MOS RELAY
EPR SERIES

c UL us E236930, UL E155181(R)

DIP Type **SMD Type** **SOP Type**

■ FEATURES

- No EMI/RFI generation
- High reliability
- No moving parts
- Low drive power requirement (TTL/CMOS compatible)
- Low On-state resistance
- High isolation voltage
- Arc-free with no snubbing circuits
- Machine insertable or wave solderable

■ APPLICATIONS

- Telecommunications
- Instrumentation
- Medical equipment
- Security
- Industrial control

■ PART NUMBER SYSTEM

EPR 2 1 1A 40 6 0 00 Z

- Z:RoHS Compliant
- Special number:
  00:Standard
  09:2500V isolation voltage for SOP
  5000V isolation voltage for DIP/SMD
- Packing: 0:IC Tube, 1:Tape & Reel
- Pin out: 4:4pin, 6:6pin, 8:8pin
- Load voltage: 02:20V, 03:30V, 06:60V, 08:80V, 20:200V, 25:250V, 35:350V, 40:400V, 60:600V
- Contact type: 1A:1 form A, 1B:1 form B, 1C:1 form A/1 form B 2A:2 form A, 2B:2 form B
- Load type: 0:DC, 1:AC&DC
- Package type: 2:DIP, 3:SMD, 4:SOP
- Series name: EPR:MOS RELAY

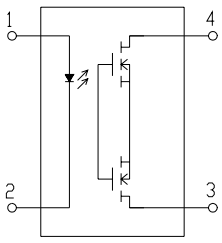
■ MARKING SYSTEM

EPR 6 1A 40 T X

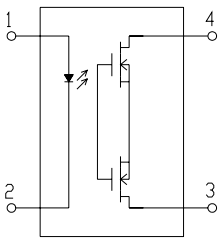
- X: Special Number or Blank
- T: Packing:
  T:Through hole, M:SMD type, S:SOP type
  F:DC output & through hole
  N:DC output & SMD, K:DC output & SOP
- 40: Load voltage: 02:20V, 03:30V, 06:60V, 08:80V, 20:200V
  25:250V, 35:350V, 40:400V, 60:600V
- 1A: Contact type: 1A:1 form A, 1B:1 form B, 1C:1 form A/1 form B
  2A:2 form A, 2B:2 form B
- 6: Pin number: 4:4pin, 6:6pin, 8:8pin
- EPR: Model name: EPR

■ CIRCUIT DIAGRAM

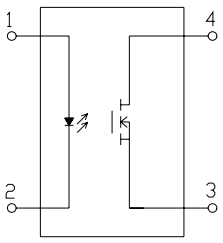
EPR 4P 1A TYPE (AC/DC)



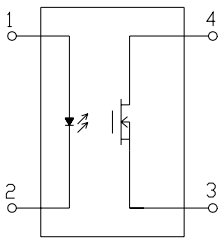
EPR 4P 1B TYPE (AC/DC)



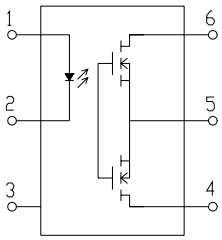
EPR 4P 1A TYPE (DC)



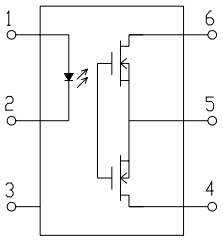
EPR 4P 1B TYPE (DC)



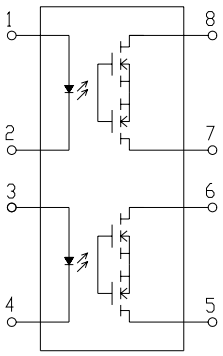
EPR 6P 1A TYPE (AC/DC)



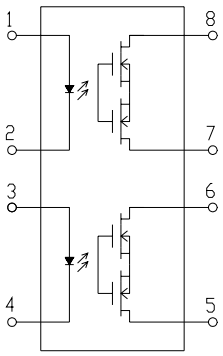
EPR 6P 1B TYPE (AC/DC)



