

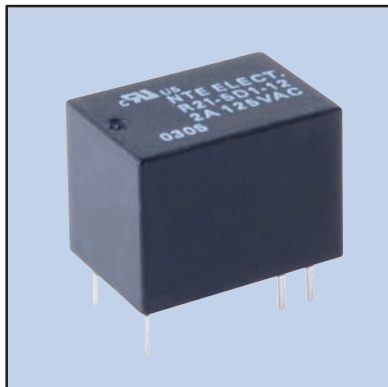
# PC Mount Relays

## R21 Series



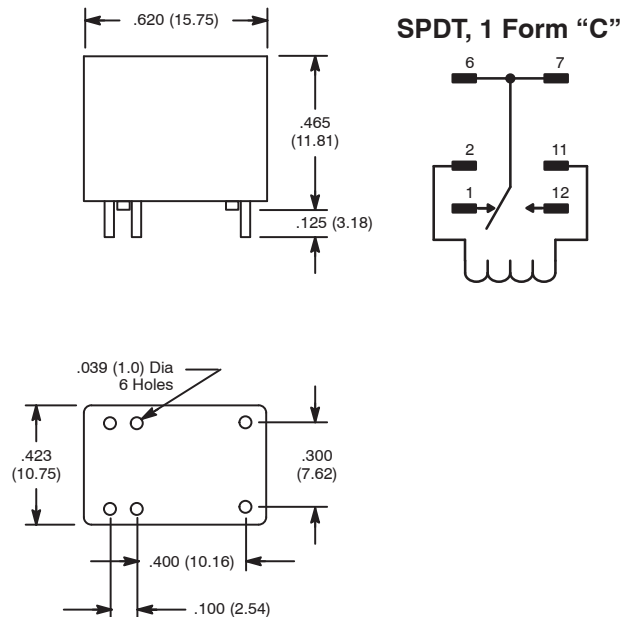
### Features

- Subminiature Size for High Density Packaging
- Epoxy Sealed
- Class B Insulation



## Subminiature, 1 Amp & 2 Amp, SPDT, DC Power, Printed Circuit Mount Relays

### D81



### DC OPERATED

NTE Type No.	Nom. Voltage	Contact Arr.	Coil Res. Ohms (Typ)	Nom. Power	Max. Contact Cur. @ 30VDC or 125VAC	Diag No.
R21-5D1-12	12VDC	SPDT	700	200mW	1A	D81
R21-5D1-24	24VDC	SPDT	2800	200mW	1A	D81
R21-5D2-5/6	6VDC	SPDT	100	360mW	2A	D81
R21-5D2-12	12VDC	SPDT	400	360mW	2A	D81
R21-5D2-24	24VDC	SPDT	1600	360mW	2A	D81

## Electrical Specifications

### Contact

**Rating:** See chart

**Contact Material:** Silver nickel, gold plated

**Contact Resistance:** 0.1 Ohms Max. initial

### Coil

**Coil Voltages:** See Chart

**Drop-out Voltage:** Greater than 10% of nominal coil voltage

**Resistance:** See Chart

### Operational Characteristics

**Timing Value . . . . .** **Operate Time:** Approx 5 mS  
**Release Time:** Approx 1 mS } at nominal coil voltage

### Insulation Characteristics

**Dielectric Strength**

**Contact To Coil:** 1250 VRMS

**Across Open Contacts:** 750 VRMS

**Insulation Resistance:** 100 megohms Min.  
 @ 500 VDC

### Environmental Characteristics

**Operating:** -25°C to +95°C (1A Type)

-25°C to +85°C (2A Type)

**Mechanical Life:** 100,000,000 operations min

### Weight

**Std:** 3.5 gram approx.

# PC Mount Relays

## R22 Series



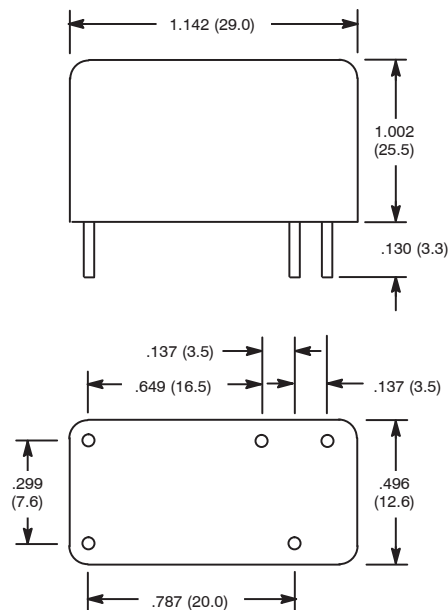
### Features

- Sealed Construction
- Long Life
- Small Size
- Low Coil Power
- PC Board Mount
- TV-5 Type Power Relay



**Slimline 16 Amp SPST-NO & SPDT Relays Designed for use in TVs, Door Openers, & Security Systems.**

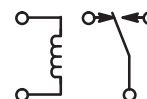
**D51**



**SPST-NO, 1 Form "A"**



**SPDT, 1 Form "C"**



## Electrical Specifications

### Contact

**Rating:** 12 Amp (Continuous, Note 2) @ 250 VAC

**Contact Material:** AgCdo

**Contact Resistance:** 100M Max.

Note 2. Continuous contact current is defined as the maximum current a relay contact may carry continuously without exceeding temperature limits.

### Coil

**Coil Voltages:** See Chart

**Pick-up Voltage:** 80% of rated voltage

**Drop-out Voltage:** 5% of rated voltage

**Max Allowable Voltage:** 110% of rated voltage

### Operational Characteristics

**Timing Value** . . . . . **Operate Time:** 30 ms Max

**Release Time:** 8 ms Max

### Insulation Characteristics

#### Dielectric Strength

**Contact To Coil:** 500 VRMS (1 Min)

**Across Open Contacts:** 1000 VRMS (1 Min)

**Insulation Resistance:** 100 MΩ Min.  
@ 500 VDC

### Environmental Characteristics

**Operating:** -30°C to +70°C

**Mechanical Life:** 10,000,000 operations min

### Weight

**Std:** 13 gram approx.

### DC OPERATED

NTE Type No.	Nom. Voltage	Contact Arr.	Coil Res. Ohms (Typ)	Nom. Power	Max. Contact Make Cur. @ 30VDC or 120VAC (Note 1)	Diag No.
R22-1D16-3	3VDC	SPST-NO	12.5	720mW	16A	D51
R22-1D16-5/6	5/6VDC	SPST-NO	47	540mW	16A	D51
R22-1D16-12	12VDC	SPST-NO	270	540mW	16A	D51
R22-1D16-24	24VDC	SPST-NO	1100	540mW	16A	D51
R22-1D16-48	48VDC	SPST-NO	4400	540mW	16A	D51
R22-5D16-3	3VDC	SPDT	12.5	720mW	16A	D51
R22-5D16-5/6	5/6VDC	SPDT	47	540mW	16A	D51
R22-5D16-12	12VDC	SPDT	270	540mW	16A	D51
R22-5D16-24	24VDC	SPDT	1100	540mW	16A	D51
R22-5D16-48	48VDC	SPDT	4400	540mW	16A	D51

Note 1. The maximum contact make current is defined as the maximum permitted current for 4 seconds duration with 10% duty cycle immediately after contact closure.

