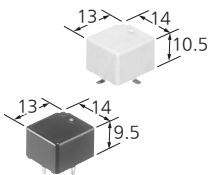
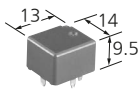
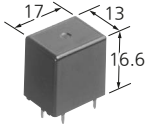
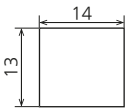
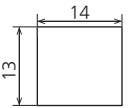
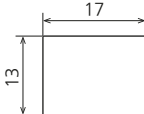


Automotive Relays Selector Chart

Type		Automotive relays					
Product name		CJ RELAYS		CN-H RELAYS		CN-M RELAYS	
Appearance configuration (mm) Standoff height included							
Part No.		ACJ		ACNH		ACNM	
Features		Compact Slim Twin and Single Type Automotive Relay		High Load Relay for Smart J/B		Middle Load Relay for Smart J/B	
Contact data	Contact arrangement	1 Form C 1 Form C × 2 (8-pin)		1 Form A		1 Form A 1 Form C	
	Rated switching capacity (resistive)						
	Min. switching load (resistive)	1 A 14 V DC		1 A 14 V DC		1 A 14 V DC	
Latching type		-		-		-	
Coil data	Rated coil voltage	12 V DC		12 V DC		12 V DC	
	Operate (Set) voltage (initial)	Max. 7.2 V DC	Max. 6.5 V DC	Max. 6.5 V DC	Max. 5.5 V DC	Max. 7.2 V DC	
	Release (Reset) voltage (initial)	Min. 1.0 V DC	Min. 0.8 V DC	Min. 1.0 V DC	Min. 0.8 V DC	Min. 1.0 V DC	
Expected life (Electrical)		Min. 2×10^5 (at 14 V DC, inrush: 25 A, steady: 5 A motor free) Min. 10^5 (at 14 V DC, 25 A motor lock)		Min. 3×10^5 (at 14 V DC, inrush: 84 A, steady: 18 A motor free) Min. 2×10^5 (at 14 V DC, inrush: 84 A, steady: 12 A lamp)		Min. 2×10^5 (at 14 V DC, inrush: 80 A, steady: 16 A motor free) Min. 10^5 (at 14 V DC, inrush: 84 A steady: 12 A lamp)	
Ambient temperature		-40 to +85 °C		-40 to +110 °C		Standard type : -40 to + 85 °C High heat-resistant type: -40 to +110 °C	
Protective construction	Dust cover	-		-		-	
	Flux tight	● (PIP type)		-		-	
	Sealed	●		●		●	
Mounting method	Flow soldering	●		●		●	
	Through-hole reflow soldering	● (PIP type)		-		-	
	Reflow soldering	-		-		● (Surface-mount)	
External dimensions	Height (mm) Included standoff	13.5/13.8 (PIP type)		18.3		14.4 (Surface-mount: 15.1)	
	Foot print (mm)						
Remarks		PIP type available		-		-	

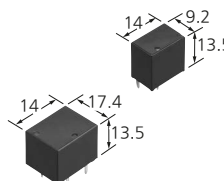
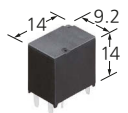
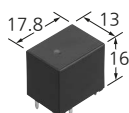
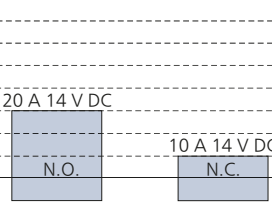
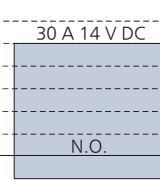
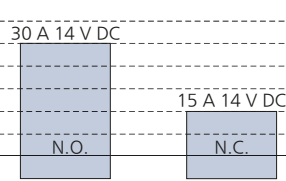
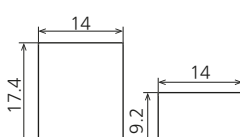
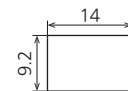
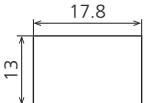
Automotive Relays Selector Chart

