

APPLICATION NOTES:

[001](#)
[002](#)

APPLICABLE SOCKETS:

[S300](#)
[SF300CE40E](#)

Polarized, non latching hermetically sealed relay
Contact arrangement **1 PDT NC - NO (DB - DM)**
Coil supply **Direct current**

PRINCIPLE TECHNICAL CHARACTERISTICS

Contacts rated at **10 Amps / 56 Vdc**
Weight **40 grams max.**
Dimensions max. of case in mm **26 x 25.7 x 13.3**
Balanced-force design.
Hermetically sealed, corrosion protected metal can.
Intrinsically safe relay.

CONTACT ELECTRICAL CHARACTERISTICS

Minimum operating cycles	Contact rating per pole and load type	Load Current in Amps @56Vdc
100,000 cycles 20,000 cycles	resistive load inductive load (L/R=5ms)	10 6
50 cycles	resistive overload	40
400,000 cycles	at 25% rated resistive load	



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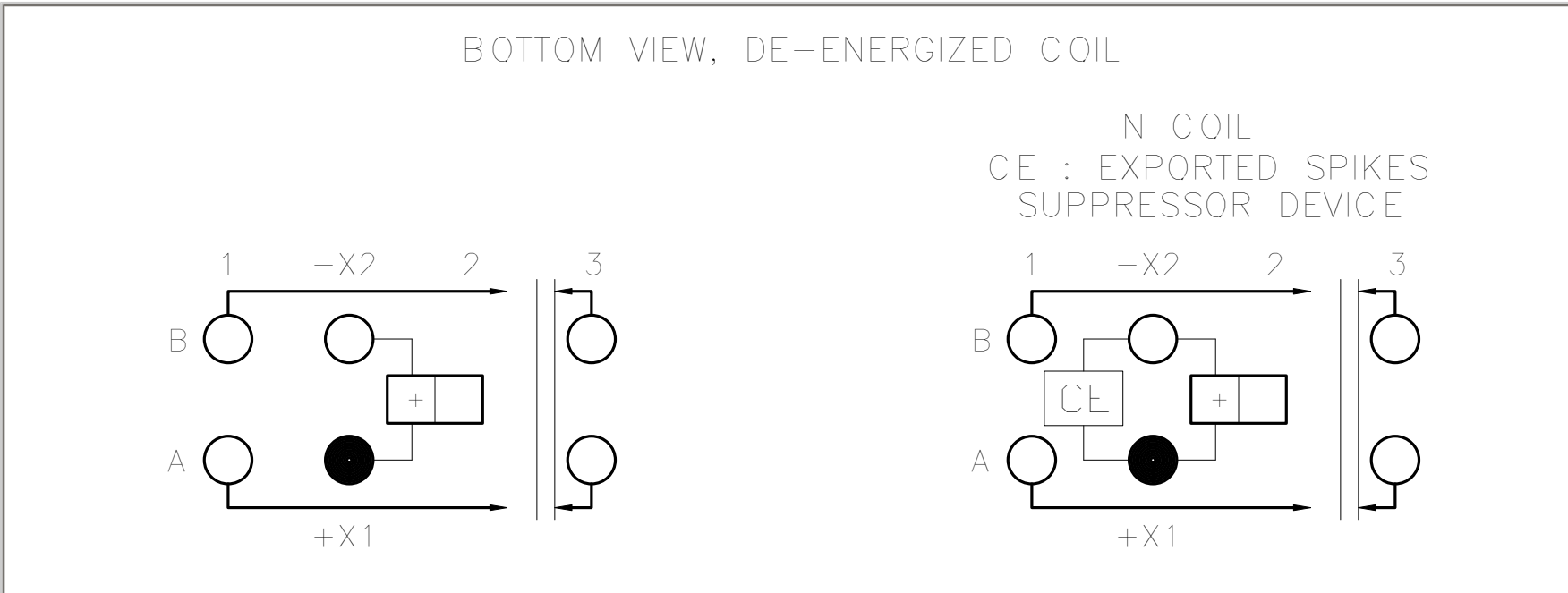
Data sheets are for initial product selection and comparison. Contact Esterline Power Systems prior to choosing a component.

