

TOSHIBA

Photocouplers and Photorelays

Selection
Guide 2019

An abstract graphic design on the right side of the page. It features a large blue triangle pointing right, a blue square, and a red triangle pointing left. The blue shapes contain a white, cloud-like texture. The red triangle is solid red.

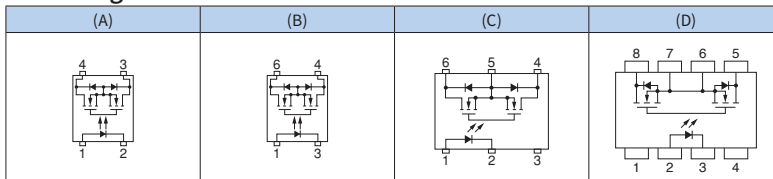
10. Photorelays

■ MOSFET Output 1-Form-A

Part Number	OFF-state Output Terminal Voltage	ON-state Current	Terminal Capacitance	ON-state Resistance	Trigger LED Current	Operating Temperature		Isolation Voltage	Toshiba Package	Pin Configuration	Lead Form Option
						T _{opr}					
						Min (°C)	Max (°C)				
TLP3100	20	2.5	1000	0.05	3	-40	85	1500	2.54SOP6	(C)	-
TLP3543	20	4	1000	0.05	3	-40	85	2500	DIP6	(C)	✓
TLP3553A	30	4	450	0.05	3	-40	110	2500	DIP4	(A)	✓
TLP3106	30	4	1100	0.04	3	-40	85	1500	2.54SOP6	(C)	-
TLP3543A	30	5	1100	0.04	3	-40	110	2500	DIP6	(C)	✓
TLP3123	40	1	300	0.13	3	-40	85	1500	2.54SOP4	(A)	-
TLP241A	40	2	300	0.15	3	-40	85	5000	DIP4	(A)	✓
TLP3102	40	2.5	1000	0.06	3	-40	85	1500	2.54SOP6	(C)	-
TLP3554	40	2.5	300	0.15	3	-40	85	2500	DIP4	(A)	✓
TLP3544	40	3.5	1000	0.06	3	-40	85	2500	DIP6	(C)	✓
TLP175A	60	0.1	10	50	1	-40	85	3750	4pin SO6	(B)	-
TLP170A	60	0.4	130	2	1	-40	85	1500	2.54SOP4	(A)	-
TLP171A	60	0.4	130	2	0.1	-40	85	1500	2.54SOP4	(A)	-
TLP192A	60	0.4	130	2	3	-40	85	1500	2.54SOP6	(C)	-
TLP197A	60	0.4	130	2	3	-40	85	1500	2.54SOP6	(C)	-
TLP176AM	60	0.7	100	2	3	-40	110	3750	SO6	(B)	-
TLP222A	60	0.5	130	2	3	-40	85	2500	DIP4	(A)	✓
TLP240A	60	0.5	130	2	3	-40	85	5000	DIP4	(A)	✓
TLP592A	60	0.5	130	2	3	-40	85	2500	DIP6	(C)	✓
TLP597A	60	0.5	130	2	3	-40	85	2500	DIP6	(C)	✓
TLP598AA	60	0.5	140	2	3	-40	85	2500	DIP6	(C)	✓
TLP3122A	60	1.4	100	0.25	3	-40	110	3750	4pin SO6	(A)	-
TLP3127	60	1.7	250	0.13	3	-40	85	1500	2.54SOP4	(A)	-
TLP3103	60	2.3	1000	0.07	3	-40	85	1500	2.54SOP6	(C)	-
TLP3555A	60	3	250	0.1	3	-40	110	2500	DIP4	(A)	✓
TLP3107	60	3.3	700	0.06	3	-40	85	1500	2.54SOP6	(C)	-
TLP3545A	60	4	640	0.06	3	-40	110	2500	DIP6	(C)	✓
TLP3547	60	5	850	0.05	5	-40	85	2500	DIP8	(D)	✓
TLP3105	100	1.4	1000	0.2	3	-40	85	1500	2.54SOP6	(C)	-
TLP3556A	100	2	110	0.2	3	-40	110	2500	DIP4	(A)	✓
TLP3109	100	2	500	0.07	3	-40	85	1500	2.54SOP6	(C)	-
TLP3823	100	3	720	0.15	5	-40	110	2500	DIP8	(D)	✓
TLP3546A	100	3.5	450	0.08	3	-40	110	2500	DIP6	(C)	✓
TLP179D	200	0.05	15	50	3	-40	85	1500	2.54SOP4	(A)	-
TLP199D	200	0.05	15	50	3	-40	85	1500	2.54SOP6	(C)	-
TLP170D	200	0.2	90	8	1	-40	85	1500	2.54SOP4	(A)	-
TLP171D	200	0.2	90	8	0.1	-40	85	1500	2.54SOP4	(A)	-
TLP176D	200	0.2	100	8	3	-40	85	1500	2.54SOP4	(A)	-
TLP240D	200	0.25	90	8	3	-40	85	5000	DIP4	(A)	✓

Part Number	OFF-state Output Terminal Voltage V _{OFF} Max (V)	ON-state Current I _{ON} Max (A)	Terminal Capacitance C _{OFF} Typ. (pF)	ON-state Resistance R _{ON} Max (Ω)	Trigger LED Current I _{FT} Max (mA)	Operating Temperature		Isolation Voltage BV _s Min (Vrms)	Toshiba Package	Pin Configuration	Lead Form Option
						T _{opr}					
						Min (°C)	Max (°C)				
TLP222D	200	0.3	100	8	3	-40	85	2500	DIP4	(A)	✓
TLP3145	200	0.4	100	2	3	-40	110	1500	2.54SOP4	(A)	-
TLP3558A	200	0.7	110	2	3	-40	110	2500	DIP4	(A)	✓
TLP3825	200	1.5	400	0.5	5	-40	110	2500	DIP8	(D)	✓
TLP170G	350	0.1	35	50	1	-40	85	1500	2.54SOP4	(A)	-
TLP240G	350	0.1	30	50	3	-40	85	5000	DIP4	(A)	✓
TLP172GM	350	0.11	30	50	3	-40	110	3750	4pin SO6	(B)	-
TLP192G	350	0.11	30	50	3	-40	85	1500	2.54SOP6	(C)	-
TLP174G	350	0.12	70	35	3	-40	85	1500	2.54SOP4	(A)	-
TLP176G	350	0.12	40	35	3	-40	85	1500	2.54SOP4	(A)	-
TLP197G	350	0.12	40	35	3	-40	85	1500	2.54SOP6	(C)	-
TLP222G	350	0.12	30	50	3	-40	85	2500	DIP4	(A)	✓
TLP224G	350	0.12	40	35	3	-40	85	2500	DIP4	(A)	✓
TLP228G	350	0.12	30	50	3	-40	85	2500	DIP4	(A)	✓
TLP592G	350	0.12	30	50	3	-40	85	2500	DIP6	(C)	✓
TLP597G	350	0.12	40	35	3	-40	85	2500	DIP6	(C)	✓
TLP171GA	400	0.1	70	35	0.1	-40	85	1500	2.54SOP4	(A)	-
TLP174GA	400	0.12	70	35	3	-40	85	1500	2.54SOP4	(A)	-
TLP176GA	400	0.12	70	35	3	-40	85	1500	2.54SOP4	(A)	-
TLP197GA	400	0.12	70	35	3	-40	85	1500	2.54SOP6	(C)	-
TLP224GA	400	0.12	60	35	3	-40	85	2500	DIP4	(A)	✓
TLP240GA	400	0.12	80	35	3	-40	85	5000	DIP4	(A)	✓
TLP597GA	400	0.12	70	35	3	-40	85	2500	DIP6	(C)	✓
TLP797GA	400	0.12	40	35	3	-40	85	5000	DIP6	(C)	✓
TLP598GA	400	0.15	165	12	3	-40	85	2500	DIP6	(C)	✓
TLP798GA	400	0.15	165	12	5	-40	85	5000	DIP6	(C)	✓
TLP3125	400	0.2	410	4	3	-40	85	1500	2.54SOP8	(D)	-
TLP3548	400	0.4	410	5	1	-40	85	2500	DIP8	(D)	✓
TLP171J	600	0.07	75	60	0.1	-40	85	1500	2.54SOP4	(A)	-
TLP170J	600	0.09	75	60	1	-40	85	1500	2.54SOP4	(A)	-
TLP240J	600	0.09	90	60	3	-40	85	5000	DIP4	(A)	✓
TLP797J	600	0.1	120	35	5	-40	85	5000	DIP6	(C)	✓
TLP3549	600	0.6	4300	2	5	-40	85	2500	DIP8	(D)	✓

