2. Specifications

Characteristics	Item		Specifications				
			10A type	20A type	80A type	200A type	300A type
Rating	Contact arrangement		1 Form A				
	Nominal switching capacity (Resistive load)		10A 400V DC	20A 400V DC	80A 400V DC	200A 400V DC	300A 400V DC
	Max. contact allowance voltage		1,000V DC				
	Short term current (Diameter of connection harness)		15A 3min ($2mm^2$) 30A 30s ($2mm^2$)	40A 10min ($3mm^2$) 60A 1min ($3mm^2$)	120A 15min ($15mm^2$)	300A 15min ($60mm^2$)	400A 10min ($100mm^2$)
	Max. cut-off current		—	—	800A 300V DC (1 cycle)*2	2,000A 350V DC (1 cycle)*2	2,500A 300V DC (3 cycles)*3
	Overload cut-off rating		30A 400V DC (Min. 50 cycles)*2	60A 400V DC (Min. 50 cycles)*2	120A 400V DC (Min. 50 cycles)*2	—	600A 400V DC (Min. 300 cycles)
	Reverse cut-off rating		–20A 200V DC (Min. 10 cycles)*2	–20A 200V DC (Min. 100 cycles)*2	–80A 200V DC (Min. 1,000 cycles)*2	–200A 200V DC (Min. 1,000 cycles)*2	–300A 200V DC (Min. 100 cycles)
	Min. switching capacity		1A 6V DC	1A 12V DC	1A 12V DC	1A 12V DC	1A 24V DC
	Contact voltage drop (Initial)		Max. 0.5V (When carrying current is 10A)	Max. 0.2V (By voltage drop 6V DC 20A)	Max. 0.067V (By voltage drop 6V DC 20A)	Max. 0.1V (When carrying current is 200A)	Max. 0.06V (When carrying current is 300A)
Electrical characteristics	Insulation resistance (Initial)		Min. 100MΩ (at 1,000V DC) Measurement at same location as “Breakdown voltage” section.				
	Breakdown voltage (Initial)	Between open contacts	2,500 Vrms for 1min. (Detection current: 10mA)				
		Between contact and coil	2,500 Vrms for 1min. (Detection current: 10mA)				
	Operate time (at 20°C 68°F)		Max. 50ms (Nominal voltage applied to the coil, excluding contact bounce time)				Max. 30ms (Nominal voltage applied to the coil, excluding contact bounce time)
	Release time (at 20°C 68°F)		Max. 30ms (After the nominal operation voltage stops, without diode)				Max. 10ms (After the nominal operation voltage stops)
	Coil holding voltage*5		—	—	50 to 100% (at 80°C 176°F)	50 to 100% (at 80°C 176°F)	(Automatic switching)
Mechanical characteristics	Shock resistance	Functional	10A, 20A (ON), 80A (ON), 200A (ON) and 300A (ON) types: Min. 196 m/s^2 (Half-wave pulse of sine wave: 11 ms; detection time: 10μs) 20A (OFF), 80A (OFF), 200A (OFF) and 300A (OFF) types: Min. 98 m/s^2 (Half-wave pulse of sine wave: 11 ms; detection time: 10μs)				
		Destructive	Min. 490 m/s^2 (Half-wave pulse of sine wave: 6 ms)				
	Vibration resistance	Functional	10 to 200Hz, acceleration 43m/s^2 constant (Detection time: 10μs)				
		Destructive	10 to 200Hz, acceleration 43m/s^2 constant (3 directions, each 4 hours)				
Expected life	Mechanical		Min. 10^5	Min. 2×10^5			
	Electrical*4 (Resistive load)		10A 400V DC Min. 7.5×10^4 *2 (Switching frequency: 20 times/min)	20A 400V DC Min. 3×10^3 *2 10A 1,000V DC Min. 10^3 *2 (Switching frequency: 6 times/min)	80A 400V DC Min. 10^3 *2 (Switching frequency: 20 times/min)	200A 400V DC Min. 3×10^3 *2 (Switching frequency: 20 times/min) 60A 1,000V DC Min. 10^3 *2 (Switching frequency: 6 times/min)	300A 400V DC Min. 10^3 (Switching frequency: 6 times/min)
Conditions	Conditions for operation, transport and storage*1		Ambient temperature: –40°C to +80°C –40°F to +176°F (Storage: Max. +85°C +185°F), Humidity: 5 to 85% R.H. (Not freezing and condensing at low temperature)				
Unit weight			Approx. 80 g 2.820oz	Approx. 180 g 6.349oz	Approx. 400 g 14.11oz	Approx. 600 g 21.16oz	Approx. 750 g 26.46oz

Notes: *1. The upper limit of the ambient temperature is the maximum temperature that can satisfy the coil temperature rise value. Refer to Usage, transport and storage conditions in NOTES.
*2. Conditions: Varistor used for coil surge absorption. Note: if a diode is used the life will be lower.
*3. Condition: Switches rated number of 10 cycles each time there is a 2,500A cut-off.
*4. Please refer to the reference data on the following page for switching and cut-off at 400 V DC and higher.
*5. Coil holding voltage is the coil voltage after 100 ms following application of the nominal coil voltage.