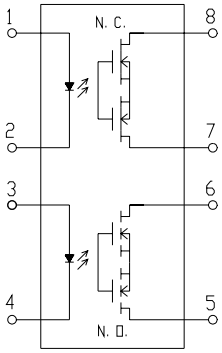
EPR 8P 2A TYPE (AC/DC)



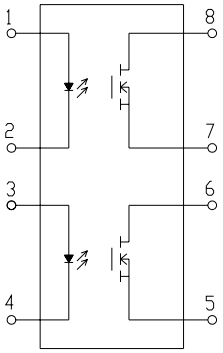
EPR 8P 2B TYPE (AC/DC)



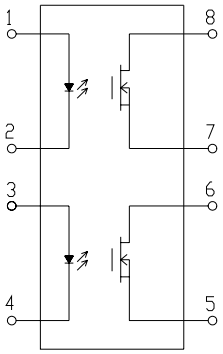
EPR 8P 1C TYPE (AC/DC)



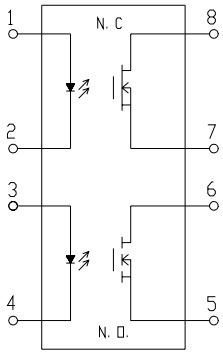
EPR 8P 2A TYPE (DC)



EPR 8P 2B TYPE (DC)

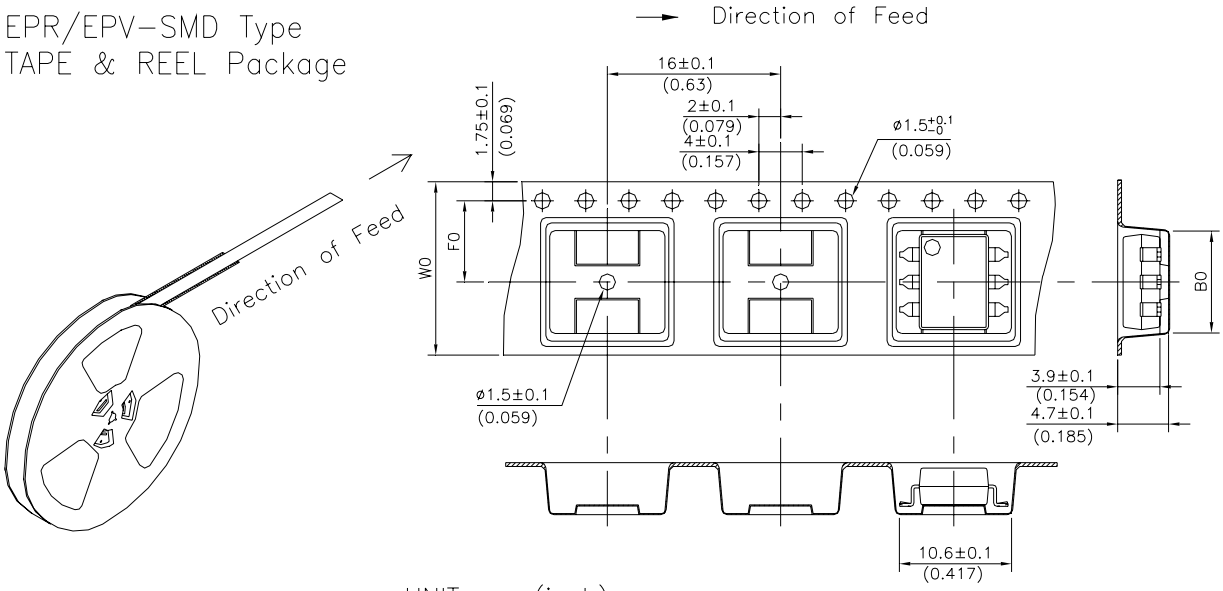


EPR 8P 1C TYPE (DC)



