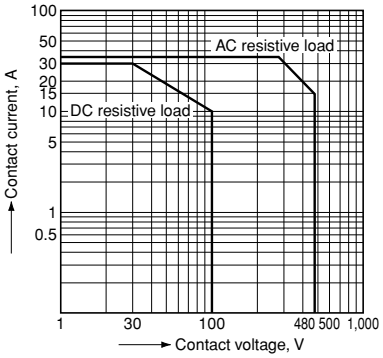
2. Specifications

Characteristics	Item		Specifications	
			Standard type	Long life type
Contact	Arrangement		2 Form A, 2 Form A 1 Form B	2 Form A, 2 Form A 1 Form B
	Form A contact	Contact resistance (Initial)	Max. 100mΩ (By voltage drop 6V DC 1A), Max. 3mΩ (By voltage drop 6V DC 20A, Reference value)	
		Contact material	$AgSnO_2$ type	
	Form B contact*6	Contact resistance (Initial)	Max. 100mΩ (By voltage drop 6V DC 1A)	
		Contact material	Au flashed AgNi type	
Rating	Form A contact	Nominal switching capacity (Resistive load)	35A 277V AC	
		Max. switching voltage	480V AC, 110V DC	
		Contact carring power (Resistive load)	9,695VA	
		Max. switching current	35A	
		Min. switching capacity (Reference value)*1	100mA 5V DC	
	Form B contact*6	Nominal switching capacity (Resistive load)	1A 277V AC, 1A 30V DC	
		Max. switching voltage	277V AC, 30V DC	
		Contact carring power (Resistive load)	277VA	
		Max. switching current	1A	
		Min. switching capacity (Reference value)*1	10mA 5V DC	
	Nominal operating power		1,880mW (after applying min.100ms coil nominal voltage)	
			170mW (30%V of coil holding voltage)	
Electrical characteristics	Insulation resistance (Initial)		Min. 1,000MΩ (at 500 V DC) Measurement at same location as “Breakdown voltage” section.	
	Short current (A contact, Initial)		Max. 1,000A 1 ms, 3 times (Reference value)	
	Breakdown voltage (Initial)	Between open Form A contacts	2,000 Vrms for 1 min. (Detection current: 10mA)	
		Between Form A contact and coil	5,000 Vrms for 1 min. (Detection current: 10mA)	
		Between Form A contact sets	5,000 Vrms for 1 min. (Detection current: 10mA)	
		Between open Form B contacts	1,000 Vrms for 1 min. (Detection current: 10mA)	
		Between Form B contact and coil	2,000 Vrms for 1 min. (Detection current: 10mA)	
		Between Form A contact and Form B contact	5,000 Vrms for 1 min. (Detection current: 10mA)	
	Surge breakdown voltage*2 (Between contact and coil)		10,000V (Between Form A contact and coil) (Initial) 2,500V (Between Form B contact and coil) (Initial)	
	Coil holding voltage*3		30 to 110%V (Form A contact carrying current: 35A, at –40 to +55°C –40 to +131°F)	
			30 to 60%V (Form A contact carrying current: 35A, at –40 to +85°C –40 to +185°F)	
	Operate time (at 20°C 68°F) (Initial)		Max. 30 ms (at nominal coil voltage, excluding contact bounce time)	
	Release time (at 20°C 68°F)*4 (Initial)		Max. 10 ms (at nominal coil voltage, excluding contact bounce time, without diode)	
Mechanical characteristics	Shock resistance	Functional	98 m/s² (Half-wave pulse of sine wave: 11 ms; detection time: 10 μs)	
		Destructive	980 m/s² (Half-wave pulse of sine wave: 6 ms)	
	Vibration resistance	Functional	10 to 55 Hz at double amplitude of 1.0 mm .039 inch (Detection time: 10 μs)	
		Destructive	10 to 55 Hz at double amplitude of 1.5 mm .059 inch	
Expected life	Mechanical		Min. 5×10⁶ (at 180 times/min.)	
	Electrical (Form A contact)	Resistive load	Min. 3×10⁴ (35A 277V AC) (ON : OFF = 1s : 9s)	Min. 5×10⁴ (35A 277V AC) (ON : OFF = 1s : 9s)
			—	Min. 1×10⁵ (30A 220V AC) (ON : OFF = 1s : 9s)
			Min. 1×10⁵ (20A 277V AC) (ON : OFF = 1s : 9s)	Min. 2×10⁵ (20A 277V AC) (ON : OFF = 1s : 9s)
		Inductive load	Min. 3×10⁴ (35A 250V AC) ($\cos\phi$ = 0.8) (ON : OFF = 0.1s : 10s)	Min. 5×10⁴ (35A 250V AC) ($\cos\phi$ = 0.8) (ON : OFF = 0.1s : 10s)
	Electrical (Form B contact)*6	Resistive load	Min. 1×10⁵ (1A 277V AC) (ON : OFF = 1s : 9s)	
			Min. 1×10⁵ (1A 30V DC) (ON : OFF = 1s : 9s)	
Conditions	Conditions for operation, transport and storage*5		Temperature: –40 to +55°C –40 to +131°F (Coil holding voltage 30 to 110%V) Temperature: –40 to +85°C –40 to +185°F (Coil holding voltage 30 to 60%V or storage) Humidity: 5 to 85% R.H. (Not freezing and condensing at low temperature) Air pressure: 86 to 106 kPa	
Unit weight			Approx. 64 g 2.26 oz	

