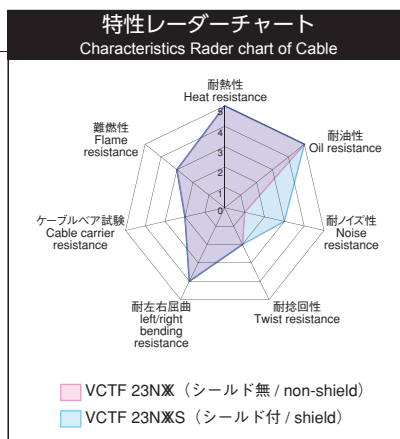


# VCTF 23N~~X~~

# VCTF 23N~~X~~S

ハイブレン

## UL AWM 2517



### 用途 / Use

- 電気機器内外への配線  
Wiring to internal and external electrical equipment
- 工作機械などの移動部分での配線  
Wiring to moving portions, such as a machine tool
- 耐ノイズ性要求箇所への配線 (シールド付タイプ: VCTF 23N~~X~~S)  
Wiring to the portion requiring noise resistance (Shielded type: VCTF 23N~~X~~S)

### 特長 / Features

- 電気用品安全法 (0.75mm<sup>2</sup>以上) & UL・cUL AWM 規格ケーブル  
VCTF cords designed to Electrical Appliance and Material Safety Law (0.75mm<sup>2</sup> or more) & UL・cUL standards
- 耐ノイズ性 (シールド付タイプ: VCTF 23N~~X~~S)  
Noise resistance (Shielded type: VCTF 23N~~X~~S)
- 耐油・耐熱性 (105℃)・耐震性  
Oil resistance, heat resistance (105℃), movable
- 細線化導体  
Fine conductor
- シースつや消し  
Sheath mat type

### 認証 / Approvals

UL<sup>®</sup>us, <PS>E (0.75mm<sup>2</sup>以上に適用 / applicable to 0.75mm<sup>2</sup> or more)

### 使用温度範囲 / Temperature range

- 固定時 / Fixed: -30 ~ 105℃ \*
- ※ 0℃以下でご利用の際は、衝撃・屈曲・振動等の外的力が加わらないようにしてください。  
If you use it in temperature less than 0℃, you should be careful about shocks, flexure, vibration and so on.

### 曲げ半径 / Bending radius

- 固定時 / ケーブル外径の4倍以上推奨  
Fixed: 4 times or more of the cable diameter

### RoHS 指令 / RoHS Directive

- 適合 / Conformity

### テクニカルデータ / Technical data

| ケーブルタイプ / Cable designation | 国内 / JAPAN   | UL・cUL                             |
|-----------------------------|--|------------------------------------|
| 適用サイズ / Adaptation size     | 0.75 ~ 2mm <sup>2</sup> *                                | 全サイズ / All size                    |
| 定格電圧 / Voltage rating       | 300V   |                                    |
| 定格温度 / Temperature rating   | 75℃  | 105℃                               |
| 試験電圧 / Test voltage         | AC 2000V・1min  |                                    |
| 難燃性 / Flame resistance      | 60° 傾斜 / 60° Angle                                       | VW-1, FT1                          |
| 適用規格 / Adaptation standard  | 電気用品安全法 / Electrical Appliance and Material Safety Law * | UL AWM STYLE 2517 CSA C22.2 No.210 |

※ 0.3、0.5mm<sup>2</sup>は電気用品安全法が適用されませんので、信号及び通信回路などの弱電流回路にご使用下さい。  
0.3 and 0.5mm<sup>2</sup> of VCTF 23N~~X~~ and VCTF 23N~~X~~S are excluded to "Electrical Appliance and Material Safety Law", for this reason, those cable sizes should be used for cable connection to signal and communication circuits and other weak current electrical circuits JAPAN.