■ OPTIONS

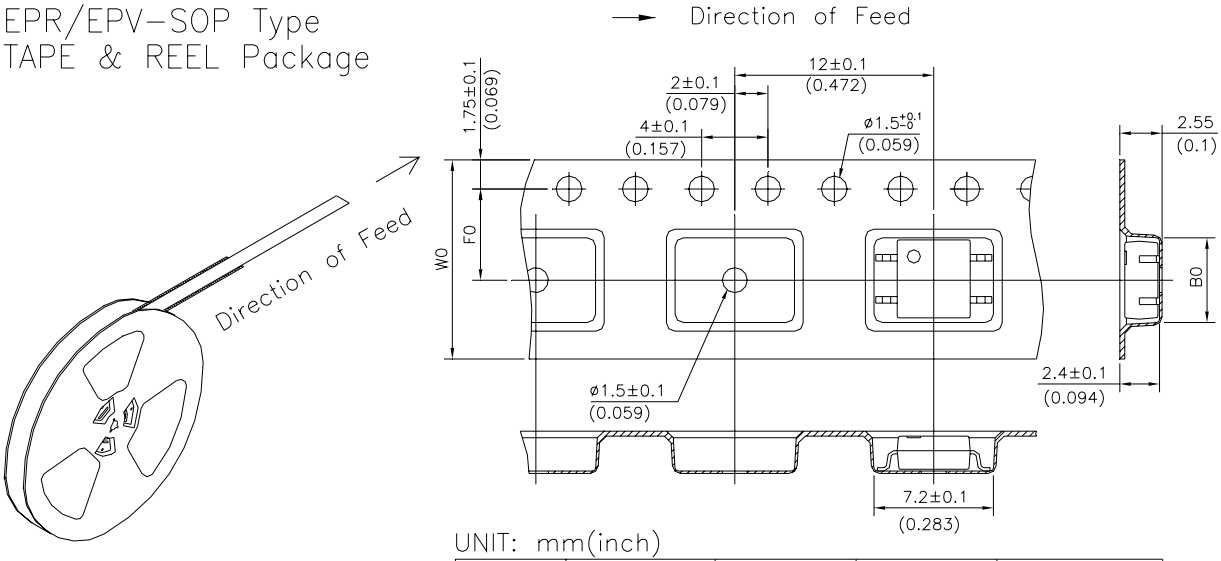
EPR/EPV-SMD Type
TAPE & REEL Package



UNIT: mm(inch)

TYPE	B0±0.1	F0±0.1	W0±0.3	15"REEL/PCS
4P	5.3(0.209)	7.5(0.295)	16(0.630)	1000
6P	9.4(0.370)	7.5(0.295)	16(0.630)	1000
8P	10.3(0.406)	11.5(0.453)	24(0.945)	1000

