)	0.100 (2.54)

Typical* dimensions = inches (mm)

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Solid State Relays

Reliable and Versatile

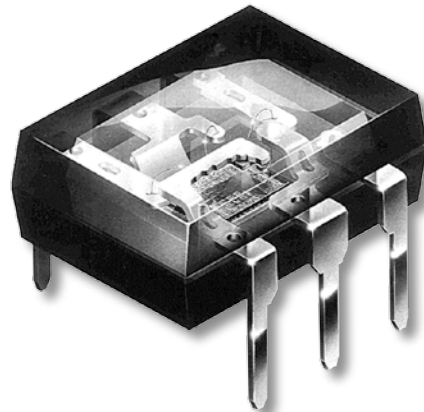
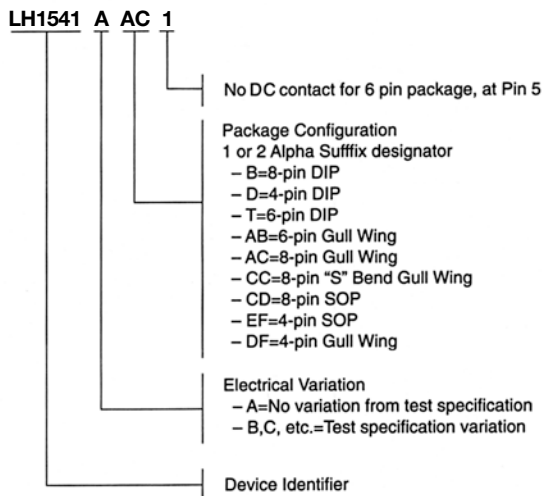


Solid-State Relays from Vishay Semiconductors

Vishay's Solid State Relays (SSRs), previously sold under the Infineon, Siemens, and AT&T brand names, deliver fast switching while optically isolating and protecting equipment from damaging external high-voltage spikes. By eliminating the majority of wire bonds found in other SSRs, Vishay's monolithic structure has set the performance standard.

With no moving parts, our solid state relays are noiseless, bounce-free and reliable, commonly replacing electromechanical relays. Used in industrial, automotive, and communication applications, all of our solid state relays feature low power consumption, small packaging, and low turn-on current. Exceeding industry standards, they are approved by VDE, UL, CSA and other safety regulatory agencies.

Part Number Coding



www.vishay.com/ref/solid_state_relays

FAQs

- 1. What are the advantages of SSRs over electro mechanical relays (EMRs)?** Reliable, long life, no noise, contact bounce or arcing and low power consumption. (75 % lower than EMR)
- 2. Do you have a low cost SSR for use in place of EMRs?** The LH1546AEF/AD (4 pin) depending on your application requirements. Other possibilities are: LH1529FP; LH1532FP; LH1550 products.
- 3. Can your SSRs meet my projects' requirement for at least 2500-3000 I/O voltage?** Most of our SSRs provide 5300 I/O.
- 4. Do you have High Speed MOSFET Drivers?** Yes, we have the LH1262 which can be configured for best use in motor drive controls, IGBT-predrivers and AC/DC power inverters. It can also be used to customize and build your own custom solid state relay.
- 5. Do you have a relay for high frequency applications e.g. T1/E1?** Yes, the LH1514 allows the ultimate in component isolation. It serves as a general purpose 2 Form A for balance sequence, high activation rate, DSO, DSI, DSIA; DSIC; DS2 and low Ron. See Appnote 67 for additional T1 switching information.
- 6. Do you have relays which can be used in PCMCIA applications?** Yes, depending on your functional, package size and application requirements, see our LH1529FP and LH1532FP, and our LH1525ACD.
- 7. Do you have relays which can be used in modem and PC applications?** Yes, we have several for modems in general. Based on your switching and Ron application requirements: LH1529FP, LH1532FP, LH1546, LH1540, LH1550. See Appnote 66 Modem Line Interface Solutions.
- 8. How do I know which Agency approvals are available?** All SSRs are Underwriters Laboratories (UL) recognized. Most have Canadian Standards Association (CSA) and British Approvals Board for Telecommunications (BABT) IEC 950 EN60950, FIMKO IEC 950 EN60950 and VDE 0884 certifications. See our website for information on a specific product.



