

SPDT Electromechanical Relay Latching Switch  
 DC to 12.4 GHz, 2M Lifecycles, N, 50 Watts, 28V,  
 TTL, Diodes, Self Cut Off, Solder Pins

## Electromechanical Relay Switches Technical Data Sheet

**PE71S6490**

### Features

- Single Pole Double Throw (SP2T) Electromechanical Relay Switch
- DC to 12 GHz Frequency Range
- Latching Self Cut-Off Actuator
- 2M Lifecycle Rating
- Insertion Loss 0.2 dB typ
- Isolation > 90 dB typ
- VSWR as low as 1.25:1 max
- +28 Volt DC Bias
- Terminal Solder Pins for DC Control
- N Type Female Connectors
- -25°C to +65°C Operating Temperature
- Up to 50 Watt Average Power Handling
- 50 Ohm Design
- Hot Switching Capability - Consult Factory
- S-Parameter Data available upon request
- Rugged Design meets Mil-STD-202 Test Conditions

### Applications

- Aerospace & Defense
- Test & Measurement
- Microwave Radio Systems
- Military & Commercial Communication Systems
- Research & Development
- SATCOM
- Wireless Communications
- Enterprise
- IoT

### Description

The PE71S6490 is a Single Pole Double Throw (SP2T) electromechanical relay switch that operates across a wide frequency range from DC to 12 GHz and can handle up to 50W of average power in a break before make condition. The 50 Ohm design is rated for 2 million lifecycles and features a Latching Self Cut-Off Actuator that magnetically latches in place after the control voltage is removed. For power sensitive applications, this is the best actuator option. Additional features include TTL control logic, and suppression diodes which limit voltage spikes or reverse current. Impressive typical performance includes 0.2 dB insertion loss and isolation greater than 90 dB. This switch requires +28 Vdc bias voltage and operates over a temperature range of -25°C to +65°C. The rugged and compact package assembly supports N Type female connectors and solder terminal pins for DC command control functions. And for highly reliable operation, the model is guaranteed to meet MIL-STD-202 environmental test conditions for shock and random vibration.

### Electrical Specifications (TA = +25°C, DC Voltage = +28 Vdc)

Switch Type	SPDT
Actuator Type	Latching
Actuator Options	Self Cut Off
TTL Control	on: 2.4 to 5.5 Volts off: 0 to 0.8 Volts

Description	Minimum	Typical	Maximum	Units
Frequency Range	DC		12.4	GHz
Operating Voltage		+28		Volts
Actuating Set Current @ +28 Volts			160	mA
VSWR		1.3:1	1.4:1	
Insertion Loss		0.2	0.5	dB
Isolation	60	90		dB

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [SPDT Electromechanical Relay Latching Switch DC to 12.4 GHz, 2M Lifecycles, N, 50 Watts, 28V, TTL, Diodes, Self Cut Off, Solder Pins PE71S6490](#)



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Input Power (CW) 50 Watts  
 (at 12.4 GHz)

### Performance by Frequency

Description	F1	F2	F3	F4	F5	Units
Frequency Range	DC to 1	1 to 4	4 to 8	8 to 12		GHz
VSWR, Max	1.25:1	1.3:1	1.4:1	1.4:1		
Insertion Loss, Max	0.3	0.4	0.4	0.5		dB
Isolation, Min	90	80	70	60		dB

### Mechanical Specifications

#### Size

Length 1.95 in [49.53 mm]  
 Width/Diameter 2.75 in [69.85 mm]  
 Height 0.92 in [23.37 mm]  
 Weight 0.1 lbs [45.36 g]

#### Connectors

RF Connector Type N Female

### Environmental Specifications

#### Temperature

Operating Range -25 to +65 deg C  
 Storage Range -55 to +100 deg C

Shock MIL-STD-202 Method 213, Condition D, 500G (non oper)

