

DG85 series

automotive / industrial relays

DURAKOOL



- General purpose automotive or industrial relays
- High inrush capabilities
- PCB Mounting option
- Ideal for DC Motor Control
- High continuous DC current capacity- 100A
- Industry standard size and footprint
- DG85F optimised for 24VDC switching
- RoHS Compliant

Contacts

Contact number & arrangement	SPST-NO (1 Form A); SPDT (1 Form C)				
Contact material	AgNi0.15; AgNi90/10; AgSnOInO; AgCdO				
Max. switching voltage	DC	30VDC (current dependent - see Figs 5 & 6); DG85F 24VDC			
Max. continuous current	SPST-NO	DG85A	DG85B	DG85C	DG85D
		40A	60A	80A	100A
Max. continuous current	SPDT (NO/NC)	40A/30A	60A/40A	80A/60A	-
					60A/40A
Max. switching current - make ³ (AgSnOInO)	SPST-NO	120A	120A	240A	240A
	SPDT (NO/NC)	120A/45A	120A/45A	240/180A	-
Max. switching current - break	SPST-NO	40A	60A	80A	100A
	SPDT (NO/NC)	40A/30A	60A/40A	80A/60A	-
					60A/40A
Min. switching current (DG85A = AgNi, others AgSnOInO)		0.1A 12VDC	0.5A 12VDC	0.5A 12VDC	0.5A 12VDC
Contact gap		>0.5mm	>0.5mm	>0.5mm	≤1.0mm
Initial contact resistance		<100mΩ, max. at 0.1A/6VDC			

Coil

Rated voltage	DC	6...24V
Must release voltage		≥0.1Un
Operating range of supply voltage		See coil table 1
Rated power consumption	DC	1.6W; 1.81W with resistor; DG85F, 2.3W

Insulation

Insulation resistance	100MΩ at 500VDC, 50%RH	
Dielectric strength		
	coil to contact	500Vrms, 1min
	contact to contact	500Vrms, 1min

General Data

Operating time (typical)	ms	7ms
Release time (typical)	ms	2 ms
Electrical Life ²	ops	1 x 10 ⁵ ; DG85F only: 5 x 10 ⁴ , 60A/40A, 1 x 10 ⁵ , 40A/20A (NO/NC Contacts)
Mechanical life	ops	1 x 10 ⁷ ; DG85F only: 5 x 10 ⁵
Dimensions	L x W x H	various - see dimensional drawings
Weight		40g approx. depending on style and mounting
Ambient temperature	storage	-40 to 155°C
	operating	-40 to 125°C (derate above 85°C - consult factory)
Shock resistance		Functional: 20g 11ms; Destructive: 100g
Vibration resistance		DA 1.27mm 10-40Hz / 40-70Hz:5g / DA 0.5mm 100-500Hz: 10g

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Coil Data

Table 1

Model	Coil voltage code	Nominal voltage (VDC)	Coil resistance (Ω) $\pm 10\%$	Must operate voltage Max. (VDC)	Maximum Allowable voltage (VDC)*	Must release voltage min. (VDC)
DG85A	1006	6	22	3.6	10.1	0.6
DG85B	1012	12	90	7.2	20.5	1.2
DG85C	1024	24	330	14.4	39.1	2.4
DG85D						
DG85F	1006	6	15.6	3.6	6.4	0.6
	1012	12	62.5	7.2	14.8	1.2
	1024	24	250	14.4	28.8	2.4

* At ambient temperature of 85°C and above, up to maximum ambient temperature of 125°C, maximum allowable voltage should be reduced by 28%

