

# keisenote Package Documentation

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Version 1.2.0 (2025/12/30)

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# 1 Acknowledgements / Credit

This package is based on the code from [VoD's Qiita article](#), with some improvements. The original author has kindly granted permission to release this as a LaTeX package.

## 2 Installation

Place `keisennote.sty` in a directory where LaTeX can find it. Dependencies: `xcolor`, `tikz`, `zref`, `zref-savepos`, `fp`, `kvoptions`.

## 3 Package options

Set global defaults at load time using key-value style.

Option name	Default value	Description
<code>linewidth</code>	<code>.5truept</code>	Width of the ruled lines.
<code>radius</code>	<code>.7truept</code>	Radius of dots on the lines.
<code>distance</code>	<code>6truemm</code>	Distance between lines (and dots).
<code>triangle</code>	<code>.7truept</code>	Scale of the center triangular markers.

## 4 Commands

All commands below accept an optional argument in `pgfkeys` format: `[color=..., show number=..., step=...]`.

### 4.1 Notebook Style (`\notefill`, `\note`)

Input

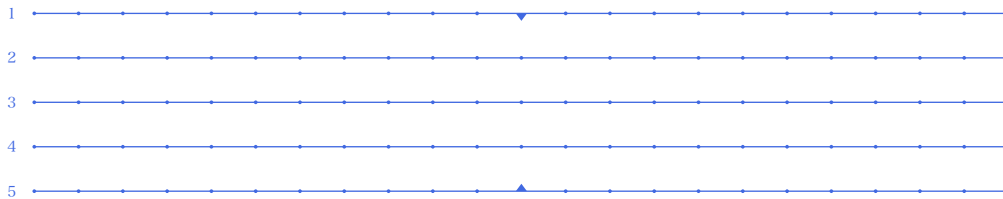
```
1 \notefill[options]
2 \note{<lines>}[options]
```

`\notefill` automatically fills the remaining vertical space. `\note` draws a block with the specified number of lines.

Example with Line Numbers:

Input

```
1 \note{5}[color=RoyalBlue, show number=true, step=1]
```



## 4.2 Grid Style (`\masumefill`, `\masume`)

Input

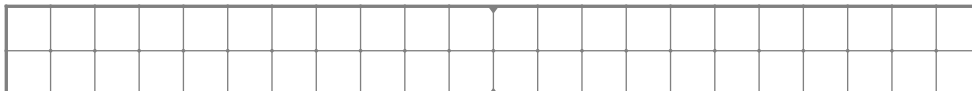
```
1 \masumefill*[options]
2 \masume*{<lines>}[options]
```

The starred version (\*) draws a thick outer frame around the grid.

Example with Frame:

Input

```
1 \masume*{3}[color=Gray]
```



## 5 Dynamic Parameter Adjustment

You can change the parameters in the middle of the document.

`\SetNoteLineWidth[dim]` Sets the line width.  
`\SetNoteDotRadius[dim]` Sets the dot radius.  
`\SetNoteLineDistance[dim]` Sets the line spacing.  
`\SetNoteTriangleSize[dim]` Sets the marker size.

If the optional argument is omitted, the parameter is reset to its package default.

## 6 Technical Notes

- **Multiple Compilations:** Commands like `\notefill` use `zref-savepos` to determine the available space. You must compile the document **at least twice** to ensure the lines are drawn correctly.
- **Line Numbers:** The `show number` option displays the line count. For `\note`, it counts down to 1. For `\notefill`, it calculates the total capacity of the space.

## 7 Examples

### 7.1 Full Page Notebook Fill

Input

```
1 \notefill[color=lightgray, show number=true]
```

(See the next page for the result.)



## 8 License

Released under the MIT License.

## 9 Version History

- **v1.0.0 – v1.0.4a** — Initial versions, added grid commands and package options.
- **v1.2.0 (2025/12/30)** — Added `pgfkeys` support for command options, improved `\masume*` border logic, and changed license.