COIL CHARACTERISTICS (Vdc)**FD300**

CODE	C	B	A	N	E	V
Nominal operating voltage	6	12	28	28	48	110
Maximum operating voltage at +125° C	7	14	29	29	50	125
Maximum pickup voltage at +125° C	5	10	19.8	19.8	34.1	75
Guaranteed drop-out voltage at -65° C	0.2	0.5	1.5	1.5	2	5
Coil resistance in Ω $\pm 10\%$ at +25° C	20	80	320	320	955	5000
Back EMF suppression to (Vdc)	N/A	N/A	N/A	-42	N/A	N/A

GENERAL CHARACTERISTICS

Temperature range	-65°C to +125°C
Dielectric strength at sea level	
- Contacts to ground and between contacts	1250 Vrms / 50 Hz
- Coil to ground	1000 Vrms / 50 Hz
Dielectric strength at altitude 25,000 m (all points)	350 Vrms / 50 Hz
Initial insulation resistance at 500 Vdc	100 M Ω min
Sinusoidal vibration (except G, O and R mounting)	30 G / 75 to 3000 Hz
Sinusoidal vibration (G, O and R mounting only)	20 G / 75 to 3000 Hz
Shock (except G, O and R mounting)	200 G / 6 ms
Shock (G, O and R mounting only)	100 G / 6 ms
Maximum contact opening time under vibration and shock	10 μ s
Operate time at nominal voltage	15 ms max
Release time	15 ms max
Bounce time	1 ms max
Contact voltage drop at rated current	
- initial value	200 mV max



NUMBERING SYSTEM

	FD300	B	4	A
Basic series designation _____				
1-Mounting Style (A,B,C,D,J,K,G,O,R) _____				
2-Terminal Types (1,2,4,7,8) _____				
3-Coil Voltage (C,B,A,N,E,V) _____				

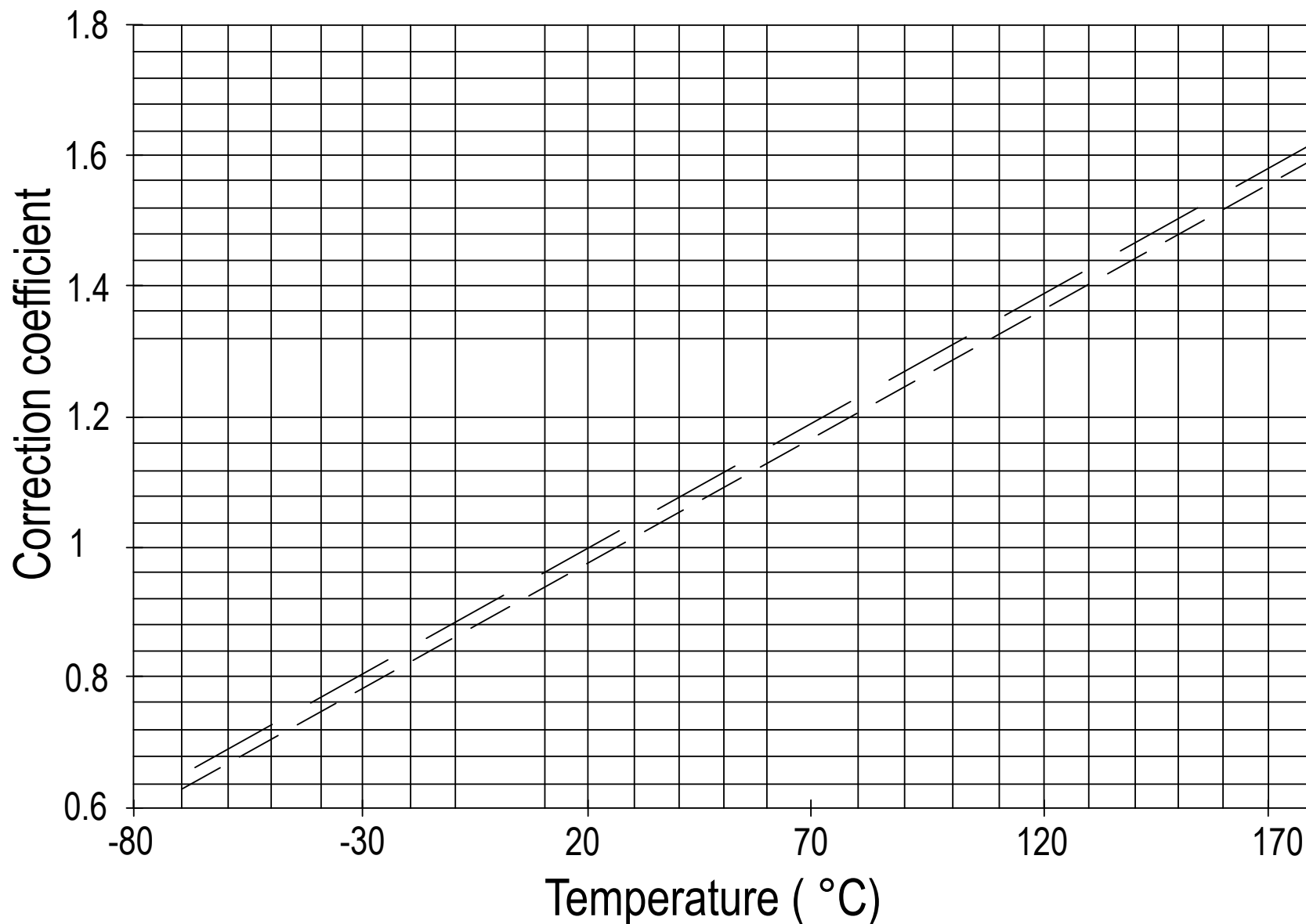
NOTES

1. Relays with mounting styles B,C,D and terminal type 4 are compatible with socket families S300, SF300.
2. Isolation spacer pads for PCB mounting available on request.
3. For other mounting styles or terminal types, please contact the factory.