EPR/EPV-SOP Type
TAPE & REEL Package

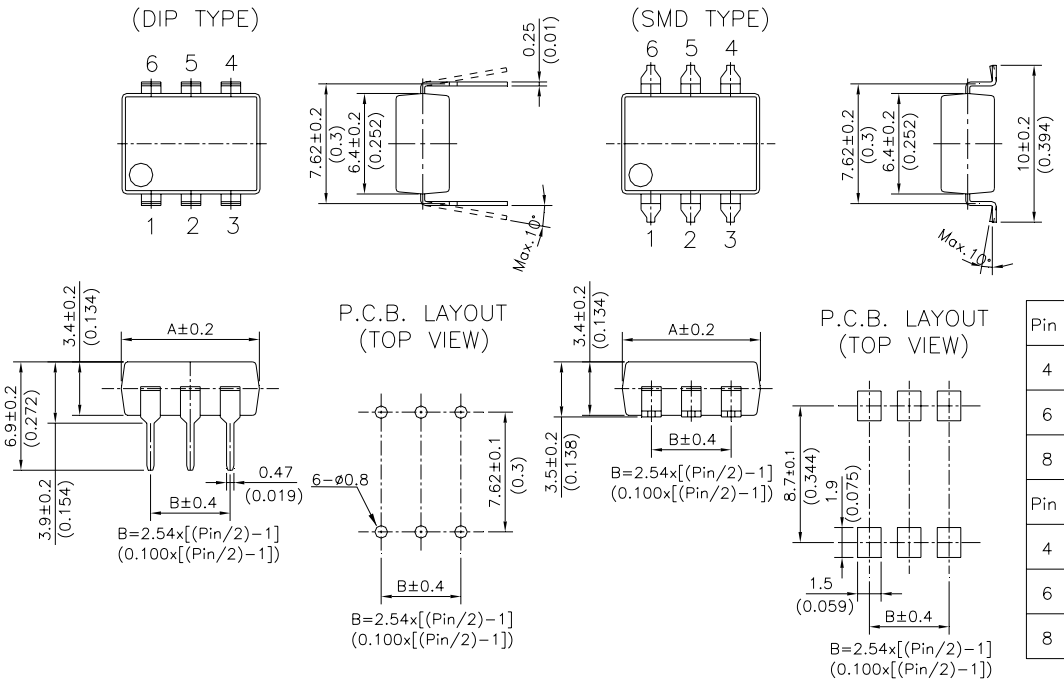


UNIT: mm(inch)

TYPE	B0±0.1	F0±0.1	W0±0.3	13"REEL/PCS
4P	5.1(0.200)	5.5(0.217)	12(0.472)	2000
6P	6.7(0.264)	7.5(0.295)	16(0.630)	2000
8P	9.6(0.378)	7.5(0.295)	16(0.630)	2000

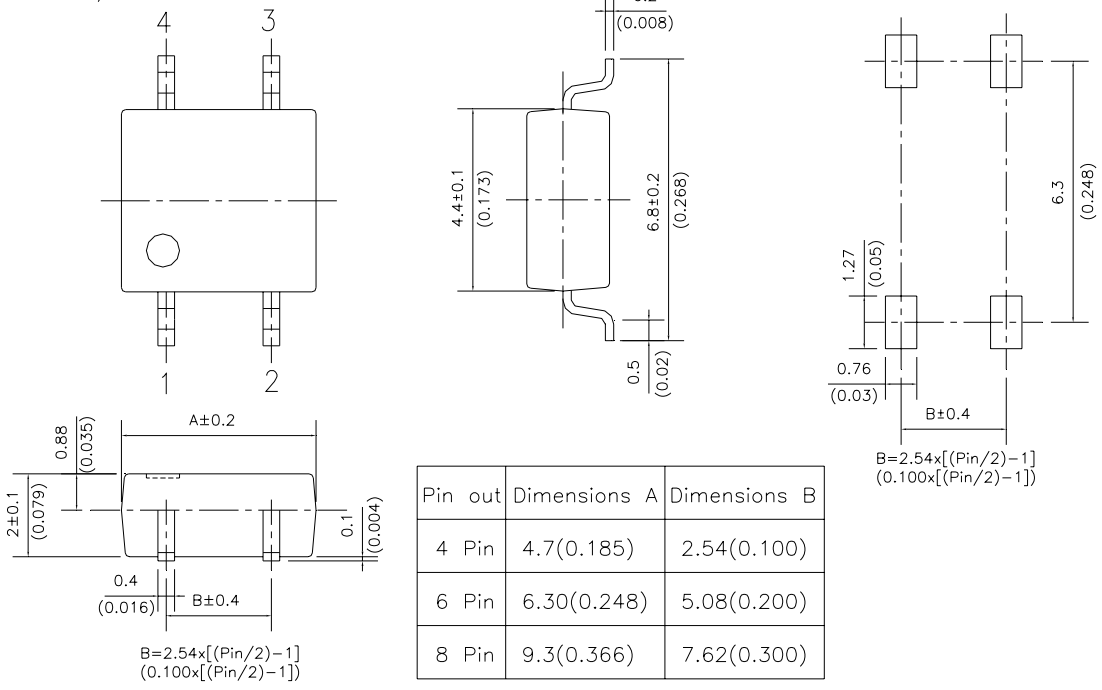
■ DIMENSIONS

DIMENSIONS Unit:mm(inch)
EPR/EPV-DIP/SMD SERIES



Pin out	Dimensions A
4 Pin	4.7(0.185)
6 Pin	8.8(0.346)
8 Pin	9.78(0.385)
Pin out	Dimensions B
4 Pin	2.54(0.100)
6 Pin	5.08(0.200)
8 Pin	7.62(0.300)