Ordering codes

Type	Contact material	Contact arrangement	Cover protection and mounting	Coil code	Options															
D G 8 5																				
Series <table border="1"> <tr><td>A</td><td>-</td><td>40/30A</td></tr> <tr><td>B</td><td>-</td><td>60/40A</td></tr> <tr><td>C</td><td>-</td><td>80/60A</td></tr> <tr><td>D</td><td>-</td><td>100A</td></tr> <tr><td>F</td><td>-</td><td>60/40A</td></tr> </table>						A	-	40/30A	B	-	60/40A	C	-	80/60A	D	-	100A	F	-	60/40A
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Contact arrangement <table border="1"> <tr><td>11</td><td>-</td><td>SPDT (1 C/O, 1 Form C)</td></tr> <tr><td>21</td><td>-</td><td>SPST-NO (1N/O, 1 Form A)</td></tr> </table>						11	-	SPDT (1 C/O, 1 Form C)	21	-	SPST-NO (1N/O, 1 Form A)									
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Cover protection category <table border="1"> <tr><td>3</td><td>-</td><td>in cover, sealed - IP67 (not available for DG85C & DG85D, nor for any metal mounting bracket)</td></tr> <tr><td>7</td><td>-</td><td>in cover, dust cover - IP54</td></tr> <tr><td>9</td><td>-</td><td>Cover with mounting bracket (plastic, unless optional metal bracket specified)</td></tr> </table>						3	-	in cover, sealed - IP67 (not available for DG85C & DG85D, nor for any metal mounting bracket)	7	-	in cover, dust cover - IP54	9	-	Cover with mounting bracket (plastic, unless optional metal bracket specified)						
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Connection mode <table border="1"> <tr><td>5</td><td>-</td><td>for PCB</td></tr> <tr><td>6</td><td>-</td><td>Flat Blades</td></tr> <tr><td>D</td><td>-</td><td>Double 87 flat blades (DG85A, DG85B & SPST-NO only)</td></tr> </table>						5	-	for PCB	6	-	Flat Blades	D	-	Double 87 flat blades (DG85A, DG85B & SPST-NO only)						
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Options 1 Metal Brackets* <table border="1"> <tr><td>Nil</td><td>-</td><td>No options</td></tr> <tr><td>M1</td><td>-</td><td>Metal bracket</td></tr> <tr><td>M2</td><td>-</td><td>Bent metal bracket</td></tr> <tr><td>S1</td><td>-</td><td>Skirted cover & metal bracket</td></tr> <tr><td>S2</td><td>-</td><td>Skirted cover & bent metal bracket</td></tr> </table>						Nil	-	No options	M1	-	Metal bracket	M2	-	Bent metal bracket	S1	-	Skirted cover & metal bracket	S2	-	Skirted cover & bent metal bracket
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Options 2 Parallel Components <table border="1"> <tr><td>Nil</td><td>-</td><td>No options</td></tr> <tr><td>R</td><td>-</td><td>Integral resistor</td></tr> <tr><td>D</td><td>-</td><td>Integral diode +85, -86</td></tr> <tr><td>DR</td><td>-</td><td>Integral diode reversed -85, +86 (standard)</td></tr> <tr><td>BD</td><td>-</td><td>Bi-directional diode</td></tr> </table>						Nil	-	No options	R	-	Integral resistor	D	-	Integral diode +85, -86	DR	-	Integral diode reversed -85, +86 (standard)	BD	-	Bi-directional diode
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* Metal brackets factory fitted to cover as standard
Consult factory for brackets supplied loose