TYPICAL CHARACTERISTICS

- Coil resistance/temperature change: See application note no. 001
- L/R ratio for all types of DC coils is: = 9 ms
- Contact life expectancy for loads other than 28V: See application note no. 002

**CORRECTION DUE TO COIL COPPER WIRE RESISTANCE
CHANGE IN TEMPERATURE**



— — Nominal Resistance at 25°C

———— Nominal Resistance at 20°C

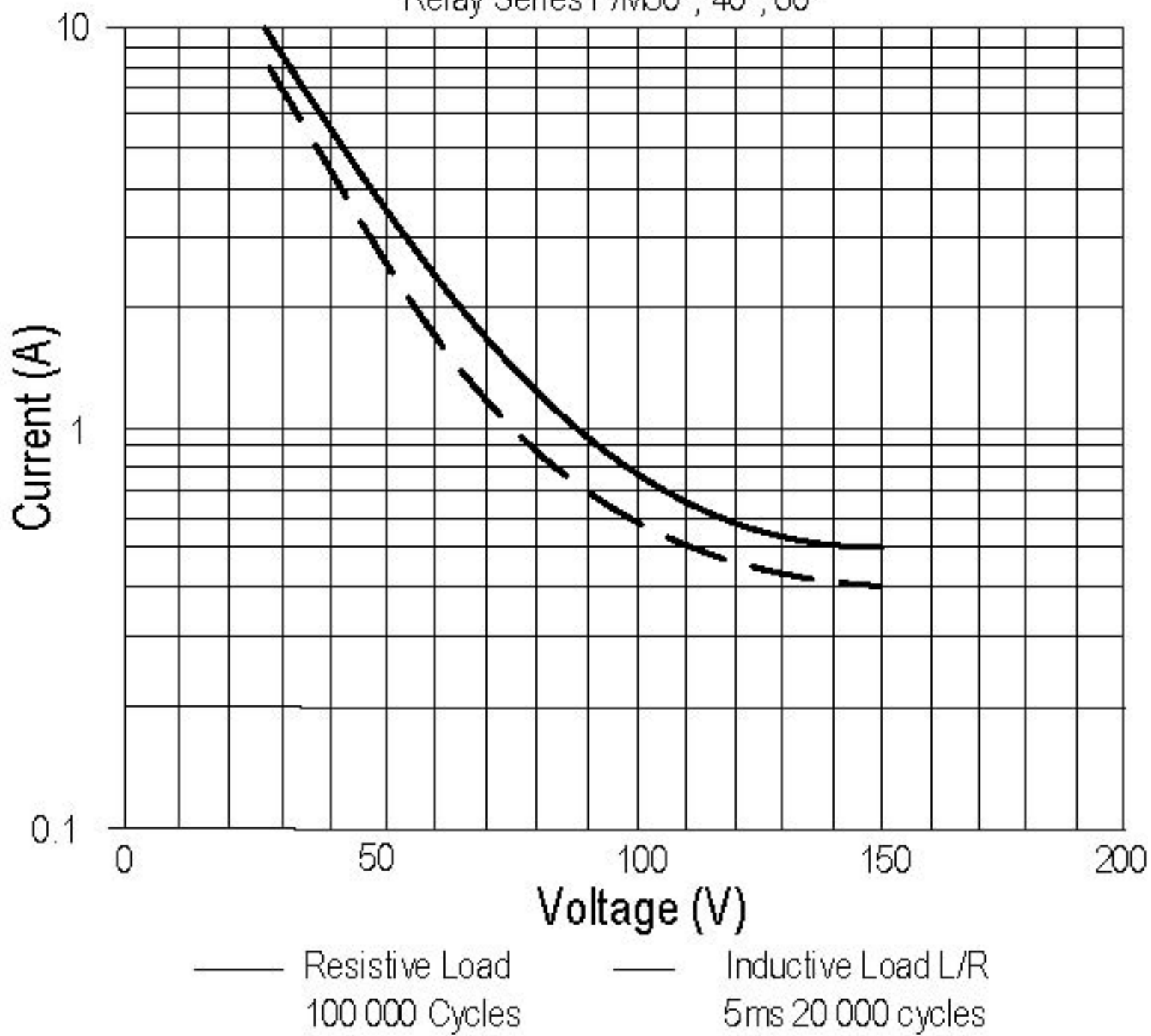
Example: Coil resistance at 25°C: 935 ohms. What is it at 125°C?