Pin Configuration

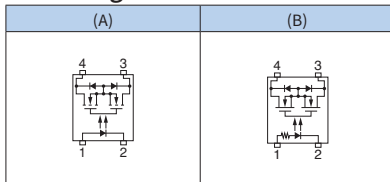


■ MOSFET Output 1-Form-A

Part Number	OFF-state Output Terminal Voltage	ON-state Current	Terminal Capacitance	ON-state Resistance	Trigger LED Current	Operating Temperature		Isolation Voltage	Toshiba Package	Pin Configuration	Lead Form Option
						T _{opr}					
						Min (°C)	Max (°C)				
TLP3230	20	0.16	1	8	4	-20	85	1500	SSOP4	(A)	-
TLP3330	20	0.16	1	8	3	-40	85	500	USOP4	(A)	-
TLP3250	20	0.2	0.8	5	3	-20	85	1500	SSOP4	(A)	-
TLP3350	20	0.2	0.8	5	3	-40	85	500	USOP4	(A)	-
TLP3450	20	0.2	0.8	5	3	-40	110	500	VSON4	(A)	-
TLP3231	20	0.45	5	1.2	4	-20	85	1500	SSOP4	(A)	-
TLP3431	20	0.45	5	1.2	3	-40	110	500	VSON4	(A)	-
TLP3203	20	0.9	40	0.22	3	-20	85	1500	SSOP4	(A)	-
TLP3303	20	0.9	40	0.22	3	-40	85	500	USOP4	(A)	-
TLP3403	20	1	40	0.22	3	-40	110	500	VSON4	(A)	-
TLP3406S	30	1.5	120	0.2	3	-40	110	500	S-VSON4	(A)	-
TLP3342	40	0.1	0.3	20	3	-40	85	500	USOP4	(A)	-
TLP3442	40	0.1	0.3	20	3	-40	110	500	VSON4	(A)	-
TLP3216	40	0.12	1	15	4	-20	85	1500	SSOP4	(A)	-
TLP3240	40	0.12	0.45	14	3	-20	85	1500	SSOP4	(A)	-
TLP3316	40	0.12	1	15	3	-40	85	500	USOP4	(A)	-
TLP3340	40	0.12	0.45	14	3	-40	85	500	USOP4	(A)	-
TLP3440S	40	0.12	0.45	14	3	-40	110	500	S-VSON4T	(A)	-
TLP3440	40	0.12	0.45	14	3	-40	110	500	VSON4	(A)	-
TLP3241	40	0.14	0.7	10	3	-20	85	1500	SSOP4	(A)	-
TLP3341	40	0.14	0.7	10	3	-40	85	500	USOP4	(A)	-
TLP3441	40	0.14	0.7	10	3	-40	110	500	VSON4	(A)	-
TLP3214	40	0.25	5	3	4	-20	85	1500	SSOP4	(A)	-
TLP3215	40	0.3	10	1.5	4	-20	85	1500	SSOP4	(A)	-
TLP3315	40	0.3	10	1.5	3	-40	85	500	USOP4	(A)	-
TLP3275	50	0.3	12	1.5	3	-20	85	1500	SSOP4	(A)	-
TLP3375	50	0.3	12	1.5	3	-40	85	500	USOP4	(A)	-
TLP3475	50	0.3	12	1.5	3	-40	110	500	VSON4	(A)	-
TLP3475S	60	0.4	12	1.5	3	-40	110	500	S-VSON4	(A)	-
TLP3351	60	0.12	0.7	15	3	-40	85	500	USOP4	(A)	-
TLP3451	60	0.12	0.7	15	3	-40	110	500	VSON4	(A)	-
TLP3212	60	0.4	20	1.5	5	-20	85	1500	SSOP4	(A)	-
TLP3312	60	0.4	20	1.5	3	-40	85	500	USOP4	(A)	-
TLP3412	60	0.4	20	1.5	3	-40	110	500	VSON4	(A)	-
TLP3407S	60	1	80	0.3	3	-40	110	500	S-VSON4	(A)	-
TLP3306	75	0.4	30	1.5	3	-40	85	500	USOP4	(A)	-
TLP3217	80	0.12	5	12	5	-20	85	1500	SSOP4	(A)	-
TLP3317	80	0.12	5	12	3	-40	85	500	USOP4	(A)	-
TLP3417	80	0.12	5	12	3	-40	110	500	VSON4	(A)	-
TLP3319	80	0.2	6.5	8	3	-40	85	500	USOP4	(A)	-
TLP3419	80	0.2	6.5	8	3	-40	110	500	VSON4	(A)	-
TLP3220	100	0.08	6	14	5	-20	85	1500	SSOP4	(A)	-
TLP3320	100	0.1	6	14	3	-40	85	500	USOP4	(A)	-
TLP3420	100	0.1	6	14	3	-40	110	500	VSON4	(A)	-
TLP3409S	100	0.65	50	0.6	3	-40	110	500	S-VSON4	(A)	-

Part Number	OFF-state Output Terminal Voltage V_{OFF} Max (V)	ON-state Current I_{ON} Max (A)	Terminal Capacitance C_{OFF} Typ. (pF)	ON-state Resistance R_{ON} Max (Ω)	Operating Voltage V_{FON} Max (V)	Operating Temperature		Isolation Voltage BV_S Min (Vrms)	Toshiba Package	Pin Configuration	Lead Form Option
						T_{opr}					
						Min ($^{\circ}C$)	Max ($^{\circ}C$)				
TLP3403R	20	1	40	0.22	3	-40	110	500	VSONR4	(B)	-
TLP3475R	50	0.3	12	1.5	3	-40	110	500	VSONR4	(B)	-
TLP3412R	60	0.4	20	1.5	3	-40	110	500	VSONR4	(B)	-

Pin Configuration



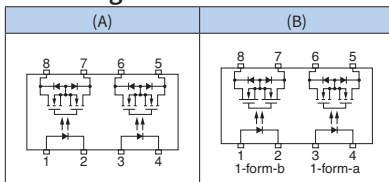
■ MOSFET Output 2-Form-A

Part Number	OFF-state Output Terminal Voltage V _{OFF} Max (V)	ON-state Current I _{ON} Max (A)	Terminal Capacitance C _{OFF} Typ. (pF)	ON-state Resistance R _{ON} Max (Ω)	Trigger LED Current I _{FT} Max (mA)	Operating Temperature		Isolation Voltage BV _S Min (Vrms)	Toshiba Package	Pin Configuration	Lead Form Option
						T _{opr}					
						Min (°C)	Max (°C)				
TLP202A	60	0.4	130	2	3	-40	85	1500	2.54SOP8	(A)	-
TLP206A	60	0.4	100	2	3	-40	85	1500	2.54SOP8	(A)	-
TLP222A-2	60	0.5	130	2	3	-40	85	2500	DIP8	(A)	✓
TLP200D	200	0.2	100	8	3	-40	85	1500	2.54SOP8	(A)	-
TLP202G	350	0.11	30	50	3	-40	85	1500	2.54SOP8	(A)	-
TLP206G	350	0.12	40	35	3	-40	85	1500	2.54SOP8	(A)	-
TLP222G-2	350	0.12	30	50	3	-40	85	2500	DIP8	(A)	✓
TLP224G-2	350	0.12	40	35	3	-40	85	2500	DIP8	(A)	✓
TLP228G-2	350	0.12	30	50	3	-40	85	2500	DIP8	(A)	✓
TLP206GA	400	0.12	70	35	3	-40	85	1500	2.54SOP8	(A)	-
TLP224GA-2	400	0.12	60	35	3	-40	85	2500	DIP8	(A)	✓

■ MOSFET Output 1-Form-A/1-Form-B

Part Number	OFF-state Output Terminal Voltage V _{OFF} Max (V)	ON-state Current I _{ON} Max (A)	Terminal Capacitance C _{OFF} Typ. (pF)	ON-state Resistance R _{ON} Max (Ω)	Trigger LED Current I _{FT} / I _{FC} Max (mA)	Operating Temperature		Isolation Voltage BV _S Min (Vrms)	Toshiba Package	Pin Configuration	Lead Form Option
						T _{opr}					
						Min (°C)	Max (°C)				
TLP4006G	350	0.12	65	25	3	-40	85	2500	DIP8	(B)	✓
TLP4026G	350	0.12	65	25	3	-40	85	1500	2.54SOP8	(B)	-

Pin Configuration



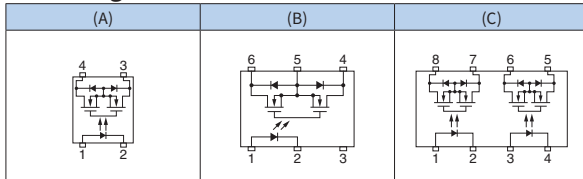
■ MOSFET Output 1-Form-B

Part Number	OFF-state Output Terminal Voltage V_{OFF} Max (V)	ON-state Current I_{ON} Max (A)	Terminal Capacitance C_{OFF} Typ. (pF)	ON-state Resistance R_{ON} Max (Ω)	Trigger LED Current I_{FC} Max (mA)	Operating Temperature		Isolation Voltage BV _s Min (Vrms)	Toshiba Package	Pin Configuration	Lead Form Option
						T_{opr}					
						Min ($^{\circ}$ C)	Max ($^{\circ}$ C)				
TLP4176G	350	0.12	65	25	3	-40	85	1500	2.54SOP4	(A)	-
TLP4197G	350	0.12	65	25	3	-40	85	1500	2.54SOP6	(B)	-
TLP4227G	350	0.15	65	25	3	-40	85	2500	DIP4	(A)	✓
TLP4597G	350	0.15	65	25	3	-40	85	2500	DIP6	(B)	✓

