



## S/W Load Applications

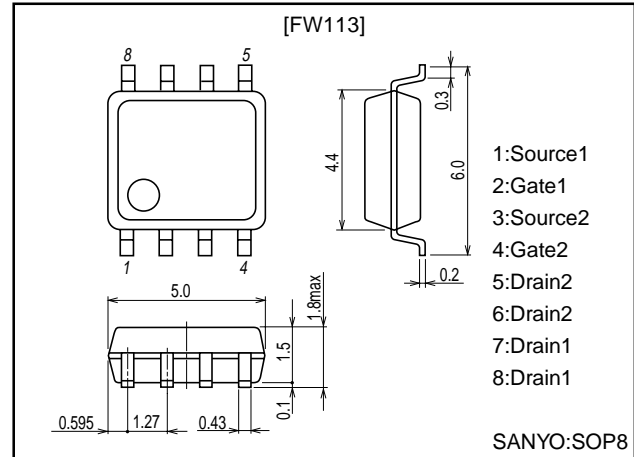
### Features

- 4V drive.
- Low ON resistance.

### Package Dimensions

unit:mm

2129



### Specifications

Absolute Maximum Ratings at  $T_a = 25^\circ\text{C}$ 

| Parameter                   | Symbol    | Conditions  | Ratings     | Unit             |
|-----------------------------|-----------|---|-------------|------------------|
| Drain-to-Source Voltage     | $V_{DSS}$ |   | -30         | V                |
| Gate-to-Source Voltage      | $V_{GSS}$ |   | $\pm 20$    | V                |
| Drain Current (DC)          | $I_D$     |   | -5          | A                |
| Drain Current (pulse)       | $I_{DP}$  | $PW \leq 10\mu\text{s}$ , duty cycle $\leq 1\%$             | -32         | A                |
| Allowable Power Dissipation | $P_D$     | Mounted on ceramic board (1000mm <sup>2</sup> ×0.8mm) 1unit | 1.7         | W                |
| Total Dissipation           | $P_T$     | Mounted on ceramic board (1000mm <sup>2</sup> ×0.8mm)       | 2.0         | W                |
| Channel Temperature         | $T_{ch}$  |   | 150         | $^\circ\text{C}$ |
| Storage Temperature         | $T_{stg}$ |   | -55 to +150 | $^\circ\text{C}$ |

