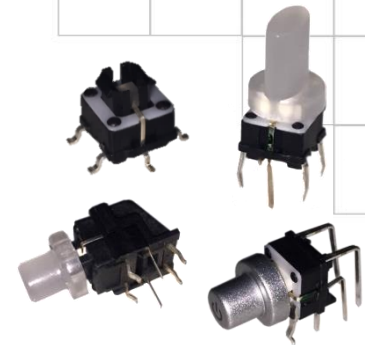


Series 228A

7.2 x 6.8mm Illuminated Tactile Switch

- Surface mount gull-wing terminal and standard through hole configurations
- Compatible with IR reflow, and manual soldering
- Single color display during illumination
- Variety of LED color options
- Variety of cap styles, colors, and laser etching options



Ordering Information

Series	Terminal Type	Actuating Direction	Actuation Force	LED Color	LED Type	Cap Style	Cap Color	Laser Etching	Packaging
228A	M	V	A	R	F	A	MS	A	R

Code	Spec.
D	Standard through hole (white actuator)
M	Surface mount gull wing (black actuator)

Code	Spec.
V	Vertical
*S1	Side, with 4 pairs of terminals
*S2	Side, with 3 pairs of terminals

*S1 and S2 are only available with Cap Style. C, Flat LED, and through hole terminals

Code	Spec.
F	Flat
*Blank	Bulb

*Blank is only available for no cap, vertical through hole terminal with single color LED

Code	Spec.
R	Red
Y	Yellow
G	Pure Green
B	Blue
W	White
A	Amber
L	Olive Green
RG	Red & Green
RB	Red & Blue
YG	Yellow & Green
RA	Red & Amber
AW	Amber & White

Code	Spec.
A	160 gf

Blank – No Etching (only available on Natural color caps) See table on page.2

Blank – No Cap See table on page 2

See table on pages 2 - 4

Code	Spec.
R	Tape & reel packaging (only available for surface mount type)
Blank	Tray packaging (only available for standard through hole type)

Note: Caps supplied in bulk for surface mount terminal constructions and must be installed after IR reflow soldering.

Cap Style

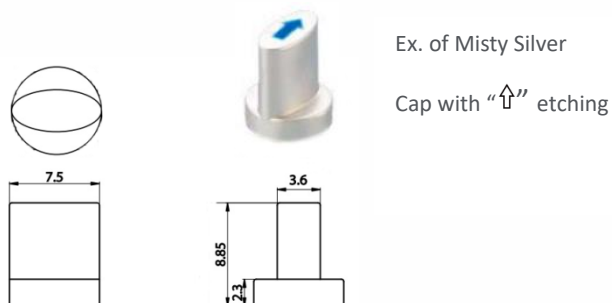
Code	Spec.
A	Elliptical column on round
B	45° Elliptical column on round
C	Cylinder on 3/4 circle

Cap Color

Code	Cap Color
MS	Misty Silver
W	White
BB	Bright Black
R	Red
MB	Misty Black
A	Orange
N	Natural