### ACCESSORIES

MOUNTING STYLES	DESCRIPTION	NTE TYPE NO.
PC MOUNT	5-PIN SLIM LINE	R95-133
DIN RAIL MOUNT	5-PIN SLIM LINE	R95-130

# PC Mount Relays

## R23 Series



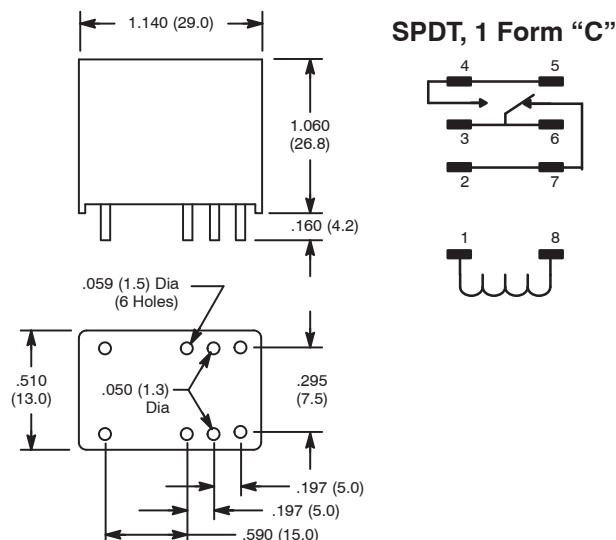
## Miniature, 20 Amp, SPDT, DC Power, Printed Circuit Mount Relays

### Features

- Low Cost
- Epoxy Sealed
- Class B Insulation



### D82



Terminal No.	Dimensions (Tol.: 0.005 (0.13))
1, 2, 4, 5, 7, 8	0.018 (0.457) x 0.038 (0.965)
3, 6	0.011 (0.279) x 0.038 (0.965)

## Electrical Specifications

### Contact

**Rating:** 20 Amp @ 277 VAC/24 VDC, 1 HP @ 240 VAC

**Contact Material:** Silver cadmium oxide

**Contact Resistance:** 50 Milliohms Max. initial

### Coil

**Coil Voltages:** See Chart

**Drop-out Voltage:** Greater than 10% of nominal coil voltage

**Resistance:** See Chart

### Operational Characteristics

**Timing Value** . . . . . **Operate Time:** Approx 8 mS  
**Release Time:** Approx 5 mS } at nominal coil voltage

### Insulation Characteristics

#### Dielectric Strength

**Contact To Coil:** 5000 VRMS

**Across Open Contacts:** 1000 VRMS

**Insulation Resistance:** 100 megohms Min.  
 @ 500 VDC, 50% RH

### Environmental Characteristics

**Operating:** -40°C to +90°C

**Mechanical Life:** 50,000,000 operations min

### Weight

**Std:** 18.5 gram approx.

### DC OPERATED

NTE Type No.	Nom. Voltage	Contact Arr.	Coil Res. Ohms (Typ)	Nom. Power	Max. Contact Cur. @ 24VDC or 277VAC	Diag No.
R23-5D20-6	6VDC	SPDT	69	270mW	20A	D82
R23-5D20-12	12VDC	SPDT	275	270mW	20A	D82
R23-5D20-24	24VDC	SPDT	1100	270mW	20A	D82

### ACCESSORIES

MOUNTING STYLES	DESCRIPTION	NTE TYPE NO.
PC MOUNT	8-PIN BLADE	R95-132

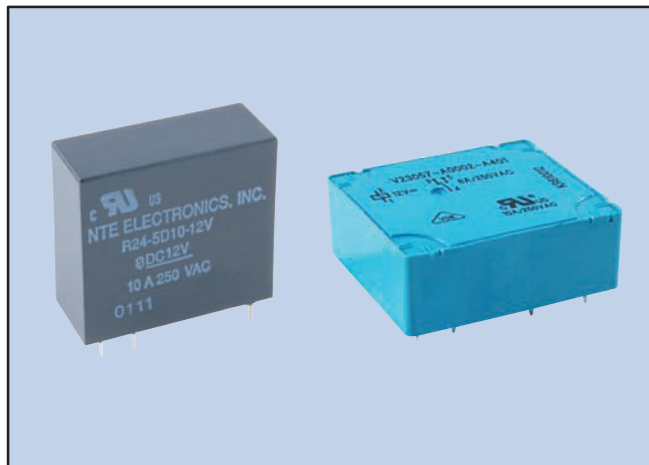
# PC Mount Relays

## R24 Series

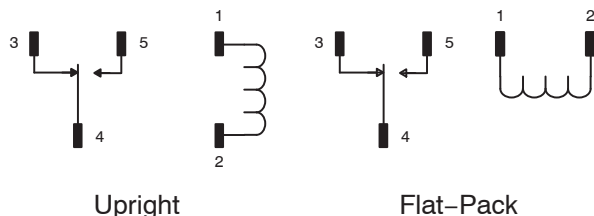


### Features

- Epoxy Sealed for Wave Soldering & Cleaning
- Upright (V Suffix) or Flat-Pack (FP Suffix) Types
- High Dielectric – 4000 VRMS between Control and Switching Circuits
- Cut-Off Nib after PCB Washing
- 94 V-0 Enclosure



### SPDT, 1 Form "C"



Upright

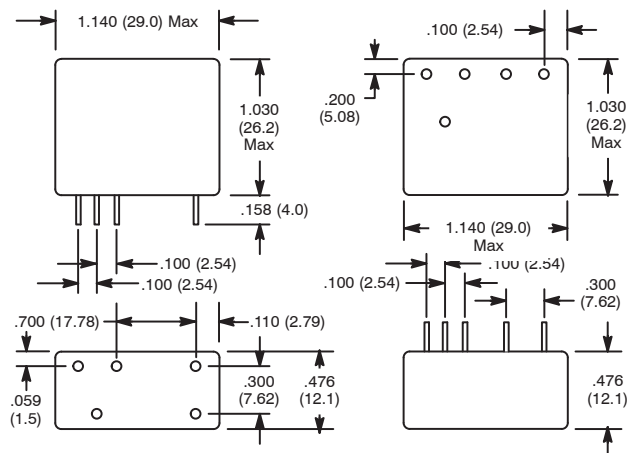
Flat-Pack

DC OPERATED						
NTE Type No.	Nom. Voltage	Contact Arr.	Coil Res. Ohms (Typ)	Nom. Power	Max. Contact Cur. @ 28VDC or 120VAC	Diag No.
R24-5D10-6V	6VDC	SPDT	58	600mW	10A	D15a
R24-5D10-6FP	5/6VDC	SPDT	80	600mW	8A	D15b
R24-5D10-12V	12VDC	SPDT	215	600mW	10A	D15a
R24-5D10-12FP	12VDC	SPDT	330	600mW	8A	D15b
R24-5D10-24V	24VDC	SPDT	740	600mW	10A	D15a
R24-5D10-24FP	24VDC	SPDT	1200	600mW	8A	D15b

## 8 Amp & 10 Amp, SPDT Epoxy Sealed Power Relay.

### D15a

### D15b



Cut-off nib after PCB washing to extend contact life and lower operating temperature.

## Electrical Specifications

### Contact

#### Rating Resistive Load:

10 Amp @ 380 VAC max switching (Upright)

8 Amp @ 250 VAC max switching (Flat-Pack)

**Contact Material:** Silver Cadmium Oxide (Upright)

Silver, Gold Flashed (Flat-Pack)

**Contact Resistance:** .03 Ohms Max. initial (Upright)

.05 Ohms Max. initial (Flat-Pack)

### Coil

**Coil Voltages:** See Chart

**Pick-up Voltage:** 80% of nom voltage or less @ 25°C

**Drop-out Voltage:** 10% of actual pull-in (min)

**Resistance:** See chart

**Min Sensitivity:** 400 mW

**Nominal Power:** 600 mW

### Operational Characteristics

**Timing Values . . . . . Operate Time:** Approx 6 mS (Upright)  
Approx 15 mS (Flat-Pack)

**Release Time:** Approx 2 mS (Upright)  
Approx 10 mS (Flat-Pack)

**Max Switching Rate:** 5 operations per second

### Insulation Characteristics

#### Dielectric Strength

**Contact To Coil:** 4000 VRMS

**Across Open Contacts:** 1000 VRMS

### Resistance:

**Contact to Coil/Frame:** 1000 megohms min.

**Across Open Contacts:** 500 Megohms min.

**Coil To Frame:** 1000 megohms Min.

### Environmental Characteristics

**Operating:** -55°C to +70°C

**Mechanical Life:** 5 x 10<sup>6</sup> operations min

### Weight

**Std:** 15 gram approx.



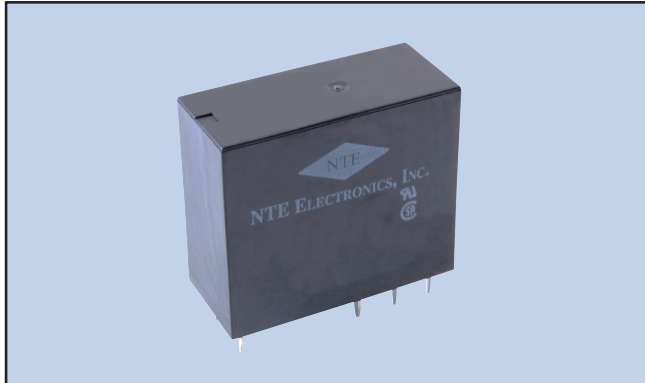
# PC Mount Relays

## R25 Series



### Features

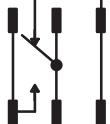
- Epoxy Sealed for Wave Soldering & Cleaning
- Upright Package Type
- Suitable for 5mm Grid Pattern
- Immersion Proof