			Output Characteristics							Input Characteristics			
			Load Voltage Max. (V)	Load Current Max. Recommended (mA)		On-Resistance Max. at 25 °C (Ω)		Current Limit (mA) Typ. at 25 °C I _F = 5 mA	Operate Time (msec) Max. at 25 °C I _F = 5 mA		LED Operate Current Min. (mA)		I/O Isolation (Min.) (V _{rms})
				AC/DC	DC	AC/DC	DC		t _{on}	t _{off}	25 °C Test Specs	Recommended Current for 85 °C Operation	
1 Form A	4	LH1546 ⁵	350	120	—	35	—	—	3.0	3.0	2.0	5.0	3000
		LH1510 ⁹	200	200	350	15	3.75	360	2.0*	2.0*	2.0	5.0	5300
		LH1500	350	150	250	25	6.25	270	2.0	2.0	2.0	5.0	5300
		LH1540	350	120	250	25	6.25	210	2.0	2.0	2.0	5.0	5300
1 Form A	6	LH1546	350	120	200	35	10	200	3.0	3.0	2.0	5.0	5300
		LH1550 ¹	350	100	—	50	—	200	3.0	3.0	2.0	5.0	5300
		LH1525	400	120	250	33	8.25	210	0.8	0.4	0.5	2.0	5300
		LH1541 ¹	200	50	—	160	—	—	0.25	0.25	2.0	5.0	5300
2 Form A	8	LH1513	200	140	—	15	—	360	2.5*	2.5*	3.0	8.0	5300
		LH1503	350	110	—	25	—	270	2.5*	2.5*	3.0	8.0	5300
		LH1522	200	1404	—	15	—	360	2.0*	2.0*	2.0	5.0	5300
		LH1544 ¹	200	404	—	160	—	—	0.25	0.25	2.0	5.0	5300
		LH1505	250	1204	—	20	—	200	4.0	4.0	2.0	5.0	5300
Dual 1 Form A	8	LH1520	350	1104	—	25	—	270	2.0	2.0	2.0	5.0	5300
		LH1526	400	904	—	33	—	210	0.8	0.4	2.0	5.0	5300
		LH1532 ⁵	350	1104	—	25	—	210	2.0	2.0	2.0	5.0	5300
		LH1533	350	704	—	50	—	200	3.0	3.0	2.0	5.0	5300
		LH1556 ⁵	350	110	—	35	—	210	3.0	3.0	2.0	5.0	5300
1 Form B	6	LH1511	200	200	300	15	3.75	—	3.0*	3.0*	2.0	5.0	3750
		LH1501	350	150	200	25	6.25	—	3.0	3.0	2.0	5.0	3750
		LH1521	350	110	—	25	—	—	3.0	3.0	2.0	5.0	3750
Dual 1 Form B	8	LH1523	200	140	—	15	—	—	3.0*	3.0*	2.0	5.0	3750
1 Form A, B/C	8	LH1502 ²	350	150	—	25	—	270	6.0*	3.0*	2.0	5.0	3750
		LH1512	200	200	—	15	—	360	3.0*	3.0*	2.0	5.0	3750
1 Form A w/Optocoupler	8	LH1529 ^{5,6,7}	350	120	—	25	—	210	2.5	2.5	2.0	5.0	5300
		LH1549 ⁶	400	120	—	33	—	210	2.0	0.5	1.0	3.0	5300
1 Form A w/Darlington	8	LH1539 ⁸	400	120	—	25	—	210	2.5	2.5	2.0	5.0	5300
High Frequency (T-1)	8	LH1514 ³	15	150	—	8	—	—	1.0*	1.0*	3.0	8.0	5300
MOSFET Driver	8	LH1262	15	—	14 μA*	—	—	—	35 μs**	90 μs**	—	—	5300
		VO1263	15	—	23 μA*	—	—	—	26 μs**	73 μs**	—	—	5300

* I_F = 10 mA
 ** I_F = 20 mA
 1. Low capacitance SSR (3.5 pF)
 2. Break-before-make operation
 3. High-frequency SSR (< 50 MHz)
 4. Current through both poles operating simultaneously. Load current for individual pole ratios is higher
 5. Surface mount Flat-Pack available with 3000 I/O
 6. Current transfer ratio min. 33 %
 7. Current transfer ratio min. 100 %
 8. Current transfer ratio >300 %
 9. DC current limit 720 mA



