MOS RELAY

EPR SERIES

E155181(R)

DIP **SMD** **SOP**

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

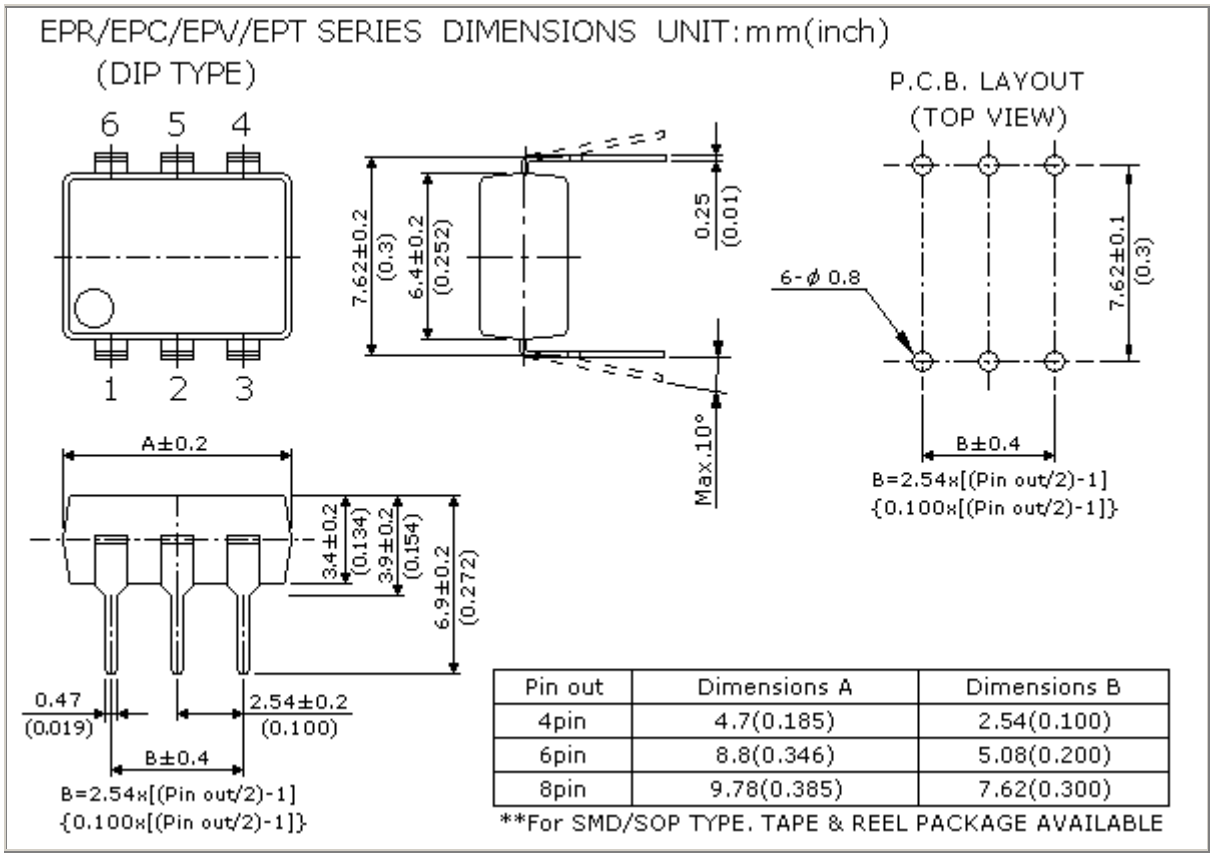
PART NUMBERING SYSTEM

```
EPR 2 1 1A 40 6 0 00
 |  | |  |  | | |  |
 |  | |  |  | | |  +--- Special number:
 |  | |  |  | | |        0: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:
 |  | |  |       06:60V,20:200V,35:350V,40:400V
 |  | |  +--- 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
 |  |  |  | |
 |  |  |  | +--- Packing:
 |  |  |  |      T:through hole
 |  |  |  |      M:SMD type
 |  |  |  |      S:SOP type
 |  |  |  +--- Load voltage:
 |  |  |       06:60V,20:200V,35:350V,40:400V
 |  |  +--- 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
 |  +--- Pin number: 4:4pin,6:6pin,8:8pin
 +--- Model name: EPR
```

DIMENSIONS: UNIT:mm(inch)