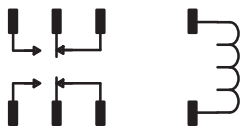
SPST-NO, 1 Form "A"



SPDT, 1 Form "C"



DPDT, 2 Form "C"



### AC OPERATED

NTE Type No.	Nom. Voltage	Contact Arr.	Coil Res. Ohms (Typ)	Nom. Power	Max. Contact Cur. @ 28VDC or 120VAC	Diag No.
R25-5A16-24	24VAC	SPDT	280	-	16A	D39a
R25-5A16-120	120VAC	SPDT	5600	-	16A	D39a
R25-11A10-24	24VAC	DPDT	280	-	10A	D39a
R25-11A10-120	120VAC	DPDT	5600	-	10A	D39a

### DC OPERATED

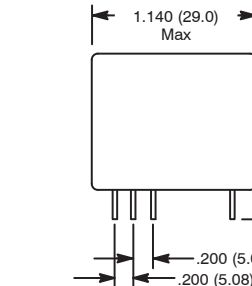
R25-1D16-5/6	5/6VDC	SPST-NO	68	500mW	16A	D39b
R25-1D16-12	12VDC	SPST-NO	270	500mW	16A	D39b
R25-1D16-24	24VDC	SPST-NO	1100	500mW	16A	D39b
R25-1D16-48	48VDC	SPST-NO	4200	500mW	16A	D39b
R25-5D16-5/6	5/6VDC	SPDT	68	500mW	16A	D39a
R25-5D16-12	12VDC	SPDT	270	500mW	16A	D39a
R25-5D16-24	24VDC	SPDT	1100	500mW	16A	D39c
R25-5D16-48	48VDC	SPDT	4200	500mW	16A	D39a
R25-11D10-5/6	5/6VDC	DPDT	68	500mW	10A	D39c
R25-11D10-12	12VDC	DPDT	270	500mW	10A	D39c
R25-11D10-24	24VDC	DPDT	1440	400mW	8A	D83b
R25-11D10-48	48VDC	DPDT	4200	500mW	10A	D39a

### ACCESSORIES

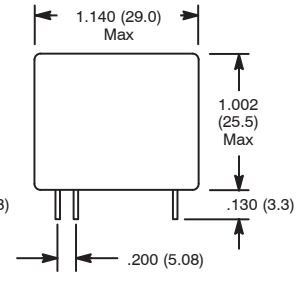
MOUNTING STYLES	DESCRIPTION	NTE TYPE NO.
PC MOUNT	8-PIN	R95-132
DIN RAIL MOUNT	8-PIN	R95-131

## 8 Amp, 10 Amp & 16 Amp PC Mountable Relays.

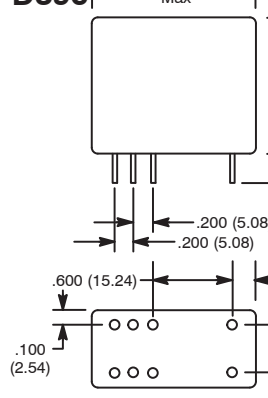
D39a



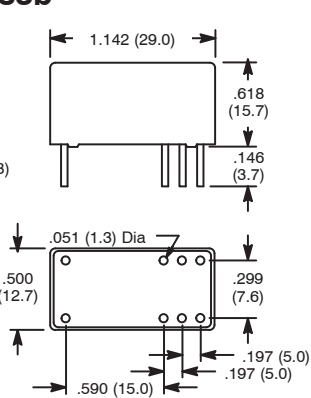
D39b



D39c



D83b



## Electrical Specifications

### Contact

**Rating Resistive Load:** 16 Amp @ 250/440 VAC, 10 Amp @ 250/440 VAC, 8 Amp @ 240VAC \*\*

**Contact Material:** Silver Alloy, AgNi \*\*

**Contact Resistance:** 100mΩ Max Initial

### Coil

**Coil Voltages:** See Chart

**Pick-up Voltage:** 80% of rated voltage

**Drop-out Voltage:** 10% of rated voltage, 15% of rated voltage \*\*

**Resistance:** See chart

**Nominal Power:** See Chart

### Operational Characteristics

**Timing Values . . . . . Operate Time:** Approx 8 mS, 20ms \*\*

**Release Time:** Approx 5 mS, 10ms \*\*

**Max Switching Rate:** 20 operations per second

### Insulation Characteristics

**Dielectric Strength**

**Contact To Coil:** 4000 VRMS, 5000 VRMS \*\*

**Across Open Contacts:** 1000 VRMS, 2500VRMS \*\*

### Environmental Characteristics

**Operating:** -40°C to +70°C

**Mechanical Life:** 30 x 10<sup>6</sup> operations min, 5,000,000 operations \*\*

### Weight

**Std:** 18 gram approx., 10 gram approx. \*\*

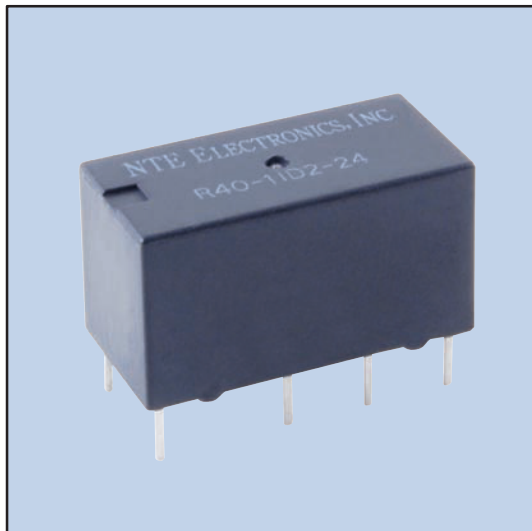
**\*\* R25-11D10-24 ONLY**

# PC Mount Relays

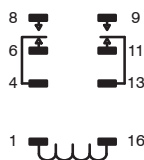
## R40 Series

### Features

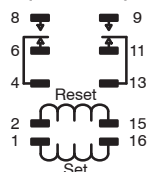
- Ultra-Sensitive Coil
- Epoxy Sealed
- Standard 0.1" DIP Terminal
- FCC Pt.68
- Dual Coil, Latching Type (C)



DPDT, 2 Form "C"



DPDT, 2 Form "C"  
(Dual Coil)



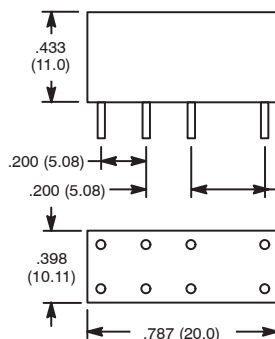
DC OPERATED						
NTE TYPE No.	Nom. Voltage	Contact Arr.	Coil Res. Ohms (Typ)	Nom. Power	Max. Contact Cur. @ 28VDC or 120VAC	Diag No.
R40-11D2-5/6	5/6VDC	DPDT	167	150mW	2A	D34
R40-11D2-5/6C	5/6VDC	DPDT	140*	180mW	2A	D34a
R40-11D2-12	12VDC	DPDT	960	150mW	2A	D34
R40-11D2-12C	12VDC	DPDT	800*	180mW	2A	D34a
R40-11D2-24	24VDC	DPDT	2880	200mW	2A	D34
R40-11D2-24C	24VDC	DPDT	3200*	180mW	2A	D34a
R40-11D2-48	48VDC	DPDT	7680	300mW	2A	D34

\* Each Coil.

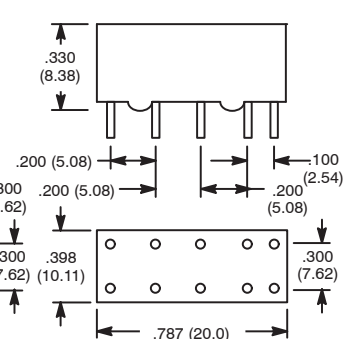
ACCESSORIES		
MOUNTING STYLES	DESCRIPTION	NTE TYPE NO.
DIP PC Mount	16-Lead DIP	NTE416
Wire Wrap Leads	16-Lead DIP	NTE436W16

**DPDT, 2 Amp, Sensitive Coil, Single Contact PC Mountable Relay for use in Telecommunications, Computer Peripherals, and Security Equipment.**

D34



D34a



## Electrical Specifications

### Contact

**Rating:** 2 Amp @ 120 VAC, 28 VDC (Note: U.L. for 1 Amp Only)  
**Contact Material:** Gold Clad Palladium Rutenium Alloy  
**Contact Resistance:** 100MΩ Max.