Correction coefficient on diagram is: 1.39 at 125°C. R becomes: $935 \times 1.39 = 1299$ Ohms

Correction also applies to operating voltages

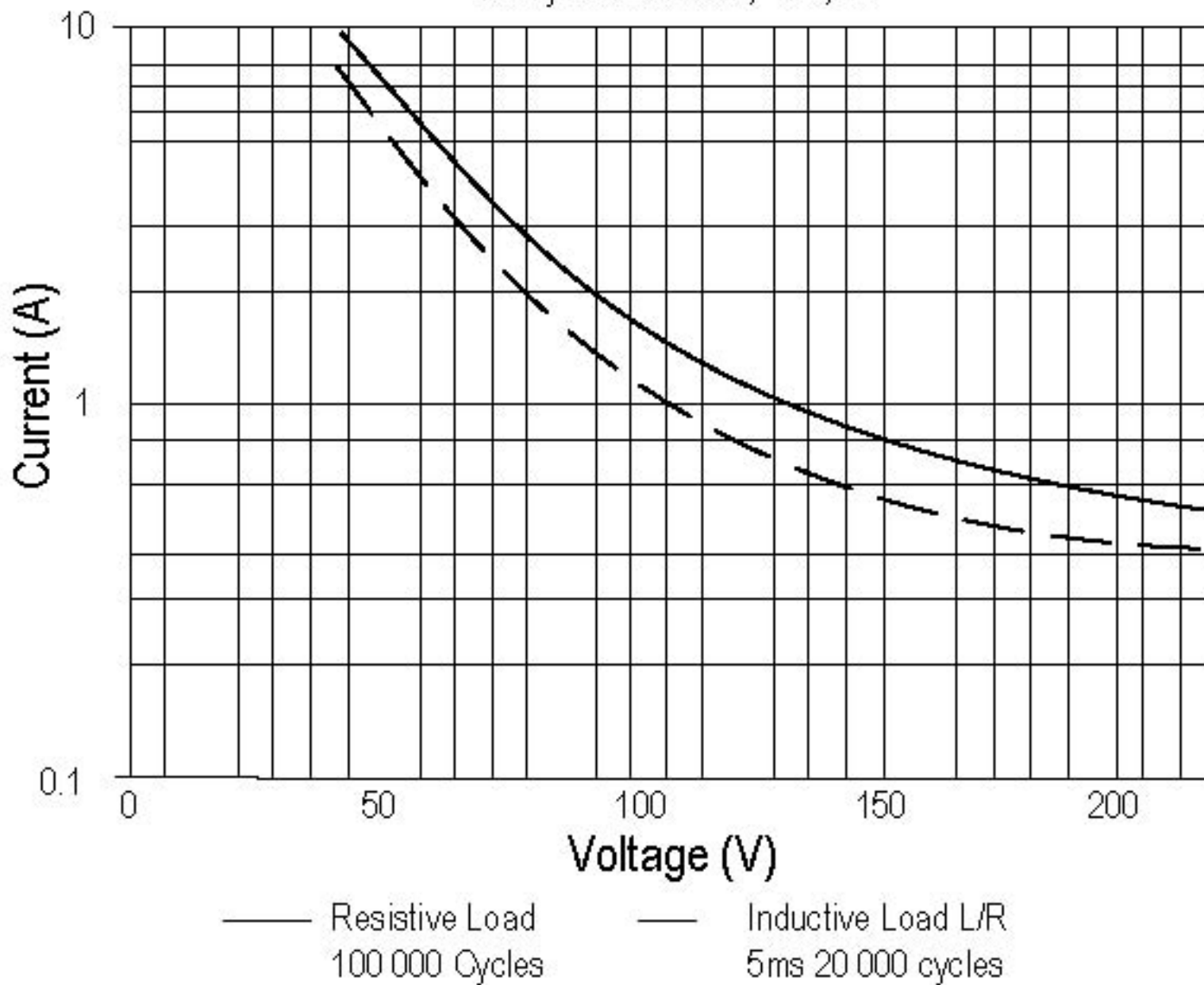
LIFE CAPABILITY VERSUS VOLTAGE

Relay Series F/M30*, 40*, 60*



LIFE CAPABILITY VERSUS VOLTAGE

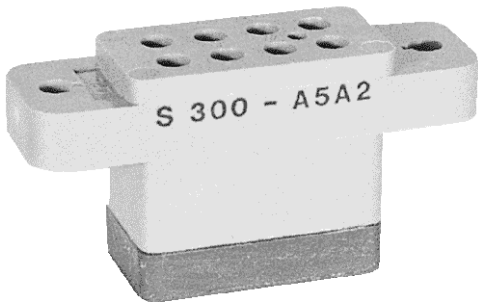
Relay Series FD 30,* 40*, 60*



ENGINEERING DATA SHEET

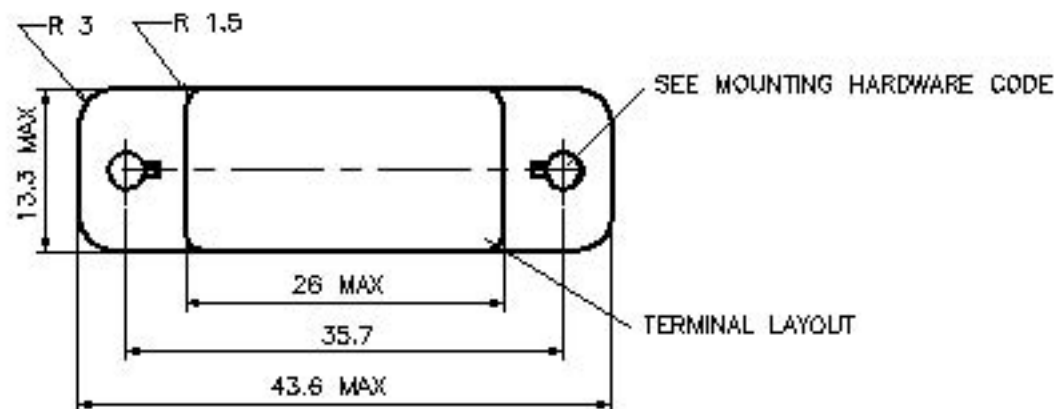
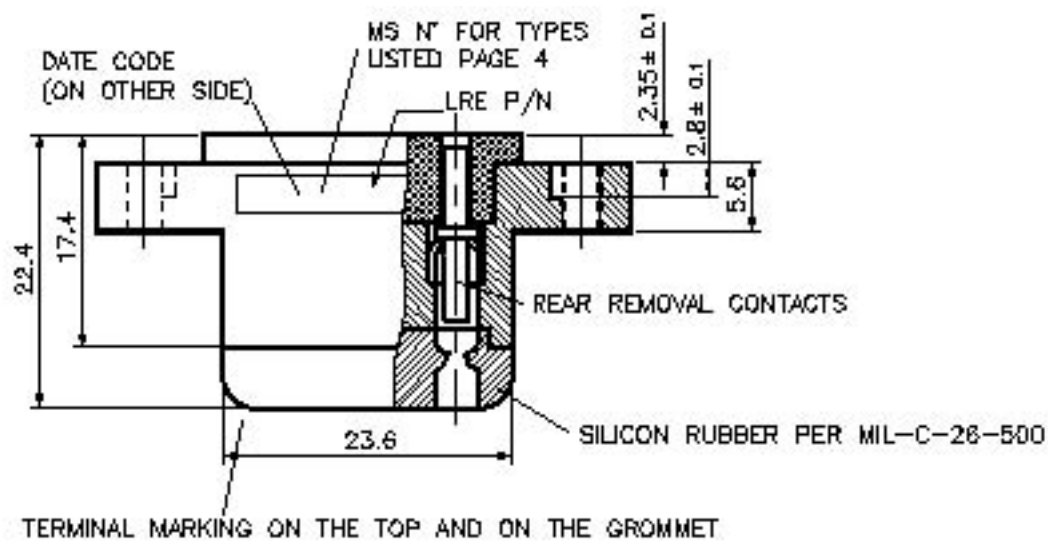
S300, S301, S302

RELAY SOCKET
10 AMP



BASIC SOCKET SERIES DESIGNATION FOR:

**Series M300 (DC Coil), M301 (DC Coil),
M302 (DC Coil), FD300, FLS300, FLR300**



GENERAL CHARACTERISTICS

Crimp tool contact #22	M 22520/2-01 with turret M 22520/2-14.
Insertion and extraction tool #22	M 81969/14-01.
Crimp tool contact #16	M 22520/1-01 with turret M 22520/1-02 or MS 3191-1.
Insertion and extraction tool #16	M 81969/14-03 .
Weight	35g max.
Temperature range	70° C to +125° C.