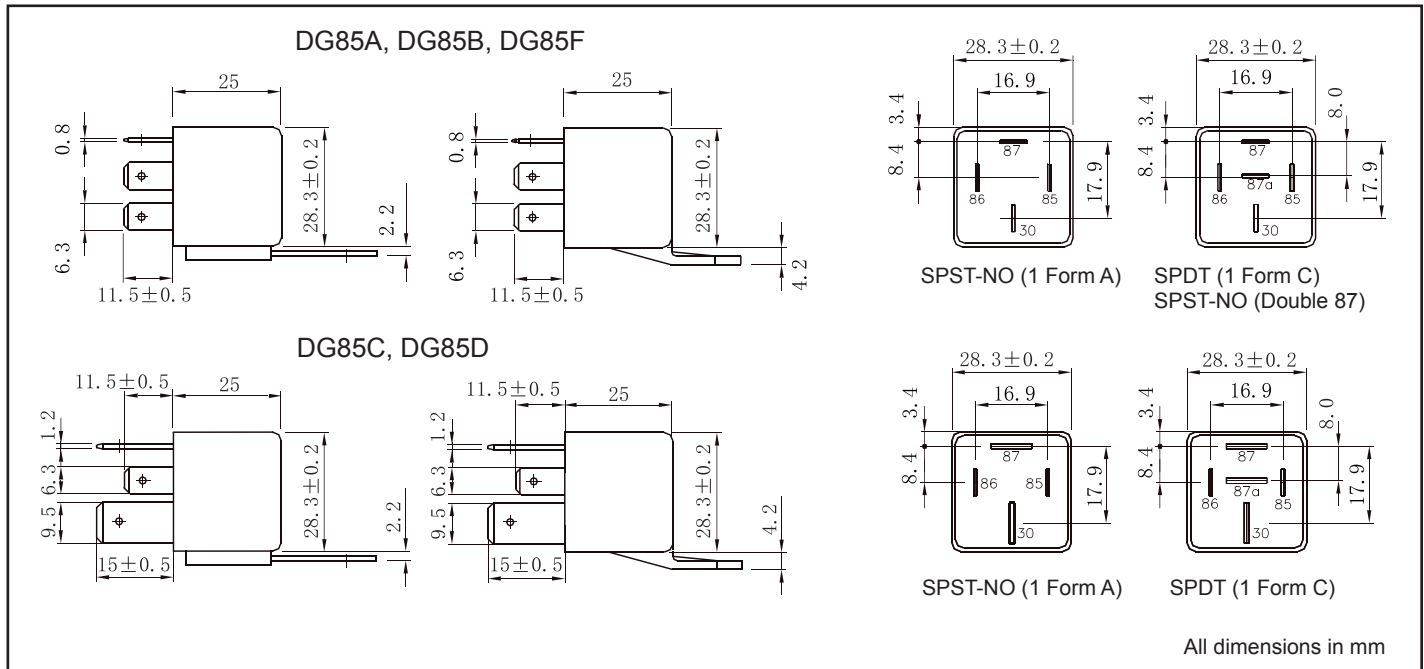
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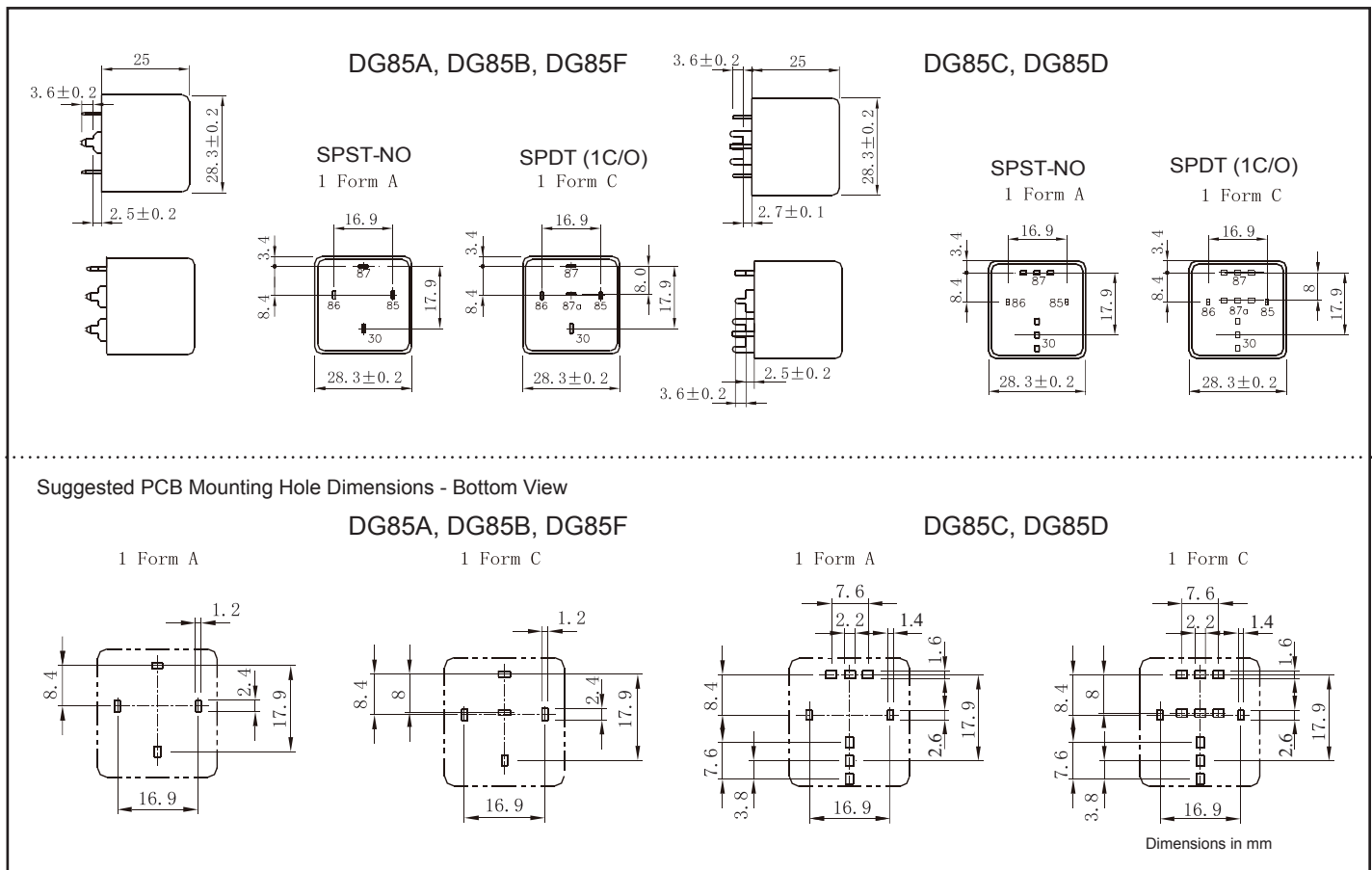
Overall Dimensions - Plug-in Types