### Coil

**Coil Voltages:** See Chart  
**Pick-up Voltage:** 70% of rated voltage  
**Max Allowable Voltage:** 130% of rated voltage

### Operational Characteristics

**Timing Value . . . . .** **Operate Time:** 4.5 mS approx.  
**Release Time:** 1.5 mS approx.  
**Bounce Time:** 3.5 mS approx. (Non-Latching)  
 50 mS approx. (Latching)  
**Set Time:** 5 mS approx. (DPDT, Latching)  
 7 mS approx. (4PDT, Latching)  
**Reset Time:** 5 mS approx. (DPDT, Latching)  
 7 mS approx. (4PDT, Latching)

### Insulation Characteristics

#### Dielectric Strength

**Contact To Coil:** 1000 VRMS  
**Across Open Contacts:** 1000 VRMS  
**Insulation Resistance:** 100 MΩ Min.  
 @ 500 VDC

### Environmental Characteristics

**Operating:** -40°C to +65°C  
**Mechanical Life:** 10,000,000 operations min  
**Electrical Life:** 300,000 @ 2A, 30 VDC  
 500,000 @ 0.5A, 120 VAC

### Weight

**Std:** 6 gram approx.

# PC Mount Relays

## R46 Series

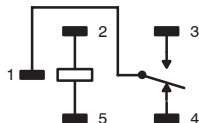


### Features

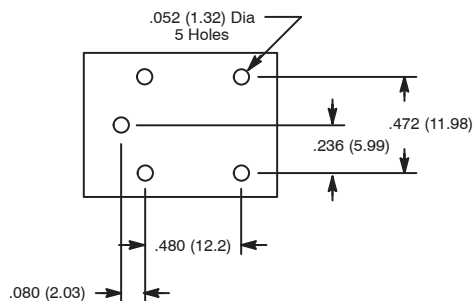
- All Sealed and Resistant to Wave Soldering & Cleaning
- Low Profile
- Less than 0.53 Cubic Inches



SPDT, 1 Form "C"



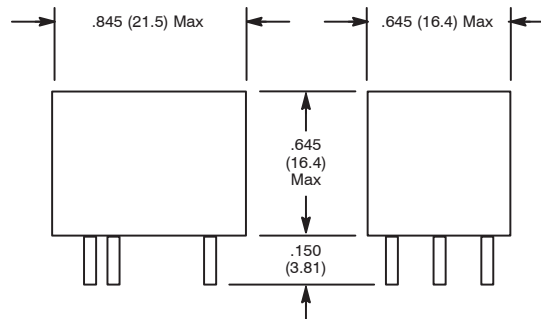
Mounting Holes  
(Bottom View)



DC OPERATED						
NTE Type No.	Nom. Volt.	Contact Arr.	Coil Res. Ohms (Typ)	Nom. Power	Max. Contact Cur. @ 30VDC or 120VAC	Diag No.
R46-5D3-12	12VDC	SPDT	400	360mW	5A	D23
R46-5D3-48	48VDC	SPDT	6400	360mW	5A	D23
R46-5D12-6	6VDC	SPDT	100	360mW	12A	D23
R46-5D12-12	12VDC	SPDT	400	360mW	12A	D23
R46-5D12-24	24VDC	SPDT	1600	360mW	12A	D23
R46-5D12-48	48VDC	SPDT	6400	360mW	12A	D23

General Purpose, 5 and 12 Amp, DC SPDT Relays ideal for Security Equipment, Household Electrical Appliances, Garage Door Openers and Audio Equipment.

### D23



## Electrical Specifications

### Contact

Rating: 5A at 120VAC, 5A at 30VDC  
12A at 120VAC

Material: AgCdO

### Coil

Coil Voltages: See Chart

Pick-up Voltages: 75% of nominal DC

Drop-out Voltages: 10% min of rated voltage

Resistance: See Chart

### Operational Characteristics

Timing Value: . . . . . Operate Time: 10 mS max  
Release Time: 10 mS max

### Insulation Characteristics

Dielectric Strength

Between Coil & Contacts: 1500 VAC

Between Contacts of Same Polarity: 750 VAC

Resistance: 100 megohms min. @ 500 VDC

### Environmental Characteristics

Operating: -40°C to +85°C

### Life

Mechanical: 10,000,000 operations min

### Weight

Std: 0.42 oz (12 grams) approx.

# PC Mount Relays

## R48 Series

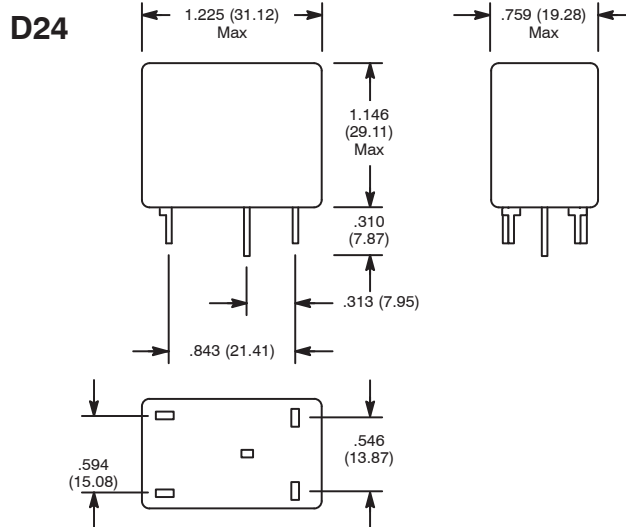


### Features

- PC Mountable
- Only 1.1 Cubic Inches
- Long Life
- Low Power Coil Types (L-suffix)

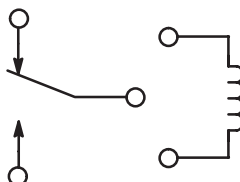


Miniature, General Purpose, 5 Amp & 10 Amp, DC, SPDT Relays for TV Remote Control, Burglar Alarms, Timers, Garage Door Openers.



All terminals are .056 (1.42) x .025 (0.64)  
Recommended PC Board holes are .067 (1.7) Dia.

SPDT, 1 Form "C"



## Electrical Specifications

### Contact

**Rating:** 5 Amp 120/240 VAC  
10 Amp 28 VDC resistive load  
**Material:** Silver, gold plated  
(R48-5D5-12L, R48-5D5-24L, R48-5D10-24)  
Silver alloy  
(R48-5D5-6L, R48-5D10-6, R48-5D10-12)

### Coil

**Coil Voltages:** See Chart  
**Pick-up Voltages:** 80% of nominal Coil Vltg.  
**Drop-out Voltages:** 10% of actual pick-up (min.)  
**Resistance:** See Chart

### Operational Characteristics

**Timing Value** . . . . . **Operate Time:** 25 ms  
**Release Time:** 3 ms typ.

### Insulation Characteristics

**Dielectric Strength**  
**Contact To Coil Voltages:** 1500 VRMS  
**Across Open Contacts:** 500 VRMS  
**Coil To Frame:** 1500 VRMS  
**Resistance:** 1000 megohms min.  
@ 500 VDC

### Environmental Characteristics

**Operating:** -55°C to +85°C  
**Soldering:** 270°C (518°) max

### Life

**Mechanical:** 10,000,000 operations

### Weight

**Std:** 1.5 oz (42 grams) approx

DC OPERATED						
NTE Type No.	Nom. Volt.	Contact Arr.	Coil Res. Ohms (Typ)	Nom. Power	Max. Contact Cur. @ 28VDC or 120VAC	Diag No.
R48-5D5-6L	5/6VDC	SPDT	340	110mW	5A	D24
R48-5D5-12L	12VDC	SPDT	1350	100mW	5A	D24
R48-5D5-24L	24VDC	SPDT	5400	100mW	5A	D24
R48-5D10-6	5VDC	SPDT	100	110mW	10A	D24
R48-5D10-12	12VDC	SPDT	600	110mW	10A	D24
R48-5D10-24	24VDC	SPDT	2400	250mW	10A	D24

