

# Switching diode

## FMN1 / FMP1 / IMN10 / IMN11 / IMP11

## UMN1N / UMP1N / UMN11N / UMP11N

### ●Applications

Ultra high speed switching

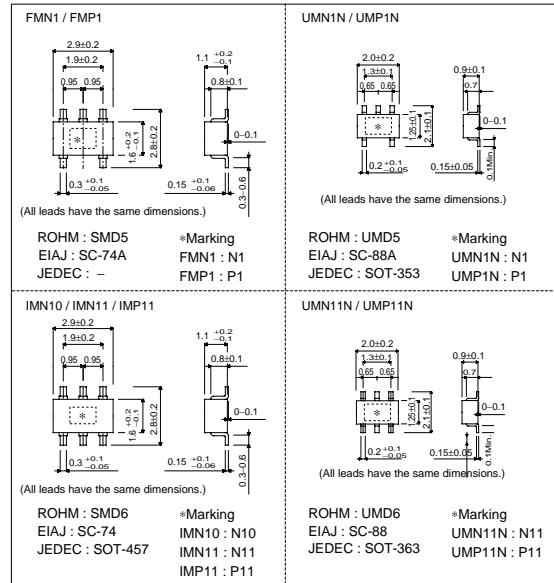
### ●Features

- 1) A wide variety of configurations are available.  
(UMD5, UMD6, SMD5, SMD6)
- 2) Multiple diodes in one small surface mount package.
- 3) Diode characteristics are matched in the package.

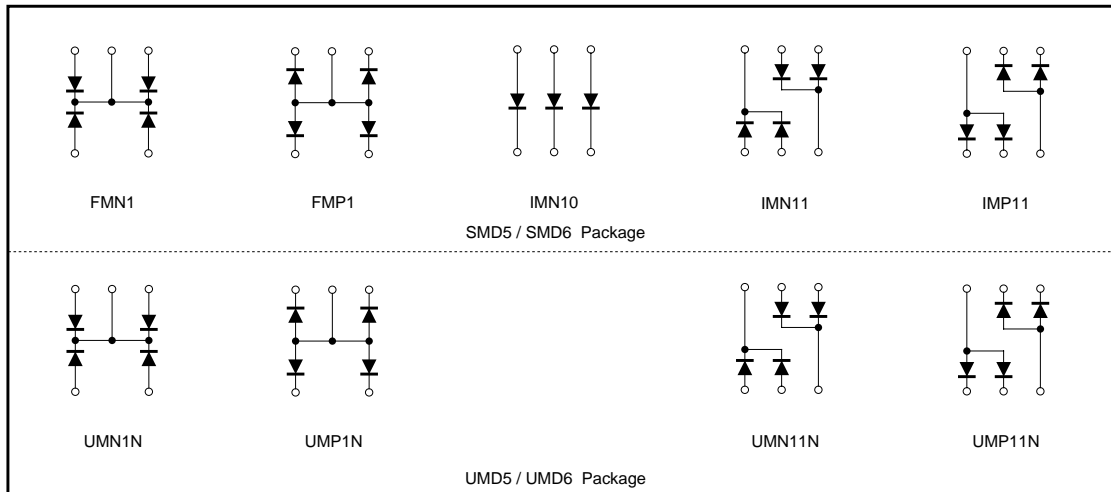
### ●Construction

Silicon epitaxial planar

### ●External dimensions (Units : mm)



### ●Circuit



# Diodes

# FMN1 / FMP1 / IMN10 / IMN11 / IMP11 / UMN1N / UMP1N / UMN11N / UMP11N

## ●Absolute maximum ratings (Ta=25°C)

| Type            | Peak reverse voltage<br>V <sub>RM</sub> (V) | DC reverse voltage<br>V <sub>R</sub> (V) | Peak forward current<br>I <sub>FM</sub> (mA) | Mean rectifying current<br>I <sub>o</sub> (mA) | Surge current<br>(1μs)<br>I <sub>surge</sub> (A) | Power dissipation<br>(TOTAL)<br>Pd (mW) | Junction temperature<br>T <sub>j</sub> (°C) | Storage temperature<br>T <sub>stg</sub> (°C) |
|-----------------|---|--|--|--|--|---|---|--|
| FMN1<br>UMN1N   | 80  | 80                                       | 80   | 25   | 0.25   | 150/80                                  | 150   | -55~+150                                     |
| FMP1<br>UMP1N   | 80  | 80                                       | 80   | 25   | 0.25   | 150/80                                  | 150   | -55~+150                                     |
| IMN10           | 80  | 80                                       | 300  | 100  | 4  | 300 *1                                  | 150   | -55~+150                                     |
| IMN11<br>UMN11N | 80  | 80                                       | 300  | 100  | 4  | 150 *2                                  | 150   | -55~+150                                     |
| IMP11<br>UMP11N | 80  | 80                                       | 300  | 100  | 4  | 150 *2                                  | 150   | -55~+150                                     |

\*1 Not to exceed 200mW per element.  
\*2 Not to exceed 120mW per element.