■ MOSFET Output 2-Form-B

Part Number	OFF-state Output Terminal Voltage V_{OFF} Max (V)	ON-state Current I_{ON} Max (A)	Terminal Capacitance C_{OFF} Typ. (pF)	ON-state Resistance R_{ON} Max (Ω)	Trigger LED Current I_{FC} Max (mA)	Operating Temperature		Isolation Voltage BV _s Min (Vrms)	Toshiba Package	Pin Configuration	Lead Form Option
						T_{opr}					
						Min ($^{\circ}$ C)	Max ($^{\circ}$ C)				
TLP4206G	350	0.12	65	25	3	-40	85	1500	2.54SOP8	(C)	-
TLP4227G-2	350	0.15	65	25	3	-40	85	2500	DIP8	(C)	✓

Pin Configuration



11. Automotive Devices

■ Photocouplers

IC Output

High speed Logic Couplers (Open-collector)

Part Number	Data Rate (Mbps)	Threshold LED Input Current IFHL Max (mA)	Propagation Delay Time		Supply Voltage Operating Range VCC (Note1)		High/Low-level Supply Current Icc Max (mA)	Common Mode Transient Immunity CM Min (kV/μs)	Operating Temperature		Isolation Voltage BV _s Min (Vrms)	Toshiba Package	Pin Configuration	AEC-Q101
									T _{opr}					
			Min (°C)	Max (°C)	Min (V)	Max (V)			Min (°C)	Max (°C)				
TLX9304	1	5	550	400	4.5	20	1.3	+/-15	-40	125	3750	5pin SO6	(A)	#
TLX9378	10	5	100	100	4.5	5.5	1.3	+/-15	-40	125	3750	5pin SO6	(C)	#

High speed Logic Couplers (Totem-pole(Buffer))

Part Number	Data Rate (Mbps)	Threshold LED Input Current IFLH Max (mA)	Propagation Delay Time		Supply Voltage Operating Range VCC (Note1)		High/Low-level Supply Current Icc Max (mA)	Common Mode Transient Immunity CM Min (kV/μs)	Operating Temperature		Isolation Voltage BV _s Min (Vrms)	Toshiba Package	Pin Configuration	AEC-Q101
									T _{opr}					
			Min (°C)	Max (°C)	Min (V)	Max (V)			Min (°C)	Max (°C)				
TLX9310	5	1	250	250	2.7	5.5	0.3	+/-25	-40	105	3750	5pin SO6	(D)	#

High speed Logic Couplers (Totem-pole(Inverter))

Part Number	Data Rate (Mbps)	Threshold LED Input Current IFHL Max (mA)	Propagation Delay Time		Supply Voltage Operating Range VCC (Note1)		High/Low-level Supply Current Icc Max (mA)	Common Mode Transient Immunity CM Min (kV/μs)	Operating Temperature		Isolation Voltage BV _s Min (Vrms)	Toshiba Package	Pin Configuration	AEC-Q101
									T _{opr}					
			Min (°C)	Max (°C)	Min (V)	Max (V)			Min (°C)	Max (°C)				
TLX9376	20	4	35	35	4.5	5.5	1.7	+/-15	-40	125	3750	5pin SO6	(C)	#

Logic Couplers (Open-collector)

Part Number	Data Rate (Mbps)	Current Transfer Ratio CTR Min (%) @Ta=25(°C)	Propagation Delay Time		Supply Voltage Operating Range VCC (Note1)		High/Low-level Supply Current Icc Max (mA)	Common Mode Transient Immunity CM Min (kV/μs)	Operating Temperature		Isolation Voltage BV _s Min (Vrms)	Toshiba Package	Pin Configuration	AEC-Q101
									T _{opr}					
			Min (°C)	Max (°C)	Min (V)	Max (V)			Min (°C)	Max (°C)				
TLX9309	1	15 (@I _F =7mA)	1000	800	-	30	-	+/-10	-40	125	3750	5pin SO6	(B)	#

Note1: Recommended Operating Condition
AEC-Q101 qualified

Transistor Output

Part Number	Input Type	Current Transfer Ratio			Collector-Emitter Voltage V_{CE0} Max (V)	Collector Current I_C Max (A)	Operating Temperature		Isolation Voltage BV_s Min (Vrms)	Toshiba Package	Pin Configuration	AEC-Q101
		CTR(I_c/I_f) @ $T_a=25$ (°C)					T_{opr}					
		Min (%)	Max (%)	Relevant Part			Min (°C)	Max (°C)				
TLX9291A	DC	50	600	☆1	80	0.05	-40	125	3750	SO4	(E)	#
TLX9185A	DC	50	600	☆1	80	0.05	-40	125	3750	4pin SO6	(E)	#
TLX9000	DC	100	900	-	40	0.05	-40	125	3750	SO4	(F)	#
TLX9300	DC	100	900	-	40	0.05	-40	125	3750	4pin SO6	(F)	#

Current Transfer Ratio Rank

Rank	Current Transfer Ratio (%)		Relevant Part	Marking of Classification
	Min	Max		
Blank	50	600	☆1	Blank, GB
GB	100	600	☆1	GB

Photovoltaic Output

Part Number	Short-circuit Current I_{sc} Min (μ A) @ $T_a=25$ (°C)	Open Voltage V_{oc} Min (V) @ $T_a=25$ (°C)	Operating Temperature		Isolation Voltage BV_s Min (Vrms)	Toshiba Package	Pin Configuration	AEC-Q101
			T_{opr}					
			Min (°C)	Max (°C)				
TLX9905	12	7	-40	125	3750	4pin SO6	(G)	#
TLX9906	12	7	-40	125	3750	4pin SO6	(H)	#

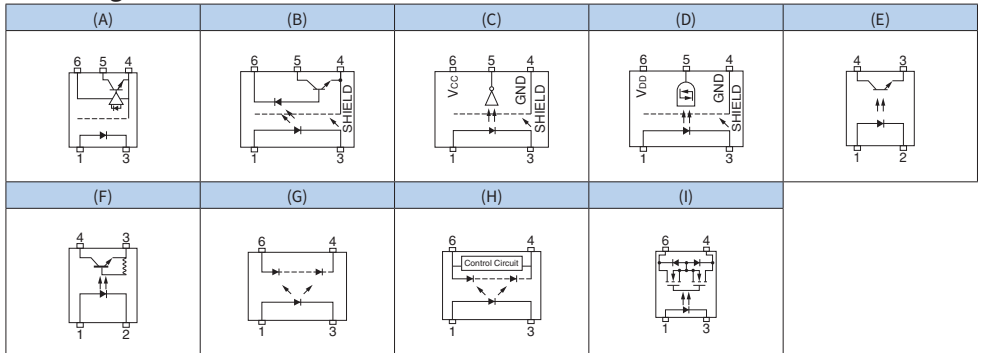
■ Photorelays

MOSFET Output 1-Form-A

Part Number	OFF-state Output Terminal Voltage V_{OFF} Max (V)	ON-state Current I_{ON} Max (A)	Terminal Capacitance C_{OFF} Typ. (pF)	ON-state Resistance R_{ON} Max (Ω)	Trigger LED Current I_{FT} Max (mA)	Operating Temperature		Isolation Voltage BV_s Min (Vrms)	Toshiba Package	Pin Configuration	AEC-Q101
						T_{opr}					
						Min (°C)	Max (°C)				
TLX9175J	600	0.015	8	335	3	-55	105	3750	4pin SO6	(I)	#


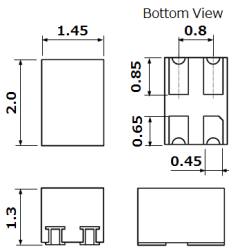

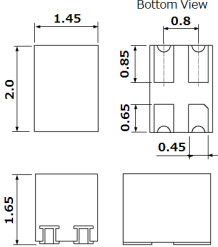

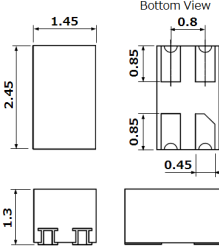
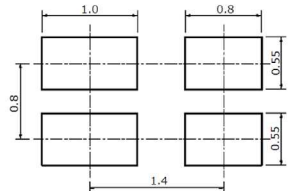
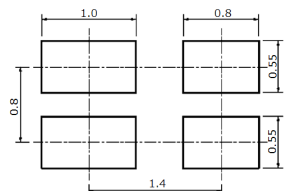
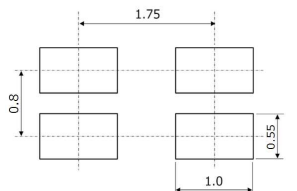
AEC-Q101 qualified