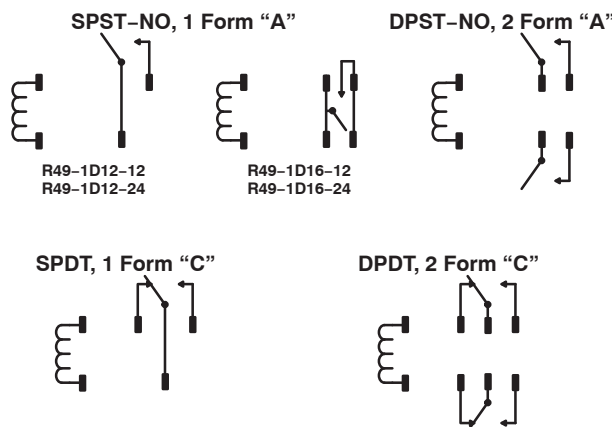
# PC Mount Relays

## R49 Series

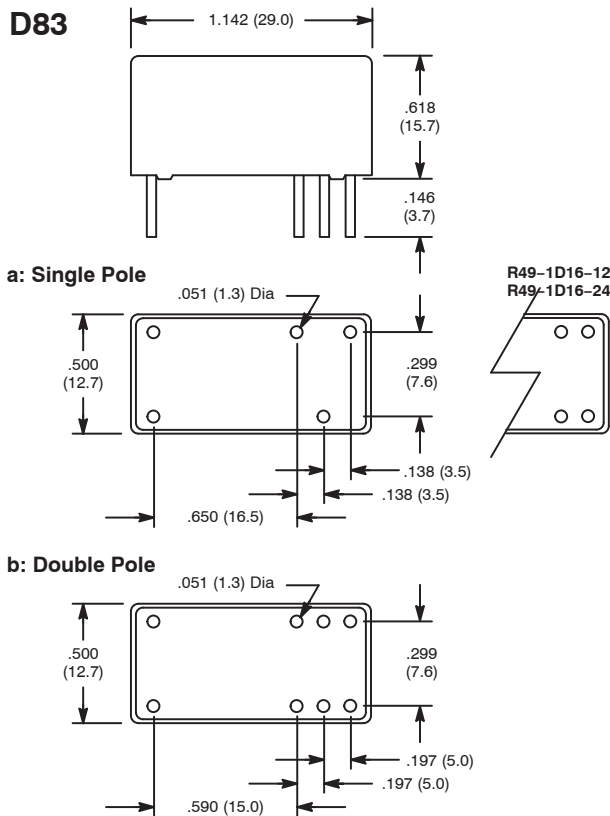


### Features

- Low Height
- Plastic Sealed
- SPST-NO, DPST-NO, SPDT, & DPDT Types



## Low Height, Sealed, 8 Amp, 12 Amp, and 16 Amp, DC, Printed Circuit Mount Relays



### DC OPERATED

NTE Type No.	Nom. Voltage	Contact Arr.	Coil Res. Ohms (Typ)	Nom. Power	Max. Contact Cur. @ 240VAC	Diag No.
R49-7D8-12	12VDC	DPST-NO	360	400mW	8A	D83b
R49-7D8-24	24VDC	DPST-NO	1440	400mW	8A	D83b
R49-11D8-12	12VDC	DPDT	360	400mW	8A	D83b
R49-11D8-24	24VDC	DPDT	1440	400mW	8A	D83b
R49-1D12-12	12VDC	SPST-NO	360	400mW	12A	D83a
R49-1D12-24	24VDC	SPST-NO	1440	400mW	12A	D83a
R49-5D12-12	12VDC	SPDT	360	400mW	12A	D83a
R49-5D12-24	24VDC	SPDT	1440	400mW	12A	D83a
R49-1D16-12	12VDC	SPST-NO	360	400mW	16A	D83a
R49-1D16-24	24VDC	SPST-NO	1440	400mW	16A	D83a
R49-5D16-12	12VDC	SPDT	360	400mW	16A	D83a
R49-5D16-24	24VDC	SPDT	1440	400mW	16A	D83a

### ACCESSORIES

MOUNTING STYLES	DESCRIPTION	NTE TYPE NO.
PC Mount	5-Pin	R95-133
	8-Pin	R95-132
Din Rail Mount	5-Pin	R95-130
	8-Pin	R95-131

**NOTE:** No sockets are available for the 16 Amp devices.

## Electrical Specifications

### Contact

**Rating:** See Chart

**Contact Material:** AgNi10

**Contact Resistance:** 100 Milliohms Max. initial

### Coil

**Coil Voltages:** See Chart

**Drop-out Voltage:** 10% of rated voltage

**Resistance:** See Chart

### Operational Characteristics

**Timing Value** ..... **Operate Time:** Approx 20 mS

**Release Time:** Approx 10 mS

### Insulation Characteristics

**Dielectric Strength**

**Contact To Coil:** 5000 VRMS

**Across Open Contacts:** 1000 VRMS

**Insulation Resistance:** 100 megohms Min.  
@ 500 VDC, 50% RH

### Environmental Characteristics

**Operating:** -40°C to +85°C

**Mechanical Life:** 10,000,000 operations min

### Weight

**Std:** 10 gram approx.

# PC Mount Relays

## R53 Series

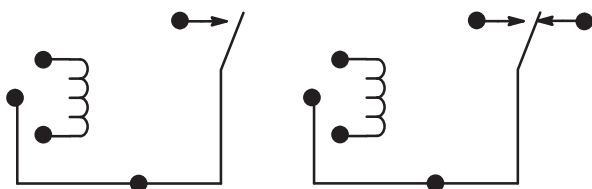


### Features

- P.C. Board Mountable
- Miniature Size
- Epoxy Sealed
- Vented Cover-Fully Enclosed
- SPST & SPDT Versions
- Cut-off Nib for Vent Hole



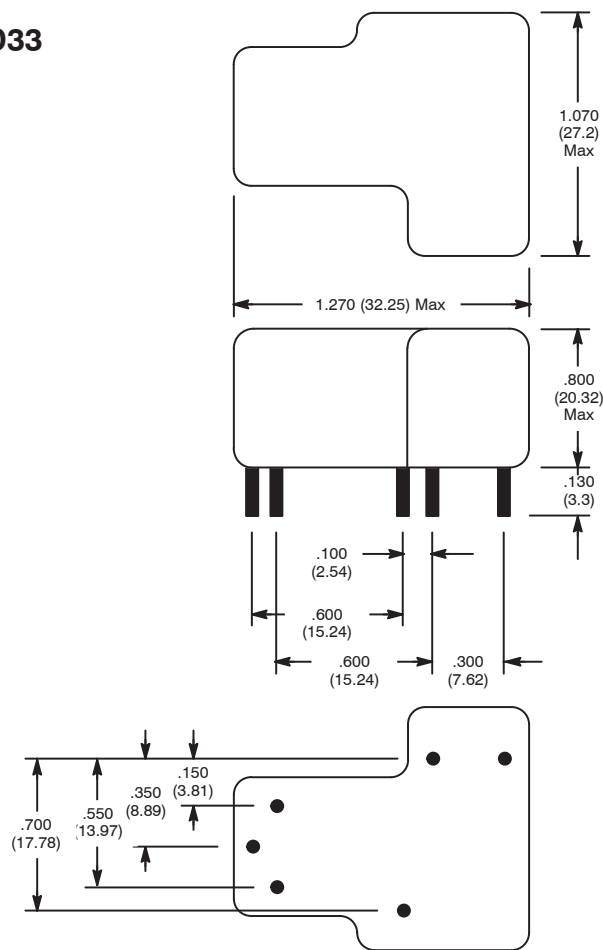
SPST-NO, 1 Form "A" SPDT, 1 Form "C"



DC OPERATED						
NTE Type No.	Nom. Volt.	Contact Arr.	Coil Res. Ohms (Typ)	Nom. Power	Max. Contact Cur. @ 28VDC or 240VAC	Diag No.
R53-1D30-6	6VDC	SPST-NO	40	900mW	30A	D33
R53-1D30-12	12VDC	SPST-NO	155	900mW	30A	D33
R53-1D30-24	24VDC	SPST-NO	660	900mW	30A	D33
R53-5D20-6	6VDC	SPDT	40	900mW	20A	D33
R53-5D20-12	12VDC	SPDT	155	900mW	20A	D33
R53-5D20-24	24VDC	SPDT	660	900mW	20A	D33
R53-5D20-48	48VDC	SPDT	2550	900mW	20A	D33
R53-5D20-110	110VDC	SPDT	13,450	900mW	20A	D33

Miniature 30 Amp & 20 Amp Industrial Relays for Automotive Controls, Industrial Timers, Process Controls.