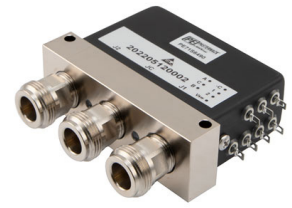
Vibration MIL-STD-202 Method 204, Condition D, 10G RMS (non oper)

**Compliance Certifications** (see [product page](#) for current document)

### Plotted and Other Data

Notes:

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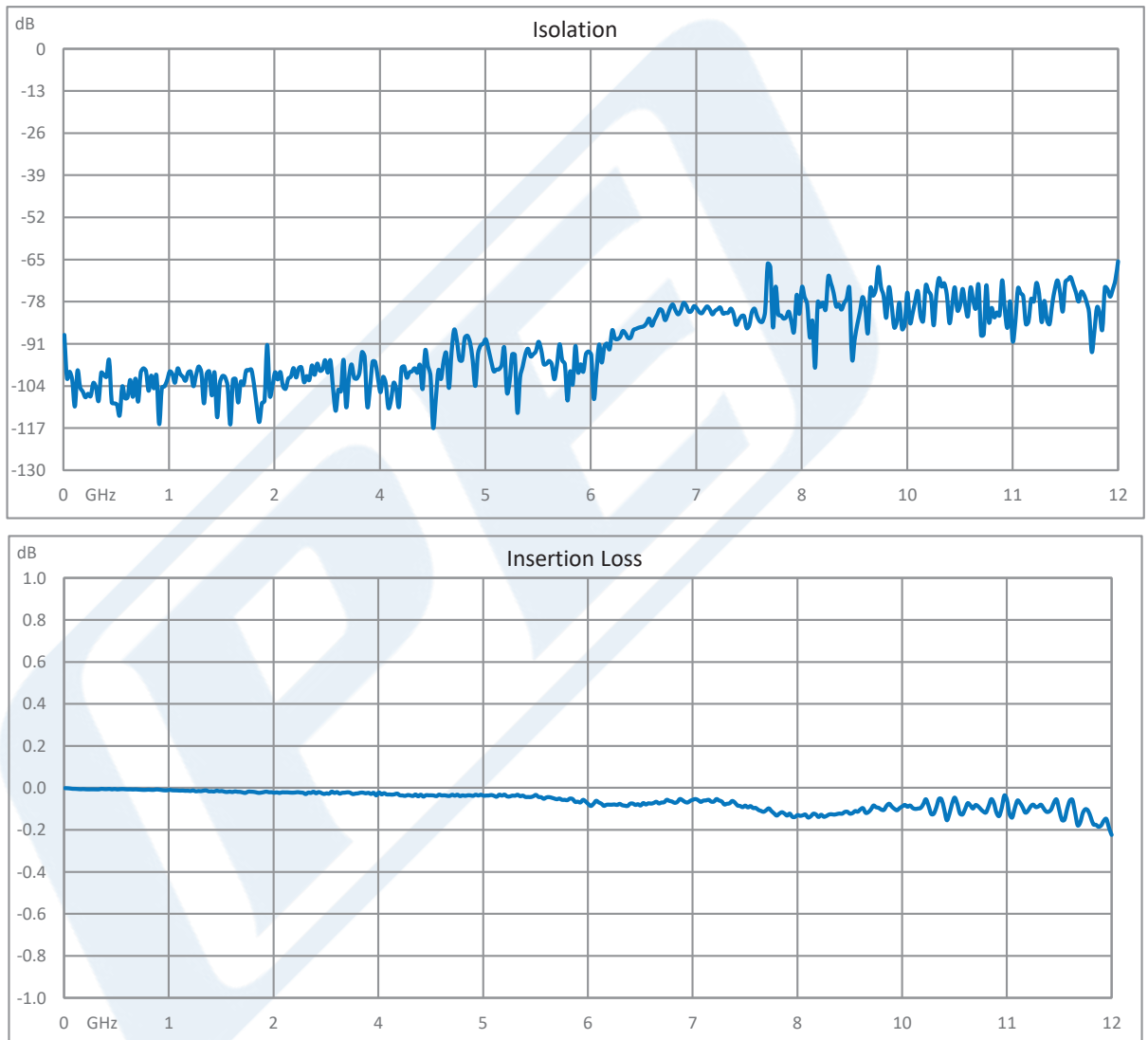