DIMENSIONS Unit:mm(inch)
EPR/EPV-SOP SERIES



Pin out	Dimensions A	Dimensions B
4 Pin	4.7(0.185)	2.54(0.100)
6 Pin	6.30(0.248)	5.08(0.200)
8 Pin	9.3(0.366)	7.62(0.300)

■ SPECIFICATIONS (@25℃):

Part Number (4 PIN)	DIP	EPR	211A064	211A204	211A404	211A064001	211B204	211B354	211B404
	SMD		311A064	311A204	311A404	311A064x01	311B204	311B354	311B404
	SOP		411A064	411A204	411A404	411A064x01	411B204	411B354	411B404
Contact form			1A	1A	1A	1A	1B	1B	1B
Input Characteristics									
Forward voltage (V)(V_F)			0.9-1.5	0.9-1.5	0.9-1.5	0.9-1.5	0.9-1.5	0.9-1.5	0.9-1.5
Reverse voltage at 10 μA (V)(V_R)			5	5	5	5	5	5	5
Control current (mA)(I_F)			5-50	5-50	5-50	5-50	5-50	5-50	5-50
Output Characteristics									
Load voltage (V)(AC peak or DC)(V_L)			60	200	400	60	200	350	400
Continuous rated load current (mA)(I_L)	SOP		350	150	100	120	80	80	80
	SMD/DIP		400	200	130	120	100	100	100
Peak current (mA)(IL_{Peak})	SOP		600	300	240	250	200	200	200
	SMD/DIP		700	400	300	250	250	250	250
On-state resistance Max. (Ω)(R_{ON})			1.4	10	30	16	30	45	50
Off-state leakage current (μA) (I_{LK})			1	1	1	1	10	10	10
Turn-on (msec)(T_{ON})			1	1	1	1.5	1	1	1
Turn-off (msec)(T_{OFF})			1	1	1	1	2	2	2
Capacitance (pF)(C_{OUT})			150	70	70	25	200	200	150
Input / Output Characteristics									
I/O Capacitance (pF)($C_{I/O}$)			5	5	5	5	5	5	5
I/O Isolation voltage (VAC)($V_{I/O}$)	SOP		Special number 00:1500 / 09:2500						
	SMD/DIP		Special number 00:3750 / 09:5000						
I/O Isolation resistance (GΩ)($R_{I/O}$)			5	5	5	5	5	5	5
Temperature limits	Operating (T_{OP})		-40℃ to +85℃ (-40℉ to +185℉)						
	Storage (T_{STG})		-40℃ to +100℃ (-40℉ to +212℉)						