D33



## Electrical Specifications

### Contact

**Rating:** 1 Form A (SPST), 30 Amps at 240 VAC, 1 Form C (SPDT), 20 Amps at 240 VAC.

### Coil

**Coil voltages:** See Chart

**Coil resistances:** 900mW Nominal

### Operational Characteristics

**Timing valves:** Operate & Release 10-15 mS

### Insulation Characteristics

**Dielectric strength:** 1500 VRMS, 60Hz./1 sec

### Environmental Characteristics

**Ambient temperature range:** -55°C to +85°C

# PC Mount Relays

## R70 Series

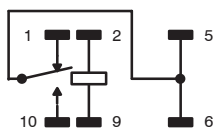


### Features

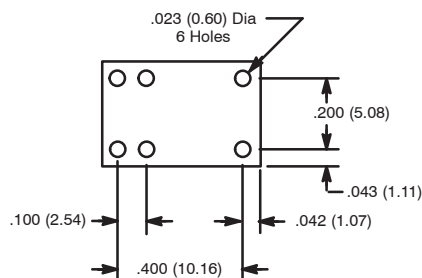
- High Sensitivity
- Small Size
- Fully-Sealed Construction
- Low Power Consumption



SPDT, 1 Form "C"



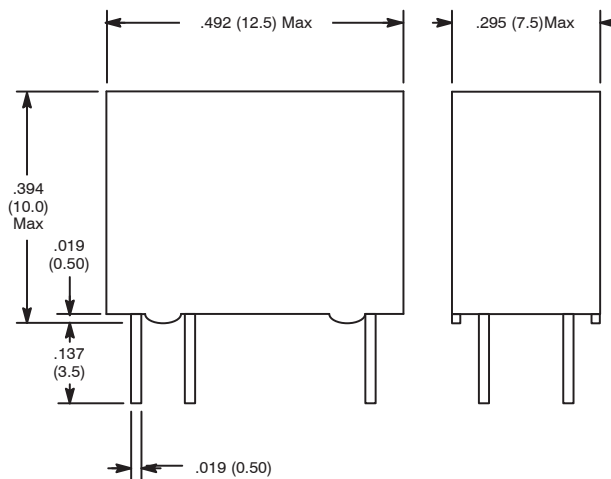
Mounting Holes  
(Bottom View)



DC OPERATED						
NTE Type No.	Nom. Volt.	Contact Arr.	Coil Res. Ohms (Typ)	Approx. Nom. Power	Max. Contact Cur. @ 24VDC or 125VAC	Diag No.
R70-5D1-3	3VDC	SPDT	60	150mW	1A/0.5A	D44
R70-5D1-5	5VDC	SPDT	166.7	150mW	1A/0.5A	D44
R70-5D1-6	6VDC	SPDT	240	150mW	1A/0.5A	D44
R70-5D1-12	12VDC	SPDT	960	150mW	1A/0.5A	D44
R70-5D1-24	24VDC	SPDT	3,840	150mW	1A/0.5A	D44

Subminiature, SPDT, 1 Amp Relay for Telecommunications, Computer/Peripheral Equipment and Interface Applications.

D44



## Electrical Specifications

### Contact

**Rating:** 0.5A at 125VAC, 1A at 24VDC

**Material:** Ag (Au clad)

### Coil

**Coil Voltages:** See Chart

**Pick-up Voltages:** 80% of rated voltage

**Drop-out Voltages:** 10% of rated voltage

**Resistance:** See Chart

### Operational Characteristics

**Timing Value:** . . . . . **Operate Time:** 5 mS max

**Release Time:** 5 mS max

### Insulation Characteristics

#### Dielectric Strength

**Between Coil & Contacts:** 1000 VAC

**Between Contacts of Same Polarity:** 400 VAC

**Resistance:** 100 megohms max.

### Environmental Characteristics

**Operating:** -30°C to +70°C

### Life

**Mechanical:** 5,000,000 operations min (at 36,000 operations/hr)

### Weight

**Std:** 0.08 oz (2.2 grams) approx.



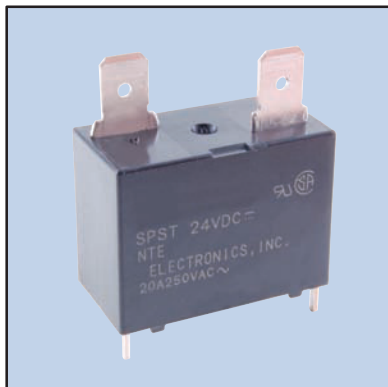
# PC Mount Relays

## R71 Series

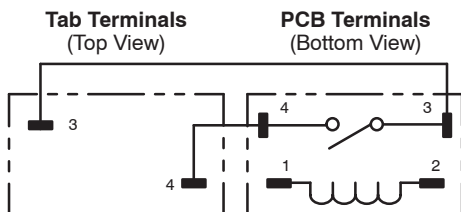


### Features

- Semi-Sealed Construction
- Miniature Power Relay Ideal for Motor Switching in Appliances and HVAC Equipment



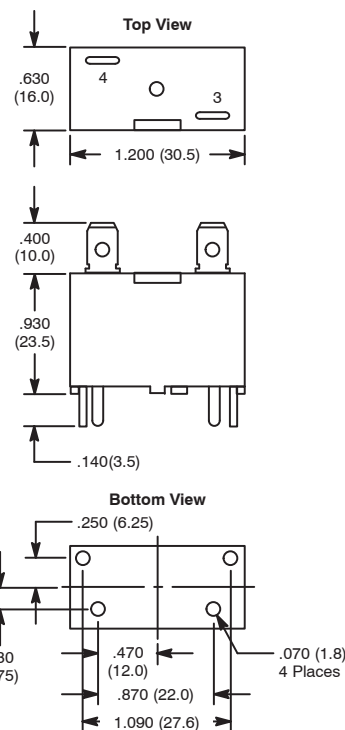
SPST-NO, 1 Form "A"



DC OPERATED						
NTE Type No.	Nom. Voltage	Contact Arr.	Coil Res. Ohms (Typ)	Nom. Power	Max. Contact Cur. @ 250VAC	Diag No.
R71-1D20-5	5VDC	SPST-NO	27	900mW	20A	D84
R71-1D20-12	12VDC	SPST-NO	160	900mW	20A	D84
R71-1D20-24	24VDC	SPST-NO	640	900mW	20A	D84

Miniature, Semi-Sealed, 20 Amp, SPST-NO, DC Power, Printed Circuit Mount w/Quick Connect Relays for High Inrush Compressor Loads

### D84



## Electrical Specifications

### Contact

**Rating:** Inrush 80 Amp ( $\cos\phi$  0.7) 0.35/20 Amp steady state ( $\cos\phi$  0.9)

**Carry Current:** 20 Amp

**Contact Material:** AgSnO<sub>2</sub>

**Contact Resistance:** 0.1 Ohms Max. initial

### Coil

**Coil Voltages:** See Chart

**Pick-Up Voltage:** Less than 70% of nominal coil voltage

**Drop-out Voltage:** Greater than 10% of nominal coil voltage

**Resistance:** See Chart

### Operational Characteristics

Timing Value . . . . . **Operate Time:** Approx 20 mS  
**Release Time:** Approx 10 mS } at nominal coil voltage

### Insulation Characteristics

**Dielectric Strength**

**Contact To Coil:** 4500 VRMS

**Across Open Contacts:** 1000 VRMS

**Insulation Resistance:** 1000 megohms Min.  
 @ 500 VDC

### Environmental Characteristics

**Operating:** -25°C to +60°C with no icing

**Mechanical Life:** 2,000,000 operations min

### Weight

**Std:** 23 gram approx.



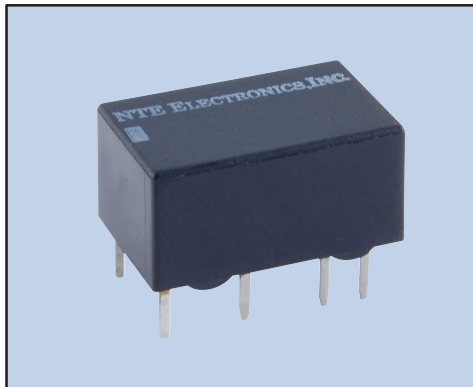
# PC Mount Relays

## R72 Series

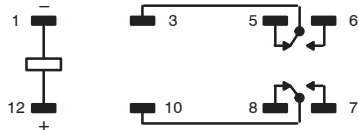


### Features

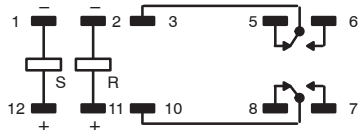
- High Sensitivity
- Small Size
- Low Power Consumption
- Fully Sealed Construction
- Latching Type (C-Suffix)