Fig. 1



Overall Dimensions and PCB Mounting Hole Dimensions - PCB Types

Fig. 2



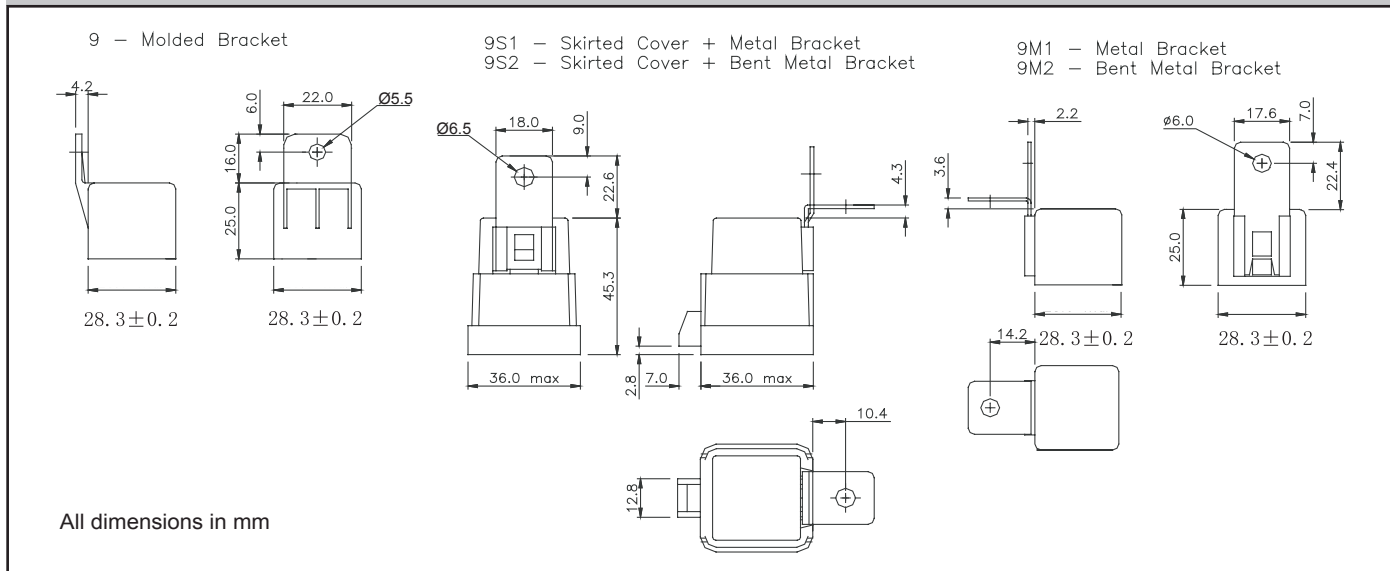
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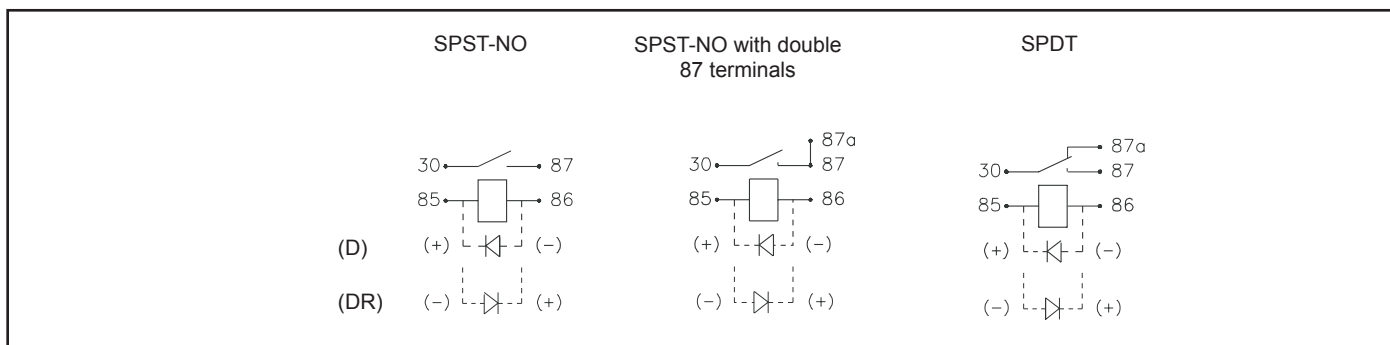
Overall Dimensions - Plug-in types with optional brackets & skirts