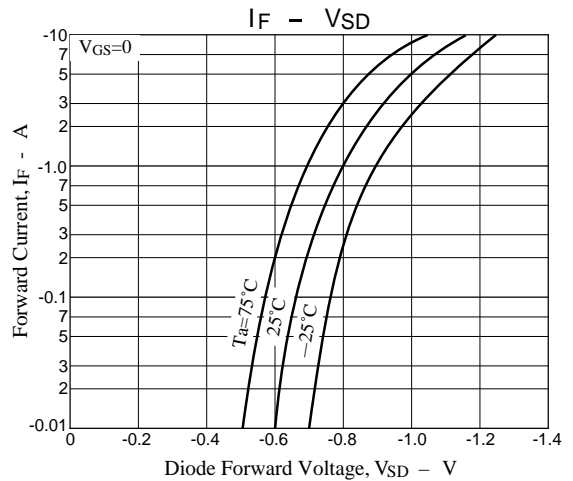
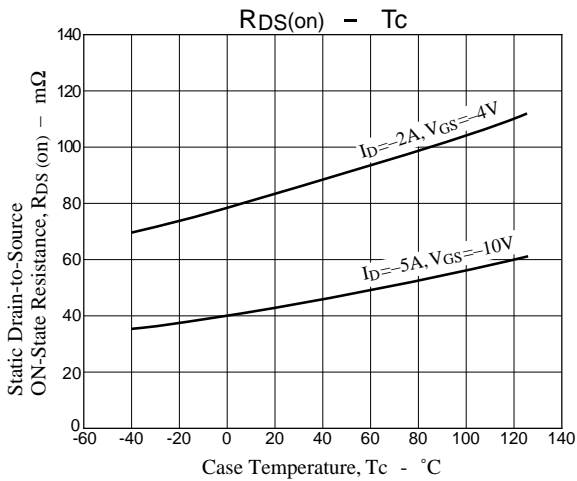
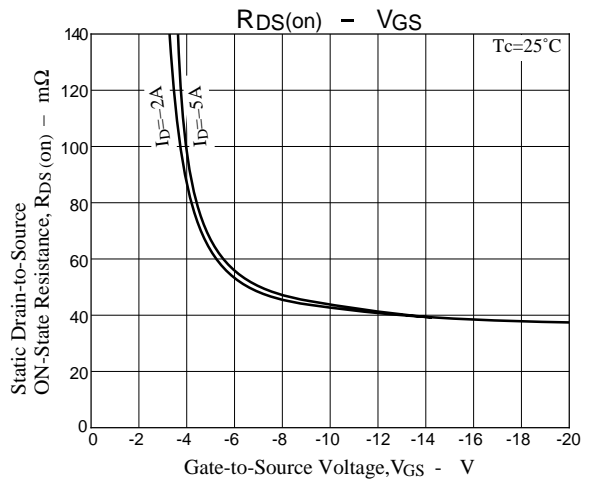
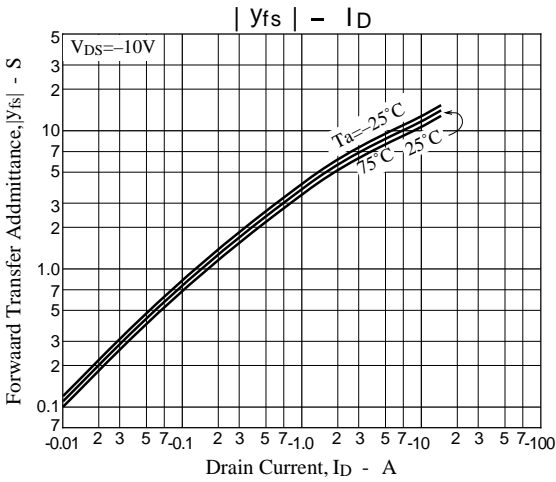
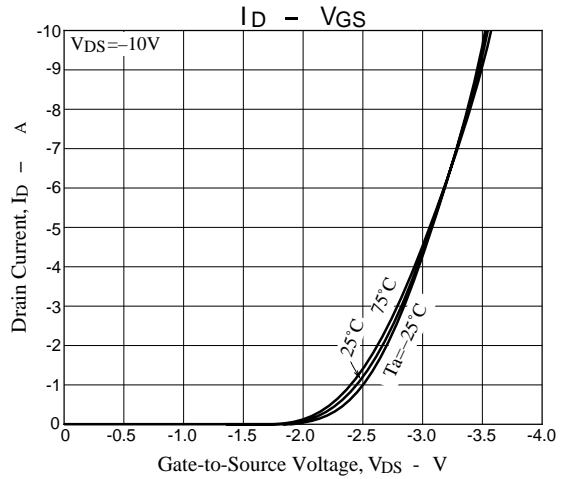
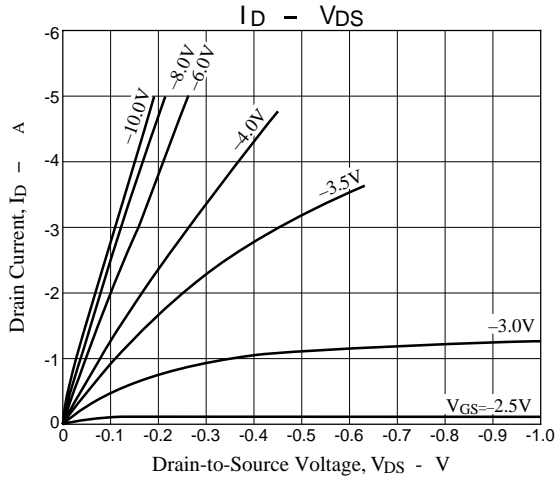
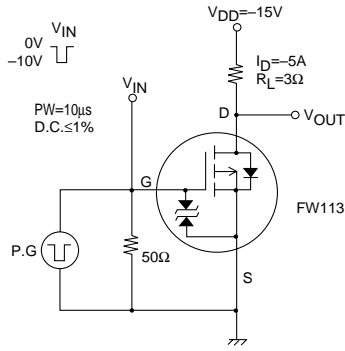
Electrical Characteristics at  $T_a = 25^\circ\text{C}$ 