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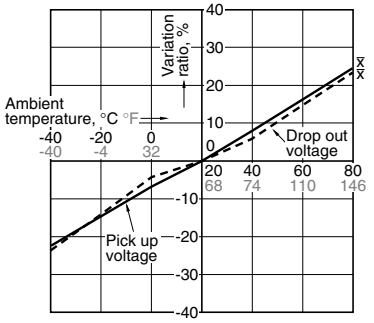
REFERENCE DATA

Note: The switching life curves are rough guides for when using over the nominal values. Be sure to conduct tests with the actual device to verify your specifications.

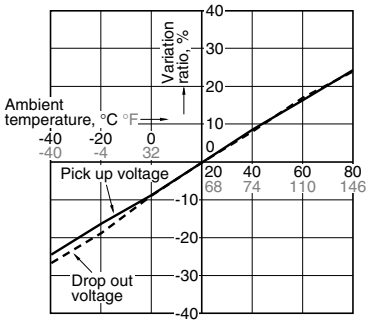
1.-(1) Ambient temperature characteristics (10A type)

Tested sample: AEP31012, 3pcs



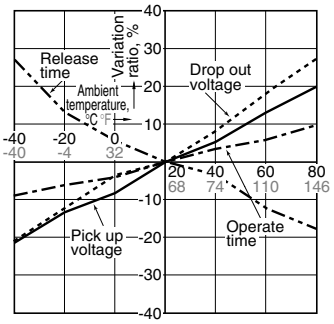
1.-(2) Ambient temperature characteristics (20A type)

Tested sample: AEP52012, 3pcs



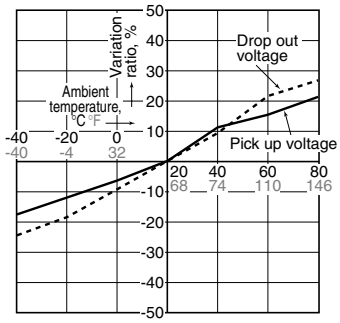
1.-(3) Ambient temperature characteristics (80A type)

Tested sample: AEP18012, 3pcs



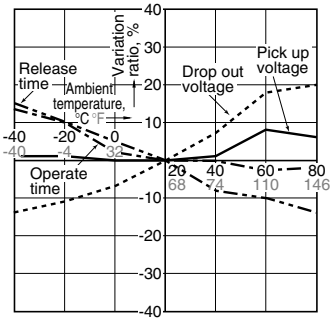
1.-(4) Ambient temperature characteristics (200A type)

Tested sample: AEP17012, 3pcs

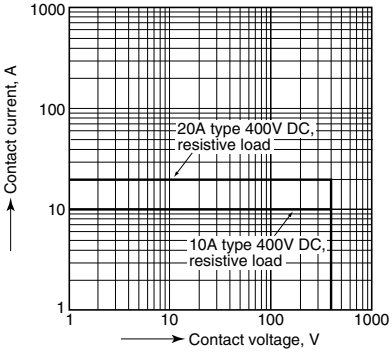


1.-(5) Ambient temperature characteristics (300A type)

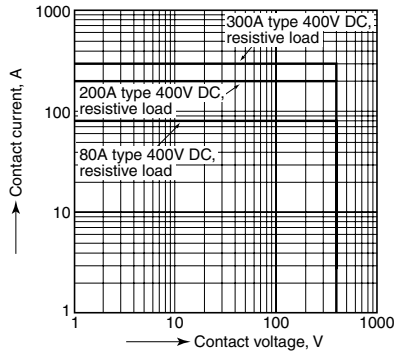
Tested sample: AEP19012, 3pcs



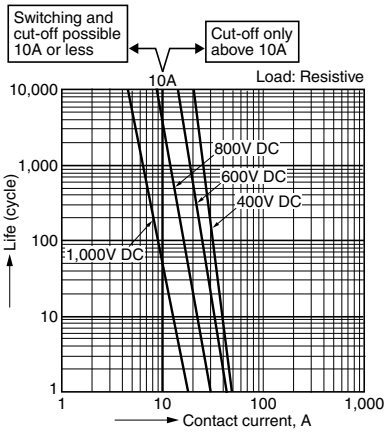
2.-(1) Max. value for switching capacity (10A and 20A types)



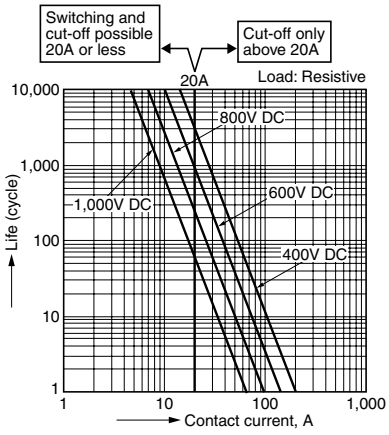
2.-(2) Max. value for switching capacity (80A, 200A and 300A types)



3.-(1) Switching life and cut-off curves (10A type)



3.-(2) Switching life and cut-off curves (20A type)



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