Cap Style Details

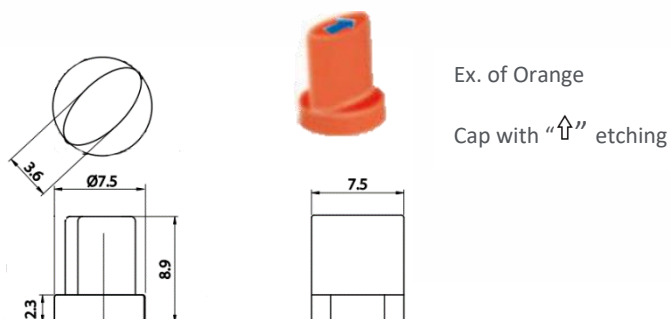
Style A: Elliptical column on round



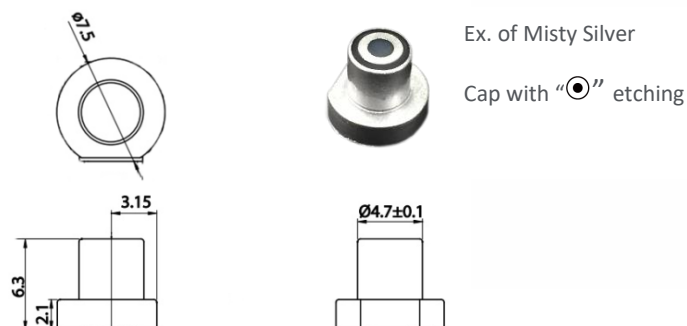
Cap Etching

Code	Style
A	↑
B	○
C	↑
D	OK
E	⦿

Style B: Elliptical column on round



Style C: Cylinder on 3/4 circle



Electrical Specifications

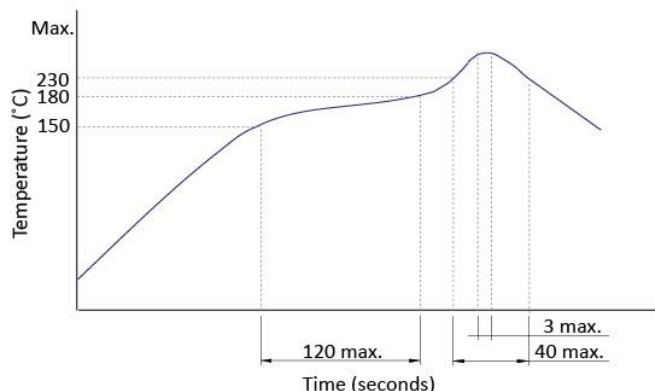
Parameter	Conditions & Remarks	Min	Max	Unit
Contact Resistance			100	milliohms
Insulation Resistance	Between insulated terminals	100		megohms
Dielectric Strength	250 VAC between adjacent switches		1	minute
Nonswitching Rating			50 or 12	mA or VDC

Mechanical and Environmental

Soldering	Maximum reflow temperature, 260°C for 5 seconds Maximum manual temperature, 350°C for 3 seconds
RoHS	Lead-Free. Fully compliant to RoHS Directive 2011/65/EU
Operating Force	160±50 gf
Actuation Life	100,000 cycles
Actuator Strength	2 Kgf maximum
Travel	0.25±0.1 mm
Packaging	Standard tape and reel packaging for surface mount gull wing terminal Tray packaging for standard through hole
Operating Temperature Range	-25°C to +70°C
Storage Temperature Range	-30°C to +80°C
MSL Level	1 for through hole product 3 for SMD product

Soldering Profile

LED Specifications



Color	Reversed Voltage	Forward Current	Recommended Operating Current	Forward Voltage	
				Nor	Max
Red	5 Vdc	20 mA	20 mA	1.7V	2.4V
Green	5 Vdc	20 mA	20 mA	1.9V	2.4V
Yellow	5 Vdc	20 mA	20 mA	1.9V	2.4V
Blue	5 Vdc	20 mA	20 mA	3.0V	3.6V
White	5 Vdc	20 mA	20 mA	3.0V	3.6V