Type		Automotive relays		
Product name		CP RELAYS	CP RELAYS POWER TYPE	CQ RELAYS
Appearance configuration (mm) Standoff height included				
Part No.		ACP	ACPP	ACQ
Features		Compact Flat Size for Automotive Relay	High Carrying Current Type Miniature Low Profile Automotive Relay	1 Form C Automotive Quiet Relay
Contact data	Contact arrangement	1 Form A 1 Form C	1 Form A 1 Form C	1 Form C
	Rated switching capacity (resistive)	40 A		
		35 A		
Min. switching load (resistive)	20 A 14 V DC	20 A 14 V DC	20 A 14 V DC	
	10 A 14 V DC	10 A 14 V DC	10 A 14 V DC	
Latching type		—	—	—
Coil data	Rated coil voltage	12 V DC	12 V DC	12 V DC
	Operate (Set) voltage (initial)	Max. 7.2 V DC	Max. 7.2 V DC Max. 6.5 V DC	Max. 7.2 V DC
	Release (Reset) voltage (initial)	Min. 1.0 V DC	Min. 1.0 V DC	Min. 1.0 V DC
Expected life (Electrical)		Min. 2×10^5 (at 14 V DC, inrush: 25 A, steady: 5 A motor free)	Min. 10^5 (Capacitor load) (at 14 V DC, inrush: 60 A, steady: 1 A)	Min. 3×10^5 (at 14 V DC, inrush: 30 A, steady: 5 A break current)
Ambient temperature		-40 to +85 °C	-40 to +85 °C	-40 to +85 °C
Protective construction	Dust cover	—	—	—
	Flux tight	—	—	—
	Sealed	●	●	●
Mounting method	Flow soldering	●	●	●
	Through-hole reflow soldering	—	—	—
	Reflow soldering	● (Surface-mount)	—	—
External dimensions	Height (mm) Included standoff	9.5 (Surface-mount: 10.5)	9.5	16.6
	Foot print (mm)			
Remarks		—	—	—

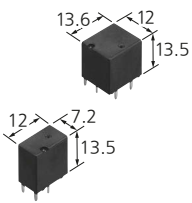
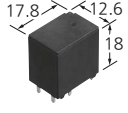
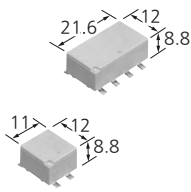
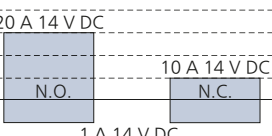
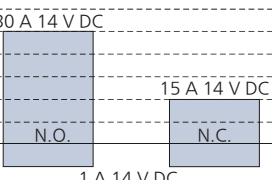
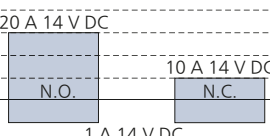
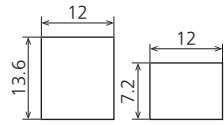
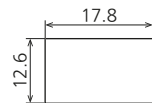
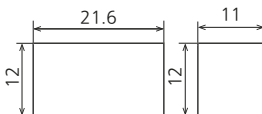
Automotive Relays Selector Chart

Type		Automotive relays		
Product name		CT RELAYS	CT RELAYS POWER TYPE	TA RELAYS
Appearance configuration (mm) Standoff height included				
Part No.		ACT	ACTP	ACTA
Features		Small & Slim Twin/1 Form C type Automotive Relay	High Carrying Current Type Small & Slim Automotive Relay	1 Form C Automotive Quiet Relay
Contact data	Contact arrangement	1 Form C 1 Form C × 2 (8-pin) 1 Form C × 2 (10-pin)	1 Form C 1 Form C × 2 (8-pin) 1 Form C × 2 (10-pin)	1 Form C
	Rated switching capacity (resistive)			
	Min. switching load (resistive)	1 A 14 V DC	1 A 14 V DC	1 A 14 V DC
Latching type		—	—	—
Coil data	Rated coil voltage	12 V DC	12 V DC	12 V DC
	Operate (Set) voltage (initial)	Max. 7.2 V DC	Max. 7.2 V DC	Max. 6.5 V DC Max. 7.7 V DC
	Release (Reset) voltage (initial)	Min. 1.0 V DC	Min. 1.0 V DC	Min. 0.8 V DC
Expected life (Electrical)		Min. 2×10^5 (at 14 V DC, inrush: 25 A, steady: 5 A motor free) Min. 10^5 (at 14 V DC, 25 A motor lock)	Min. 10^5 (at 14 V DC, inrush: 30 A, steady: 7 A motor free) Min. 5×10^4 (at 14 V DC, 30 A motor lock)	Min. 10^5 (at 14 V DC, 25 A motor lock)
Ambient temperature		−40 to +85 °C	−40 to +85 °C	−40 to +85 °C
Protective construction	Dust cover	—	—	—
	Flux tight	—	—	—
	Sealed	●	●	●
Mounting method	Flow soldering	●	●	●
	Through-hole reflow soldering	—	—	—
	Reflow soldering	—	—	—
External dimensions	Height (mm) Included standoff	13.5	13.5	14
	Foot print (mm)			
Remarks		10-pin type available	10-pin type available	—