### 構造概略 / Construction

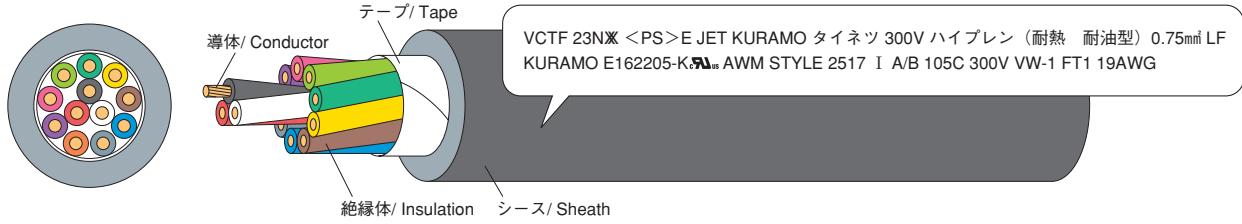
| 項目 / Item        | 品名 / Code | VCTF 23N <del>X</del>   | VCTF 23N <del>X</del> S   |
|------------------|-----------|---|---|
| 導体 / Conductor   |           | 軟銅集合線 / Strands of wire composed of annealed copper                   |   |
| 絶縁体 / Insulation |           | 耐熱性ビニル混合物 / Heat resistant PVC  |   |
| より合わせ / Assembly |           | 線心を円形により合わせ / Circular  |   |
| テープ / Tape       |           | 12心以上はテープを重ね巻き<br>Tape wrap around cores if conductors are 12 or more | 5心以上はテープを重ね巻き<br>Tape wrap around cores if conductors are 5 or more |
| シールド / Shield    |           | —   | すずめっき軟銅線編組 / Tin coated annealed copper braid                       |
| シース / Sheath     |           | 耐油・耐熱性ビニル混合物 (黒色) / Oil and heat resistant PVC (black)                |   |

### 線心識別 / Conductors identification

| 線心数 / No. of conductors | 線心識別方式 / Conductors identification  |
|-------------------------|---|
| 12心以下 / 12 or less      | 絶縁体着色方式 (黒、白、赤、緑、黄、茶、青、灰、橙、紫、桃、若草の順)<br>Identification by color (in order of black, white, red, green, yellow, brown, blue, gray, orange, purple, pink and light green) |
| 13心以上 / 13 or more      | ナンバリング No. 方式 (白色絶縁体表面に1、2、3、4・・・を連続表示)<br>Identification by number (marked on white insulation surface in order of 1, 2, 3, 4 and so on)                               |

● VCTF 23N~~X~~: 4心は黒、白、赤、緑/黄も対応可  
4 conductor's identification are able to choose black, white, red and green/yellow

■例示 / Example : VCTF 23N $\times$  12  $\times$  0.75mm<sup>2</sup> (19AWG)