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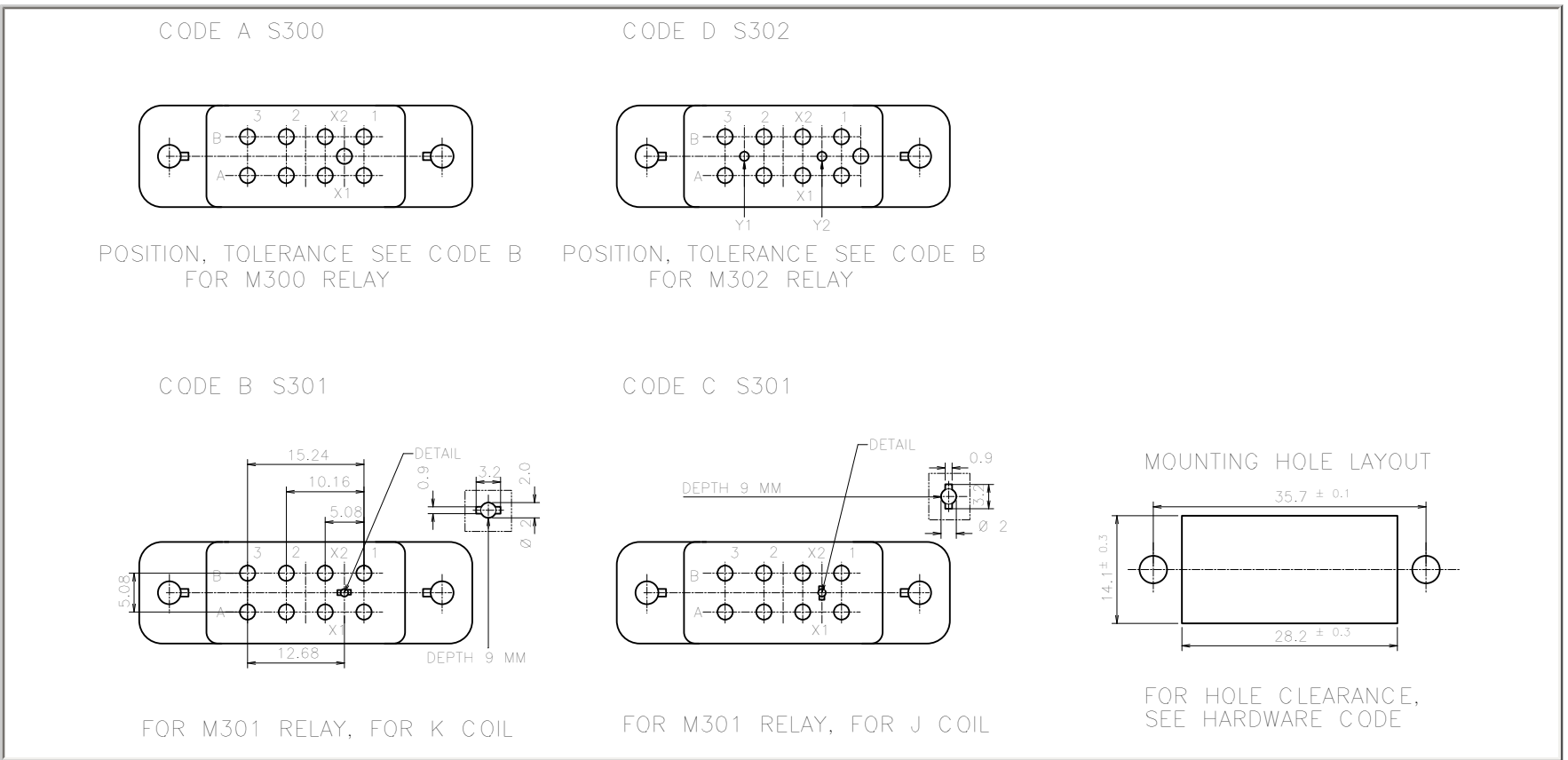
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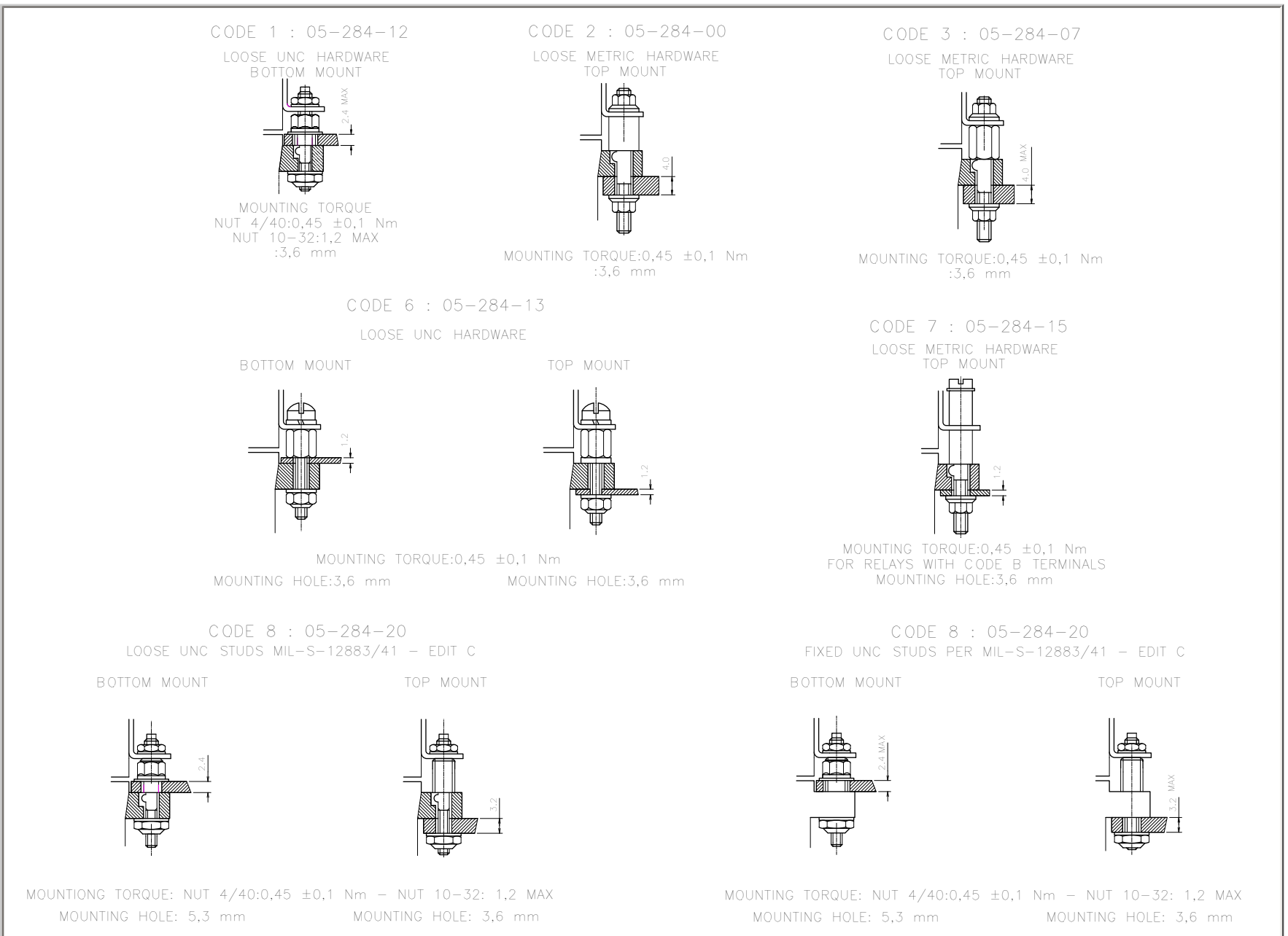
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TERMINAL LAYOUT