## 10 Source Code

```
\ProvidesPackage{keisennote}[2025/12/30, v1.2.0]

\RequirePackage[dvipsnames, svgnames, x11names]{xcolor}
\RequirePackage{zref, zref-savepos, fp}
\RequirePackage{tikz}

\RequirePackage{kvoptions}

\SetupKeyvalOptions{
  family=kn,
  prefix=kn@
}

\newdimen\noteLineWidth@kn
\newdimen\noteDotsRadius@kn
\newdimen\noteLineDistance@kn
\newdimen\noteTriangle@mag@kn

% パッケージオプションの宣言
\DeclareStringOption[.5truept]{linewidth}% 線の太さ
\DeclareStringOption[.7truept]{radius}% ドットの大きさ
\DeclareStringOption[6truemm]{distance}% ドットの間隔
\DeclareStringOption[.7truept]{triangle}% 三角形の大きさ
\ProcessKeyvalOptions*

% オプションの反映
\setlength{\noteLineWidth@kn}{\kn@linewidth}
\setlength{\noteDotsRadius@kn}{\kn@radius}
\setlength{\noteLineDistance@kn}{\kn@distance}
\setlength{\noteTriangle@mag@kn}{\kn@triangle}
```

```

% 途中でパラメータ変更ができるように
\NewDocumentCommand{\SetNoteLineWidth}{0{.5truept}}{%
  \setlength{\noteLineWidth@kn}{#1}
}
\NewDocumentCommand{\SetNoteDotRadius}{0{.8truept}}{%
  \setlength{\noteDotsRadius@kn}{#1}
}
\NewDocumentCommand{\SetNoteLineDistance}{0{6truemm}}{%
  \setlength{\noteLineDistance@kn}{#1}
}
\NewDocumentCommand{\SetNoteTriangleSize}{0{.5pt}}{%
  \setlength{\noteTriangle@mag@kn}{#1}
}

% 内部レジスタ
\newdimen\VDNT@currentXPos
\newdimen\VDNT@currentYPos
\newdimen\VDNT@Xinterval
\newdimen\VDNT@Yinterval
\newdimen\VDNT@notegoal
\def\VDNT@xscaler{.996}

% \notefillで用いる座標管理用カウンタの準備
\def\VDNT@pkgname{vodnote}
\global\newcount\VDNT@unique

% 行間算出
\newcount\kn@linecount@internal
\newcommand{\cal@kn@internal}{%
  \FPeval\VDNT@dotsNum{round(round((\the\@tempcnta/(\the\@tempcntb)/2:0)*2:0)}%
  \VDNT@Xinterval\dimexpr(\linewidth)/\VDNT@dotsNum\relax%
  \VDNT@Yinterval\VDNT@Xinterval%
}

% \notefill の定義
% \notefill用内部マクロ
\newcommand{\savepos@kn@internal@notefill}{%
  \zsavposy{\VDNT@pkgname.\the\VDNT@unique.TopPos}% 上端の座標取得
  \leavevmode\vfill\leavevmode% 下まで移動→座標記憶
  \zsavposy{\VDNT@pkgname.\the\VDNT@unique.BottomPos}% 下端の座標取得
}
\newcommand{\cal@kn@internal@notefill}{%
  \VDNT@notegoal=\dimexpr
    \zposy{\VDNT@pkgname.\the\VDNT@unique.TopPos}sp
    -\zposy{\VDNT@pkgname.\the\VDNT@unique.BottomPos}sp
  \relax%
}