■構造表 / Construction table

| 導体 / Conductor                        |  | 絶縁 / Insulation                  |                            | 在庫 / Stocks         |                 | シールド無し / Non-shield                        |                                | シールド付き / Shield                            |                                | 電気特性 / Electrical characteristics |  |  |
|---------------------------------------|--|----------------------------------|----------------------------|---------------------|-----------------|--|--------------------------------|--|--------------------------------|-----------------------------------|--|--|
| 公称断面積<br>Nominal cross sectional area | 外径 (約mm)<br>Diameter (Approx.mm)<br>(構成) | 外径 (約mm)<br>Diameter (Approx.mm) | 心数<br>Number of conductors | シールド無<br>Non-shield | シールド付<br>Shield | シース外径 (約mm)<br>Sheath diameter (Approx.mm) | 概算重量<br>Approx.weight (kg/ km) | シース外径 (約mm)<br>Sheath diameter (Approx.mm) | 概算重量<br>Approx.weight (kg/ km) | 許容電流<br>Allowable ampacity (A)    | 導体抵抗<br>Conductor resistance 20°C ( $\Omega$ / km) | 絶縁抵抗<br>Insulation resistance 20°C (M $\Omega$ km) |
| 0.3mm <sup>2</sup><br>(23AWG)         | 0.7<br>(60/0.08)                         | 1.7                              | 2                          | ○                   | ○               | 5.4  | 40                             | 6.1  | 55                             | 4                                 | 62.5 以下<br>(Max 62.5)                              | 5 以上<br>(Min 5)                                    |
|                                       |  |                                  | 3                          | ○                   | ○               | 5.7  | 45                             | 6.4  | 60                             | 4                                 |  |  |
|                                       |  |                                  | 4                          | ○                   | ○               | 6.1  | 50                             | 6.8  | 65                             | 4                                 |  |  |
|                                       |  |                                  | 5                          | ○                   | ○               | 6.6  | 60                             | 7.2  | 70                             | 4                                 |  |  |
|                                       |  |                                  | 6                          | ○                   | ○               | 7.1  | 70                             | 7.7  | 80                             | 4                                 |  |  |
|                                       |  |                                  | 7                          | ○                   | ○               | 7.6  | 80                             | 8.2  | 90                             | 3                                 |  |  |
|                                       |  |                                  | 8                          | ○                   | ○               | 8.1  | 90                             | 8.7  | 105                            | 3                                 |  |  |
|                                       |  |                                  | 10                         | ○                   | ○               | 9.2  | 115                            | 9.8  | 130                            | 3                                 |  |  |
|                                       |  |                                  | 12                         | ○                   | ○               | 9.2  | 105                            | 9.6  | 125                            | 3                                 |  |  |
|                                       |  |                                  | 14                         |                     |                 | 9.6  | 115                            | 10.0                                       | 140                            | 3                                 |  |  |
|                                       |  |                                  | 15                         |                     |                 | 9.8  | 120                            | 10.5                                       | 150                            | 2                                 |  |  |
|                                       |  |                                  | 16                         | ○                   | ○               | 10.0                                       | 130                            | 10.5                                       | 155                            | 2                                 |  |  |
|                                       |  |                                  | 20                         | ○                   | ○               | 11.0                                       | 160                            | 11.5                                       | 185                            | 2                                 |  |  |
|                                       |  |                                  | 24                         |                     |                 | 12.5                                       | 190                            | 13.0                                       | 220                            | 2                                 |  |  |
|                                       |  |                                  | 25                         |                     |                 | 12.5                                       | 195                            | 13.0                                       | 240                            | 2                                 |  |  |
|                                       |  |                                  | 26                         |                     |                 | 13.0                                       | 210                            | 14.0                                       | 245                            | 2                                 |  |  |
| 0.5mm <sup>2</sup><br>(20AWG)         | 0.95<br>(48/0.12)                        | 1.9                              | 2                          | ○                   | ○               | 5.8  | 45                             | 6.5  | 60                             | 6                                 | 36.8 以下<br>(Max 36.8)                              | 5 以上<br>(Min 5)                                    |
|                                       |  |                                  | 3                          | ○                   | ○               | 6.1  | 55                             | 6.8  | 70                             | 6                                 |  |  |
|                                       |  |                                  | 4                          | ○                   | ○               | 6.6  | 65                             | 7.2  | 80                             | 6                                 |  |  |
|                                       |  |                                  | 5                          | ○                   | ○               | 7.1  | 75                             | 7.7  | 85                             | 5                                 |  |  |
|                                       |  |                                  | 6                          | ○                   | ○               | 7.7  | 90                             | 8.3  | 100                            | 5                                 |  |  |
|                                       |  |                                  | 7                          | ○                   | ○               | 8.3  | 105                            | 8.9  | 115                            | 5                                 |  |  |
|                                       |  |                                  | 8                          | ○                   | ○               | 8.9  | 120                            | 9.5  | 130                            | 4                                 |  |  |
|                                       |  |                                  | 10                         | ○                   | ○               | 10.5                                       | 155                            | 11.0                                       | 170                            | 4                                 |  |  |
|                                       |  |                                  | 12                         | ○                   | ○               | 10.0                                       | 140                            | 10.5                                       | 160                            | 4                                 |  |  |
|                                       |  |                                  | 14                         |                     | ○               | 10.5                                       | 160                            | 11.0                                       | 180                            | 4                                 |  |  |
|                                       |  |                                  | 15                         |                     |                 | 11.0                                       | 170                            | 11.5                                       | 195                            | 3                                 |  |  |
|                                       |  |                                  | 16                         | ○                   | ○               | 11.0                                       | 180                            | 11.5                                       | 205                            | 3                                 |  |  |
|                                       |  |                                  | 20                         | ○                   | ○               | 12.5                                       | 215                            | 13.0                                       | 245                            | 3                                 |  |  |
|                                       |  |                                  | 24                         |                     |                 | 14.0                                       | 265                            | 14.5                                       | 300                            | 3                                 |  |  |
|                                       |  |                                  | 25                         |                     |                 | 14.0                                       | 275                            | 14.5                                       | 305                            | 3                                 |  |  |
|                                       |  |                                  | 26                         |                     |                 | 14.5                                       | 290                            | 15.0                                       | 320                            | 3                                 |  |  |
| 30                                    | ○  | ○                                | 14.5                       | 310                 | 15.0            | 345  | 3                              |  |                                |                                   |  |  |
| 40                                    | ○  | ○                                | 17.0                       | 420                 | 17.5            | 455  | 2                              |  |                                |                                   |  |  |