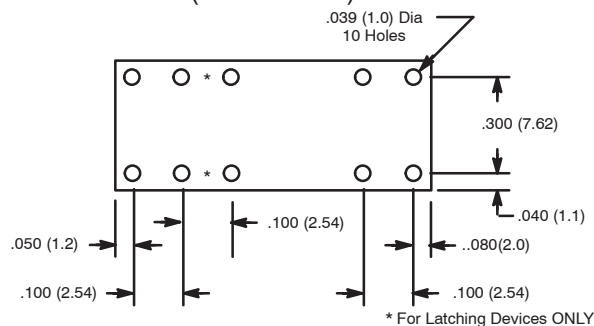
DPDT, 2 Form "C"



Latching Devices



Mounting Holes  
(Bottom View)



### DC OPERATED

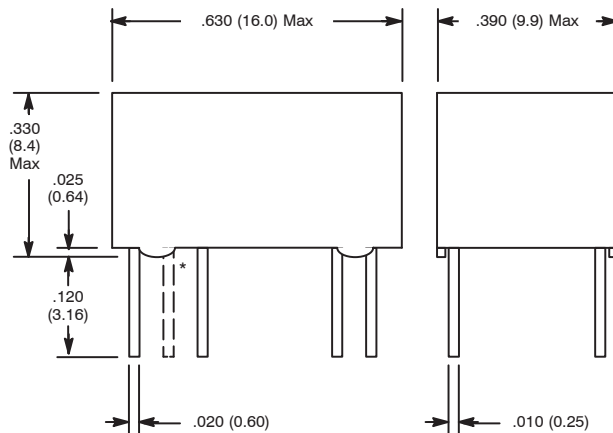
NTE Type No.	Nom. Volt.	Contact Arr.	Coil Res. Ohms (Typ)	Approx. Nom. Power	Max. Contact Cur. @ 30VDC or 30VAC	Diag No.
R72-11D1-6C	6VDC	DPDT	180	200mW	1A/0.5A	D45
R72-11D1-12	12VDC	DPDT	720	200mW	1A/0.5A	D45
R72-11D1-12C	12VDC	DPDT	720	200mW	1A/0.5A	D45
R72-11D1-24	24VDC	DPDT	2,880	200mW	1A/0.5A	D45

### ACCESSORIES

MOUNTING STYLES	DESCRIPTION	NTE TYPE NO.
PC MOUNT	14-Lead DIP	NTE409

Subminiature, DPDT, 1 Amp Relay for Office Automation and Test and Measurement.

### D45



\* For Latching Devices ONLY

## Electrical Specifications

### Contact

Rating: 0.5A at 30VAC, 1A at 30VDC  
Material: Ag (Au clad)

### Coil

Coil Voltages: See Chart  
Pick-up Voltages: 70% max of rated voltage  
80% max (Set, Latching)  
80% max (Reset, Latching)  
Drop-out Voltages: 10% min of rated voltage  
Resistance: See Chart

### Operational Characteristics

Timing Value: . . . . . Operate Time: 5 mS max  
Release Time: 5 mS max

### Insulation Characteristics

Dielectric Strength  
Between Coil & Contacts: 1000 VAC  
Between Set and Reset Coils: 250 VAC (Latching)  
Between Contacts of Same Polarity: 750 VAC  
Between Contacts of Different Polarity: 1000 VAC  
Resistance: 50 megohms max.

### Environmental Characteristics

Operating: -40°C to +70°C

### Life

Mechanical: 50,000,000 (Latching 1,000,000) operations min  
(at 18,000 operations/hr)

### Weight

Std: 0.11 oz (3 grams) approx.

# PC Mount Relays

## R73 Series



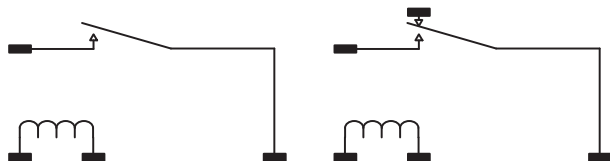
### Features

- Small Size
- Epoxy Sealed
- Standard Pin Spacing (0.1")
- PC Board Mount

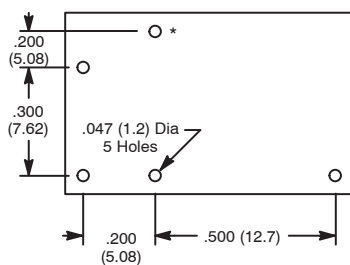


SPST-NO, 1 Form "A"

SPDT, 1 Form "C"



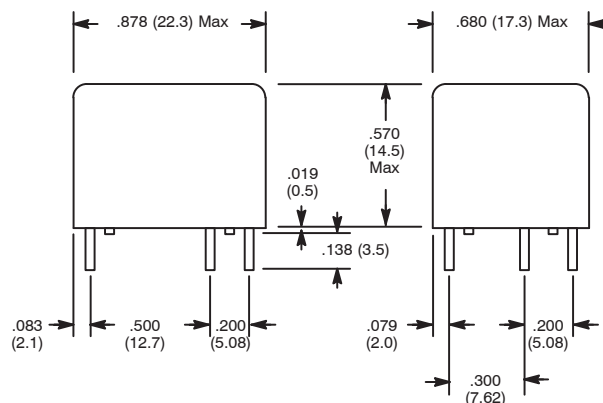
Mounting Holes  
(Bottom View)



\* Pin is omitted on SPST-NO devices

Subminiature, PC Mount, 10 Amp, SPST-NO & SPDT Relay, for Security and Telecommunication Equipment.

### D49



## Electrical Specifications

### Contact

**Rating:** 10 Amp @ 120VAC/28VDC

**Material:** Silver cadmium oxide

**Resistance:** 0.06 (At Nominal Conditions)

### Coil

**Coil Voltages:** See Chart

**Pick-up Voltages:** 75% max of rated voltage

**Drop-out Voltages:** 10% min of rated voltage

**Resistance:** See Chart

### Operational Characteristics

**Timing Value:** . . . . . **Operate Time:** 5 ms max

**Release Time:** 10 ms max

### Insulation Characteristics

**Dielectric Strength**

**Between Contact and Coil:** 1500 VAC

**Between Contacts:** 750 VAC

**Insulation Resistance:** 100MΩ

### Environmental Characteristics

**Operating:** -55°C to +85°C

### Life

**Mechanical:** 100,000 operations

**Electrical:** 10,000,000 operations

### Weight

**Std:** 0.39 oz (11 grams) approx.

DC OPERATED						
NTE Type No.	Nom. Volt.	Contact Arr.	Coil Res. 10% Ohms (Typ)	Approx. Nom. Power	Max. Contact Cur. @ 28VDC or 120VAC	Diag No.
R73-1D10-3	3VDC	SPST-NO	20	450mW	10A	D49
R73-1D10-5/6	6VDC	SPST-NO	80	450mW	10A	D49
R73-1D10-12	12VDC	SPST-NO	320	450mW	10A	D49
R73-1D10-24	24VDC	SPST-NO	1280	450mW	10A	D49
R73-5D10-3	3VDC	SPDT	20	450mW	10A	D49
R73-5D10-5/6	6VDC	SPDT	80	450mW	10A	D49
R73-5D10-12	12VDC	SPDT	320	450mW	10A	D49
R73-5D10-24	24VDC	SPDT	1280	450mW	10A	D49
R73-5D10-48	48VDC	SPDT	3800	450mW	10A	D49

# PC Mount Relays

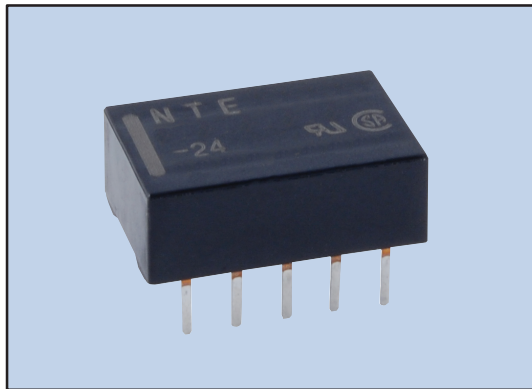
## R74 Series



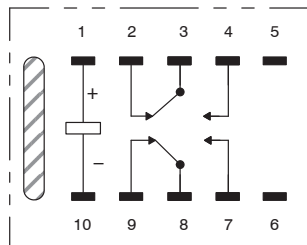
Subminiature, PC Mount, 1 Amp, DPDT Low Signal Relay.