```



```

\newif\ifVDNT@shownumber
\pgfkeys{
  /VDNT/.is family, /VDNT,
  color/.estore in = \VDNT@color,
  step/.estore in = \VDNT@step,
  show number/.is if = VDNT@shownumber,
  default/.style = {color=white!70!black, step=5}
}

\NewDocumentCommand{\notefill}{ 0{} }{%
  \par\bgroup%
  \pgfkeys{/VDNT, default, #1}%
  \parindent\z@%
  \@tempcnta\linewidth% 総横幅
  \@tempcntb\noteLineDistance@kn% 単位横幅
  \cal@kn@internal%
  \savepos@kn@internal@notefill%
  \cal@kn@internal@notefill%
  %%行数算出
  \pgfmathtruncatemacro{\VDNT@totalLines}{\floor(\VDNT@notegoal / \VDNT@Yinterval)}%
  %%%
  % ノート罫線描画本体
  \noindent\smash{%
    \begin{tikzpicture}[xscale=\VDNT@xscaler]
      \VDNT@currentYPos\z@
      %%%
      \kn@linecount@internal=\VDNT@totalLines\relax % 初期値を総行数に設定
      \advance\kn@linecount@internal by \@one\relax %
      %%%
      % 上端の三角
      \coordinate (TopMarkerTip) at (\VDNT@Xinterval*\VDNT@dotsNum/2, \VDNT@currentYPos+\noteTriangle@mag@kn*4pt);
      \fill[\VDNT@color] (TopMarkerTip) -- ++(\noteTriangle@mag@kn*3pt,-\noteTriangle@mag@kn*4pt) -- ++(-\noteTriangle@mag@kn*6pt,0) -- cycle;
      % 罫線とドットのループ描画
      \@whiledim\VDNT@currentYPos<\VDNT@notegoal\do{%
        % 横線の左端(L)と右端(R)
        \coordinate (L) at (0, \VDNT@currentYPos);
        \coordinate (R) at (\linewidth, \VDNT@currentYPos);
        % --- 行番号の描画 ---
        \ifVDNT@shownumber
          \pgfmathtruncatemacro{\rem@notefill}{\mod(\kn@linecount@internal,\VDNT@step)}
          \ifnum\rem@notefill=0
            \node[anchor=east, font=\scriptsize, text=\VDNT@color, overlay] at ([xshift=-\f@size/2pt]L) {\the\kn@linecount@internal};
          \fi
        \fi
        % -----
        % 罫線を引く
        \draw[\VDNT@color, line width=\noteLineWidth@kn] (L) -- (R);
      }
    \end{tikzpicture}
  }
}

```

```

% ループ内のドット描画部分
\foreach \k in {0,1,...,\VDNT@dotsNum}{%
  \pgfmathtruncatemacro{\VDNT@halfNum}{\VDNT@dotsNum/2}%
  \def\do@draw@dot{1}% 描画フラグを立てる
  % 「現在の行が最初」かつ「kが真ん中」ならフラグを折る
  \ifdim\VDNT@currentYPos=0pt\relax
    \ifnum\k=\VDNT@halfNum \def\do@draw@dot{0}\fi
  \fi
  % 「現在の行が最後（次がない）」かつ「kが真ん中」ならフラグを折る
  % \VDNT@notegoal との比較で行う
  \VDNT@currentXPos=\dimexpr\VDNT@currentYPos+\VDNT@Yinterval\relax
  \ifdim\VDNT@currentXPos<\VDNT@notegoal\else
    \ifnum\k=\VDNT@halfNum \def\do@draw@dot{0}\fi
  \fi
  \ifnum\do@draw@dot=1\relax
    \coordinate (Dot) at (\the\dimexpr\VDNT@Xinterval*\k\relax, \VDNT@currentYPos);
    \fill[\VDNT@color] (Dot) circle [radius=\noteDotsRadius@kn];
  \fi
}
% 次の行へ移動
\advance\VDNT@currentYPos\VDNT@Yinterval\relax
%%%カウントダウン
\advance\kn@linecount@internal by -\@ne\relax
%%%
}
% 下端の三角
% 座標を定義：(中心X, 最後の行Y - 4pt)
\coordinate (BottomMarkerTip) at (\VDNT@Xinterval*\VDNT@dotsNum/2, \VDNT@currentYPos-\VDNT@Yinterval-\noteTriangle@mag@kn*4pt);
\fill[\VDNT@color] (BottomMarkerTip) -- ++(\noteTriangle@mag@kn*3pt,\noteTriangle@mag@kn*4pt) -- ++(-\noteTriangle@mag@kn*6pt,0) -- cycle;
\end{tikzpicture}%
}%
\egroup%
\global\advance\VDNT@unique\@ne% 描画番号を進める
\par%
}

\NewDocumentCommand{\masumefill}{s O{}}{%
  \par\bgroup%
  \pgfkeys{/VDNT, default, #2}%
  \parindent\z@%
  \@tempcnta\linewidth% 総横幅
  \@tempcntb\noteLineDistance@kn% 単位横幅
  \cal@kn@internal%
  \savepos@kn@internal@notefill%
  \cal@kn@internal@notefill%
  %%%行数算出
  \pgfmathtruncatemacro{\VDNT@totalLines}{floor(\VDNT@notegoal / \VDNT@Yinterval)}%
  %%%