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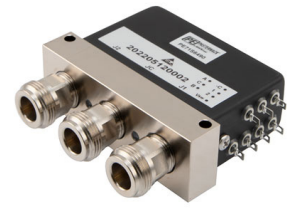
## Electromechanical Relay Switches Technical Data

**PE71S6490**

### Typical Performance Data



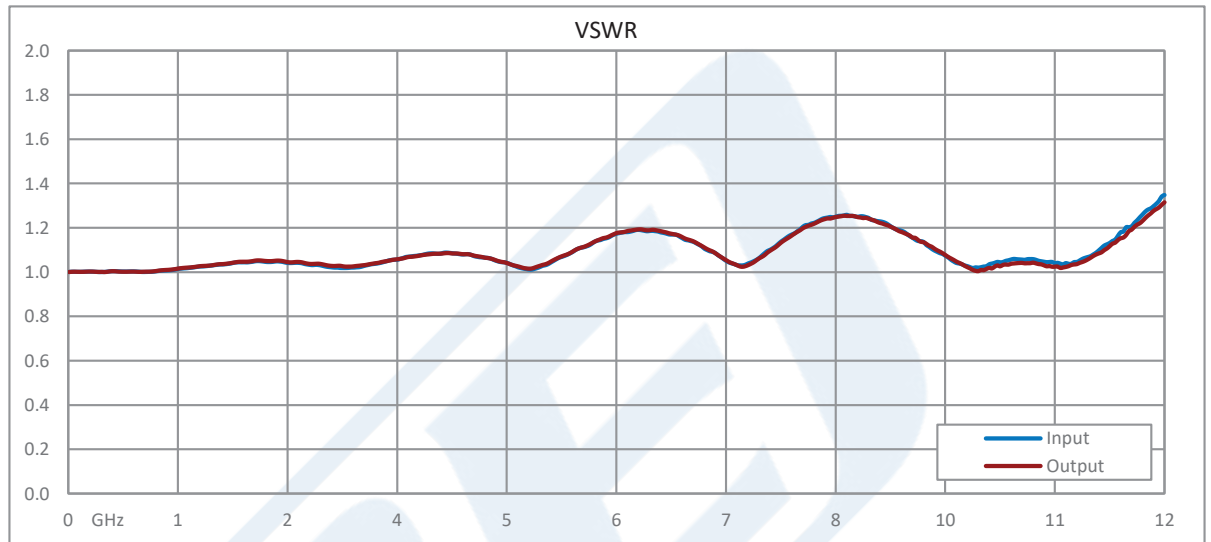
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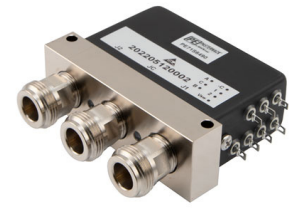
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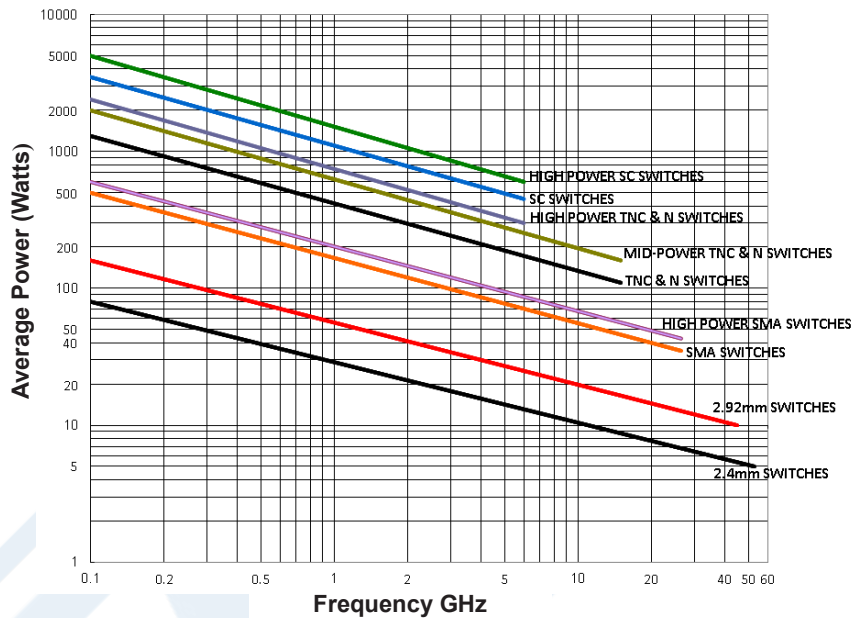