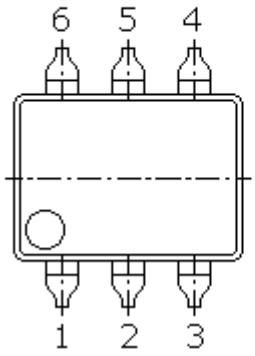


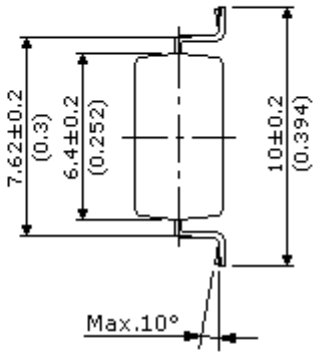
Pin out	Dimensions A	Dimensions B
4pin	4.7(0.185)	2.54(0.100)
6pin	8.8(0.346)	5.08(0.200)
8pin	9.78(0.385)	7.62(0.300)

**For SMD/SOP TYPE. TAPE & REEL PACKAGE AVAILABLE

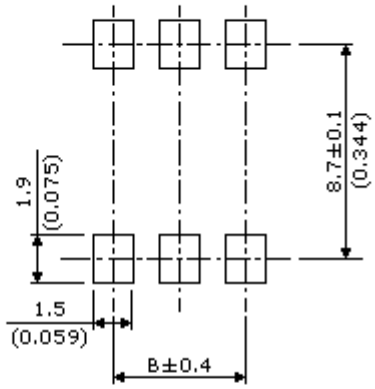
EPR/EPC/EPV/EPT SERIES DIMENSIONS UNIT: mm(inch)

(SMD TYPE)

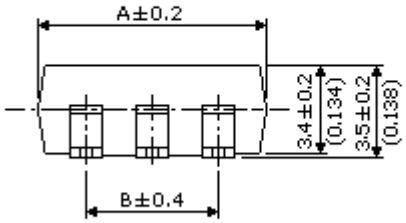




P.C.B. LAYOUT
(TOP VIEW)



B=2.54x[(Pin out/2)-1]
{0.100x[(Pin out/2)-1]}



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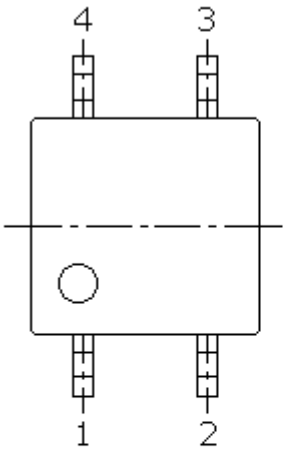
{0.100x[(Pin out/2)-1]}

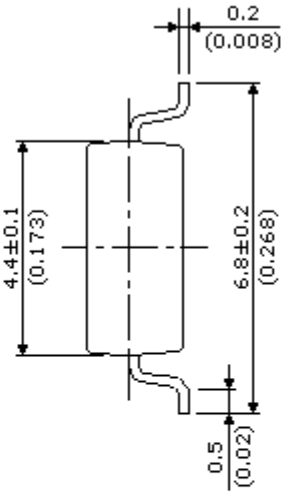
Pin out	Dimensions A	Dimensions B
4pin	4.7(0.185)	2.54(0.100)
6pin	8.8(0.346)	5.08(0.200)
8pin	9.78(0.385)	7.62(0.300)

**For SMD/SOP TYPE. TAPE & REEL PACKAGE AVAILABLE

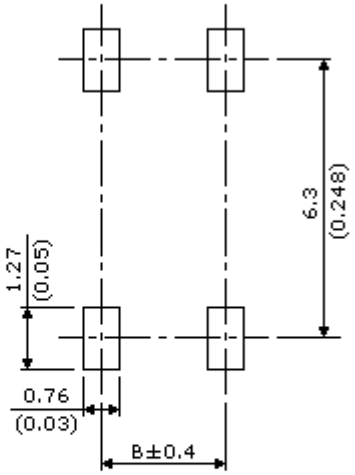
EPR/EPC/EPV/EPT SERIES DIMENSIONS UNIT: mm(inch)

(SOP TYPE)

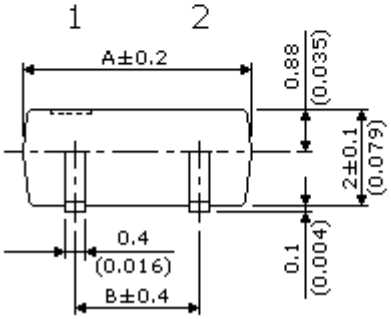




P.C.B. LAYOUT
(TOP VIEW)