```

```

% ノート野線描画本体
\noindent\smash{%
\begin{tikzpicture}[xscale=\VDNT@xscaler]
\VDNT@currentYPos\z@
%%%
\kn@linecount@internal=\VDNT@totalLines\relax % 初期値を総行数に設定
\advance\kn@linecount@internal by \@ne\relax %
%%%
% 上端の三角
\coordinate (TopMarkerTip) at (\VDNT@Xinterval*\VDNT@dotsNum/2, \VDNT@currentYPos+\noteTriangle@mag@kn*4pt);
\fill[\VDNT@color] (TopMarkerTip) -- ++(\noteTriangle@mag@kn*3pt,-\noteTriangle@mag@kn*4pt) -- ++(-\noteTriangle@mag@kn*6pt,0) -- cycle;
% 野線とドットのループ描画
\whiledim\VDNT@currentYPos<\VDNT@notegoal\do{%
% 横線の左端(L)と右端(R)
\coordinate (L) at (0, \VDNT@currentYPos);
\coordinate (R) at (\linewidth, \VDNT@currentYPos);
% --- 行番号の描画 ---
\ifVDNT@shownumber
\pgfmathtruncatemacro{\rem@notefill}{mod(\kn@linecount@internal,\VDNT@step)}
\ifnum\rem@notefill=0
\node[anchor=east, font=\scriptsize, text=\VDNT@color, overlay] at ([xshift=-\f@size/2pt]L) {\the\kn@linecount@internal};
\fi
\fi
% -----
% 野線を引く
\draw[\VDNT@color, line width=\noteLineWidth@kn] (L) -- (R);
% ループ内のドット描画部分
\foreach \k in {0,1,...,\VDNT@dotsNum}{%
\pgfmathtruncatemacro{\VDNT@halfNum}{\VDNT@dotsNum/2}%
\def\do@draw@dot{1}% 描画フラグを立てる
% 「現在の行が最初」かつ「kが真ん中」ならフラグを折る
\ifdim\VDNT@currentYPos=0pt\relax
\ifnum\k=\VDNT@halfNum \def\do@draw@dot{0}\fi
\fi
% 「現在の行が最後（次がない）」かつ「kが真ん中」ならフラグを折る
% \VDNT@notegoal との比較で行う
\VDNT@currentXPos=\dimexpr\VDNT@currentYPos+\VDNT@Yinterval\relax
\ifdim\VDNT@currentXPos<\VDNT@notegoal\else
\ifnum\k=\VDNT@halfNum \def\do@draw@dot{0}\fi
\fi
% -----
\coordinate (VBottom) at (\the\dimexpr\VDNT@Xinterval*\k\relax, \VDNT@currentYPos);
\VDNT@currentXPos=\dimexpr\VDNT@currentYPos+\VDNT@Yinterval\relax
\ifdim\VDNT@currentXPos<\VDNT@notegoal\relax
\draw[\VDNT@color, line width=\noteLineWidth@kn] (VBottom) -- ++(0, \VDNT@Yinterval);
\fi
}