○は在庫品です。 / ○ : Stocks

続表あり / Go to the next page

■許容電流について / Allowable ampacity

- 許容電流値は、周囲温度 30°C、空中一条敷設時の計算値を示し、保証値ではありません。  
Allowable ampacity (A) for cable is based on calculation under aerial one-cable and temperature at 30°C, not representing a guaranteed value.
- 周囲温度 30°C 以上の場合には、下表の電流減少係数を許容電流値に掛けて下さい。  
Allowable ampacity cable at ambient temperature above 30°C is to be determined by multiplying the current value by the appropriate current reduction factor in the following table1.
- 許容電流の値は、JCS0168 により算出した値であって、保証値ではありません。  
The allowable ampacity for cable are the calculated by JCS0168, but not guaranteed.

JCS0168...日本電線工業会規格 “33kV 以下電力ケーブルの許容電流計算”  
“Calculation of the current rating of power cables for rated voltage up to and including 33kV”

■表 電流減少係数 / Table1 Current reduction factors

|                                    |      |      |      |      |      |      |      |      |      |
|------------------------------------|------|------|------|------|------|------|------|------|------|
| 周囲温度 / Ambient temperature (°C)    | 30   | 35   | 40   | 45   | 50   | 55   | 60   | 65   | 70   |
| 電流減少係数 / Current reduction factors | 1.00 | 0.94 | 0.88 | 0.82 | 0.75 | 0.67 | 0.58 | 0.47 | 0.33 |