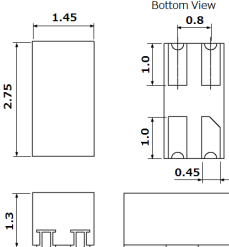

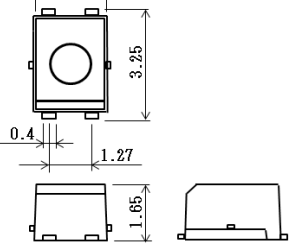

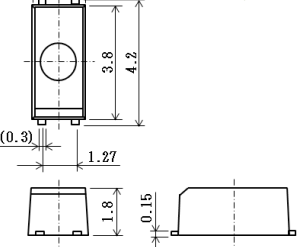
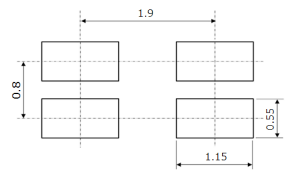
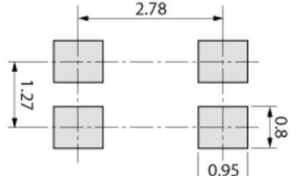
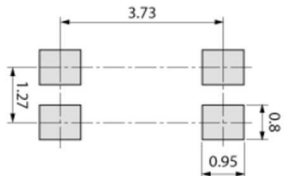
Pin Configuration



12. Device Packages

■ Dimensional Out Line (Surface Mount Type)

S-VSON4T	S-VSON4	VSON4
<p>Package dimension unit : mm</p>  <p>Bottom View</p> 	<p>Package dimension unit : mm</p>  <p>Bottom View</p> 	<p>Package dimension unit : mm</p>  <p>Bottom View</p> 
<p>Land pattern example unit : mm</p> 	<p>Land pattern example unit : mm</p> 	<p>Land pattern example unit : mm</p> 

VSONR4	USOP4	SSOP4
<p>Package dimension unit : mm</p>  <p>Bottom View</p> 	<p>Package dimension unit : mm</p>  <p>Bottom View</p> 	<p>Package dimension unit : mm</p>  <p>Bottom View</p> 
<p>Land pattern example unit : mm</p> 	<p>Land pattern example unit : mm</p> 	<p>Land pattern example unit : mm</p> 

SO4	4pin SO6	2.54SOP4
<p>Package dimension unit : mm</p>	<p>Package dimension unit : mm</p>	<p>Package dimension unit : mm</p>
<p>Land pattern example unit : mm</p>	<p>Land pattern example unit : mm</p>	<p>Land pattern example unit : mm</p>

4pin SO6L	5pin SO6	2.54SOP6
<p>Package dimension unit : mm</p>	<p>Package dimension unit : mm</p>	<p>Package dimension unit : mm</p>
<p>Land pattern example unit : mm</p>	<p>Land pattern example unit : mm</p>	<p>Land pattern example unit : mm</p>

SO6L	SO8	SO8L
<p>Package dimension unit : mm</p>	<p>Package dimension unit : mm</p>	<p>Package dimension unit : mm</p>
<p>Land pattern example unit : mm</p>	<p>Land pattern example unit : mm</p>	<p>Land pattern example unit : mm</p>

2.54SOP8	SO16	SO16L
<p>Package dimension unit : mm</p>	<p>Package dimension unit : mm</p>	<p>Package dimension unit : mm</p>
<p>Land pattern example unit : mm</p>	<p>Land pattern example unit : mm</p>	<p>Land pattern example unit : mm</p>

Dimensional Out Line (Through Hole Type)

DIP4		DIP4 (TLP785)		DIP6	
Package dimension	unit : mm	Package dimension	unit : mm	Package dimension	unit : mm

Spin DIP6		Spin DIP6 (cut)		DIP8	
Package dimension	unit : mm	Package dimension	unit : mm	Package dimension	unit : mm

Lead Form Options

DIP4 (LF1) / (TP1)	DIP4 (LF5) / (TP5)	DIP4 (LF2)
<p>Package dimension unit : mm</p>	<p>Package dimension unit : mm</p>	<p>Package dimension (DIP4 Ftype) unit : mm</p>
<p>Land pattern example unit : mm</p>	<p>Land pattern example unit : mm</p>	

DIP4 (LF4) / (TP4)	DIP4 TLP785 (LF6) / (TP6)	DIP4 TLP785F (LF7) / (TP7)
<p>Package dimension unit : mm</p>	<p>Package dimension unit : mm</p>	<p>Package dimension unit : mm</p>
<p>Land pattern example unit : mm</p>	<p>Land pattern example unit : mm</p>	<p>Land pattern example unit : mm</p>

DIP6 (LF1) / (TP1)	DIP6 (LF5) / (TP5)	DIP6 (LF2)
<p>Package dimension unit: mm</p>	<p>Package dimension unit: mm</p>	<p>Package dimension (DIP6 Ftype) unit: mm</p>

<p>Land pattern example unit: mm</p>	<p>Land pattern example unit: mm</p>	
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DIP6 (LF4) / (TP4)	5pin DIP6 (LF1) / (TP1)	5pin DIP6 (LF5) / (TP5)
<p>Package dimension unit: mm</p>	<p>Package dimension unit: mm</p>	<p>Package dimension unit: mm</p>

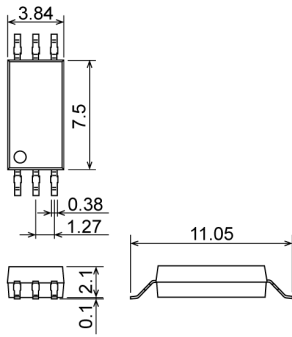
<p>Land pattern example unit: mm</p>	<p>Land pattern example unit: mm</p>	<p>Land pattern example unit: mm</p>
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5pin DIP6 (LF2)	5pin DIP6 (LF4) / (TP4)	5pin DIP6 (cut) (LF1) / (TP1)
<p>Package dimension unit : mm</p> <p>Package dimension (5pin DIP6 Ftype)</p>	<p>Package dimension unit : mm</p>	<p>Package dimension unit : mm</p>
<p>Land pattern example unit : mm</p>	<p>Land pattern example unit : mm</p>	<p>Land pattern example unit : mm</p>

5pin DIP6 (cut) (LF5) / (TP5)	5pin DIP6 (cut) (LF2)	5pin DIP6 (cut) (LF4) / (TP4)
<p>Package dimension unit : mm</p>	<p>Package dimension unit : mm</p> <p>Package dimension (5pin DIP6 (cut) Ftype)</p>	<p>Package dimension unit : mm</p>
<p>Land pattern example unit : mm</p>	<p>Land pattern example unit : mm</p>	<p>Land pattern example unit : mm</p>

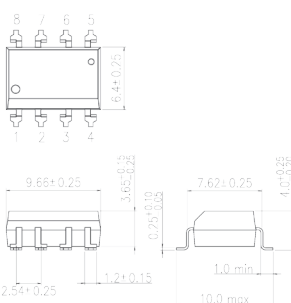
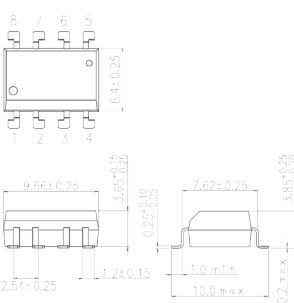
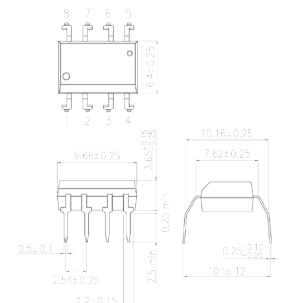
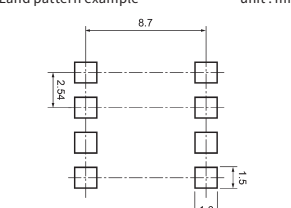
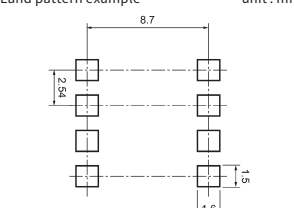
SO6L (LF4)

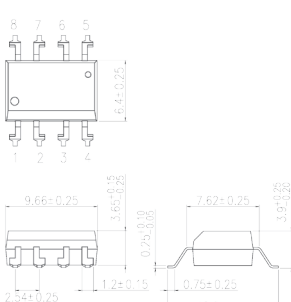
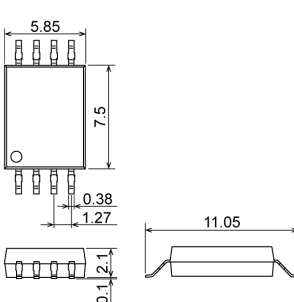
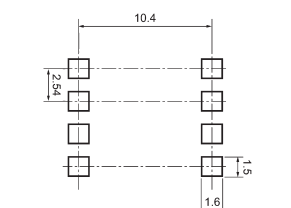
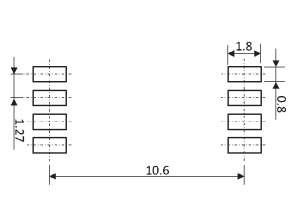
Package dimension unit : mm