```

```

% -----
\ifnum\do@draw@dot=1\relax
  \coordinate (Dot) at (\the\dimexpr\VDNT@Xinterval*\k\relax, \VDNT@currentYPos);
  \fill[\VDNT@color] (Dot) circle [radius=\noteDotsRadius@kn];
\fi
}
% 次の行へ移動
\advance\VDNT@currentYPos\VDNT@Yinterval\relax
%%カウントダウン
\advance\kn@linecount@internal by -\@ne\relax
%%
}
% 外枠描画
\IfBooleanT{#1}{%
  \draw[\VDNT@color, line width=\noteLineWidth@kn*2.5] (0,0) rectangle (\linewidth, \the
    \dimexpr\VDNT@currentYPos-\VDNT@Yinterval\relax);
}%
% 下端の三角
% 座標を定義：(中心X, 最後の行Y - 4pt)
\coordinate (BottomMarkerTip) at (\VDNT@Xinterval*\VDNT@dotsNum/2, \VDNT@currentYPos-\
  \VDNT@Yinterval-\noteTriangle@mag@kn*4pt);
\fill[\VDNT@color] (BottomMarkerTip) -- ++(\noteTriangle@mag@kn*3pt,\
  noteTriangle@mag@kn*4pt) -- ++(-\noteTriangle@mag@kn*6pt,0) -- cycle;
\end{tikzpicture}%
}%
\egroup%
\global\advance\VDNT@unique\@ne% 描画番号を進める
\par%
}

```

```

% \note の定義 (2以上の整数を引数に)
\NewDocumentCommand{\note}{m O{}}{%
  \par\bgroup%
  \pgfkeys{/VDNT, default, #2}%
  \@tempcnta\linewidth%
  \@tempcntb\noteLineDistance@kn%
  \cal@kn@internal%
  \noindent%
  \begin{tikzpicture}[xscale=\VDNT@xscaler]
    \VDNT@currentYPos\z@
    %%
    \kn@linecount@internal=#1\relax
    %%
    \coordinate (TopMarker) at (\VDNT@Xinterval*\VDNT@dotsNum/2, \VDNT@Yinterval+\
      noteTriangle@mag@kn*4pt);
    \fill[\VDNT@color] (TopMarker) -- ++(\noteTriangle@mag@kn*3pt, -\noteTriangle@mag@kn*4pt)
      -- ++(-\noteTriangle@mag@kn*6pt, 0) -- cycle;
    \foreach \i in {1, 2, ..., #1} {%
      \xdef\tempY{\the\dimexpr\VDNT@Yinterval*\i\relax}
    }
  \end{tikzpicture}
}

```

```

\coordinate (LineL) at (0, \tempY);
\coordinate (LineR) at (\linewidth, \tempY);
% --- 行番号の描画 ---
\ifVDNT@shownumber
  \pgfmathtruncatemacro{\VDNT@currentnum}{#1 - \i + 1 }
  \pgfmathtruncatemacro{\rem@notefill}{mod(\VDNT@currentnum,\VDNT@step)}
  \ifnum\rem@notefill=0
    \node[anchor=east, font=\scriptsize, text=\VDNT@color, overlay] at ([xshift=-\f@size
      /2pt]LineL) {\VDNT@currentnum};
  \fi
\fi
% -----
\draw[\VDNT@color, line width=\noteLineWidth@kn] (LineL) -- (LineR);
\foreach \k in {0, 1, ..., \VDNT@dotsNum} {%
  \pgfmathtruncatemacro{\VDNT@halfNum}{\VDNT@dotsNum/2}%
  \def\skipdot{0}%
  \ifnum\i=1 \ifnum\k=\VDNT@halfNum \def\skipdot{1}\fi\fi
  \ifnum\i=#1 \ifnum\k=\VDNT@halfNum \def\skipdot{1}\fi\fi
  \ifnum\skipdot=0
    \coordinate (DotPos) at (\the\dimexpr\VDNT@Xinterval*\k\relax, \tempY);
    \fill[\VDNT@color] (DotPos) circle [radius=\noteDotsRadius@kn];
  \fi
}%
% 最後に使ったY座標を記録
\ifnum\i=#1 \global\VDNT@currentYPos=\tempY\relax \fi
}%
\coordinate (BottomMarker) at (\VDNT@Xinterval*\VDNT@dotsNum/2, \VDNT@currentYPos-\
  noteTriangle@mag@kn*4pt);
\fill[\VDNT@color] (BottomMarker) -- ++(\noteTriangle@mag@kn*3pt, \noteTriangle@mag@kn*4
  pt) -- ++(-\noteTriangle@mag@kn*6pt, 0) -- cycle;
\end{tikzpicture}%
\egroup%
\par%
}

\NewDocumentCommand{\masume}{s m O{}}{%
  \par\bggroup%
  \pgfkeys{/VDNT, default, #3}%
  \@tempcnta\linewidth%
  \@tempcntb\noteLineDistance@kn%
  \cal@kn@internal%
  \noindent%
  \begin{tikzpicture}[xscale=\VDNT@xscaler]
    \VDNT@currentYPos\z@
    %%%
    \kn@linecount@internal=#1\relax
    %%%
    \coordinate (TopMarker) at (\VDNT@Xinterval*\VDNT@dotsNum/2, \VDNT@Yinterval+\
      noteTriangle@mag@kn*4pt);
    \fill[\VDNT@color] (TopMarker) -- ++(\noteTriangle@mag@kn*3pt, -\noteTriangle@mag@kn*4pt)