Part Number (4 PIN)								
	DIP	EPR	211A024005	211A034005	211A064005	211A254	211A354002	211A604
	SMD	EPR	311A024005	311A034x05	311A064x05	311A254	311A354002	311A604
	SOP	EPR	411A024005	411A034x05	----------	411A254	411A354002	411A604
Contact form			1A	1A	1A	1A	1A	1A
Input Characteristics								
Forward voltage (V)(V_F)			0.9-1.5	0.9-1.5	0.9-1.5	0.9-1.5	0.9-1.5	0.9-1.5
Reverse voltage at 10 μA (V)(V_R)			5	5	5	5	5	5
Control current (mA)(I_F)			10-50	10-50	10-50	5-50	5-50	5-50
Output Characteristics								
Load voltage (V)(AC peak or DC)(V_L)			20	30	60	250	350	600
Continuous rated load current (mA)(I_L)	SOP		1500	1300	-	140	130	50
	SMD/DIP		2000	1800	1100	180	170	70
Peak current (mA)(IL_{Peak})	SOP		2500	2000	-	300	300	100
	SMD/DIP		2500	2000	1500	350	300	120
On-state resistance Max. (Ω)(R_{ON})			0.5	0.5	0.7	10	16	60
Off-state leakage current (μA) (I_{LK})			1	1	1	1	1	1
Turn-on (msec)(T_{ON})			5	5	5	1	1	1
Turn-off (msec)(T_{OFF})			2	2	2	1	1	1
Capacitance (pF)(C_{OUT})			-	-	-	100	200	100
Input / Output Characteristics								
I/O Capacitance (pF)($C_{I/O}$)			5	5	5	5	5	5
I/O Isolation voltage (VAC)($V_{I/O}$)	SOP		Special number 00:1500 / 09:2500					
	SMD/DIP		Special number 00:3750 / 09:5000					
I/O Isolation resistance (GΩ)($R_{I/O}$)			5	5	5	5	5	5
Temperature limits	Operating (T_{OP})		-40℃ to +85℃ (-40℉ to +185℉)					
	Storage (T_{STG})		-40℃ to +100℃ (-40℉ to +212℉)					

Part Number (6 PIN)									
	DIP	EPR	211A066	211A206	211A406	211A066001	211B206	211B356	211B406
	SMD		311A066	311A206	311A406	311A066x01	311B206	311B356	311B406
	SOP		411A066	411A206	411A406	411A066x01	411B206	411B356	411B406
Contact form			1A	1A	1A	1A	1B	1B	1B
Input Characteristics									
Forward voltage (V)(V_F)			0.9-1.5	0.9-1.5	0.9-1.5	0.9-1.5	0.9-1.5	0.9-1.5	0.9-1.5
Reverse voltage at 10 μA (V)(V_R)			5	5	5	5	5	5	5
Control current (mA)(I_F)			5-50	5-50	5-50	5-50	5-50	5-50	5-50
Output Characteristics									
Load voltage (V)(AC peak or DC)(V_L)			60	200	400	60	200	350	400
Continuous rated load current (mA)(I_L)	SOP		350	150	100	120	80	80	80
	SMD/DIP		400	200	130	120	100	100	100
Peak current (mA)(IL_{Peak})	SOP		600	300	240	250	200	200	200
	SMD/DIP		700	400	300	250	250	250	250
On-state resistance Max. (Ω)(R_{ON})			1.4	10	30	16	30	45	50
Off-state leakage current (μA) (I_{LK})			1	1	1	1	10	10	10
Turn-on (msec)(T_{ON})			1	1	1	1.5	1	1	1
Turn-off (msec)(T_{OFF})			1	1	1	1	2	2	2
Capacitance (pF)(C_{OUT})			150	70	70	25	200	200	150
Input / Output Characteristics									
I/O Capacitance (pF)($C_{I/O}$)			5	5	5	5	5	5	5
I/O Isolation voltage (VAC)($V_{I/O}$)	SOP		Special number 00:1500 / 09:2500						
	SMD/DIP		Special number 00:3750 / 09:5000						
I/O Isolation resistance (GΩ)($R_{I/O}$)			5	5	5	5	5	5	5
Temperature limits	Operating (T_{OP})		-40℃ to +85℃ (-40℉ to +185℉)						
	Storage (T_{STG})		-40℃ to +100℃ (-40℉ to +212℉)						