B=2.54x[(Pin out/2)-1]
{0.100x[(Pin out/2)-1]}



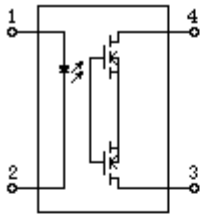
B=2.54x[(Pin out/2)-1]
{0.100x[(Pin out/2)-1]}

Pin out	Dimensions A	Dimensions B
4pin	4.7(0.185)	2.54(0.100)
6pin	6.3(0.248)	5.08(0.200)
8pin	9.3(0.366)	7.62(0.300)

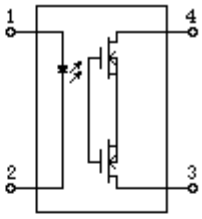
**For SMD/SOP TYPE. TAPE & REEL PACKAGE AVAILABLE

CIRCUIT DIAGRAM

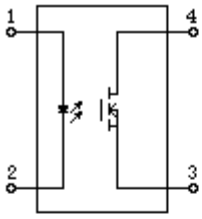
EPR 4P 1A TYPE (AC/DC)



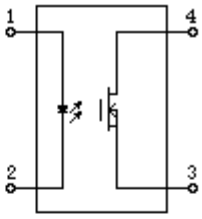
EPR 4P 1B TYPE (AC/DC)



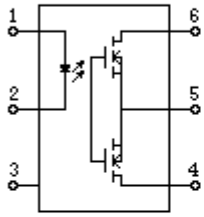
EPR 4P 1A TYPE (DC)



EPR 4P 1B TYPE (DC)



EPR 6P 1A TYPE (AC/DC)



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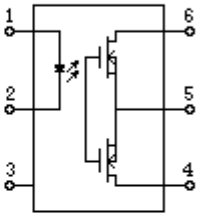
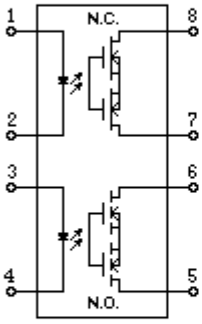
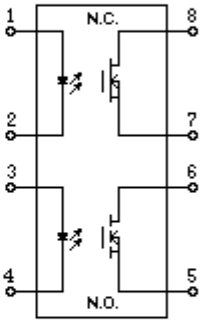


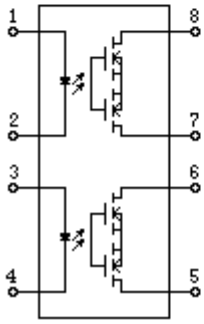
EPR 8P 1C TYPE (AC/DC)



EPR 8P 1C TYPE (DC)



EPR 8P 2A TYPE (AC/DC)



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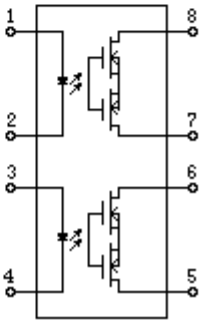
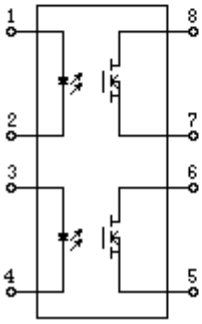
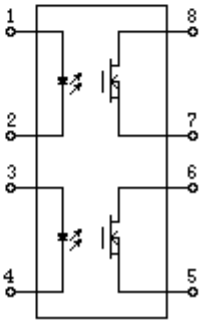


EPR 8P 2A TYPE (DC)

