

EP2 Series

Non-promotion

Now, these products are corresponding only to specific customers.



EP2 series is printed circuit board mount type and the most suitable for various motor controls in the automotive which require high-quality and high-performance.

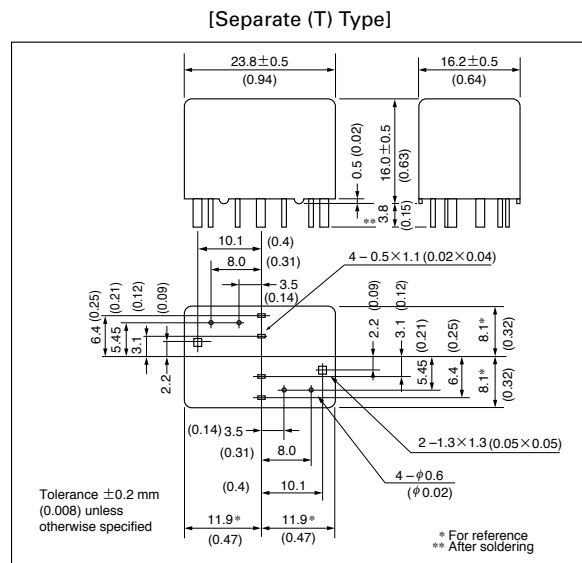
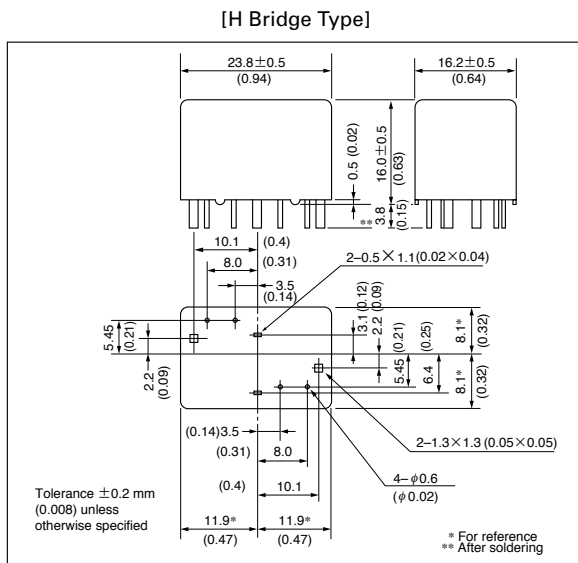
EP2 series has two types for different applications. One is H bridge type which is designed for forward and reverse control of the motor. The other is separate type which contains two separated relays in one package.

*EP2F:High heat resistivity

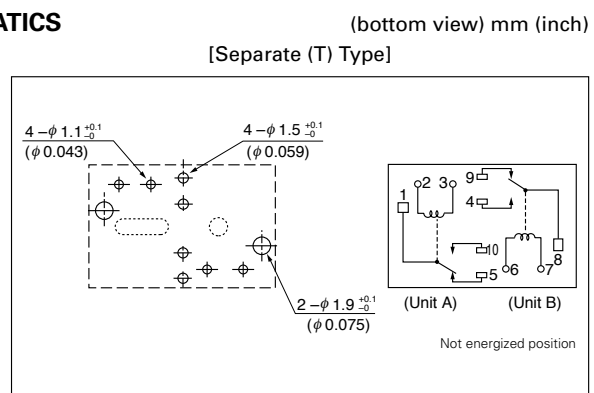
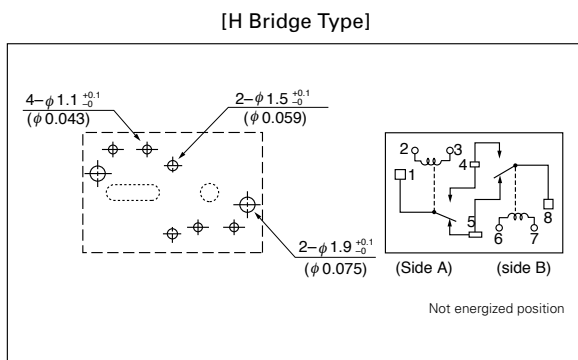
FEATURES

- Twin relay for motor reversible control
- High performance & productivity by unique symmetrical structure
- PC board mounting
- Flux tight housing

DIMENSIONS mm (inch)