Land pattern example unit : mm



DIP8 (LF1) / (TP1)	DIP8 (LF5) / (TP5)	DIP8 (LF2)
<p>Package dimension unit : mm</p> 	<p>Package dimension unit : mm</p> 	<p>Package dimension (DIP8 Ftype) unit : mm</p> 
<p>Land pattern example unit : mm</p> 	<p>Land pattern example unit : mm</p> 	

DIP8 (LF4) / (TP4)	SO8L (LF4)
<p>Package dimension unit : mm</p> 	<p>Package dimension unit : mm</p> 
<p>Land pattern example unit : mm</p> 	<p>Land pattern example unit : mm</p> 

13. Cross Reference

IGBT/MOSFET Driver Couplers

Manufacturer	Competitor's Product	Toshiba			
		Part Number	Compatible Level (Note:1)	Peak Current	Package
BROADCOM	ACNW3130	TLP352F	4	2.5 A	DIP8
	ACNW3190	TLP358F	4	6.0 A	DIP8
	ACPL-3130	TLP352	2	2.5 A	DIP8
	ACPL-330J	TLP5214A	2	4.0 A	SO16L
	ACPL-331J	TLP5214A	2	4.0 A	SO16L
	ACPL-332J	TLP5214A	1	4.0 A	SO16L
	ACPL-333J	TLP5214A	2	4.0 A	SO16L
	ACPL-339J	TLP5214A	4	4.0 A	SO16L
	ACPL-H312	TLP5832	1	2.5 A	SO8L
	ACPL-H342	TLP5772	3	2.5 A	SO6L
	ACPL-J313	TLP352	2	2.5 A	DIP8
	ACPL-K312	TLP5832	3	2.5 A	SO8L
	ACPL-K342	TLP5772 (LF4)	3	2.5 A	SO6L (LF4)
	ACPL-P302	TLP5701	2	0.6 A	SO6L
	ACPL-P314	TLP5701	2	0.6 A	SO6L
	ACPL-P340	TLP5751	1	1.0 A	SO6L
	ACPL-P341	TLP5754	1	4.0 A	SO6L
	ACPL-P343	TLP5754	1	4.0 A	SO6L
	ACPL-P345	TLP5751	1	1.0 A	SO6L
	ACPL-P346	TLP5752	1	2.5 A	SO6L
	ACPL-P347	TLP5751	2	1.0 A	SO6L
	ACPL-P349	TLP5772	2	2.5 A	SO6L
	ACPL-T350	TLP352	2	2.5 A	DIP8
	ACPL-W302	TLP5701 (LF4)	2	0.6 A	SO6L (LF4)
	ACPL-W314	TLP5701 (LF4)	2	0.6 A	SO6L (LF4)
	ACPL-W340	TLP5751 (LF4)	1	1.0 A	SO6L (LF4)
	ACPL-W341	TLP5754 (LF4)	1	4.0 A	SO6L (LF4)
	ACPL-W343	TLP5754 (LF4)	1	4.0 A	SO6L (LF4)
	ACPL-W345	TLP5751 (LF4)	1	1.0 A	SO6L (LF4)
	ACPL-W346	TLP5752 (LF4)	1	2.5 A	SO6L (LF4)
	ACPL-W347	TLP5751 (LF4)	2	1.0 A	SO6L (LF4)
	ACPL-W349	TLP5752 (LF4)	2	2.5 A	SO6L (LF4)
	HCNW3120	TLP352F	1	2.5 A	DIP8
	HCPL-0302	TLP2451A	2	0.6 A	SO8
	HCPL-0314	TLP2451A	2	0.6 A	SO8
	HCPL-3020	TLP351H	2	0.6 A	DIP8
	HCPL-3120	TLP352	2	2.5 A	DIP8
	HCPL-3140	TLP351H	2	0.6 A	DIP8
	HCPL-314J	TLP5701 x 2pcs	4	0.6 A	SO6L
	HCPL-3150	TLP351H	2	0.6 A	DIP8
	HCPL-315J	TLP5701 x 2pcs	4	0.6 A	SO6L
	HCPL-316J	TLP5214A	2	4.0 A	SO16L
	HCPL-3180	TLP352	1	2.5 A	DIP8
	HCPL-J312	TLP352	2	2.5 A	DIP8
	HCPL-J314	TLP351H	2	0.6 A	DIP8
	HCPL-T250	TLP352	2	2.5 A	DIP8

Note:1

- 1: Package and characteristics are almost same
- 2: Almost same package but similar characteristics
- 3: Almost same characteristics but different package
- 4: Different package and similar characteristics

IGBT/MOSFET Driver Couplers

Manufacturer	Competitor's Product	Toshiba			
		Part Number	Compatible Level (Note:1)	Peak Current	Package
Fairchild	FOD3120	TLP352	3	2.5 A	DIP8
	FOD3150	TLP5771	4	1.0 A	SO6L
	FOD3182	TLP5774	4	4.0 A	SO6L
	FOD8314	TLP5772	2	2.5 A	SO6L
	FOD8332	TLP5214A	1	4.0 A	SO16L
Renesas	PS9301L	TLP5701	1	0.6 A	SO6L
	PS9302L	TLP5832	2	2.5 A	SO8L
	PS9305L	TLP5832	1	2.5 A	SO8L
	PS9307L	TLP5701	1	0.6 A	SO6L
	PS9308L	TLP5702	2	2.5 A	SO6L
	PS9331L	TLP5702	2	2.5 A	SO6L
	PS9402	TLP5214A	2	4.0 A	SO16L
	PS9505	TLP352	2	2.5 A	DIP8
	PS9506	TLP351H	2	0.6 A	DIP8
	PS9531	TLP352	2	2.5 A	DIP8
	PS9552	TLP352	2	2.5 A	DIP8
	PS9553	TLP351H	2	0.6 A	DIP8
	PS9801	TLP2451A	2	0.6 A	SO8
SHARP	PC923	TLP351H	2	0.6 A	DIP8
	PC924	TLP351H	4	0.6 A	DIP8
	PC925	TLP352	2	2.5 A	DIP8
	PC928	TLP5214A	4	4.0 A	SO16L
	PC929	TLP5214A	4	4.0 A	SO16L

Note:1

- 1: Package and characteristics are almost same
- 2: Almost same package but similar characteristics
- 3: Almost same characteristics but different package
- 4: Different package and similar characteristics