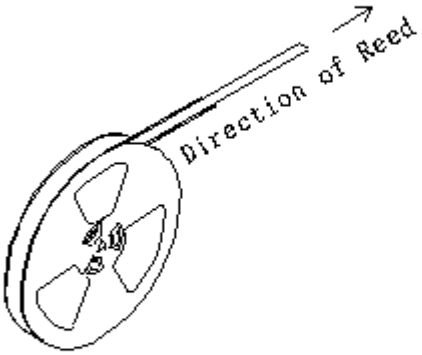


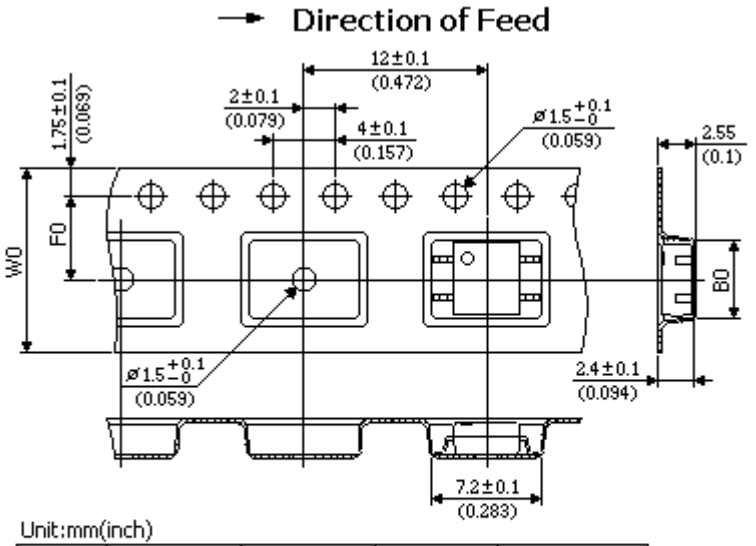
EPR 8P 2B TYPE (DC)



OPTIONS: UNIT:mm(inch)

Tape & Reel Package
Per Reel 2000 pcs for
SOP Type

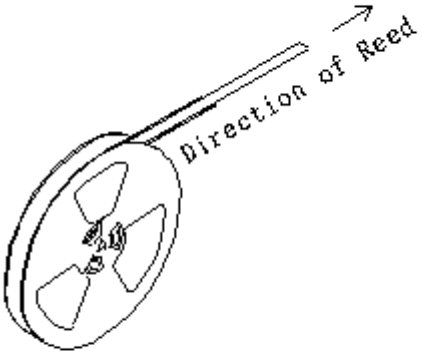


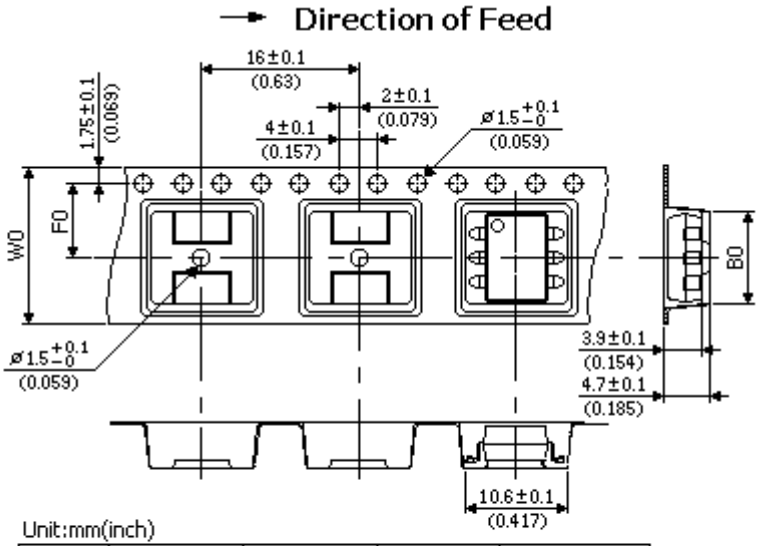


Unit:mm(inch)

TYPE	B0±0.1	F0±0.1	W0±0.1	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

Tape & Reel Package
Per Reel 1000 pcs for
SMD Type





Unit:mm(inch)

TYPE	B0±0.1	F0±0.1	W0±0.1	15" REEL/PCS
4P	5.3(0.209)	7.5(0.295)	16(0.630)	1000
6P	9.4(0.370)	7.2(0.295)	16(0.630)	1000
8P	12.3(0.484)	11.5(0.453)	24(0.945)	1000

SPECIFICATIONS(@25°C)

Part Number (4 PIN)	DIP	EPR	211A064	211A204	211A404	211B204	211B354	211B404
	SMD		311A064	311A204	311A404	311B204	311B354	311B404
	SOP		411A064	411A204	411A404	411B204	411B354	411B404
Contact form			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
Reverse voltage at 10μA (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)			60	200	400	200	350	400
Continuous rated load current (mA)(I_L)	SOP		350	150	100	80	80	80
	SMD/DIP		400	200	130	100	100	100
Peak current (mA)(IL_{Peak})	SOP		600	300	240	200	200	200
	SMD/DIP		700	400	300	250	250	250
On-state resistance Max. (Ω)(R_{ON})			1.4	10	30	30	45	50
Off-state leakage current (μA) (I_{LK})			1	1	1	10	10	10
Turn-on (msec)(T_{ON})			1	1	1	1	1	1
Turn-off (msec)(T_{OFF})			1	1	1	2	2	2
Capacitance (pF)(C_{OUT})			150	70	70	200	200	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℉)					