Mechanical Specifications

Figure 1 – 228ADV..., Standard Though Hole, Vertical Actuation

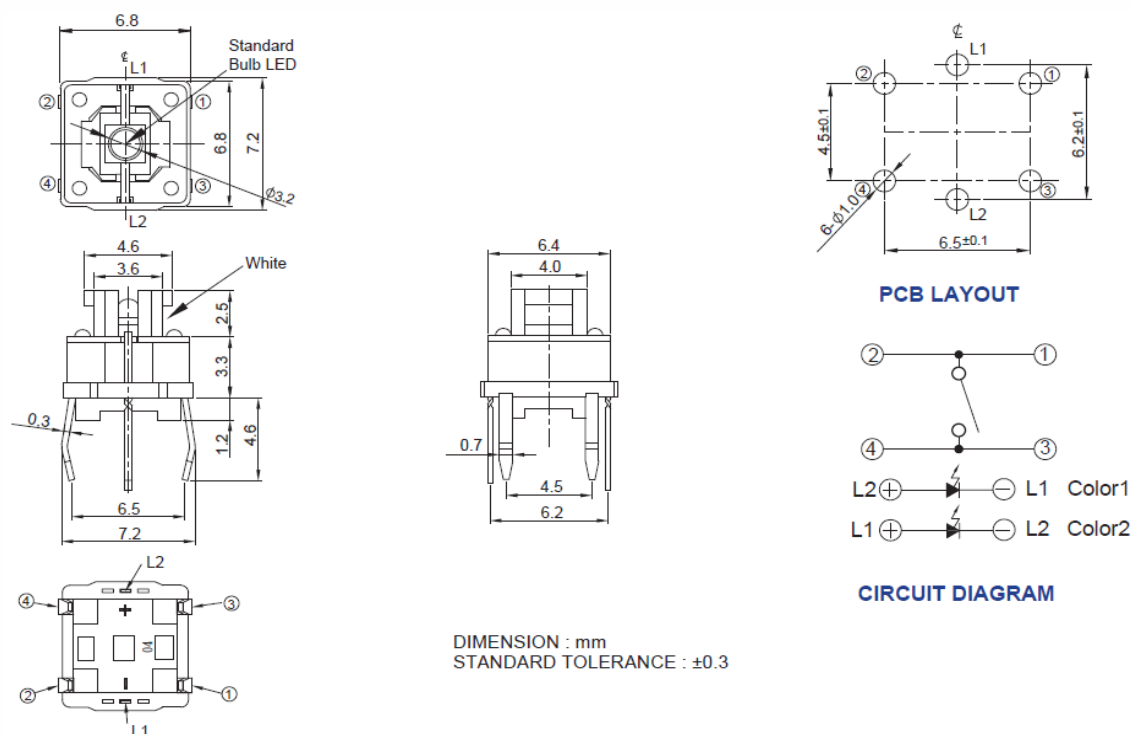


Figure 2 – 228AMV..., Surface Mount Gull Wing, Vertical Actuation

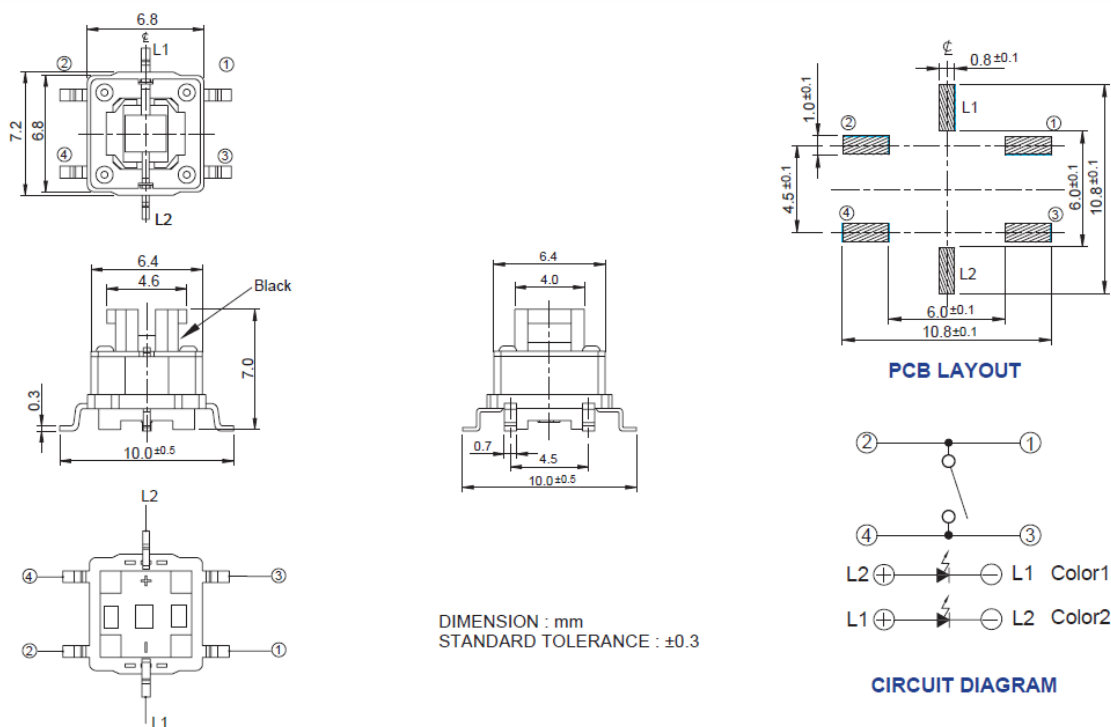