S300, S301, S302



MOUNTING HARDWARE



WIRE INSULATION DIAMETER FOR SEAL TO GROMMET

S300, S301, S302

<p>Code A</p> <p style="text-align: center;">Recommended for contact code 2 contact code 8 Dia: 1.22.4mm</p>	<p>Code B</p> <p style="text-align: center;">Recommended for contact code 3 contact code 9 Dia: 0.81.6mm</p>
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CONTACT SIZE AND STYLE

<p>Y1-Y2 Crimpend to accomodate AWG22 05 912 00 (for product code 2+3) 31 036 00 <u>Contact mating end dia 0.8mm</u> (for contact code 8+9) MIL-C-39029/92-531 Bin Code colour bands or Bin Code numbering on crimpside <u>Contact mating end dia 0.8mm</u></p>	<p>Code 2 05 911 00</p>	<p>Crimpend to accomodate AWG16-18-20</p>	<p>Code 3 05 911 10</p>	<p>Crimpend to accomodate AWG20-22-24</p>
	<u>Contact mating end #16</u>		<u>Contact mating end #16</u>	
<p>Code 0 Without contacts</p>	<p>Code 8 30 315 00</p>	<p>Crimpend to accomodate AWG16-18-20 MIL-C-39029/92- 533 Bin Code colour bands or Bin Code numbering on crimpside</p>	<p>Code 9 30 315 10</p>	<p>Crimpend to accomodate AWG20-22-24 MIL-C-39029/92- 534 Bin Code colour bands or Bin Code numbering on crimpside</p>
	<u>Contact mating end #16</u>		<u>Contact mating end #16</u>	

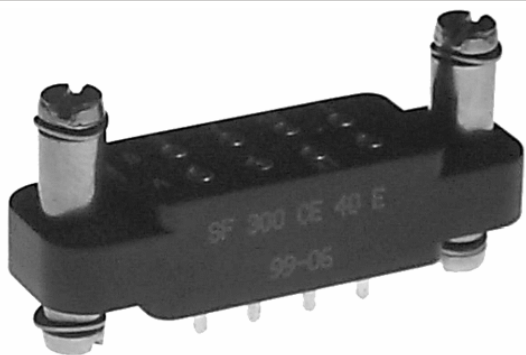
SOCKET NUMBERING SYSTEM

	S300	A	1	A	2
1-Basic socket designation _____					
2-Terminal Layout _____					
3-Mounting Hardware _____					
4-Grommet to seal on wire insulation _____					
5-Contact size and style _____					