Part Number (6 PIN)	DIP	EPR	211A066	211A206	211A406	211B206	211B356	211B406
	SMD		311A066	311A206	311A406	311B206	311B356	311B406
	SOP		411A066	411A206	411A406	411B206	411B356	411B406
Contact form			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
Reverse voltage at 10μA (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)			60	200	400	200	350	400
Continuous rated load current (mA)(I_L)	SOP		350	150	100	80	80	80
	SMD/DIP		400	200	130	100	100	100
Peak current (mA)(IL_{Peak})	SOP		600	300	240	200	200	200
	SMD/DIP		700	400	300	250	250	250
On-state resistance Max. (Ω)(R_{ON})			1.4	10	30	30	45	50
Off-state leakage current (μA) (I_{LK})			1	1	1	10	10	10
Turn-on (msec)(T_{ON})			1	1	1	1	1	1
Turn-off (msec)(T_{OFF})			1	1	1	2	2	2
Capacitance (pF)(C_{OUT})			150	70	70	200	200	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℉)					

Part Number (8 PIN)								
	DIP	EPR	212A068	212A208	212A408	212B208	212B358	212B408
	SMD		312A068	312A208	312A408	312B208	312B358	312B408
	SOP		412A068	412A208	412A408	412B208	412B358	412B408
Contact form			2A	2A	2A	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
Reverse voltage at 10μA (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)			60	200	400	200	350	400
Continuous rated load current (mA)(I_L)	SOP		350	150	100	80	80	80
	SMD/DIP		400	200	130	100	100	100
Peak current (mA)(IL_{Peak})	SOP		600	300	240	200	200	200
	SMD/DIP		700	400	300	250	250	250
On-state resistance Max. (Ω)(R_{ON})			1.4	10	30	30	45	50
Off-state leakage current (μA) (I_{LK})			1	1	1	10	10	10
Turn-on (msec)(T_{ON})			1	1	1	1	1	1
Turn-off (msec)(T_{OFF})			1	1	1	2	2	2
Capacitance (pF)(C_{OUT})			150	70	70	200	200	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℉)					

Part Number (8 PIN)			211C208		211C358		211C408	
	DIP	EPR	211C208		211C358		211C408	
	SMD	EPR	311C208		311C358		311C408	
	SOP	EPR	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 10μA (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℉)					

Part Number (8 PIN)	DIP	EPR	211A064001	211A066001	212A068001
	SMD		311A064x01	311A066x01	312A068x01
	SOP		411A064x01	411A066x01	411A068x01
Contact form			1A	1A	2A
Input Characteristics					
Forward voltage (V)(V_F)			0.9-1.5	0.9-1.5	0.9-1.5
Reverse voltage at 10μA (V)(V_R)			5	5	5
Control current (mA)(I_F)			5-50	5-50	5-50
Output Characteristics					
Load voltage (V)(AC peak or DC)(V_L)			60	60	60
Continuous rated load current (mA)(I_L)	SOP		120	120	120
	SMD/DIP		120	120	120
Peak current (mA)(IL_{Peak})	SOP		250	250	250
	SMD/DIP		250	250	250
On-state resistance Max. (Ω)(R_{ON})			16	16	16
Off-state leakage current (μA) (I_{LK})			1	1	1
Turn-on (msec)(T_{ON})			1.5	1.5	1.5
Turn-off (msec)(T_{OFF})			1	1	1
Capacitance (pF)(C_{OUT})			25	25	25
Input / Output Characteristics					
I/O Capacitance (pF)($C_{I/O}$)			5	5	5
I/O Isolation voltage (VAC)($V_{I/O}$)	SOP		1500	1500	1500
	SMD/DIP		3750	3750	3750
I/O Isolation resistance (GΩ)($R_{I/O}$)			5	5	5
Temperature limits	Operating (T_{OP})		-40℃ to +85℃ (-40℉ to +185℉)		
	Storage (T_{STG})		-40℃ to +100℃ (-40℉ to +212℉)		