Part Number (6 PIN)								
	DIP	EPR	211A026005	211A036005	211A066005	211A256	211A356002	211A606
	SMD	EPR	311A026x05	311A036x05	311A066x05	311A256	311A356x02	311A606
	SOP	EPR	411A026x05	411A036x05	----------	411A256	411A356x02	411A606
Contact form			1A	1A	1A	1A	1A	1A
Input Characteristics								
Forward voltage (V)(V_F)			0.9-1.5	0.9-1.5	0.9-1.5	0.9-1.5	0.9-1.5	0.9-1.5
Reverse voltage at 10 μA (V)(V_R)			5	5	5	5	5	5
Control current (mA)(I_F)			10-50	10-50	10-50	5-50	5-50	5-50
Output Characteristics								
Load voltage (V)(AC peak or DC)(V_L)			20	30	60	250	350	600
Continuous rated load current (mA)(I_L)	SOP		1500	1300	-	140	130	50
	SMD/DIP		2000	1800	1100	180	170	70
Peak current (mA)(IL_{Peak})	SOP		2500	2000	-	300	300	100
	SMD/DIP		2500	2000	1500	350	300	120
On-state resistance Max. (Ω)(R_{ON})			0.5	0.5	0.7	10	16	60
Off-state leakage current (μA) (I_{LK})			1	1	1	1	1	1
Turn-on (msec)(T_{ON})			5	5	5	1	1	1
Turn-off (msec)(T_{OFF})			2	2	2	1	1	1
Capacitance (pF)(C_{OUT})			-	-	-	100	200	100
Input / Output Characteristics								
I/O Capacitance (pF)($C_{I/O}$)			5	5	5	5	5	5
I/O Isolation voltage (VAC)($V_{I/O}$)	SOP		Special number 00:1500 / 09:2500					
	SMD/DIP		Special number 00:3750 / 09:5000					
I/O Isolation resistance (GΩ)($R_{I/O}$)			5	5	5	5	5	5
Temperature limits	Operating (T_{OP})		-40℃ to +85℃ (-40℉ to +185℉)					
	Storage (T_{STG})		-40℃ to +100℃ (-40℉ to +212℉)					

Part Number (8 PIN)									
	DIP	EPR	212A068	212A208	212A408	212A068001	212B208	212B358	212B408
	SMD	EPR	312A068	312A208	312A408	312A068x01	312B208	312B358	312B408
	SOP	EPR	412A068	412A208	412A408	412A068x01	412B208	412B358	412B408
Contact form			2A	2A	2A	2B	2B	2B	2B
Input Characteristics									
Forward voltage (V)(V_F)			0.9-1.5	0.9-1.5	0.9-1.5	0.9-1.5	0.9-1.5	0.9-1.5	0.9-1.5
Reverse voltage at 10 μA (V)(V_R)			5	5	5	5	5	5	5
Control current (mA)(I_F)			5-50	5-50	5-50	5-50	5-50	5-50	5-50
Output Characteristics									
Load voltage (V)(AC peak or DC)(V_L)			60	200	400	60	200	350	400
Continuous rated load current (mA)(I_L)	SOP		350	150	100	120	80	80	80
	SMD/DIP		400	200	130	120	100	100	100
Peak current (mA)(IL_{Peak})	SOP		600	300	240	250	200	200	200
	SMD/DIP		700	400	300	250	250	250	250
On-state resistance Max. (Ω)(R_{ON})			1.4	10	30	16	30	45	50
Off-state leakage current (μA) (I_{LK})			1	1	1	1	10	10	10
Turn-on (msec)(T_{ON})			1	1	1	1.5	1	1	1
Turn-off (msec)(T_{OFF})			1	1	1	1	2	2	2
Capacitance (pF)(C_{OUT})			150	70	70	25	200	200	150
Input / Output Characteristics									
I/O Capacitance (pF)($C_{I/O}$)			5	5	5	5	5	5	5
I/O Isolation voltage (VAC)($V_{I/O}$)	SOP		Special number 00:1500 / 09:2500						
	SMD/DIP		Special number 00:3750 / 09:5000						
I/O Isolation resistance (GΩ)($R_{I/O}$)			5	5	5	5	5	5	5
Temperature limits	Operating (T_{OP})		-40℃ to +85℃ (-40℉ to +185℉)						
	Storage (T_{STG})		-40℃ to +100℃ (-40℉ to +212℉)						