RECOMMENDED PCB PAD LAYOUT and SCHEMATICS



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EP2 Series

■ SPECIFICATIONS

at 20°C

Items	Types (Contact Rating)	EP2 (Standard)	EP2-B (High Current)
Contact Form		1 Form C × 2 (H Bridge Type or Separate Type)	
Contact Material		Silver oxide complex alloy (Special type available)	
Initial Contact Resistance *figure 1.		H Bridge (route A) : 10.7 mΩ typ. H Bridge (route B) : 10.4 mΩ typ. Separate (N/C) : 5.2 mΩ typ. Separate (N/O) : 5.2 mΩ typ. (measured by voltage drop at 6 VDC, 7 A)	H Bridge (route A) : 6.7 mΩ typ. H Bridge (route B) : 6.4 mΩ typ. Separate (N/C) : 3.2 mΩ typ. Separate (N/O) : 3.2 mΩ typ. (measured by voltage drop at 6 VDC, 7 A)
Contact Rating Power		14 VDC, 25A	
Contact Switching Current		30 A max. (at 16 VDC)	
Contact Carrying Current		20 A max. (1 hour max.) 25 A Max. (2 minutes Max.) at 12 VDC	25 A max. (1 hour max.) 30 A Max. (2 minutes Max.) at 12 VDC
Operate Time (Excluding bounce)		Approx. 5 ms (at Nominal Voltage)	
Release Time (Excluding bounce)		Approx. 2 ms (at Nominal Voltage, without diode)	
Nominal Operate Power		0.48 W/ 0.64 W (at 12 VDC)	
Insulation Resistance		100 MΩ at 500 VDC	
Withstand Voltage		500 VAC (for 1 minute)	
Shock Resistance		98 m/s ² (misoperation), 980 m/s ² (destructive failure)	
Vibration Resistance		10 to 300 Hz, 43 m/s ² (misoperation), 10 to 500 Hz, 43 m/s ² , 200 hours (destructive failure)	
Ambient Temperature		-40 to +85°C (-40 to +185°F)	
Coil Temperature Rise		50°C / W (90 °F /W) (Contact Carrying Current : 0 A)	
Running Specifications	Non-load	1 × 10 ⁶ operations	
	Load	100 × 10 ³ operations (at 14 VDC, Motor Load 25 A / 5 A)	
Weight		Approx. 15 g (0.53 oz)	

■ COIL RATING

at 20°C

Part Numbers		Nominal Voltage (VDC)	Coil Resistance (Ω) ± 10 %	Must Operate Voltage* (VDC)	Must Release Voltage* (VDC)	Nominal Operate Power (W)
H Bridge Type	Separate Type					
EP2-3N1	EP2-3N1T	12	225	6.5	0.9	0.64

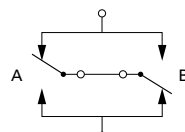
* Test by pulse voltage

■ PART NUMBER SYSTEM

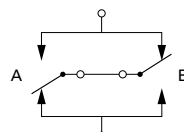
EP2 F-B3L1 ST	
Wiring	Nil : H bridge type T : Separate type
Enclosure	Nil : Unsealed S : Sealed
Must Operate Voltage	1 : 6.5 V
Contact Material	L : Silver oxide complex alloy type I N : Silver oxide complex alloy type II G : Silver oxide complex alloy type III
Coil Resistance	3 : 225 Ω
Carrying Current Capacity	Nil : Standard type B : High current type
Ambient temperature	Nil : Standard (-40 to +85°C) F : High heat resistivity (-40 to +125°C)
Type	

*Contact Resistance (figure 1)

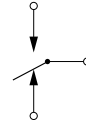
• H Bridge (route A)



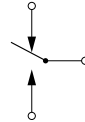
• H Bridge (route B)



• Separate (N/C)



• Separate (N/O)



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EP2 Series

*EP2F:High heat resistivity

■ SPECIFICATIONS

at 20°C

Items		EP2F	
Contact Form		1 Form C × 2 (H bridge type and separate type)	
Contact Material		Silver oxide complex alloy (Special type available)	
Initial Contact Resistance		50 mΩ max. (measured by voltage drop at 6 VDC, 7A)	
Contact Rating Power		14 VDC, 25A	
Contact Switching Current		30 A max. (at 16 VDC)	
Contact Carrying Current		25 A (2 minutes max. 12 VDC at 125°C) 30 A (2 minutes max. 12 VDC at 85°C) 35 A (2 minutes max. 12 VDC at 25°C)	
Operate Time (Excluding bounce)		Approx. 5 ms (at Nominal Voltage)	
Release Time (Excluding bounce)		Approx. 2 ms (at Nominal Voltage, without diode)	
Normal Operate Power		0.64 W (at 12 VDC)	
Insulation Resistance		100 MΩ at 500 VDC	
Withstand Voltage		500 VAC (for 1 minute)	
Shock Resistance		98 m / s ² (misoperation), 980 m / s ² (destructive failure)	
Vibration Resistance		10 to 300 Hz, 43 m / s ² (misoperation), 10 to 500 Hz, 43 m / s ² , 200 hours (destructive failure)	
Ambient Temperature		- 40°C to + 125°C (- 40°F to + 257°F)	
Coil Temperature Rise		50°C / W (90°F / W) (Contact Carrying Current: 0 A)	
Running Specifications	Non-load	1 × 10 ⁶ operations	
	Load	Contact G	1 × 10 ⁵ operations (at 14 VDC, Motor Load 25 A / 5 A) at 25°C 1 × 10 ⁵ operations (at 14 VDC, Motor Load 18 A / 3 A) at 125°C
		Contact L or N	1 × 10 ⁵ operations (at 14 VDC, Motor Load 20 A / 4 A) at 25°C 1 × 10 ⁵ operations (at 14 VDC, Motor Load 12 A / 2 A) at 125°C
Weight		Approx. 15 g (0.53 oz)	

■ COIL RATING

• EP2F

at 20°C

	Part Numbers		Nominal Voltage (VDC)	Coil Resistance (Ω) ± 10 %	Must Operate Voltage (VDC max.)	Must Release Voltage (VDC min.)	Nominal Operate Power (W)
	H Bridge Type	Separate Type					
Contact G	EP2F-B3G1	EP2F-B3G1T	12	225	6.5	0.9	0.64
Contact L	EP2F-B3L1	EP2F-B3L1T	12	225	6.5	0.9	0.64
Contact N	EP2F-B3N1	EP2F-B3N1T	12	225	6.5	0.9	0.64

* Test by pulse voltage



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