Cross Reference Guide

AROMAT — VISHAY		LCA111ES	LH1550AAB1	XCA110/ES	LH1550AAB1	PFD114A	LH1518AT
AQV101	LH1510	LCA111S	LH1500AAB	XCA110/ES/S	LH1500AAB	PFD123A	LH1510AT
AQV101	LH1518	LCA142/E	LH1510AT	XCA110/ES/S	LH1530AAB	PFD123A	LH1518AT
AQV102	LH1510	LCA190/E/LE	LH1500AT	XCA110/ES/S	LH1550AAB1	PFD142A	LH1510AT
AQV102	LH1518	LCA190/ES/LES	LH1500AAB	XCA111/L	LH1546AT	PFD142A	LH1518AT
AQV103	LH1510AT	LCA190/L/LE	LH1500AT	XCA111/L	LH1550AT1	OKI — VISHAY	
AQV103A*	LH1510AAB	LCA190/LES/LS	LH1500AAB	XCA111/LE	LH1546AT	OCM200	LH1510AT
AQV104A	LH1500AAB	LCA120E/L/LE	LH1518AT	XCA120/E	LH1510AT	OCM202	LH1518AT
AQV214	LH1525AT	LCA120ES/LES/LS/S	LH1500AAB	XCA120/ES	LH1510AAB	OCM210	LH1510AT
AQV214A	LH1525AAB	LCA125E/L/LE	LH1510AT	DIONICS — VISHAY		OCM212	LH1518AT
AQV214S	LH1525ACD	LCA125ES/LES/LS/S	LH1518AT	DIG130A	LH1262CB	OCM214	LH1541AT1
AQV217	LH1510AT	LCA127E	LH1510AT	DIG131A	LH1262CB	OCM220	LH1510AT
AQV217A	LH1510AAB	LCA127ES/S	LH1518AT	DIG132A	LH1262CB	OCM220	LH1518AT
AQV221	LH1541AT1	LCA142E	LH1510AT	DIG22830-DD	LH1262CB	OCM222	LH1510AT
AQV221A	LH1541AAB	LCA143	LH1550AT	FAIRCHILD — VISHAY		OCM222	LH1518AT
AQV225	LH1541AT	LCA143E	LH1540AT	HSR312	LH1510AT	OCM224	LH1541AT1
AQV225A	LH1541AAB1	LCA145/E	LH1500AT	HSR312L	LH1510AT	OCM240	LH1510AT
AQV234	LH1525AT	LCA145/ES/S	LH1500AAB	HSR412	LH1540AT	OCM240	LH1518AT
AQV234A	LH1525AAB	LCA210/E	LH1503AB	HSR412L	LH1546AT	OCM241	LH1510AT
AQV254A	LH1500AAB	LCA210ES/S	LH1503AAC	HP — VISHAY		OCM241	LH1518AT
AQV414	LH1501AT	LCA220/E	LH1513AB	HSSR-8060	LH1510AT	OCM242	LH1510AT
AQV414A	LH1501AAB	LCA220/ES	LH1513AAC	HSSR-8060	LH1518AT	OCM242	LH1518AT
AQW210TS	LH1529FP	LCB110/E	LH1501BT	HSSR-8200*	LH1541AT1	OKITA — VISHAY	
AQW210E	LH1532FP	LCB110/ES/S	LH1501BAB	HSSR-8400	LH1510AT	ADM1M21	LH1510AT
AQW210E	LH1556FP	LCB111/E	LH1501BT	HSSR-8400	LH1518AT	ADM1M41	LH1518AT
AQW214	LH1520AB	LCB111/ES/S	LH1501BAB	HSSR-7110	No Cross	AD2M22	LH1520AB
AQW214	LH1526AB	LCB120/E	LH1511BT	HSSR-7111	No Cross	SOLID STATE OPTONICS — VISHAY	
AQW214A	LH1520AAC	LCB120/ES/S	LH1511BAB	HSSR-7112	No Cross	AD4-C111	LH1532AB
AQW214A	LH1526AAB	LCB127/E	LH1526AB	5962-9314001	No Cross	AD4-C111	LH1526AB
AQW614A	LH1502BB	LCC110/E	LH1502BB	5962-9314002	No Cross	AD4-C112	LH1521BB
AQW614A	LH1502BAC	LCC110/ES/S	LH1512BAC	IR — VISHAY		AD4-C113	LH1502BB