Fig. 3



Wiring Diagrams

Fig. 4

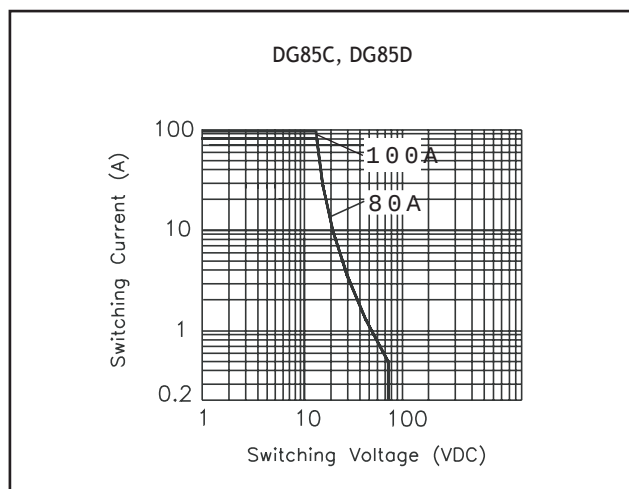
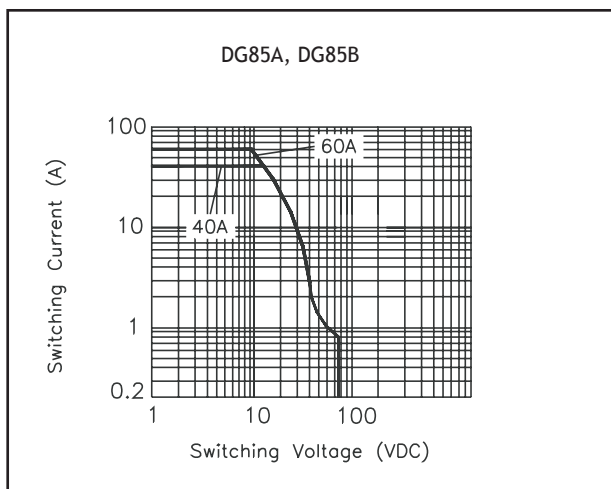


Max. DC resistive load breaking capacity

Fig. 5

Max. DC resistive load breaking capacity

Fig. 6



Notes:

- 1: All parameters, unless otherwise specified, are measured at ambient temperature of 23°C.
- 2: Electrical life obtained at resistive or inductive load at 40A, 15VDC with suitable arc suppression circuit attached and with operating frequency of 1 op/sec.
- 3: Maximum make current refers to lamp load inrush current.