```

```

-- ++(-\noteTriangle@mag@kn*6pt, 0) -- cycle;
\foreach \i in {1, 2, ..., #2} {%
  \xdef\tempY{\the\dimexpr\VDNT@Yinterval*\i\relax}
  \coordinate (LineL) at (0, \tempY);
  \coordinate (LineR) at (\linewidth, \tempY);
  % --- 行番号の描画 ---
  \ifVDNT@shownumber
    \pgfmathtruncatemacro{\VDNT@currentnum}{#2 - \i + 1}
    \pgfmathtruncatemacro{\rem@notefill}{mod(\VDNT@currentnum,\VDNT@step)}
    \ifnum\rem@notefill=0
      \node[anchor=east, font=\scriptsize, text=\VDNT@color, overlay] at ([xshift=-\f@size
        /2pt]LineL) {\VDNT@currentnum};
    \fi
  \fi
  % -----
  \draw[\VDNT@color, line width=\noteLineWidth@kn] (LineL) -- (LineR);
  \foreach \k in {0, 1, ..., \VDNT@dotsNum} {%
    \pgfmathtruncatemacro{\VDNT@halfNum}{\VDNT@dotsNum/2}%
    \def\skipdot{0}%
    \ifnum\i=1 \ifnum\k=\VDNT@halfNum \def\skipdot{1}\fi\fi
    \ifnum\i=#2 \ifnum\k=\VDNT@halfNum \def\skipdot{1}\fi\fi
    % -----
    \ifnum\i<#2\relax
      \draw[\VDNT@color, line width=\noteLineWidth@kn] (\the\dimexpr\VDNT@Xinterval*\k\
        relax, \tempY) -- ++(0, \VDNT@Yinterval);
    \fi
    % -----
    \ifnum\skipdot=0
      \coordinate (DotPos) at (\the\dimexpr\VDNT@Xinterval*\k\relax, \tempY);
      \fill[\VDNT@color] (DotPos) circle [radius=\noteDotsRadius@kn];
    \fi
  }%
  % 最後に使ったY座標を記録しておく (下の三角用)
  \ifnum\i=#2 \global\VDNT@currentYPos=\tempY\relax \fi
}%
\IfBooleanT{#1}{%
  \draw[\VDNT@color, line width=\noteLineWidth@kn*2.5] (0, \the\VDNT@Yinterval) rectangle
    (\linewidth, \VDNT@currentYPos);
}%
\coordinate (BottomMarker) at (\VDNT@Xinterval*\VDNT@dotsNum/2, \VDNT@currentYPos-\
  noteTriangle@mag@kn*4pt);
\fill[\VDNT@color] (BottomMarker) -- ++(\noteTriangle@mag@kn*3pt, \noteTriangle@mag@kn*4
  pt) -- ++(-\noteTriangle@mag@kn*6pt, 0) -- cycle;
\end{tikzpicture}%
\egroup%
\par%
}
\endinput

```