CLARE — VISHAY		LCC120/E	LH1502BB	PV15100	LH1262CB	AD6-C111	LH1540AT
CPC1035	LH1546AEF	LCC120/ES/S	LH1512BAC	PVA1052	LH1510AT	AD6-C111	LH1525AT
CPC1050	LH1546AEF	LCC120/ES/S	LH1512BAC	PVA1054	LH1510AT	AD6-C112	LH1511BT
LAA100P	LH1532FP	OMA130/E	LH1510AT	PVA1352	LH1518AT	AD6-C211	LH1510AT
LAA100P	LH1556FP	OMA130ES/S	LH1518AT	PVA1354	LH1510AT	AD6-C211	LH1518AT
LAA110/E	LH1532AB	OMA160/E	LH1541AAB1	PVA1354	LH1518AT	AD8-C111	LH1540AT
LAA110/E/ES	LH1532AAC	OMA160/E	LH1541AAB1	PVA2352	LH1510AT	AD8-C111	LH1525AT
LAA120/E	LH1505AB	OMA210	LH1503BB	PVA3324	LH1500AT	AD8-C112	LH1511BT
LAA120/ES/S	LH1505AAC	OMA221	LH1503BAC	PVA3354	LH1530AT	AD8-C211	LH1510AT
LBA110/E	LH1502BB	OMA160/ES/S	LH1541AT1	PVR1300	LH1513AT	AD8-C211	LH1518AT
LBA110/ES/S	LH1502BAC	OMA160A	LH1541AAB1	PVR1301	LH1513AB	TOSHIBA — VISHAY	
LBA120/E	LH1512BB	OAA160/E	LH1544AB	PVR2300	LH1513AB	TLP595G	LH1510AT
LBA120ES/S	LH1512BAC	OAA160/E	LH1544AAC	PVR3300	LH1503AB	TLP595G	LH1518AT
LBA127/E	LH1512BB	PAA110/E	LH1526AB	NEC — VISHAY		TELEDYNE — VISHAY	
LBA127ES/S	LH1512BAC	PAA110/ES/S	LH1526AAC	PFA101A	LH1510AT	C60-3	LH1510AT
LBA145/E	LH1502BB	PLA110/E	LH1525AT	PFA101A	LH1518AT	C60-3	LH1518AT
LBA145/ES/S	LH1502BAC	PLA110/ES/S	LH1525AAB	PFA112A	LH1510AT	TH ELECTRONICS — VISHAY	
LBA146/E	LH1502BB	PLA140/E	LH1510AT	PFA112A	LH1518AT	THR 003-400	LH1510AT
LBA146/ES/S	LH1502BAC	PLA140/ES/S	LH1518AT	PFA113A	LH1510AT	THR 003-400	LH1518AT
LBB110/E	LH1521BB	PLA150/E	LH1510AT	PFA113A	LH1518AT	THR 010-200	LH1510AT
LBB110ES/S	LH1521BAC	PLA150/ES/S	LH1518AT	PFA121A	LH1510AT	TOWARD RELAY — VISHAY	
LBB120/E	LH1523BB	TS117E	LH1529AB	PFA121A	LH1518AT	AB30S	LH1546AEF
LBB120ES/S	LH1523BAC	TS117ES	LH1529AAC	PFA122A	LH1510AT	AB42S	No Cross
LCA110/E	LH1500AT	TS120E	LH1529BB	PFA122A	LH1518AT	AB30F	LH1525AT
LCA110/E	LH1540AT	TS120S	LH1539AAC	PFD141A	LH1510AT	AA31F	LH1540AT
LCA110/ES/S	LH1500AAB	TS120ES	LH1529BAC	PFD141A	LH1518AT	AA37F	No Cross
LCA110/ES/S	LH1540AAB	TS190E	LH1549AB	PFD102A	LH1510AT	AC30F	LH1503AB
LCA110L/LE	LH1500AT	TS190ES	LH1549AAC	PFD112A	LH1510AT	AC31F	LH1503AB
LCA110LS/LES	LH1500AAB	XCA110/E	LH1550AT1	PFD114A	LH1510AT		
LCA111	LH1500AT						
LCA111E	LH1550AT1						

SEMICONDUCTORS:

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