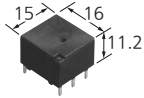
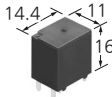
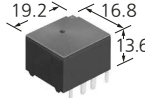
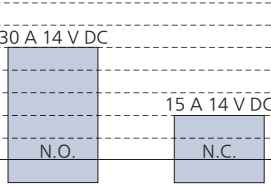
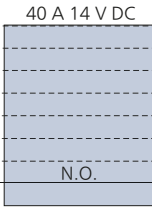
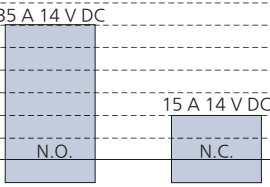
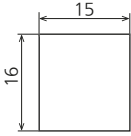
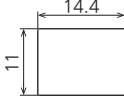
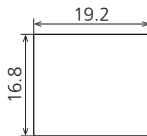
Automotive Relays Selector Chart

Type		Automotive relays						
Product name		TB RELAYS		TB RELAYS POWER TYPE		TC RELAYS		
Appearance configuration (mm) Standoff height included								
Part No.		ACTB		ACTBP		ACTC		
Features		Miniature PC Board, Twin/1 Form C Type Automotive Relay		High Carrying Current 1 Form A Type Relay for Miniature PC board		High Load Relay for Smart J/B		
Contact data	Contact arrangement	1 Form A 1 Form C 1 Form C × 2 (8-pin) 1 Form C × 2 (10 pin)		1 Form A		1 Form A (Standard type) 1 Form C (Standard type) Double make contact 2 Form A (1 Form U) / (Standard type) Double make contact 2 Form A (1 Form U) / (2 coil latching type)		
	Rated switching capacity (resistive)							
	Min. switching load (resistive)	1 A 14 V DC		1 A 14 V DC		1 A 14 V DC		
Latching type		—		—		●		
Coil data	Rated coil voltage	12 V DC		12 V DC		12 V DC		
	Operate (Set) voltage (initial)	Max. 5.5 V DC	Max. 6.5 V DC	Max. 7.7 V DC	Max. 7.0 V DC	Max. 6.5 V DC	Max. 7.0 V DC	Max. 7.5 V DC
	Release (Reset) voltage (initial)	Min. 0.5 V DC	Min. 0.8 V DC		Min. 0.5 V DC	Min. 0.5 V DC		
Expected life (Electrical)		Min. 10 ⁵ (at 14 V DC, 25 A motor lock)		Min. 10 ⁵ (Resistive load)		Min. 2 × 10 ⁵ (at 14 V DC, inrush: 84 A, steady: 12 A lamp) Min. 10 ⁵ (at 14 V DC, 30 A motor lock)		
Ambient temperature		Standard type: -40 to +85 °C High heat-resistant/ Pin in Paste compliant type: -40 to +110 °C		-40 to +110 °C		Standard type: -40 to +85 °C High heat-resistant/ Pin in Paste compliant type: -40 to +110 °C		
Protective construction	Dust cover	—		—		—		
	Flux tight	● (PIP type)		● (PIP type)		● (PIP type)		
	Sealed	●		●		●		
Mounting method	Flow soldering	●		●		●		
	Through-hole reflow soldering	● (PIP type)		● (PIP type)		● (PIP type)		
	Reflow soldering	—		—		—		
External dimensions	Height (mm) Included standoff	13.5/14.0 (PIP type)		14		16.0/16.4 (PIP type)		
	Foot print (mm)							
Remarks		10-pin and PIP types available		PIP type available		PIP type available		