High Speed and IPM Driver Couplers

Manufacturer	Competitor's Product	Toshiba			
		Part Number	Compatible Level (Note:1)	Data Rate (Typ.)	Toshiba's Package
BROADCOM	ACPL-071L	TLP2466	1	20 Mbps	S08
	ACPL-074L	TLP2160	1	20 Mbps	S08
	ACPL-M483	TLP2348	1	10 Mbps	5pin SO6
	ACPL-M484	TLP2345	1	10 Mbps	5pin SO6
	ACPL-M60L	TLP2368	2	20 Mbps	5pin SO6
	ACPL-M61L	TLP2361	1	15 Mbps	5pin SO6
	ACPL-M62L	TLP2368	2	20Mbps	5pin SO6
	ACPL-M75L	TLP2366	2	20 Mbps	5pin SO6
	ACPL-P454	TLP2704	2	1 Mbps	SO6L
	ACPL-P456	TLP2704	1	1 Mbps	SO6L
	ACPL-P480	TLP2710	2	5 Mbps	SO6L
	ACPL-P481	TLP2710	2	5 Mbps	SO6L
	ACPL-P483	TLP2748	2	10 Mbps	SO6L
	ACPL-P484	TLP2745	2	10 Mbps	SO6L
	ACPL-P611	TLP2768A	2	20 Mbps	SO6L
	ACPL-W21L	TLP2710 (LF4)	2	5 Mbps	SO6L (LF4)
	ACPL-W454	TLP2704 (LF4)	2	1 Mbps	SO6L (LF4)
	ACPL-W456	TLP2704 (LF4)	1	1 Mbps	SO6L (LF4)
	ACPL-W480	TLP2710 (LF4)	2	5 Mbps	SO6L (LF4)
	ACPL-W481	TLP2710 (LF4)	2	5 Mbps	SO6L (LF4)
	ACPL-W483	TLP2748 (LF4)	2	10 Mbps	SO6L (LF4)
	ACPL-W484	TLP2745 (LF4)	2	10 Mbps	SO6L (LF4)
	ACPL-W50L	TLP2719 (LF4)	2	1 Mbps	SO6L (LF4)
	ACPL-W60L	TLP2768A (LF4)	1	20 Mbps	SO6L (LF4)
	ACPL-W611	TLP2768A (LF4)	2	20 Mbps	SO6L (LF4)
	ACPL-W61L	TLP2761 (LF4)	1	15 Mbps	SO6L (LF4)
	ACPL-W70L	TLP2770	3	20 Mbps	SO6L
	HCPL-0201	TLP2405	2	5 Mbps	S08
	HCPL-0211	TLP2405	2	5 Mbps	S08
	HCPL-0452	TLP2409	2	1 Mbps	S08
	HCPL-0453	TLP2409	2	1 Mbps	S08
	HCPL-0454	TLP2404	2	1 Mbps	S08
	HCPL-0466	TLP2404	2	1 Mbps	S08
	HCPL-0500	TLP2409	2	1 Mbps	S08
	HCPL-0501	TLP2409	2	1 Mbps	S08
	HCPL-0600	TLP2468	2	20 Mbps	S08
	HCPL-0601	TLP2468	2	20 Mbps	S08
	HCPL-060L	TLP2468	2	20 Mbps	S08
	HCPL-0611	TLP2468	2	20 Mbps	S08
	HCPL-061A	TLP2468	2	20 Mbps	S08
	HCPL-061N	TLP2468	2	20 Mbps	S08
	HCPL-0630	TLP2168	2	15 Mbps	S08
	HCPL-0631	TLP2168	2	15 Mbps	S08
	HCPL-063A	TLP2261	2	15 Mbps	SO8L
	HCPL-063L	TLP2168	2	15 Mbps	S08
	HCPL-063N	TLP2168	2	15 Mbps	S08
	HCPL-0661	TLP2168	2	15 Mbps	S08
	HCPL-0700	TLP2403	2	100 kbps	S08
	HCPL-0701	TLP2403	1	100 kbps	S08
	HCPL-0708	TLP2468	2	20 Mbps	S08
	HCPL-070A	TLP2403	1	100 kbps	S08
	HCPL-070L	TLP2403	2	100 kbps	S08
	HCPL-0738	TLP2168	2	20 Mbps	S08
	HCPL-2200	TLP2955	2	5 Mbps	DIP8
	HCPL-2201	TLP2955	1	5 Mbps	DIP8
	HCPL-2202	TLP2955	4	5 Mbps	DIP8
	HCPL-2211	TLP2955	2	5 Mbps	DIP8
	HCPL-2212	TLP2955	4	5 Mbps	DIP8
	HCPL-2219	TLP2955	2	5 Mbps	DIP8
	HCPL-2231	TLP2105	4	5 Mbps	S08
	HCPL-2232	TLP2105	4	5 Mbps	S08

Note:1

- 1: Package and characteristics are almost same
- 2: Almost same package but similar characteristics
- 3: Almost same characteristics but different package
- 4: Different package and similar characteristics

High Speed and IPM Driver Couplers

Manufacturer	Competitor's Product	Toshiba			
		Part Number	Compatible Level (Note:1)	Data Rate (Typ.)	Toshiba's Package
BROADCOM	HCPL-2601	TLP2962	2	10 Mbps	DIP8
	HCPL-2611	TLP2962	2	10 Mbps	DIP8
	HCPL-2630	TLP2662	2	10 Mbps	DIP8
	HCPL-2631	TLP2662	2	10 Mbps	DIP8
	HCPL-4502	TLP754	1	1 Mbps	DIP8
	HCPL-4503	TLP754	1	1 Mbps	DIP8
	HCPL-4504	TLP754	1	1 Mbps	DIP8
	HCPL-4506	TLP754	2	1 Mbps	DIP8
	HCPL-4661	TLP2662	2	10 Mbps	DIP8
	HCPL-M452	TLP2309	2	1 Mbps	5pin SO6
	HCPL-M453	TLP2309	1	1 Mbps	5pin SO6
	HCPL-M454	TLP2309	1	1 Mbps	5pin SO6
	HCPL-M456	TLP104	1	1 Mbps	5pin SO6
	HCPL-M600	TLP2362	2	10 Mbps	5pin SO6
	HCPL-M601	TLP2362	2	10 Mbps	5pin SO6
	HCPL-M611	TLP2362	2	10 Mbps	5pin SO6
Renesas	PS8101	TLP2309	3	1 Mbps	5pin SO6
	PS8302L	TLP2704	2	2 Mbps	SO6L
	PS8501	TLP754	2	1 Mbps	DIP8
	PS8502	TLP754	2	1 Mbps	DIP8
	PS8601	TLP754	2	1 Mbps	DIP8
	PS8602	TLP754	2	1 Mbps	DIP8
	PS8701	TLP2309	2	1 Mbps	5pin SO6
	PS8802-1	TLP2409	2	1 Mbps	SO8
	PS8802-2	TLP2108	2	5 Mbps	SO8
	PS8821	TLP2409	2	1 Mbps	SO8
	PS9113	TLP104	4	1 Mbps	5pin SO6
	PS9115	TLP2366	2	15 Mbps	5pin SO6
	PS9117A	TLP2361	2	15 Mbps	5pin SO6
	PS9121	TLP2368	2	20 Mbps	5pin SO6
	PS9122	TLP2362	2	10 Mbps	5pin SO6
	PS9123	TLP2366	2	20 Mbps	5pin SO6
	PS9124	TLP2362	2	10 Mbps	5pin SO6
	PS9151	TLP2366	1	20 Mbps	5pin SO6
	PS9213	TLP104	4	1 Mbps	5pin SO6
	PS9214	TLP2362	4	10 Mbps	5pin SO6
	PS9303L	TLP2745	2	10 Mbps	SO6L
	PS9313L	TLP2704	2	2 Mbps	SO6L
	PS9317L	TLP2770	2	20 Mbps	SO6L
	PS9324L	TLP2768A	2	20 Mbps	SO6L
	PS9351L	TLP2770	1	15 Mbps	SO6L
	PS9513	TLP754	2	1 Mbps	DIP8
	PS9587	TLP2962	2	10 Mbps	DIP8
	PS9617	TLP2962	2	10 Mbps	DIP8
	PS9817A-1	TLP2468	1	20 Mbps	SO8
	PS9817A-2	TLP2168	1	20 Mbps	SO8
	PS9821-1	TLP2468	1	20 Mbps	SO8
	PS9821-2	TLP2168	1	20 Mbps	SO8
	PS9822-1	TLP2404	1	2 Mbps	SO8
PS9822-2	TLP2108	1	20 Mbps	SO8	
PS9851-1	TLP2366	3	20 Mbps	5pin SO6	
PS9851-2	TLP2160	1	20 Mbps	SO8	
SHARP	PC400T	TLP2358	4	100kbps	5pin SO6
	PC410L	TLP2362	2	10 Mbps	5pin SO6
	PC410S	TLP2468	2	20 Mbps	SO8
	PC411S	TLP2466	2	20 Mbps	SO8
	PC456L	TLP2309	2	1 Mbps	5pin SO6
	PC457L	TLP2309	2	1 Mbps	5pin SO6
	PC457S	TLP2409	2	1 Mbps	SO8
	PC4D10	TLP2168	2	20 Mbps	SO8

Note:1

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- 3: Almost same characteristics but different package
- 4: Different package and similar characteristics