## ●Electrical characteristics (Ta=25°C)

| Type            | Forward voltage            |                     | Reverse current             |                    | Capacitance between terminals |                    |         | Reverse recovery time        |                    |                     |
|-----------------|----------------------------|---------------------|-----------------------------|--------------------|-------------------------------|--------------------|---------|------------------------------|--------------------|---------------------|
|                 | V <sub>F</sub> (V)<br>Max. | Cond.               | I <sub>R</sub> (μA)<br>Max. | Cond.              | C <sub>T</sub> (pF)<br>Max.   | Cond.              |         | t <sub>rr</sub> (ns)<br>Max. | Cond.              |                     |
|                 |                            | I <sub>F</sub> (mA) |                             | V <sub>R</sub> (V) |                               | V <sub>R</sub> (V) | f (MHz) |                              | V <sub>R</sub> (V) | I <sub>F</sub> (mA) |
| FMN1<br>UMN1N   | 0.9                        | 5                   | 0.1                         | 70                 | 3.5                           | 6                  | 1       | 4                            | 6                  | 5                   |
| FMP1<br>UMP1N   | 0.9                        | 5                   | 0.1                         | 70                 | 3.5                           | 6                  | 1       | 4                            | 6                  | 5                   |
| IMN10           | 1.2                        | 100                 | 0.1                         | 70                 | 3.5                           | 6                  | 1       | 4                            | 6                  | 5                   |
| IMN11<br>UMN11N | 1.2                        | 100                 | 0.1                         | 70                 | 3.5                           | 6                  | 1       | 4                            | 6                  | 5                   |
| IMP11<br>UMP11N | 1.2                        | 100                 | 0.1                         | 70                 | 3.5                           | 6                  | 1       | 4                            | 6                  | 5                   |

## ●Electrical characteristic curves (Ta=25°C)

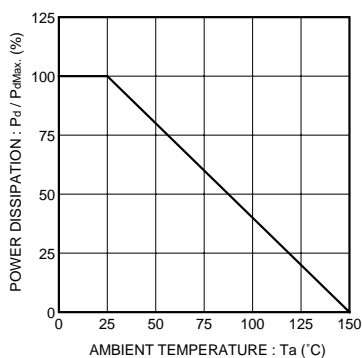


Fig.1 Power reduction curve

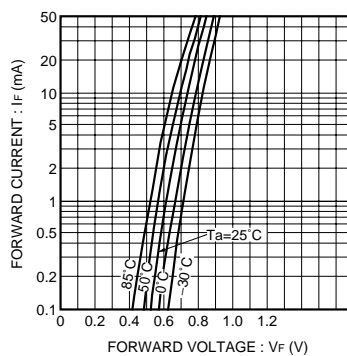


Fig.2 Forward current vs. forward voltage (P Type)

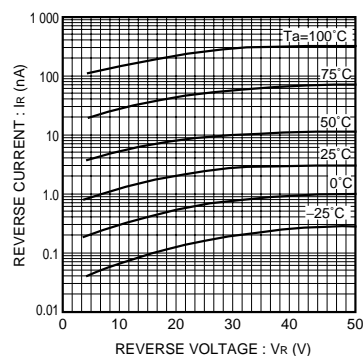


Fig.3 Reverse current vs. reverse voltage (P Type)

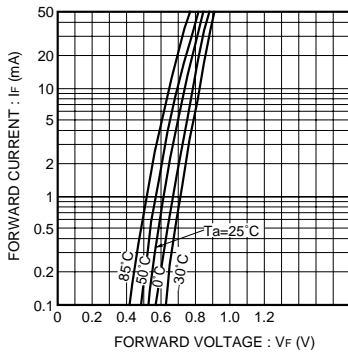


Fig.4 Forward current vs. forward voltage (N Type)

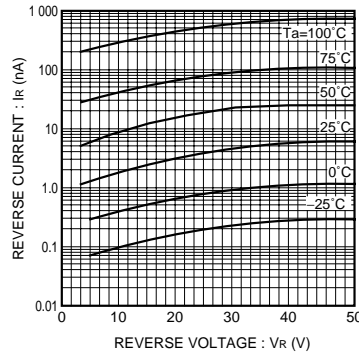


Fig.5 Reverse current vs. reverse voltage (N Type)

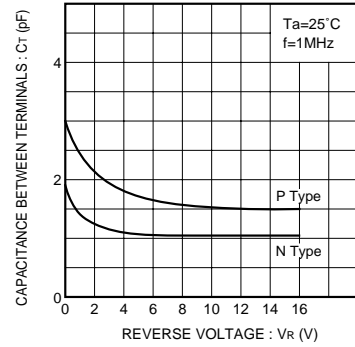


Fig.6 Capacitance between terminals vs. reverse voltage

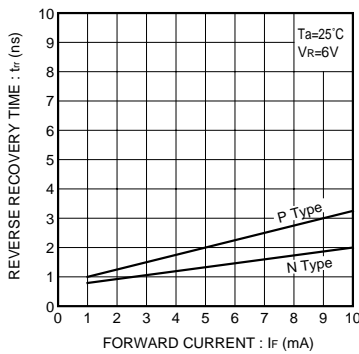


Fig.7 Reverse recovery time vs. forward current

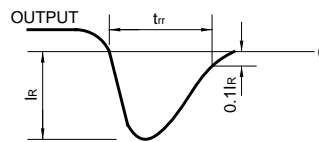
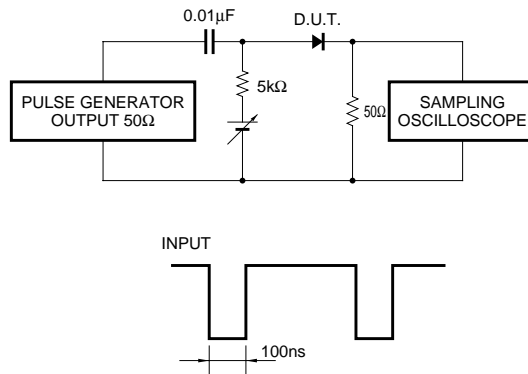


Fig.8 Reverse recovery time ( $t_{rr}$ ) measurement circuit