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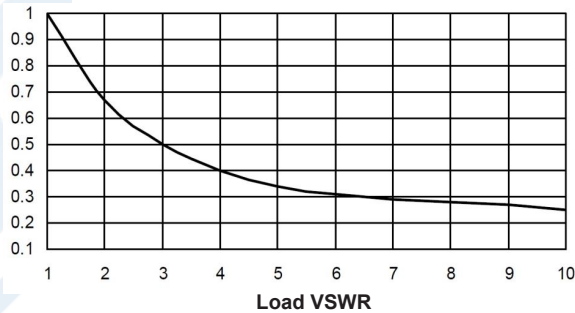
**Electromechanical Relay Switches Technical Data**

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**Power Handling vs. Frequency**

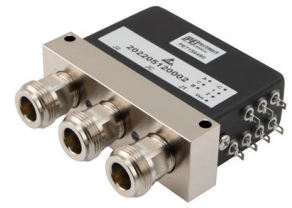


**Power Handling De-rating vs. Load VSWR**



Power Handling Chart and Derating Curves based on the following Test and Environmental Conditions:  
 Ambient temperature: 20-25°C  
 Altitude: Sea Level to 1,000 feet  
 Relative Humidity: 50-55%  
 Load VSWR: ≤ 1.20:1  
 Operation: Cold Switching

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SPDT Electromechanical Relay Latching Switch DC to 12.4 GHz, 2M Lifecycles, N, 50 Watts, 28V, TTL, Diodes, Self Cut Off, Solder Pins from Pasternack Enterprises has same day shipment for domestic and International orders. Our RF, microwave and millimeter wave products maintain a 99.4% availability and are part of the broadest selection in the industry.

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [SPDT Electromechanical Relay Latching Switch DC to 12.4 GHz, 2M Lifecycles, N, 50 Watts, 28V, TTL, Diodes, Self Cut Off, Solder Pins PE71S6490](https://www.pasternack.com/spdt-electromechanical-relay-latching-switch-12.4-ghz-50w-28v-n-pe71s6490-p.aspx)

