

3) 2 coil latching type

Nominal coil voltage	Set voltage (at 20°C 68°F)	Reset voltage (at 20°C 68°F)	Nominal operating current [±10%] (at 20°C 68°F)		Coil resistance [±10%] (at 20°C 68°F)		Nominal operating power		Max. applied voltage (at 20°C 68°F)
			Set coil	Reset coil	Set coil	Reset coil	Set coil	Reset coil	
1.5V DC	70%V or less of nominal voltage (Initial)	70%V or less of nominal voltage (Initial)	66.6mA	66.6mA	11.3Ω	11.3Ω	200mW	200mW	130%V of nominal voltage
3V DC			66.6mA	66.6mA	45Ω	45Ω			
4.5V DC			44.5mA	44.5mA	101Ω	101Ω			
5V DC			40mA	40mA	125Ω	125Ω			
6V DC			33.3mA	33.3mA	180Ω	180Ω			
9V DC			22.2mA	22.2mA	405Ω	405Ω			
12V DC			16.6mA	16.6mA	720Ω	720Ω			
24V DC			8.3mA	8.3mA	2,880Ω	2,880Ω			

2. Specifications

Characteristics	Item		Specifications		
Contact	Arrangement		1 Form A	1 Form A 1 Form B	2 Form A
	Contact resistance (Initial)		Max. 30 mΩ (By voltage drop 6 V DC 1A)		
	Contact material		AgSnO ₂ type		
Rating	Nominal switching capacity (resistive load)		10A 250V AC, 10A 30V DC	8A 250V AC, 8A 30V DC	
	Max. switching power (resistive load)		2,500VA*, 300W	2,000VA*, 240W	
	Max. switching voltage		440V AC, 230V DC	440V AC, 230V DC	
	Max. switching current		10A (16A)*4	8A (16A)*4	
	Nominal operating power		Single side stable, 2 coil latching: 200mW; 1 coil latching: 100mW		
	Min. switching capacity*1		100mA 5V DC		
Electrical characteristics	Insulation resistance (Initial)		Min. 1,000MΩ (at 500V DC) Measurement at same location as “Breakdown voltage” section.		
	Breakdown voltage (Initial)	Between open contacts	1,000 Vrms for 1 min. (Detection current: 10 mA)		
		Between contact sets	—	4,000 Vrms for 1 min. (Detection current: 10 mA)	
		Between contact and coil	5,000 Vrms for 1 min. (Detection current: 10 mA)		
	Surge breakdown voltage*2 (Between contact and coil) (Initial)		12,000 V		
	Temperature rise (coil) (at 70°C 158°F)		Max. 50°C 122°F (By resistive method)		
	Operate time [Set time] (at 20°C 68°F)		Max. 10 ms (typ. 5ms) Max. 10 ms (typ. 4ms) (Nominal coil voltage applied to the coil, excluding contact bounce time.)		
	Release time [Reset time] (at 20°C 68°F)		Max. 5 ms (typ. 2ms) Max. 10 ms (typ. 4ms) (Nominal coil voltage applied to the coil, excluding contact bounce time.) (without diode)		
Mechanical characteristics	Shock resistance	Functional	Min. 196 m/s ² (Half-wave pulse of sine wave: 11 ms; detection time: 10μs.)		
		Destructive	Min. 980 m/s ² (Half-wave pulse of sine wave: 6 ms.)		
	Vibration resistance	Functional	10 to 55 Hz at double amplitude of 2 mm (Detection time: 10μs.)		
		Destructive	10 to 55 Hz at double amplitude of 3 mm		
Expected life	Mechanical		Min. 10 ⁷ (at 300 times/min.)		
	Electrical		Min. 10 ⁵ (resistive load, at 20 times/min., at nominal switching capacity)		Min. 10 ⁵ (resistive load, at 20 times/min., at AC nominal switching capacity) Min. 5×10 ⁴ (resistive load, at 20 times/min., at DC nominal switching capacity)
	Electrical (16A/230V AC resistive)*4		25000	20000	
Conditions	Conditions for operation, transport and storage*3		Ambient temperature: -40°C to +70°C -40°F to +158°F; Humidity: 5 to 85% R.H. (Not freezing and condensing at low temperature)		
	Max. operating speed		20 times/min. (at nominal switching capacity)		
Unit weight			Approx. 7 g .25 oz		

Notes:

*1. This value can change due to the switching frequency, environmental conditions, and desired reliability level, therefore it is recommended to check this with the actual load.

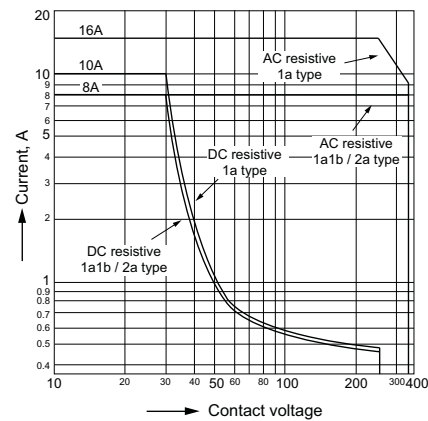
*2. Wave is standard shock voltage of ±1.2×50μs according to JEC-212-1981

*3. The upper limit of the ambient temperature is the maximum temperature that can satisfy the coil temperature rise value. Refer to "6. Usage, Storage and Transport Conditions" in [AMBIENT ENVIRONMENT](#) section in [Relay Technical Information](#).