VCTF 23N $\times$   
VCTF 23N $\times$ S

<PS>E

UL AWM

NFPA70  
NFPA79

cUL/GSA

CE

CCC

GOST-R

## ■ 構造表 / Construction table

| 導体 / Conductor                           |   | 絶縁 / Insulation                     | 心数<br>Number of<br>conductors | 在庫 / Stocks         |                 | シールド無し / Non-shield                           |                                   | シールド付き / Shield                               |                                   | 電気特性 / Electrical characteristics    |  |  |
|--|---|-------------------------------------|-------------------------------|---------------------|-----------------|---|-----------------------------------|---|-----------------------------------|--------------------------------------|--|--|
| 公称断面積<br>Nominal cross<br>sectional area | 外径 (約mm)<br>Diameter<br>(Approx.mm)<br>構成<br>(Construction) | 外径 (約mm)<br>Diameter<br>(Approx.mm) |                               | シールド無<br>Non-shield | シールド付<br>Shield | シース外径 (約mm)<br>Sheath diameter<br>(Approx.mm) | 概算重量<br>Approx.weight<br>(kg/ km) | シース外径 (約mm)<br>Sheath diameter<br>(Approx.mm) | 概算重量<br>Approx.weight<br>(kg/ km) | 許容電流<br>Allowable<br>ampacity<br>(A) | 導体抵抗<br>Conductor<br>resistance<br>20°C (Ω / km) | 絶縁抵抗<br>Insulation<br>resistance<br>20°C (M Ωkm) |
| 0.75mm <sup>2</sup><br>(19AWG)           | 1.1<br>(67/0.12)  | 2.3                                 | 2                             | ○                   | ○               | 6.6   | 60                                | 7.3   | 80                                | 8                                    | 25.1 以下<br>(Max 25.1)                            | 5 以上<br>(Min 5)                                  |
|  |   |                                     | 3                             | ○                   | ○               | 7.0   | 70                                | 7.7   | 90                                | 8                                    |  |  |
|  |   |                                     | 4                             | ○                   | ○               | 7.6   | 85                                | 8.3   | 105                               | 8                                    |  |  |
|  |   |                                     | 5                             | ○                   | ○               | 8.2   | 105                               | 8.8   | 110                               | 7                                    |  |  |
|  |   |                                     | 6                             | ○                   | ○               | 8.9   | 120                               | 9.5   | 130                               | 7                                    |  |  |
|  |   |                                     | 7                             | ○                   | ○               | 9.6   | 140                               | 10.5  | 150                               | 6                                    |  |  |
|  |   |                                     | 8                             | ○                   | ○               | 10.5  | 160                               | 11.0  | 175                               | 6                                    |  |  |
|  |   |                                     | 10                            | ○                   | ○               | 12.5  | 210                               | 13.0  | 230                               | 6                                    |  |  |
|  |   |                                     | 12                            | ○                   | ○               | 12.0  | 190                               | 12.5  | 215                               | 5                                    |  |  |
|  |   |                                     | 14                            |                     |                 | 12.5  | 220                               | 13.0  | 245                               | 5                                    |  |  |
|  |   |                                     | 15                            |                     |                 | 12.5  | 230                               | 13.0  | 260                               | 5                                    |  |  |
|  |   |                                     | 16                            | ○                   | ○               | 13.0  | 245                               | 13.5  | 280                               | 5                                    |  |  |
|  |   |                                     | 20                            | ○                   | ○               | 14.5  | 305                               | 15.0  | 335                               | 4                                    |  |  |
|  |   |                                     | 24                            |                     |                 | 17.0  | 375                               | 17.5  | 415                               | 4                                    |  |  |
|  |   |                                     | 25                            |                     |                 | 17.0  | 385                               | 17.5  | 425                               | 4                                    |  |  |
|  |   |                                     | 26                            |                     |                 | 17.5  | 400                               | 18.0  | 440                               | 4                                    |  |  |
|  |   |                                     | 30                            | ○                   |                 | 17.5  | 430                               | 18.0  | 470                               | 4                                    |  |  |
| 40                                       | ○   |                                     | 20.0                          | 580                 | 20.5            | 630   | 3                                 |   |                                   |                                      |  |  |
| 70                                       | ○   |                                     | 26.5                          | 1010                |                 |   | 2                                 |   |                                   |                                      |  |  |
| 1.25mm <sup>2</sup><br>(17AWG)           | 1.5<br>(112/0.12)   | 2.7                                 | 2                             | ○                   | ○               | 7.4   | 80                                | 8.1   | 100                               | 14                                   | 15.1 以下<br>(Max 15.1)                            | 5 以上<br>(Min 5)                                  |
|  |   |                                     | 3                             | ○                   | ○               | 7.8   | 95                                | 8.5   | 115                               | 14                                   |  |  |
|  |   |                                     | 4                             | ○                   | ○               | 8.5   | 115                               | 9.2   | 140                               | 14                                   |  |  |
|  |   |                                     | 5                             | ○                   | ○               | 9.3   | 140                               | 9.9   | 150                               | 11                                   |  |  |
|  |   |                                     | 6                             | ○                   | ○               | 10.0  | 165                               | 11.0  | 175                               | 10                                   |  |  |
|  |   |                                     | 7                             | ○                   | ○               | 11.0  | 195                               | 11.5  | 205                               | 9                                    |  |  |
|  |   |                                     | 8                             | ○                   | ○               | 12.0  | 225                               | 12.5  | 235                               | 9                                    |  |  |
|  |   |                                     | 10                            | ○                   | ○               | 14.0  | 300                               | 15.0  | 315                               | 8                                    |  |  |
|  |   |                                     | 12                            | ○                   | ○               | 13.5  | 275                               | 14.0  | 305                               | 8                                    |  |  |
|  |   |                                     | 14                            |                     |                 | 14.5  | 315                               | 15.0  | 345                               | 7                                    |  |  |
|  |   |                                     | 15                            |                     |                 | 14.5  | 335                               | 15.0  | 370                               | 7                                    |  |  |
|  |   |                                     | 16                            | ○                   | ○               | 15.0  | 360                               | 15.5  | 390                               | 7                                    |  |  |
|  |   |                                     | 20                            | ○                   | ○               | 17.0  | 440                               | 17.5  | 475                               | 6                                    |  |  |
|  |   |                                     | 24                            |                     |                 | 19.5  | 540                               | 20.0  | 590                               | 6                                    |  |  |
|  |   |                                     | 25                            |                     |                 | 19.5  | 560                               | 20.0  | 610                               | 6                                    |  |  |
|  |   |                                     | 26                            |                     |                 | 20.0  | 580                               | 21.5  | 670                               | 5                                    |  |  |
|  |   |                                     | 30                            | ○                   | ○               | 20.0  | 640                               | 21.5  | 730                               | 5                                    |  |  |
| 40                                       |   |                                     | 23.5                          | 870                 | 24.0            | 930   | 5                                 |   |                                   |                                      |  |  |
| 2mm <sup>2</sup><br>(15AWG)              | 1.8<br>(79/0.18)  | 3.0                                 | 2                             | ○                   | ○               | 8.0   | 105                               | 8.7   | 125                               | 20                                   | 9.79 以下<br>(Max 9.79)                            | 5 以上<br>(Min 5)                                  |
|  |   |                                     | 3                             | ○                   | ○               | 8.5   | 125                               | 9.2   | 150                               | 20                                   |  |  |
|  |   |                                     | 4                             | ○                   | ○               | 9.2   | 155                               | 9.9   | 180                               | 20                                   |  |  |
|  |   |                                     | 5                             | ○                   | ○               | 10.0  | 190                               | 11.0  | 195                               | 14                                   |  |  |
|  |   |                                     | 6                             | ○                   | ○               | 11.0  | 225                               | 11.5  | 230                               | 13                                   |  |  |
|  |   |                                     | 7                             |                     |                 | 12.0  | 260                               | 12.5  | 270                               | 12                                   |  |  |
|  |   |                                     | 8                             | ○                   |                 | 13.0  | 300                               | 13.5  | 315                               | 11                                   |  |  |
|  |   |                                     | 10                            | ○                   |                 | 15.5  | 400                               | 16.0  | 415                               | 11                                   |  |  |
|  |   |                                     | 12                            | ○                   | ○               | 15.0  | 375                               | 15.0  | 405                               | 10                                   |  |  |
|  |   |                                     | 14                            |                     |                 | 15.5  | 430                               | 16.5  | 475                               | 9                                    |  |  |
|  |   |                                     | 15                            |                     |                 | 16.0  | 465                               | 16.5  | 510                               | 9                                    |  |  |
|  |   |                                     | 16                            | ○                   |                 | 16.5  | 500                               | 17.0  | 540                               | 9                                    |  |  |
|  |   |                                     | 20                            | ○                   |                 | 18.5  | 610                               | 19.0  | 670                               | 8                                    |  |  |
|  |   |                                     | 24                            |                     |                 | 22.0  | 780                               | 22.5  | 840                               | 7                                    |  |  |
|  |   |                                     | 25                            |                     |                 | 22.0  | 810                               | 22.5  | 870                               | 7                                    |  |  |
|  |   |                                     | 26                            |                     |                 | 23.0  | 840                               | 23.5  | 900                               | 7                                    |  |  |
|  |   |                                     | 30                            |                     |                 | 23.0  | 920                               | 23.5  | 990                               | 7                                    |  |  |
| 40                                       |   |                                     | 26.0                          | 1210                | 26.5            | 1280  | 6                                 |   |                                   |                                      |  |  |