Isolation Amplifiers / Delta-Sigma Modulators

Manufacturer	Competitor's Product	Toshiba				
		Part Number	Compatible Level (Note:1)	Input Feature	Output Feature	Package
BROADCOM	HCPL-7800	TLP7920	2	differential	Analog, Differential	DIP8
	HCPL-7800A	TLP7920	2	differential	Analog, Differential	DIP8
	HCPL-7840	TLP7920	2	differential	Analog, Differential	DIP8
	ACPL-C790	TLP7820	1	differential	Analog, Differential	SO8L(LF4)
	ACPL-C79A	TLP7820	1	differential	Analog, Differential	SO8L(LF4)
	ACPL-C79B	TLP7820	4	differential	Analog, Differential	SO8L(LF4)
	ACPL-7900	TLP7920	2	differential	Analog, Differential	DIP8
	ACPL-790A	TLP7920	2	differential	Analog, Differential	DIP8
	ACPL-790B	TLP7920	2	differential	Analog, Differential	DIP8
	ACPL-C784	TLP7820	1	differential	Analog, Differential	SO8L(LF4)
	ACPL-C780	TLP7820	1	differential	Analog, Differential	SO8L(LF4)
	ACPL-C78A	TLP7820	1	differential	Analog, Differential	SO8L(LF4)
	ACPL-C870	TLP7820	4	differential	Analog, Differential	SO8L(LF4)
	ACPL-C87A	TLP7820	2	differential	Analog, Differential	SO8L(LF4)
	ACPL-C87B	TLP7820	2	differential	Analog, Differential	SO8L(LF4)
	HCPL-7860	TLP7930	2	differential	Digital,Internal CLK	DIP8
	HCPL-786J	TLP7830	4	differential	Digital,Internal CLK	SO8L(LF4)
	ACPL-C797	TLP7830	4	differential	Digital,Internal CLK	SO8L(LF4)
	ACPL-7970	TLP7930	2	differential	Digital,Internal CLK	DIP8
	ACPL-796J	TLP7830	4	differential	Digital,Internal CLK	SO8L(LF4)
ACPL-798J	TLP7830	4	differential	Digital,Internal CLK	SO8L(LF4)	
TI	AMC1100DWV	TLP7820	2	differential	Analog, Differential	SO8L(LF4)
	AMC1100DUB	TLP7920	2	differential	Analog, Differential	DIP8
	AMC1200BDWV	TLP7820	2	differential	Analog, Differential	SO8L(LF4)
	AMC1200BDUB	TLP7920	2	differential	Analog, Differential	DIP8
	AMC1203PSA	TLP7830	4	differential	Digital,Internal CLK	SO8L(LF4)
	AMC1203DUB	TLP7930	2	differential	Digital,Internal CLK	DIP8
	AMC1203DW	TLP7830	4	differential	Digital,Internal CLK	SO8L(LF4)
	AMC1203BPASA	TLP7830	4	differential	Digital,Internal CLK	SO8L(LF4)
	AMC1203BDUB	TLP7930	2	differential	Digital,Internal CLK	DIP8
	AMC1203BDW	TLP7830	4	differential	Digital,Internal CLK	SO8L(LF4)
	AMC1204DW	TLP7830	4	differential	Digital,Internal CLK	SO8L(LF4)
	AMC1204BDWV	TLP7830	2	differential	Digital,Internal CLK	SO8L(LF4)
	AMC1204BDW	TLP7830	4	differential	Digital,Internal CLK	SO8L(LF4)
	AMC1301	TLP7820	2	differential	Analog, Differential	SO8L(LF4)
	AMC1304	TLP7830	4	differential	Digital,Internal CLK	SO8L(LF4)
	AMC1305	TLP7830	4	differential	Digital,Internal CLK	SO8L(LF4)
Analog Devices	AD7400A	TLP7830	4	differential	Digital,Internal CLK	SO8L(LF4)
	AD7401A	TLP7830	4	differential	Digital,Internal CLK	SO8L(LF4)
	AD7402	TLP7830	2	differential	Digital,Internal CLK	SO8L(LF4)
	AD7403	TLP7830	2	differential	Digital,Internal CLK	SO8L(LF4)
	AD7405	TLP7830	4	differential	Digital,Internal CLK	SO8L(LF4)
Renesas	PS8551A	TLP7920	2	differential	Analog, Differential	DIP8
	PS9551A	TLP7930	2	differential	Digital,Internal CLK	DIP8

Note:1

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- 3: Almost same characteristics but different package
- 4: Different package and similar characteristics

Photorelays (1-Form-A)

Manufacturer	Competitor's Product	Toshiba				
		Part Number	Compatible Level (Note:1)	OFF-state Output Terminal Voltage	ON-state Current	Package
Panasonic	AQV201	TLP241A	3	40 V	2.0 A	DIP4
	AQV202	TLP240A	4	60 V	0.5 A	DIP4
	AQV204	TLP240GA	4	400 V	0.12 A	DIP4
	AQV210EH	TLP240G	4	350 V	0.10 A	DIP4
	AQV210S	TLP172GM	3	350 V	0.11 A	4pin SO6
	AQV212	TLP240A	4	60 V	0.5 A	DIP4
	AQV212S	TLP176AM	3	60 V	0.7 A	4pin SO6
	AQV214	TLP240GA	4	400 V	0.12 A	DIP4
	AQV214E	TLP240GA	4	400 V	0.12 A	DIP4
	AQV214EH	TLP240GA	4	400 V	0.12 A	DIP4
	AQV214H	TLP240GA	4	400 V	0.12 A	DIP4
	AQV214S	TLP172GAM	3	400 V	0.11 A	4pin SO6
	AQV215	TLP3546A	1	100 V	2.0 A	DIP6
	AQV215S	TLP3105	2	100 V	1.4 A	2.54SOP6
	AQV216	TLP240J	4	600 V	0.09 A	DIP4
	AQV217S	TLP171D	3	200 V	0.2 A	2.54SOP4
	AQV227NS	TLP199D	2	200 V	0.2 A	2.54SOP6
	AQV251G	TLP3544	4	40 V	3.5 A	DIP6
	AQV252	TLP240A	4	60 V	0.5 A	DIP4
	AQV252G	TLP3545A	1	60 V	3.0 A	DIP6
	AQV252G2S	TLP3107	2	60 V	3.3 A	2.54SOP6
	AQV254	TLP240GA	4	400 V	0.12 A	DIP4
	AQV254H	TLP240GA	4	400 V	0.12 A	DIP4
	AQV255	TLP3546A	1	100 V	2.0 A	DIP6
	AQV255GS	TLP3109	1	100 V	2.0 A	2.54SOP6
	AQY210LS	TLP172GM	2	350 V	0.11 A	4pin SO6
	AQY210S	TLP172GM	2	350 V	0.11 A	4pin SO6
	AQY211EH	TLP241A	1	40 V	2.0 A	DIP4
	AQY212GS	TLP3122A	1	60 V	1.4 A	4pin SO6
	AQY212S	TLP3122A	1	60 V	1.4 A	4pin SO6
	AQY214EH	TLP240GA	2	400 V	0.12 A	DIP4
	AQY214S	TLP172GAM	1	400 V	0.11 A	2.54SOP4
	AQY216EH	TLP240J	2	600 V	0.09 A	DIP4
	AQY221N2S	TLP3440	4	40 V	0.12 A	VSON4
	AQY221N2V	TLP3440	4	40 V	0.12 A	VSON4
	AQY221R2S	TLP3475	4	50 V	0.3 A	VSON4
	AQY221R2V	TLP3214	1	40 V	0.25 A	SSOP4
	AQY221R6T	TLP3406S	4	20 V	0.8 A	S-VSON4
	AQY222R2V	TLP3412	4	60 V	0.4 A	VSON4
	AQY225R1S	TLP3412	4	60 V	0.4 A	VSON4
AQY225R2S	TLP3419	4	80 V	0.2 A	VSON4	
AQY225R2V	TLP3417	4	80 V	0.12 A	VSON4	
AQY234S	TLP171GA	1	400 V	0.1 A	2.54SOP4	
IXYS	CPC1330	TLP240GA	1	400 V	0.12 A	DIP4
	CPC1393	TLP240J	1	600 V	0.09 A	DIP4
	LCA100	TLP240GA	3	400 V	0.12 A	DIP4
Renesas	PS7113-1A	TLP3546A	2	100 V	2.0 A	DIP6
	PS7141E-1A	TLP240GA	3	400 V	0.12 A	DIP4
	PS7160-1A	TLP240J	3	600 V	0.09 A	DIP4
	PS7206-1A	TLP3122A	1	60 V	1.4 A	4pin SO6
	PS7241E-1A	TLP172GAM	1	400 V	0.11 A	2.54SOP4
	PS7341-1A	TLP240GA	3	400 V	0.12 A	DIP4
	PS7360-1A	TLP240J	3	600 V	0.09 A	DIP4
	PS7804-1A	TLP3412	3	60 V	0.4 A	VSON4

Note:1

- 1: Package and characteristics are almost same
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- 3: Almost same characteristics but different package
- 4: Different package and similar characteristics

Manufacturer	Competitor's Product	Toshiba				
		Part Number	Compatible Level (Note:1)	OFF-state Output Terminal Voltage	ON-state Current	Package
TOWARD	AB21RS	TLP176AM	1	60 V	0.7 A	4pin SO6
	AB38S	TLP170J	1	600 V	0.09 A	2.54SOP4
	AB31S	TLP172GM	2	350 V	0.11 A	4pin SO6
	AB37S	TLP176AM	1	60 V	0.7 A	4pin SO6
	AB45S	TLP176AM	1	60 V	0.7 A	4pin SO6
	AB34S	TLP176D	1	200 V	0.2 A	2.54SOP4
	AB30S	TLP172GAM	1	400 V	0.11 A	2.54SOP4
	AB37	TLP240A	1	60 V	0.5 A	DIP4
	AB45	TLP240A	1	60 V	0.5 A	DIP4
	AB34	TLP240D	1	200 V	0.25 A	DIP4
	AB31	TLP240G	2	350 V	0.10 A	DIP4
	AB30	TLP240GA	1	400 V	0.12 A	DIP4
	AB38	TLP240J	1	600 V	0.09 A	DIP4
	AB26	TLP241A	1	40 V	2.0 A	DIP4
	AB47	TLP3556A	2	100 V	2.0 A	DIP4
	AB48	TLP3556A	1	100 V	2.0 A	DIP4