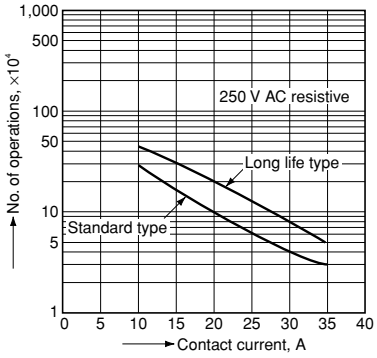
Notes: *1. This value can change due to the switching frequency, environmental conditions, and desired reliability level, therefore it is recommended to check this with the actual load.
*2. Wave is standard shock voltage of ±1.2×50μs according to JEC-212-1981
*3. Coil holding voltage is the coil voltage after 100 ms from the applied nominal coil voltage.
*4. Release time will lengthen if a diode, etc., is connected in parallel to the coil. Be sure to verify operation under actual conditions.
*5. The upper operation ambient temperature limit is the maximum temperature that can satisfy the coil temperature rise value. Refer to Usage, transport and storage conditions in NOTES.
*6. Regarding Form B contact, only the 2 Form A 1 Form B type applies.

REFERENCE DATA

1. Maximum switching power

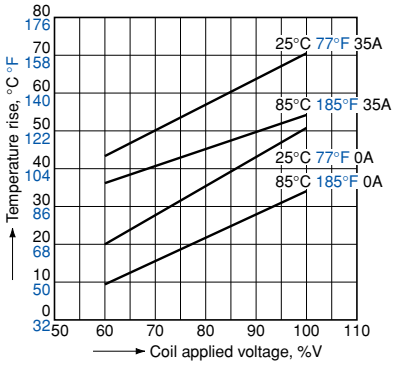


2. Life curve



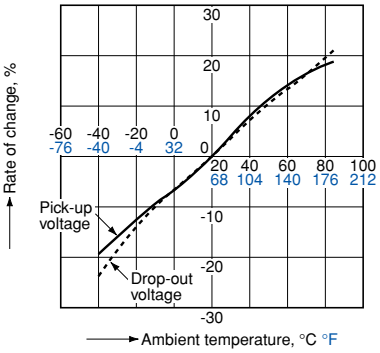
3. Coil temperature rise

Measured portion: Inside the coil
Ambient temperature: 25°C 77°F, 85°C 185°F
Contact current: 35 A/0 A



4. Ambient temperature characteristics

Tested sample: AHES3191, 6 pcs.

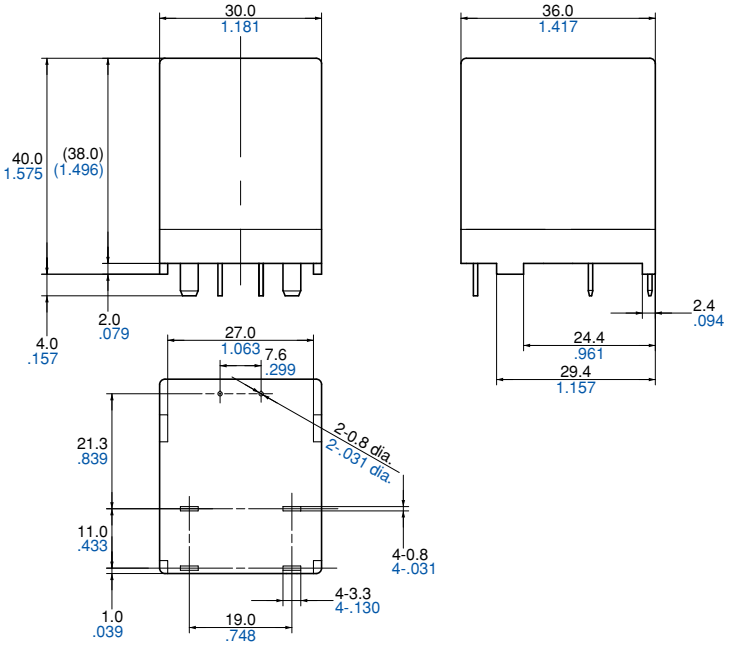


DIMENSIONS (mm inch)

The CAD data of the products with a **CAD Data** mark can be downloaded from: http://industrial.panasonic.com/ac/e/

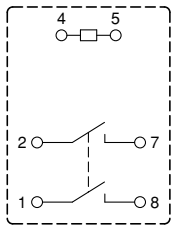
1. 2 Form A type

CAD Data

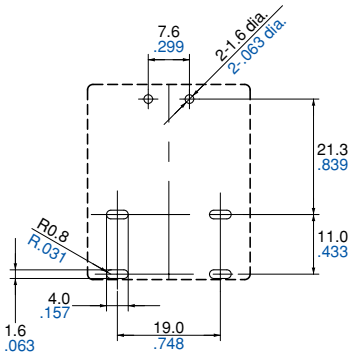


General tolerance: ±0.3 ±.012

Schematic (Bottom view)



Recommended PC board pattern (Bottom view)



Tolerance: ±0.1 ±.004