Figure 3 – 228ADS1..., Standard Though Hole, Side Actuation, 4 Pairs Terminals

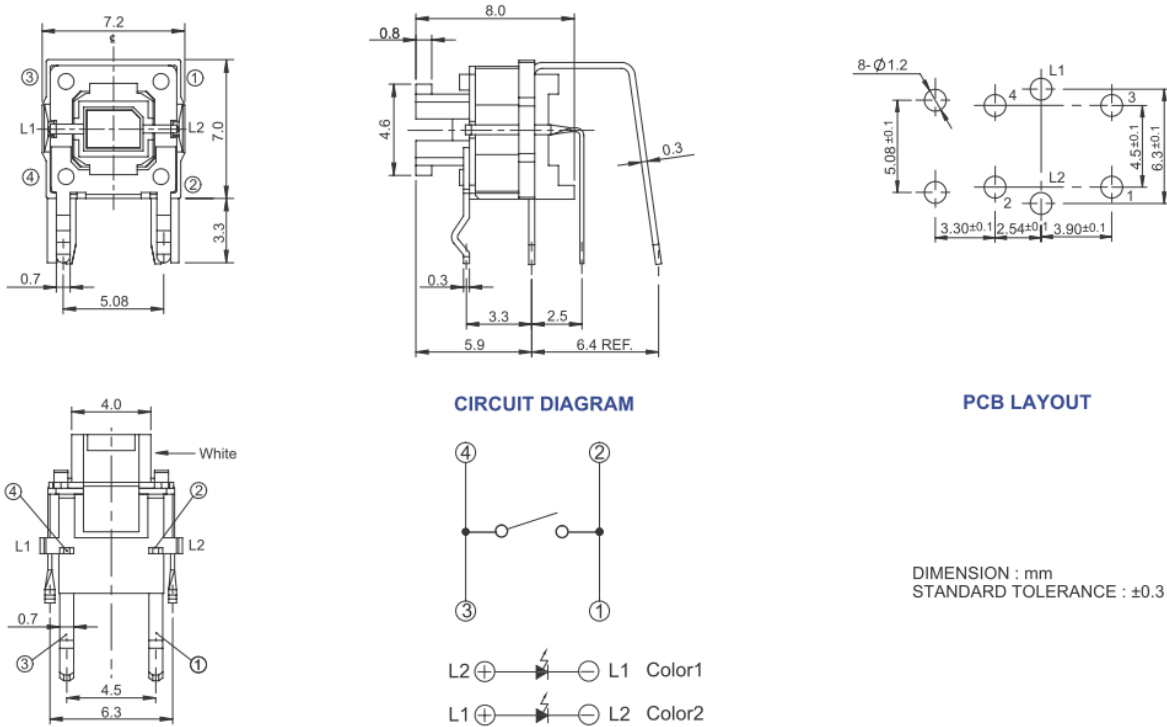


Figure 4 – 228ADVA...A..., Standard Though Hole, Vertical Actuation, Elliptical Column on Round Cap in Natural Color