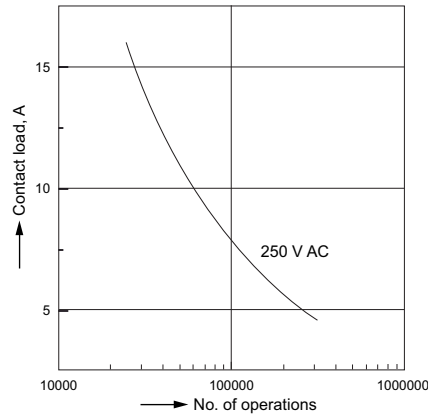
*4. 16A possible for one contact set only with max. 4000VA switching power.

REFERENCE DATA

1. Max. switching power

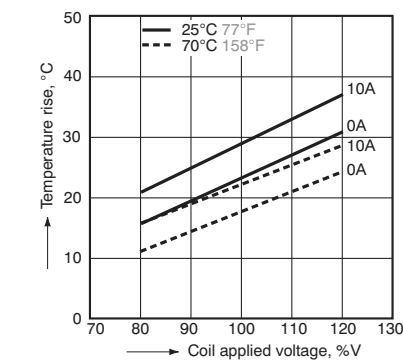


2. Life curve



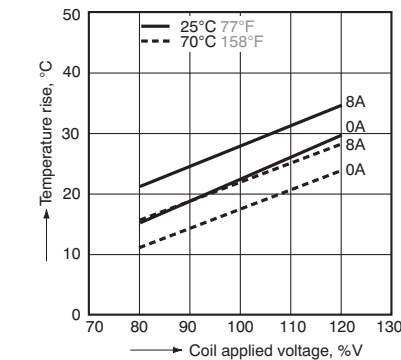
3.-(1) Coil temperature rise (1 Form A)

Tested sample: ADE109
Quantity: n=6
Ambient temperature: 25°C to 70°C 77°F to 158°F



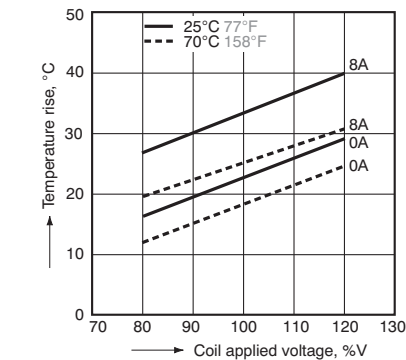
3.-(2) Coil temperature rise (1 Form A 1 Form B)

Tested sample: ADE309
Quantity: n=6
Ambient temperature: 25°C to 70°C 77°F to 158°F

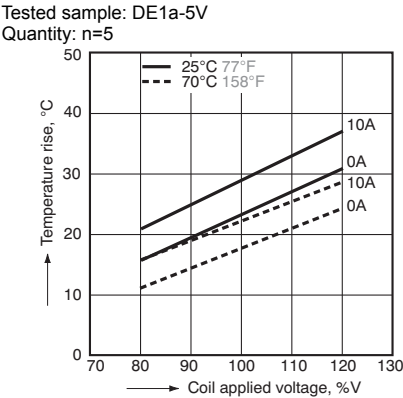


3.-(3) Coil temperature rise (2 Form A)

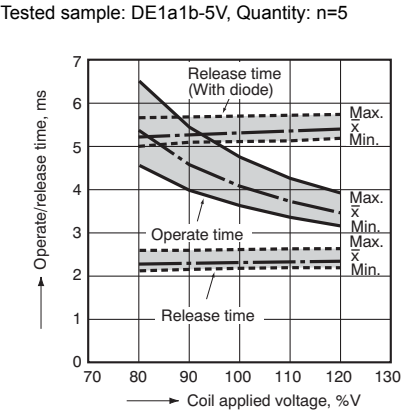
Tested sample: ADE209
Quantity: n=6
Ambient temperature: 25°C to 70°C 77°F to 158°F



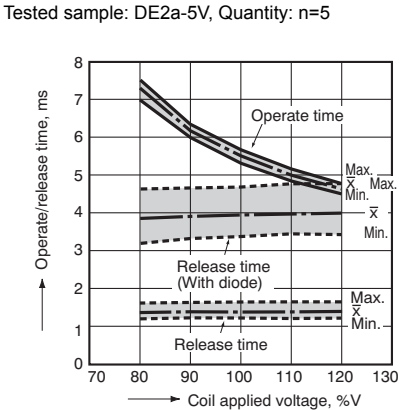
4-1. Operate/release time (1 Form A)



4-2. Operate/release time (1 Form A 1 Form B)

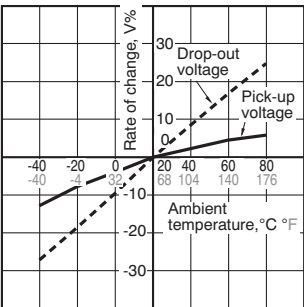


4-3. Operate/release time (2 Form A)



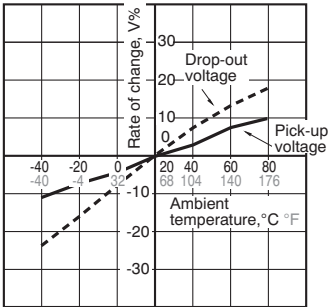
5-1. Ambient temperature characteristics (1 Form A)

Tested sample: DE1a-5V, Ambient temperature: -40°C to 80°C -40°F to 176°F, Quantity: n=6



5-2. Ambient temperature characteristics (1 Form A 1 Form B)

Tested sample: DE1a1b-5V, Ambient temperature: -40°C to 80°C -40°F to 176°F, Quantity: n=6



5-3. Ambient temperature characteristics (2 Form A)

Tested sample: DE2a-5V, Ambient temperature: -40°C to 80°C -40°F to 176°F, Quantity: n=6