MS/LEACH CROSS PART NO. AND MATING RELAYS

S300, S301, S302

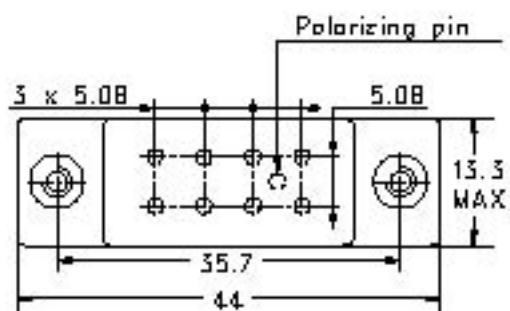
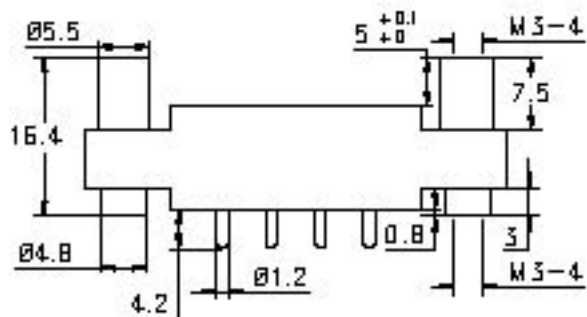
	MS - Number	LEACH P/N	Contacts to accomodate wire #		Applicable for relays
MIL-S-12883/41	-01	S300-A6A2	16-18-20	Loose terminals Above/below panel mounting	M300-D4A /-L/-N/-B/-C
	-04	S300-A6B3	20-22-24		M 301-D4F/-K
	-02	S301-B6A2	16-18-20		M 301-D4E/-J
	-03	S301-C6A2	16-18-20		
	MS - Number	LEACH P/N	Contacts to accomodate wire #		Applicable for relays
MIL-S-12883/41B	-11	S300-A1A2	16-18-20	Loose terminals below panel mounting	M300-D4A /-L/-N/-B/-C
	-14	S300-A1B3	20-22-24		M 301-D4F/-K
	-12	S301-B1A2	16-18-20		M 301-D4E/-J
	-13	S301-C1A2	16-18-20		
	MS - Number	LEACH P/N	Contacts to accomodate wire #		Applicable for relays
MIL-S-12883/41C	-11S	S300-A8A8	16-18-20	Loose terminals Above/below panel mounting	M300-D4A /-L/-N/-B/-C
	-14S	S300-A8B9	20-22-24		M301-D4F/-K
	-12S	S301-B8A8	16-18-20		M301-D4F/-J
	-13S	S301-C8A8	16-18-20		M302-D4A/ -L/-N/-B/-C
	-15S	S302-D8A8	16-18-20		
MIL-S-12883/41C	-16S	S300-A9A8	16-18-20	Fixed terminals Above/below panel mounting	M300-D4A /-L/-N/-B/-C
	-19S	S300-A9B9	20-22-24		M 301-D4F/-K
	-17S	S301-B9A8	16-18-20		M 301-D4E/-J
	-18S	S301-C9A8	16-18-20		M 302-D4A/ -L/-N/-B/-C
	-20S	S302-D9A8	16-18-20		



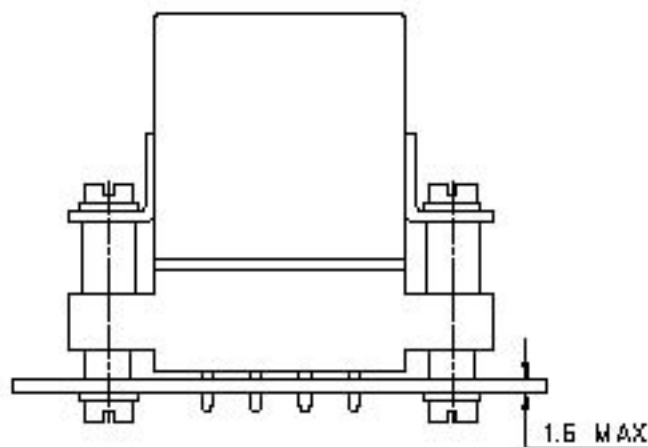
BASIC SOCKET SERIES DESIGNATION FOR:
SERIES F300, FD300, F370 FD370

Socket for printed circuit board mounting

DIMENSIONS



MOUNTING



GENERAL CHARACTERISTICS

Applicable for F300, F370, FD300, and FD370 relay series.

Temperature range	-55°C to +125°C
Storage temperature	-70°C to +150°C
Insulation resistance	> 1000 MΩ
Dielectric strength	
- Pins to mounting hardware	1500 Vrms / 50 Hz
- Between pins	1500 Vrms / 50 Hz
Sinusoidal vibration	20 g / 10 to 2000 Hz
Shock	50 g / 11 ms
Mounting hardware provided	4 screw M3-5



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