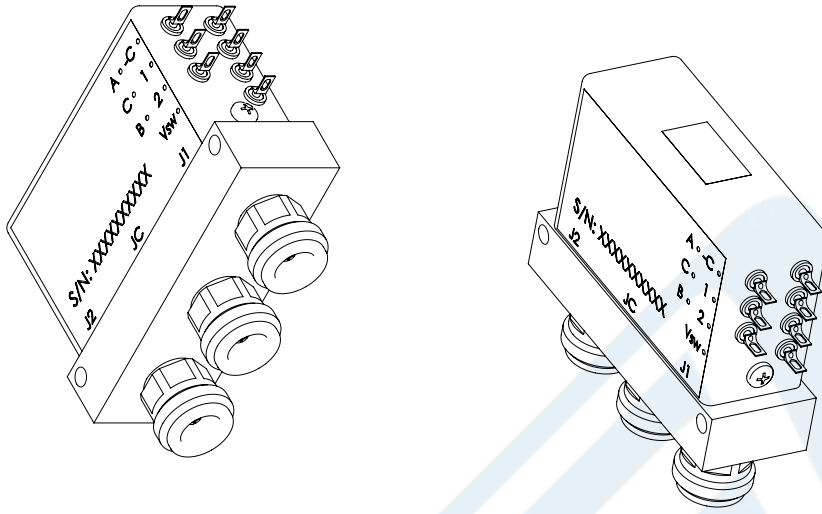
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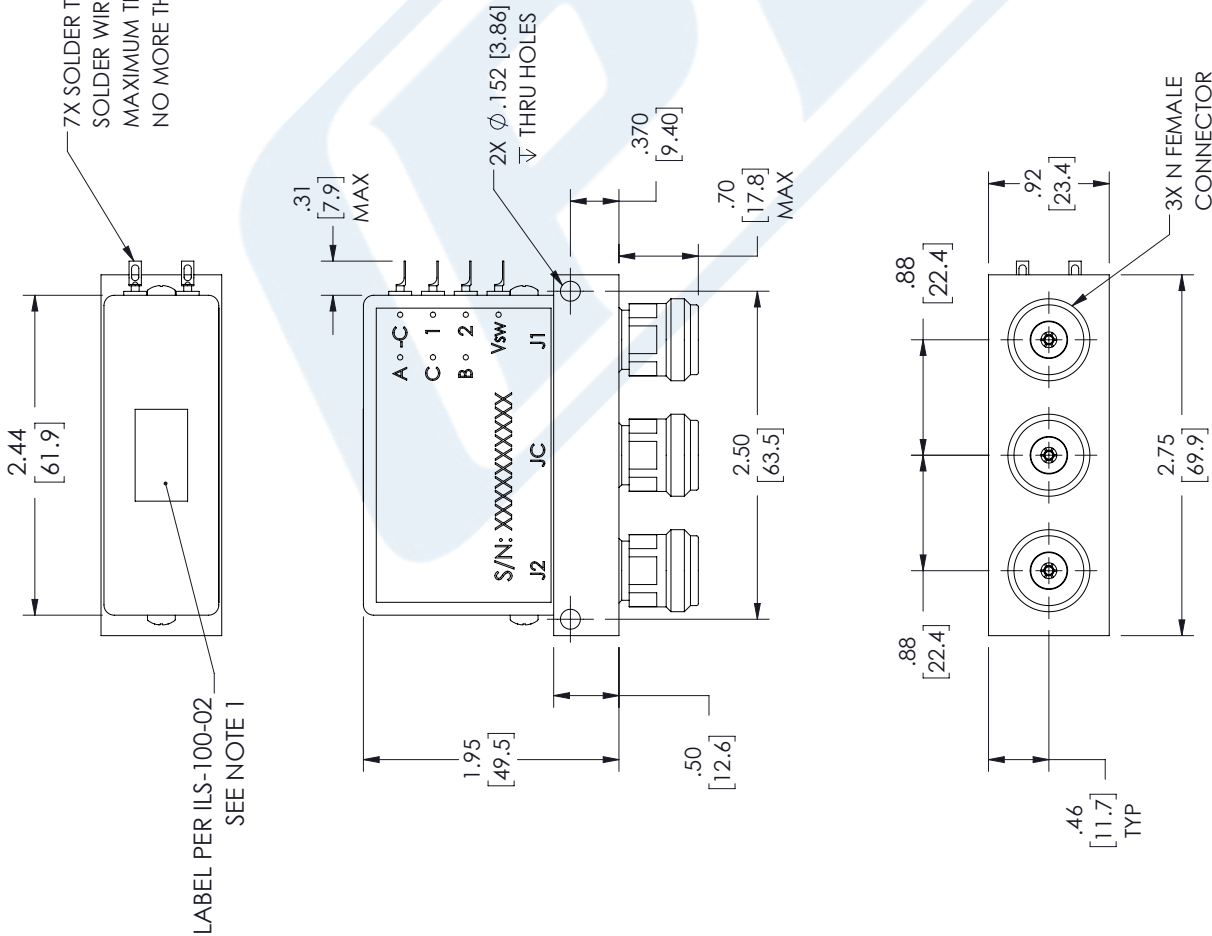
# PE71S6490 CAD Drawing