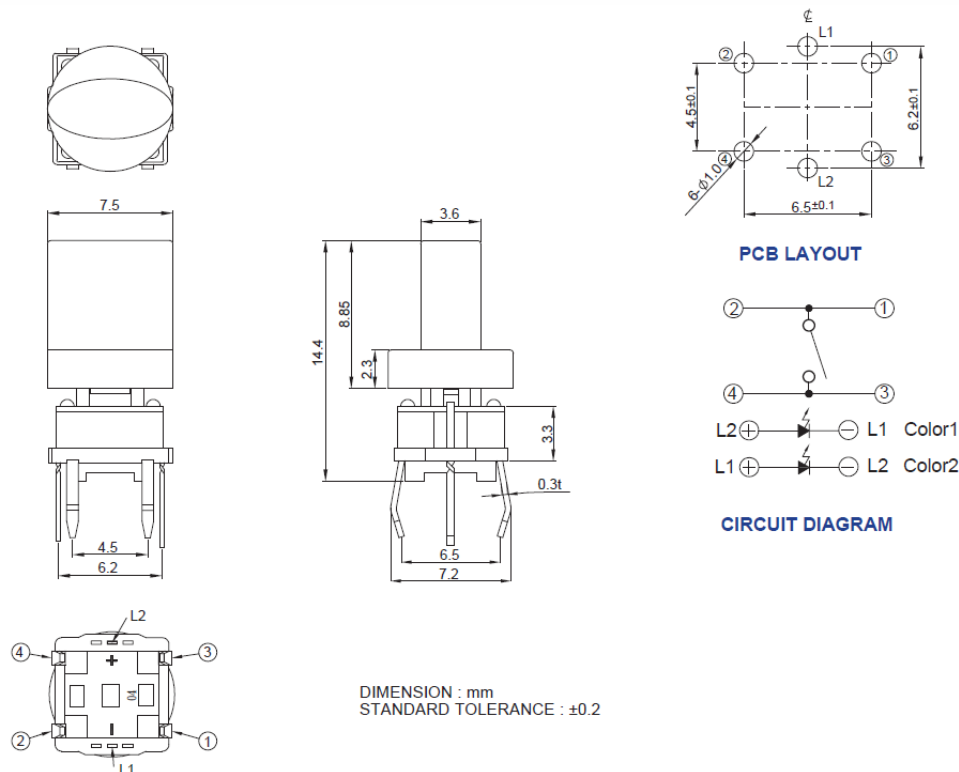
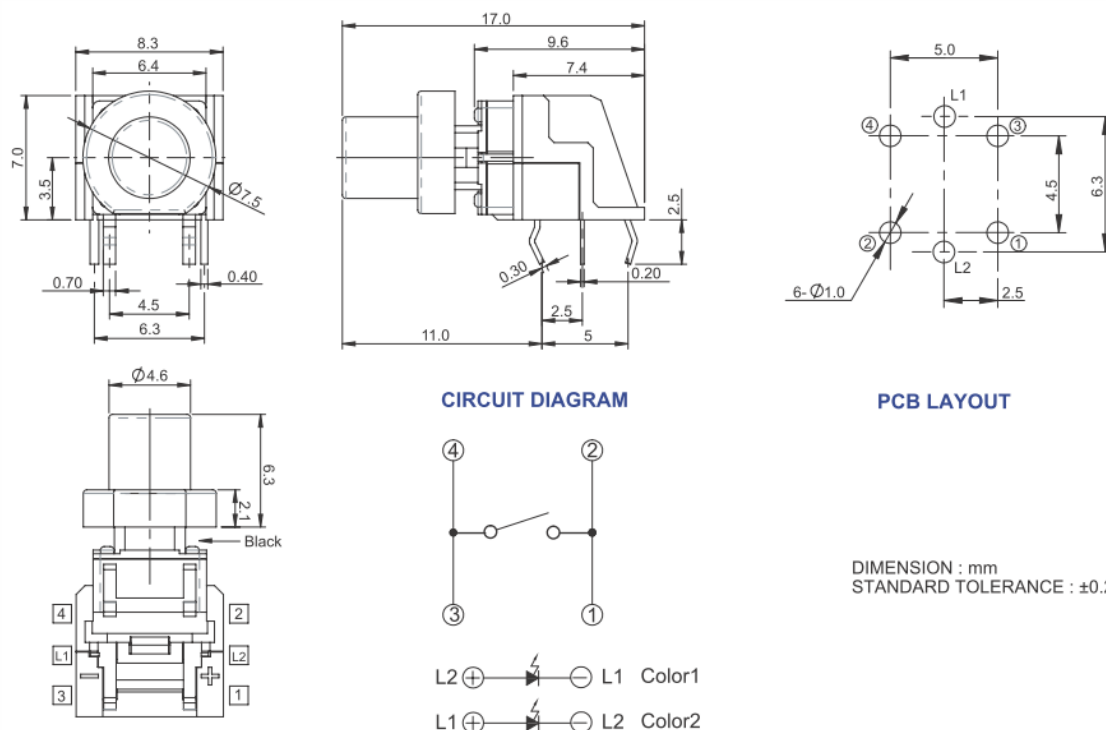