Part Number (8 PIN)								
	DIP	EPR	212A028005	212A038005	212A068005	212A258	212A358002	212A608
	SMD	EPR	312A028005	312A038x05	312A068x05	312A258	312A358002	312A608
	SOP	EPR	412A028005	412A038x05	----------	412A258	412A358002	412A608
Contact form			2A	2A	2A	2A	2A	2A
Input Characteristics								
Forward voltage (V)(V_F)			0.9-1.5	0.9-1.5	0.9-1.5	0.9-1.5	0.9-1.5	0.9-1.5
Reverse voltage at 10 μA (V)(V_R)			5	5	5	5	5	5
Control current (mA)(I_F)			10-50	10-50	10-50	5-50	5-50	5-50
Output Characteristics								
Load voltage (V)(AC peak or DC)(V_L)			20	30	60	250	350	600
Continuous rated load current (mA)(I_L)	SOP		1500	1300	-	140	130	50
	SMD/DIP		2000	1800	1100	180	170	70
Peak current (mA)(IL_{Peak})	SOP		2500	2000	-	300	300	100
	SMD/DIP		2500	2000	1500	350	300	120
On-state resistance Max. (Ω)(R_{ON})			0.5	0.5	0.7	10	16	60
Off-state leakage current (μA) (I_{LK})			1	1	1	1	1	1
Turn-on (msec)(T_{ON})			5	5	5	1	1	1
Turn-off (msec)(T_{OFF})			2	2	2	1	1	1
Capacitance (pF)(C_{OUT})			-	-	-	100	200	100
Input / Output Characteristics								
I/O Capacitance (pF)($C_{I/O}$)			5	5	5	5	5	5
I/O Isolation voltage (VAC)($V_{I/O}$)	SOP		Special number 00:1500 / 09:2500					
	SMD/DIP		Special number 00:3750 / 09:5000					
I/O Isolation resistance (GΩ)($R_{I/O}$)			5	5	5	5	5	5
Temperature limits	Operating (T_{OP})		-40℃ to +85℃ (-40℉ to +185℉)					
	Storage (T_{STG})		-40℃ to +100℃ (-40℉ to +212℉)					

Part Number (8 PIN)			211C208		211C358		211C408	
	DIP	EPR	211C208		211C358		211C408	
	SMD		311C208		311C358		311C408	
	SOP		411C208		411C358		411C408	
Contact form			1A	1B	1A	1B	1A	1B
Input Characteristics								
Forward voltage (V)(V_F)			0.9-1.5	0.9-1.5	0.9-1.5	0.9-1.5	0.9-1.5	0.9-1.5
Reverse voltage at 10 μA (V)(V_R)			5	5	5	5	5	5
Control current (mA)(I_F)			5-50	5-50	5-50	5-50	5-50	5-50
Output Characteristics								
Load voltage (V)(AC peak or DC)(V_L)			200	200	350	350	400	400
Continuous rated load current (mA)(I_L)	SOP		150	100	100	80	100	80
	SMD/DIP		200	120	130	100	130	100
Peak current (mA)(IL_{Peak})	SOP		300	240	240	200	240	200
	SMD/DIP		400	300	300	250	300	250
On-state resistance Max. (Ω)(R_{ON})			10	30	30	45	30	50
Off-state leakage current (μA) (I_{LK})			1	10	1	10	1	10
Turn-on (msec)(T_{ON})			1	1	1	1	1	1
Turn-off (msec)(T_{OFF})			1	2	1	2	1	2
Capacitance (pF)(C_{OUT})			70	200	70	200	70	150
Input / Output Characteristics								
I/O Capacitance (pF)($C_{I/O}$)			5	5	5	5	5	5
I/O Isolation voltage (VAC)($V_{I/O}$)	SOP		Special number 00:1500 / 09:2500					
	SMD/DIP		Special number 00:3750 / 09:5000					
I/O Isolation resistance (GΩ)($R_{I/O}$)			5	5	5	5	5	5
Temperature limits	Operating (T_{OP})		-40℃ to +85℃ (-40℉ to +185℉)					
	Storage (T_{STG})		-40℃ to +100℃ (-40℉ to +212℉)					