Automotive Relays Selector Chart

Type		Automotive relays						
Product name		TE RELAYS		TG RELAYS		TH RELAYS		
Appearance configuration (mm) Standoff height included								
Part No.		ACTE		ACTG		ACTH		
Features		Miniature PC Board, Twin Type, 1 Form C Automotive Relay		High Load Relay for Smart J/B		Miniature PC Board, Twin, 1 Form C, Surface-mount Type Automotive Relay		
Contact data	Contact arrangement	1 Form C 1 Form C × 2 (8-pin) 1 Form C × 2 (10-pin)		1 Form A 1 Form C		1 Form C 1 Form C × 2 (10-pin)		
	Rated switching capacity (resistive)							
	Min. switching load (resistive)	1 A 14 V DC		1 A 14 V DC		1 A 14 V DC		
Latching type		-		-		-		
Coil data	Rated coil voltage	12 V DC		12 V DC		12 V DC		
	Operate (Set) voltage (initial)	Max. 5.5 V DC	Max. 6.5 V DC	Max. 7.7 V DC	Max. 6.5 V DC	Max. 7.0 V DC	Max. 6.5 V DC	Max. 7.7 V DC
	Release (Reset) voltage (initial)	Min. 0.6 V DC	Min. 0.8 V DC		Min. 0.8 V DC		Min. 0.6 V DC	
Expected life (Electrical)		Min. 10 ⁵ (at 14 V DC, 25 A motor lock)		Min. 18 × 10 ⁴ (at 14 V DC, inrush: 84 A, steady: 12 A lamp) Min. 10 ⁵ (at 14 V DC, 30 A motor lock)		Min. 10 ⁵ (at 14 V DC, 25 A motor lock)		
Ambient temperature		-40 to +110 °C		-40 to +110 °C		-40 to +110 °C		
Protective construction	Dust cover	-		-		-		
	Flux tight	● (PIP type)		-		●		
	Sealed	●		●		●		
Mounting method	Flow soldering	●		●		-		
	Through-hole reflow soldering	● (PIP type)		-		-		
	Reflow soldering	-		-		● (Surface-mount)		
External dimensions	Height (mm) Included standoff	13.5/14.0 (PIP type)		18		8.8		
	Foot print (mm)							
Remarks		10-pin and PIP types available		-		-		

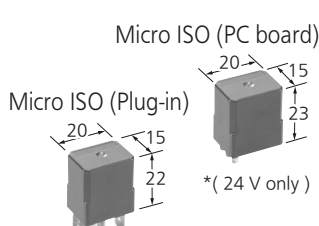
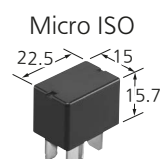
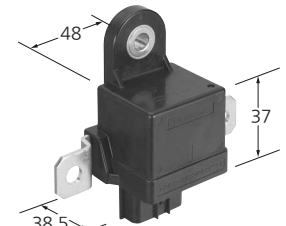
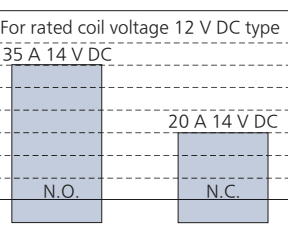
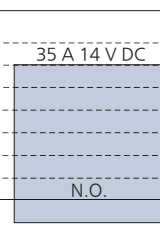
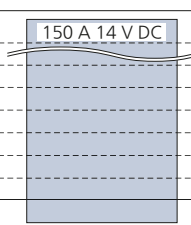
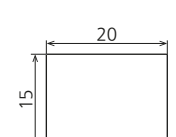
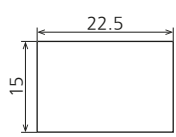
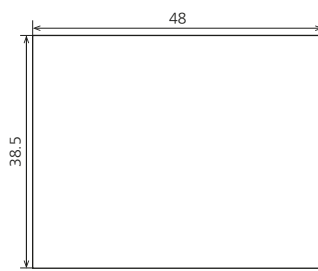
Automotive Relays Selector Chart

Type		Automotive relays		
Product name		TJ RELAYS	TL RELAYS	TM RELAYS
Appearance configuration (mm) Standoff height included				
Part No.		ACTJ	ACTL	ACTM
Features		Middle Load Relay for Smart J/B	High Load Relay for Smart Junction Box	High Capacity Relay for Smart Junction Box
Contact data	Contact arrangement	1 Form C	Double make contact 2 Form A (1 Form U)	1 Form A 1 Form C
	Rated switching capacity (resistive)			
	Min. switching load (resistive)	1 A 14 V DC	1 A 14 V DC	1 A 14 V DC
Latching type		—	—	—
Coil data	Rated coil voltage	12 V DC	12 V DC	12 V DC
	Operate (Set) voltage (initial)	Max. 7.0 V DC	Max. 6.5 V DC	Max. 7.0 V DC
	Release (Reset) voltage (initial)	Min. 0.8 V DC	Min. 0.5 V DC	Min. 0.5 V DC
Expected life (Electrical)		Min. 10 ⁵ (at 14 V DC, 25 A motor lock)	Min. 10 ⁵ (Resistive and Capacitor loads) (at 14 V DC, inrush: 90 A, steady: 20 A)	Min. 10 ⁵ (Resistive and Capacitor loads) (at 14 V DC, inrush: 90 A, steady: 20 A)
Ambient temperature		−40 to +110 °C	−40 to +110 °C	−40 to +110 °C
Protective construction	Dust cover	—	—	—
	Flux tight	—	● (PIP type)	—
	Sealed	●	●	●
Mounting method	Flow soldering	●	●	●
	Through-hole reflow soldering	—	● (PIP type)	—
	Reflow soldering	—	—	—
External dimensions	Height (mm) Included standoff	11.2	16	13.6
	Foot print (mm)			
Remarks		—	PIP type available	—