Figure 5 – 228ADS2...C..., Standard Though Hole, Side Actuation with 3 Pairs Terminals, & Cylinder on Round Cap

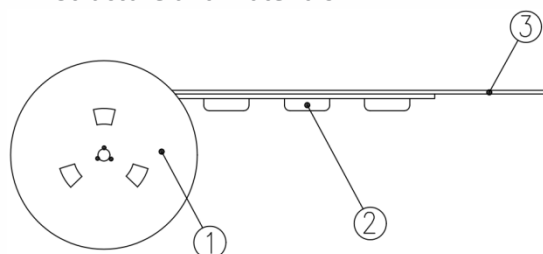


Packing: Tape and Reel

Surface Mount Gull Wing, Actuator Height 7.0mm

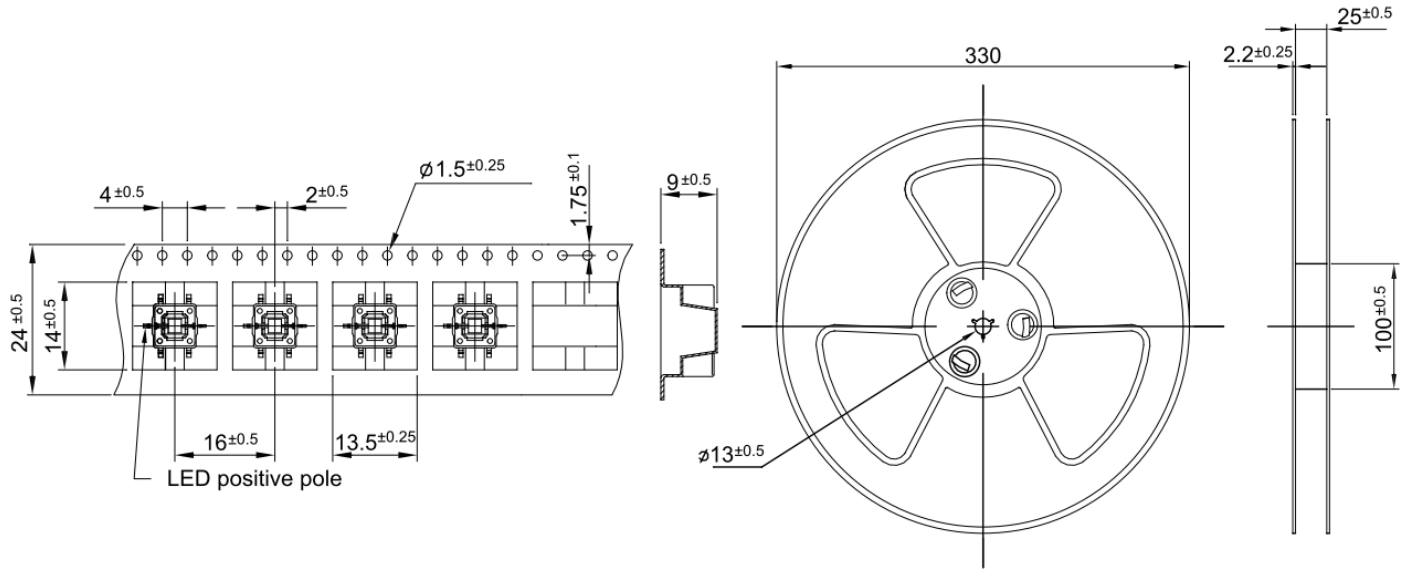
The packing specifications:

1. Structure and materials:



No	PART NAME	MATERIAL
①	REEL	POLYSTYRENE
②	CARRIER TAPE	POLYSTYRENE
③	COVER TAPE	POLYESTER

2. Packing quantity: 450 pcs/reel
3. More than 15 empty pockets should remain at each end of the carrier tape for each reel.
4. Shortage of less than 10 pcs a reel is acceptable but no more than 3 consecutive empty pockets are allowed.
5. Stripping strength of cover tape is between 10 gf to 130 gf and stripping angle should be within 165°~180°.
6. The product in the pocket of carrier tape should be placed in a specified correct position.
7. Tape and reel per EIA-481.
8. Dimensions:



Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[CTS:](#)

[228ADVABF](#) [228ADS1AYFCN](#) [228ADS2AAWFCMBA](#) [228AMVARFAMSCR](#) [228AMVAAFACR](#)
[228AMVAAWFANR](#) [228AMVABFCRER](#) [228AMVAGFCAAR](#) [228AMVARAFCRAR](#) [228AMVARBFARCR](#)
[228AMVARBFCBCCR](#) [228AMVARFBMBCR](#) [228AMVARFCMBCR](#) [228AMVARGFAACR](#) [228AMVARGFCMSER](#)
[228AMVAWFCAER](#) [228AMVAWFCRBR](#) [228AMVAWFCRCR](#) [228AMVAYFCWBR](#) [228AMVAYGFBRCR](#)
[228ADS1ABF](#) [228ADS1ARF](#) [228ADS1AWF](#) [228AMVAYGFBMSCR](#) [228AMVAYGFCMBCR](#) [228AMVAYGFCMBER](#)
[228ADVARBFCMSC](#) [228ADVARCMSA](#) [228ADVARFCBBE](#) [228ADVARFCN](#) [228ADVAWBMSC](#) [228ADVAWFCBBD](#)
[228ADVAYAN](#) [228ADVAYFBMSC](#) [228ADVAYFCAD](#) [228ADVAYFCWE](#) [228ADVAYGFAN](#) [228ADVAYGFAWC](#)
[228ADVAYGFCRD](#) [228AMVAAFAMSCR](#) [228AMVABFCRCR](#) [228AMVAGFCABR](#) [228AMVARAFCMSAR](#)
[228AMVARBFBMSCR](#) [228AMVARBFCABR](#) [228AMVARBFCBBAR](#) [228AMVARBFCWER](#) [228AMVARGFCMSAR](#)
[228AMVAWFCMSTR](#) [228AMVAWFCRER](#) [228AMVAYFCBCCR](#) [228AMVAYFCMBER](#) [228AMVAYFCMSBR](#)
[228AMVAYFCWER](#) [228AMVAYGFCADR](#) [228AMVAYGFCMBAR](#) [228AMVARBFCBBER](#) [228AMVARBFCRER](#)
[228AMVARFBMSCR](#) [228AMVARFBNR](#) [228AMVARFCMBBR](#) [228AMVARFCMBER](#) [228AMVARGFCMSDR](#)
[228AMVAWFAMSCR](#) [228AMVAYFBMBCR](#) [228AMVAYFCMBAR](#) [228AMVAYGFCMSCR](#) [228AMVARAFCWCR](#)
[228AMVARBFBNR](#) [228AMVARBFBRCR](#) [228AMVARBFCMSCR](#) [228AMVARFCNR](#) [228AMVARGFBACR](#)
[228AMVARGFCWAR](#) [228AMVAYGFARCR](#) [228AMVAYGFCRER](#) [228AMVAWFCMBAR](#) [228AMVAYFCRBR](#)
[228AMVAYFCRDR](#) [228ADVAYFBRC](#) [228ADVAYGFCBBA](#) [228AMVAAFANR](#) [228AMVAAFCEMBAR](#)
[228AMVAAFCEWAR](#) [228AMVAAFCEWBR](#) [228AMVABFCADR](#) [228AMVAGFCBBBR](#) [228AMVAGFCRCR](#)
[228AMVAGFCRDR](#) [228AMVARAFCEMBER](#) [228AMVARAFCERER](#) [228AMVARBFCMBDR](#) [228AMVARFCRCR](#)
[228AMVARGFCRAR](#) [228AMVAWFBBBCR](#) [228AMVAWFCABR](#) [228AMVAYFCMSAR](#) [228AMVAYFCMSCR](#)
[228AMVAYGFAMBCR](#) [228AMVAYGFCMBBR](#)