SPDT Electromechanical Relay Latching Switch DC to 12.4 GHz, 2M Lifecycles, N, 50 Watts, 28V, TTL, Diodes, Self Cut Off, Solder Pins

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	INITIAL RELEASE	05/17/2022	T. GALLA



7X SOLDER TERMINALS  
SOLDER WIRE USING SN96  
MAXIMUM TEMP 210°C FOR  
NO MORE THAN 5 SEC.



LABEL PER ILS-100-02  
SEE NOTE 1

- NOTES:
- LABEL PER ILS-100-02. FOR INTERNAL REFERENCE ONLY.  
LABEL LOCATION FOR REFERENCE ONLY.

UNLESS OTHERWISE SPECIFIED  
LEADING DIMENSIONS ARE INCHES  
DIMENSIONS IN [ ] ARE MILLIMETERS

TOLERANCES:

.X = ±.2	[5.08]	FRACTIONS
.XX = ±.02	[.51]	± 1/32
.XXX = ±.005	[.13]	ANGLES ± 1°

CABLE LENGTH (L) TOLERANCES:

L ≤ 12	[305]	= +1 [25] / -0
12 [305] < L ≤ 60	[1524]	= +2 [51] / -0
60 [1524] < L ≤ 120	[3048]	= +4 [102] / -0
120 [3048] < L ≤ 300	[7620]	= +6 [152] / -0
300 [7620] < L		= +5%L / -0

ALL DIMENSIONS SHOWN  
ARE FOR REFERENCE ONLY.

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SHEET 1 OF 2  
SCALE N/A

REV A

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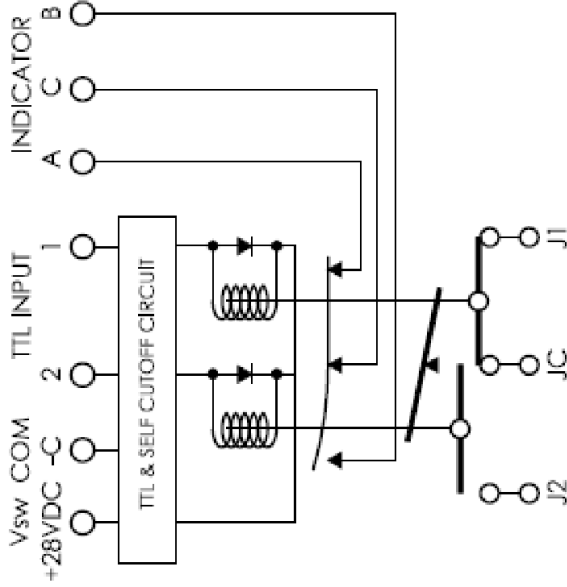
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SCHEMATIC

OPERATIONAL LOGIC TABLE					
TERMINALS		RF PORTS		INDICATOR	
1	2	J1	J2	A-C	B-C
0	0	NO CHANGE	NO CHANGE	NO CHANGE	NO CHANGE
0	1	OFF	ON	OFF	ON
1	0	ON	OFF	ON	OFF
1	1	FORBIDDEN	FORBIDDEN	FORBIDDEN	FORBIDDEN

UNLESS OTHERWISE SPECIFIED LEADING DIMENSIONS ARE INCHES DIMENSIONS IN [ ] ARE MILLIMETERS

TOLERANCES:

.X = ±.2	[.08]	FRACTIONS
.XX = ±.02	[.51]	±.1/32
.XXX = ±.005	[.13]	ANGLES ± 1°

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120 [3048] < L ≤ 300	[7620]	= +6 [152] / -0
300 [7620] < L		= +5%L / -0

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SIZE A CAGE CODE 53919 DRAWN BY KGLEBOVA

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