Automotive Relays Selector Chart

Type		Automotive relays				
Product name		TT RELAYS	CA RELAYS		CB RELAYS	
Appearance configuration (mm) Standoff height included						
Part No.		ACTT	ACA		ACB	
Features		High capacity (60 A) PC board Relay for Smart J/B	Small Size, Light Weight Automotive Power Relays		Mini-ISO Automotive Relay	
Contact data	Contact arrangement	Double make contact 2 Form A (1 Form U)	1 Form A 1 Form B	1 Form C	1 Form A 1 Form B	
	Rated switching capacity (resistive)					
	Min. switching load (resistive)	1 A 12 V DC	1 A 14 V DC		1 A 14 V DC	
Latching type		-	-		-	
Coil data	Rated coil voltage	12 V DC	12 V DC	12 V, 24 V DC	12 V DC	24 V DC
	Operate (Set) voltage (initial)	Max. 7.0 V DC	Max. 8.0 V DC	12 V: Max. 8.0 V DC 24 V: Max. 16 V DC	3.0 to 7.0 V DC	6.0 to 14 V DC
	Release (Reset) voltage (initial)	Min. 0.5 V DC	0.6 to 6.0 V DC	12 V: Min. 0.6 V DC 24 V: Min. 1.2 V DC	1.2 to 4.2 V DC	2.4 to 8.4 V DC
Expected life (Electrical)		Min. 10 ⁵ (at 14 V DC, inrush: 120 A, steady: 15 A lamp)	Min. 10 ⁵ (Resistive load) 1 Form A 1.8 W type: 2 × 10 ⁴ (at 30 A)		Min. 10 ⁵ (Resistive load) (Sealed: Min. 5 × 10 ⁴)	
Ambient temperature		-40 to +110 °C	-30 to +80 °C		Standard : -40 to + 85 °C Heat resistant: -40 to +125 °C	
Protective construction	Dust cover	-	●		-	
	Flux tight	● (PIP type)	-		●	
	Sealed	●	●		●	
Mounting method	Flow soldering	●	-		●	
	Through-hole reflow soldering	● (PIP type)	-		-	
	Reflow soldering	-	-		-	
External dimensions	Height (mm) Included standoff	16	37	40	PC board type: 26 Plug-in type : 25 Bracket type : 41	
	Foot print (mm)					
Remarks		PIP type available	Rubber bracket type and screw-mounting type available		PC board type and bracket type available	

Automotive Relays Selector Chart

Type		Automotive relays		
Product name		CM RELAYS	CV-N RELAYS	CN-L RELAYS
Appearance configuration (mm) Standoff height included				
Part No.		ACM	ACVN	ACNL
Features		Micro-ISO Automotive Relay	Low Profile Micro-ISO Automotive Relay	Max. 150 A Continuous Carrying Current Latching Relay
Contact data	Contact arrangement	1 Form A 1 Form C	1 Form A	1 Form A
	Rated switching capacity (resistive)	<p>For rated coil voltage 12 V DC type</p> 		
	Min. switching load (resistive)	1 A 14 V DC	1 A 14 V DC	1 A 14 V DC
Latching type		—	—	●
Coil data	Rated coil voltage	12 V DC 24 V DC	12 V DC	12 V DC
	Operate (Set) voltage (initial)	3.0 to 7.0 V DC 6.0 to 14 V DC	Max. 7.0 V DC	Max. 7.0 V DC
	Release (Reset) voltage (initial)	1.2 to 4.2 V DC 2.4 to 8.4 V DC	Min. 0.5 V DC	Max. 7.0V DC
Expected life (Electrical)		Min. 10 ⁵ (Resistive load) (Sealed: Min. 5 × 10 ⁴)	Min. 3 × 10 ⁵ (at 14 V DC, inrush: 84 A, steady: 18 A motor free) Min. 2 × 10 ⁵ (at 14 V DC, inrush: 84 A, steady: 12 A lamp)	Min. 3 × 10 ⁴ (Resistive load)
Ambient temperature		−40 to +85 °C	−40 to +85 °C	−40 to +125 °C
Protective construction	Dust cover	—	—	—
	Flux tight	●	—	—
	Sealed	●	●	●
Mounting method	Flow soldering	● (24 V)	—	—
	Through-hole reflow soldering	—	—	—
	Reflow soldering	—	—	—
External dimensions	Height (mm) Included standoff	PC board type: 23 Plug-in type : 22	15.7	38.5
	Foot print (mm)			
Remarks		—	—	—