Photorelays (2-Form-A)

Manufacturer	Competitor's Product	Toshiba				
		Part Number	Compatible Level (Note:1)	OFF-state Output Terminal Voltage	ON-state Current	Package
Panasonic	AQW210	TLP222G-2	1	350 V	0.12 A	DIP8
	AQW210EH	TLP240GA x 2pcs	4	400 V	0.12 A	DIP4
	AQW210HL	TLP224G-2	2	350 V	0.12 A	DIP8
	AQW210S	TLP206G	1	350 V	0.12 A	2.54SOP8
	AQW212	TLP222A-2	2	60 V	0.5 A	DIP8
	AQW212EH	TLP240A x 2pcs	4	60 V	0.5 A	DIP4
	AQW212S	TLP202A	1	60 V	0.4 A	2.54SOP8
	AQW214	TLP240GA	4	400 V	0.12 A	DIP8
	AQW214EH	TLP240GA x 2pcs	4	400 V	0.12 A	DIP4
	AQW214S	TLP206GA	2	400 V	0.12 A	2.54SOP8
	AQW215	TLP240D x 2pcs	4	200 V	0.25 A	DIP4
	AQW216	TLP240J x 2pcs	4	600 V	0.09 A	DIP4
	AQW216EH	TLP240J x 2pcs	4	600 V	0.09 A	DIP4
	AQW217	TLP240D x 2pcs	4	200 V	0.25 A	DIP4
	AQW223R2S	TLP222G-2	4	350 V	0.12 A	DIP8
AQW227N	TLP240D x 2pcs	4	200 V	0.25 A	DIP4	
IXYS	CPC2014N	TLP202A	3	60 V	0.4 A	2.54SOP8
	CPC2017N	TLP202A	4	60 V	0.4 A	2.54SOP8
	CPC2025N	TLP206GA	4	400 V	0.12 A	2.54SOP8
	CPC2030N	TLP206G	4	350 V	0.12 A	2.54SOP8
Renesas	PS7241-2A	TLP206GA	1	400 V	0.12 A	2.54SOP8

Photorelays (1-Form-A/1-Form-B)

Manufacturer	Competitor's Product	Toshiba				
		Part Number	Compatible Level (Note:1)	OFF-state Output Terminal Voltage	ON-state Current	Package
Panasonic	AQW610EH	TLP4006G	2	350 V	0.12 A	DIP8
	AQW610S	TLP4026G	2	350 V	0.12 A	2.54SOP8
	AQW614	TLP4006G	2	350 V	0.12 A	DIP8
	AQW614EH	TLP4006G	2	350 V	0.12 A	DIP8
	AQW654	TLP4006G	2	350 V	0.12 A	DIP8

Note:1

- 1: Package and characteristics are almost same
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Photorelays (1-Form-B, 2-Form-B)

Manufacturer	Competitor's Product	Toshiba				
		Part Number	Compatible Level (Note:1)	OFF-state Output Terminal Voltage	ON-state Current	Package
Panasonic	AQV410EH	TLP4597G	4	350 V	0.15 A	DIP6
	AQV414	TLP4597G	4	350 V	0.15 A	DIP6
	AQV414E	TLP4597G	4	350 V	0.15 A	DIP6
	AQV414S	TLP4197G	2	350 V	0.12 A	2.54SOP6
	AQV454	TLP4597G	4	350 V	0.15 A	DIP6
	AQV454H	TLP4597G	4	350 V	0.15 A	DIP6
	AQV410EH	TLP4227G	2	350 V	0.15 A	DIP4
	AQV410S	TLP4176G	1	350 V	0.12 A	2.54SOP4
	AQV414EH	TLP4227G	2	350 V	0.15 A	DIP4
	AQV414S	TLP4176G	2	350 V	0.12 A	2.54SOP4
	AQW414	TLP4227G-2	2	350 V	0.15 A	DIP8
	AQW414EH	TLP4227G-2	2	350 V	0.15 A	DIP8
	AQW414S	TLP4206G	2	350 V	0.12 A	2.54SOP8
	AQW454	TLP4227G-2	2	350 V	0.15 A	DIP8
IXYS	CPC1125N	TLP4176G	4	350 V	0.12 A	2.54SOP4
	CPC1130N	TLP4176G	1	350 V	0.12 A	2.54SOP4
	CPC1135N	TLP4176G	1	350 V	0.12 A	2.54SOP4
	CPC1150N	TLP4176G	1	350 V	0.12 A	2.54SOP4
	CPC1231N	TLP4176G	3	350 V	0.12 A	2.54SOP4
	CPC1333	TLP4227G	2	350 V	0.15 A	DIP4
	CPC2125N	TLP4206G	4	350 V	0.12 A	2.54SOP8
	LBB110	TLP4227G-2	1	350 V	0.15 A	DIP8
	LCB110	TLP4597G	1	350 V	0.15 A	DIP6
	LCB111	TLP4597G	1	350 V	0.15 A	DIP6
	PBB190	TLP4227G-2	2	350 V	0.15 A	DIP8
	PLB190	TLP4597G	4	350 V	0.15 A	DIP6
	XBB170	TLP4227G-2	1	350 V	0.15 A	DIP8
	XCB170	TLP4597G	1	350 V	0.15 A	DIP6

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• The information presented in this cross reference is based on TOSHIBA's selection criteria and should be treated as a suggestion only. Please carefully review the latest versions of all relevant information on the TOSHIBA products, including without limitation data sheets and validate all operating parameters of the TOSHIBA products to ensure that the suggested TOSHIBA products are truly compatible with your design and application.

• Please note that this cross reference is based on TOSHIBA's estimate of compatibility with other manufacturers' products, based on other manufacturers' published data, at the time the data was collected.

• TOSHIBA is not responsible for any incorrect or incomplete information. Information is subject to change at any time without notice.

14. Part Naming Conventions

3-Digit Part Numbering Example (Except Alphabetical Characters)

Example of Photocouplers

TLP 1 76 A
 ① ② ③ ④

- ① Toshiba photocoupler
- ② Package type
 - 1: SO6 / SOP
 - 2: SO4 / SOP / SOP16 / DIP (2500 Vrms/5000 Vrms)
 - 3: SO6L / DIP (5000 Vrms)
 - 4: DIP4 (5000 Vrms)
 - 5: DIP (2500 Vrms)
 - 6: DIP (5000 Vrms)
 - 7: DIP (4000 Vrms)
- ③ Output type
 - 00 to 09: IC output, Photorelay
 - 10 to 19: IC output
 - 20 to 29: 4/8/16-pin multi-channel photocoupler
 - 30 to 39: 6 pin
 - 40 to 49: Thyristor output, Photorelay
 - 50 to 59: IC output
 - 60 to 69: Triac output
 - 70 to 79: Photorelay
 - 80 to 89: Transistor output / Darlingon Transistor output
 - 90 to 99: Transistor output, Photorelay, Photo voltaic output
- ④ Suffix
 - Withstand voltage level
 - (a) Photorelay (b) Triac output, Thyristor output
 - A: 40 V, 60 V G: 400 V
 - D: 200 V J: 600 V
 - G: 350 V L: 800 V
 - GA: 400 V
 - J: 600 V

4-Digit Part Numbering Example (Except Alphabetical Characters)

Example of Photocouplers

TLP 2 7 61 A
 ① ② ③ ④ ⑤

- ① Toshiba photocoupler
- ② Product category
 - 2: IC output (logic, IPM drivers)
 - 3: Photorelay (1-form-A) / Triac output / Photo voltaic output
 - 4: Photorelay (except 1-form-A)
 - 5: IC output (Power device driver / Smart gate driver)
 - 7: Isolation Amplifire

③ Package category

Number	Package type		Product Category
	IC output / Isolation Amplifire	Photorelay	Triac output / Photo voltaic output
0	SO4 / MFSOP6	-	Triac output
1	SO8 (Dual ch.)	SOP	-
2	SO8L (Dual ch.), SO16L	SSOP	-
3	SO6	USOP	-
4	SO8 (Single ch.)	VSON	-
5	-	DIP	-
6	DIP8 (Dual ch.)	-	-
7	SDIP6 /SO6L	-	Triac output
8	SO8L(Single ch.)	-	-
9	DIP8 (Single ch.)	-	Photo voltaic output

- ④ Serial number
- ⑤ Suffix

Part Naming Example for Automotive Devices

■ Photocouplers(Output: Transistor, IC, Photovoltaic)

Example of Photocoupler

TLX 9 304
 ① ② ③

- ① Toshiba photocoupler (For Automotive device)
- ② 9: For Automotive device
- ③ Serial number

■ Photorelays

Example of Photorelay

TLX 9 175 J
 ① ② ③ ④

- ① Toshiba photorelay (For Automotive device)
- ② 9: For Automotive device
- ③ Serial number
- ④ Withstand voltage level
 - J: 600 V

Note: For those parts which do not follow the part naming convention shown above, see the appropriate datasheet.

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