### Features

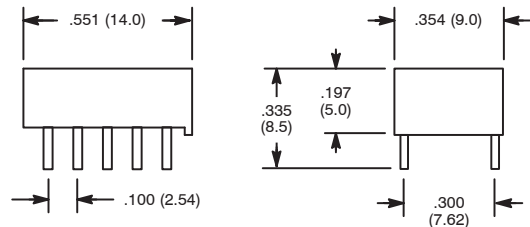
- Compact, with Low 5mm (.197") Profile
- Low Power Consumption (140mW)
- Standard Pin Spacing (0.1")
- PC Board Mount
- Surface Mount ("SM" Suffix)



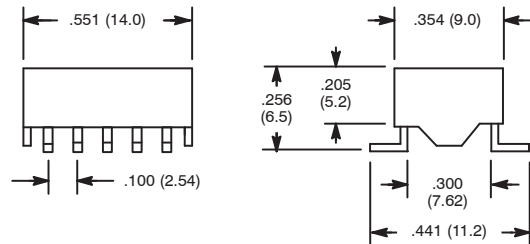
DPDT, 2 Form "C"  
(Bottom View)



### D52



### D53



## Electrical Specifications

### Contact

**Rating:** 1 Amp  
**Material:** Ag (Au clad)  
**Resistance:** 50mΩ (Standard), 60mΩ (Surface Mount)

### Coil

**Coil Voltages:** See Chart  
**Pick-up Voltages:** 75% max of rated voltage  
**Drop-out Voltages:** 10% min of rated voltage  
**Resistance:** See Chart

### Operational Characteristics

**Timing Value:** ..... **Operate Time:** 3 mS max  
**Release Time:** 2 mS max

### Insulation Characteristics

#### Dielectric Strength

**Between Contact and Coil:** 1000 VAC  
**Between Contacts (Same Polarity):** 1000 VAC  
**Between Contacts (Different Polarity):** 750 VAC  
**Insulation Resistance:** 1000MΩ

### Environmental Characteristics

**Operating:** -40°C to +70°C (Standard),  
-40°C to +85°C (Surface Mount)

### Life

**Mechanical:** 36,000 operations/hour  
**Electrical:** 1,800 operations/hour (under rated load)

### Weight

**Std:** 0.05 oz (1.5 grams) approx.

### DC OPERATED

NTE Type No.	Nom. Volt.	Contact Arr.	Coil Res. 10% Ohms (Typ)	Approx. Nom. Power	Max. Contact Cur. @ 30VDC	Diag No.
R74-11D1-3	3VDC	DPDT	64.3	140mW	1A	D52
R74-11D1-3SM	3VDC	DPDT	64.3	140mW	1A	D53
R74-11D1-5	5VDC	DPDT	178	140mW	1A	D52
R74-11D1-5SM	5VDC	DPDT	178	140mW	1A	D53
R74-11D1-6	6VDC	DPDT	257	140mW	1A	D52
R74-11D1-6SM	6VDC	DPDT	257	140mW	1A	D53
R74-11D1-12	12VDC	DPDT	1,028	140mW	1A	D52
R74-11D1-12SM	12VDC	DPDT	1,028	140mW	1A	D53
R74-11D1-24	24VDC	DPDT	2,880	200mW	1A	D52
R74-11D1-24SM	24VDC	DPDT	2,880	200mW	1A	D53

### ACCESSORIES

MOUNTING STYLES	DESCRIPTION	NTE TYPE NO.
PC MOUNT	10-PIN DIP	NTE409 (14-Pin DIP)



# PC Mount Relays

## RLY39 Series

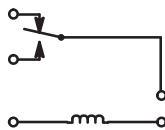


### Features

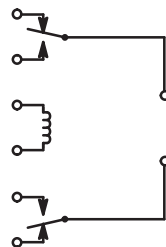
- Epoxy Sealed
- Low Profile
- Immersion Proof



SPDT, 1 Form "C"  
(Bottom View)



DPDT, 2 Form "C"  
(Bottom View)



### DC OPERATED

NTE Type No.	Nom. Volt.	Contact Arr.	Coil Res. Ohms (Typ)	Approx. Nom. Power	Max. Contact Cur. @ 24VDC	Diag No.
RLY3920	5VDC	SPDT	75	750mW	2A	D74
RLY3922	12VDC	SPDT	440	750mW	2A	D74
RLY3923	24VDC	SPDT	1550	750mW	2A	D74
RLY3942	12VDC	DPDT	440	750mW	2A	D74a
RLY3943	24VDC	DPDT	1550	750mW	2A	D74a

When soldering the relay to the PC board, solder temperature must not exceed +270°C, and solder time must not exceed 5 seconds. If necessary to hold the relay in place during soldering, the terminals of the coil and movable contact arm may be slightly bent after insertion through the board holes.

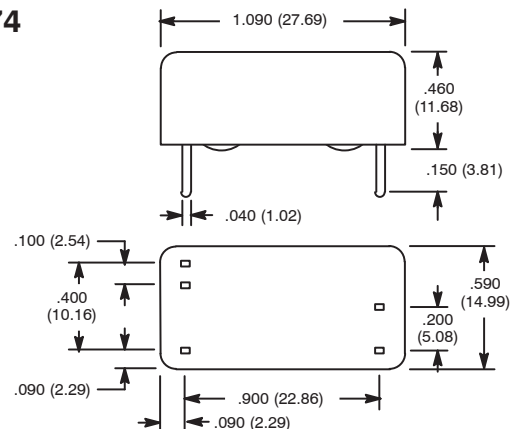
**CAUTION:** Do not bend the terminals of the stationary contact arms, as this may alter contact adjustment.

The polyester cover of the relay is bonded to the relay base, but is not hermetically sealed. Therefore, if the board on which the relay is soldered is to be cleaned by immersion, cleaning time must not exceed two minutes. If fluorocarbons, chlorinated or hydrocarbon cleaning solutions are used, the temperature of the solution must not exceed +77°C. If aqueous organic solutions are used, temperature must not exceed +80°C.

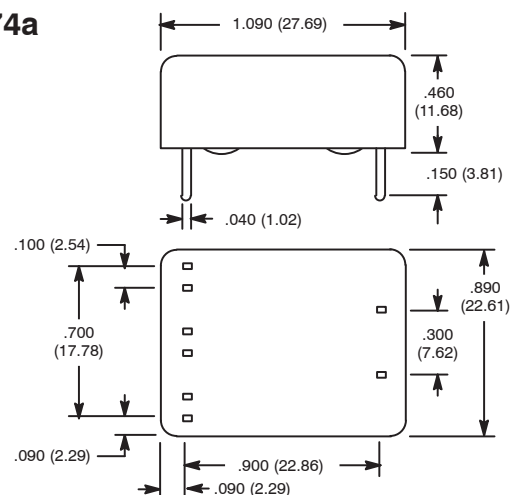
**After board cleaning, the tape on the top of the relay must be punctured before the relay is put into service.** If the tape is not punctured, any normal outgassing could result in excessive contact resistance at load currents of less than the contact rating.

## Miniature, PC Mount, 2 Amp, Multicontact Relays.

### D74



### D74a



## Electrical Specifications

### Contact

**Rating:** 2 Amp @ 24 VDC

**Material:** Gold Clad Silver Palladium

**Resistance:** 100m Max

### Coil

**Coil Voltages:** See Chart

**Pick-up Voltages:** 80% of nominal voltage or less

**Drop-out Voltages:** 10% of nominal voltage or more

**Max. Allowed Voltage:** 120% of nominal voltage, duty cycle 100%

**Nominal Power:** 327mW max. min. sensitivity: 200mW

**Resistance:** See Chart

### Operational Characteristics

**Timing Value:** . . . **Operate Time:** 4 mS max

**Release Time:** 10 mS max

### Insulation Characteristics

#### Dielectric Strength

**Between All Mutually Insulated Points:** 500 VAC/1 minute

**Insulation Resistance:** 1000MΩ Min. @ 500 VDC

### Environmental Characteristics

**Operating:** -35°C to +70°C

### Life

**Mechanical:** 100 million operations (no load)

**Electrical:** 100,000 operations (under rated load)

### Weight

**Std:** SPDT - 5.5 grams (approx.); DPDT - 9.0 grams (approx)