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## ■ 許容電流について / Allowable ampacity

- 許容電流値は、周囲温度 30°C、空中一条敷設時の計算値を示し、保証値ではありません。  
Allowable ampacity (A) for cable is based on calculation under aerial one-cable and temperature at 30°C, not representing a guaranteed value.
- 周囲温度 30°C 以上の場合には、下表の電流減少係数を許容電流値に乗じて下さい。  
Allowable ampacity cable at ambient temperature above 30°C is to be determined by multiplying the current value by the appropriate current reduction factor in the following table1.
- 許容電流の値は、JCS0168 により算出した値であって、保証値ではありません。  
The allowable ampacity for cable are the calculated by JCS0168, but not guaranteed.

JCS0168…日本電線工業会規格“33kV 以下電力ケーブルの許容電流計算”  
“Calculation of the current rating of power cables for rated voltage up to and including 33kV”

## ■ 表 電流減少係数 / Table1 Current reduction factors

| 周囲温度 / Ambient temperature (°C)    | 30   | 35   | 40   | 45   | 50   | 55   | 60   | 65   | 70   |
|------------------------------------|------|------|------|------|------|------|------|------|------|
| 電流減少係数 / Current reduction factors | 1.00 | 0.94 | 0.88 | 0.82 | 0.75 | 0.67 | 0.58 | 0.47 | 0.33 |

VCTE 23N  
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