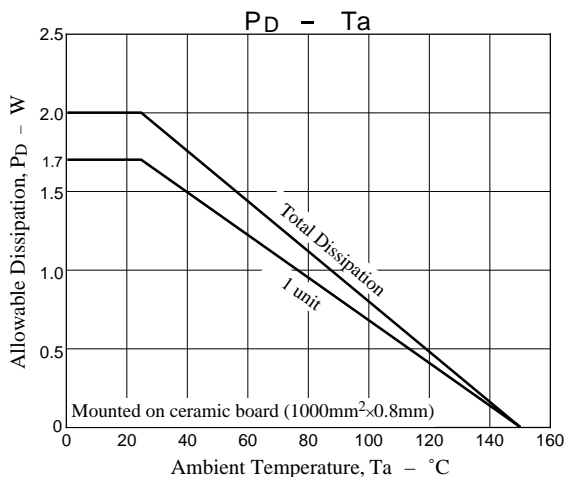
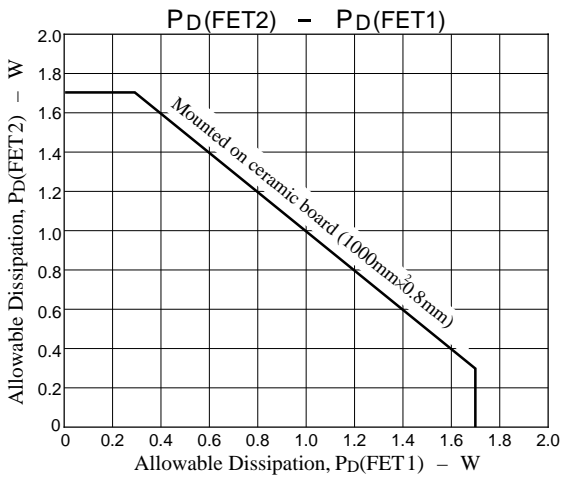
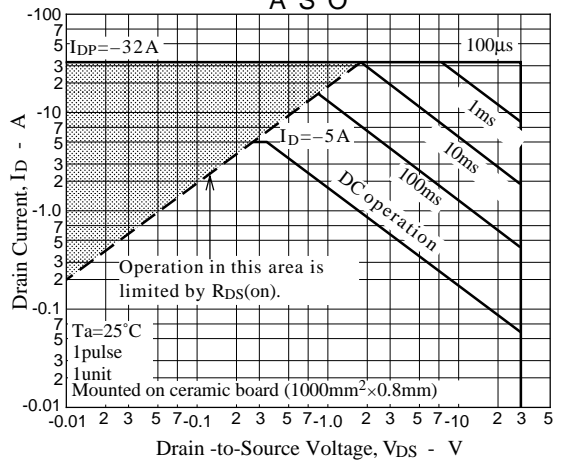
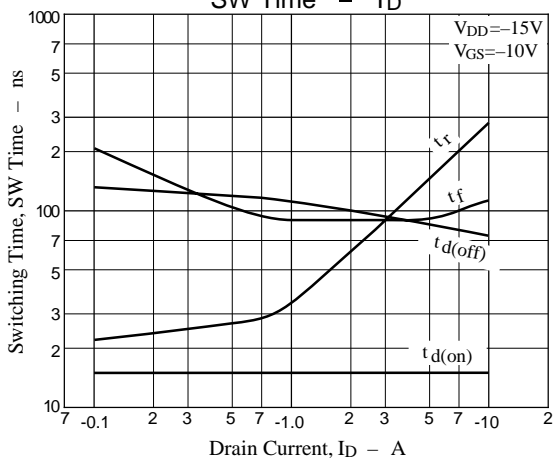
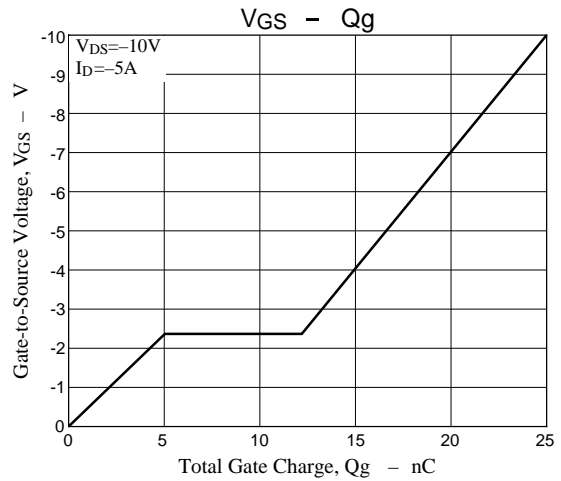
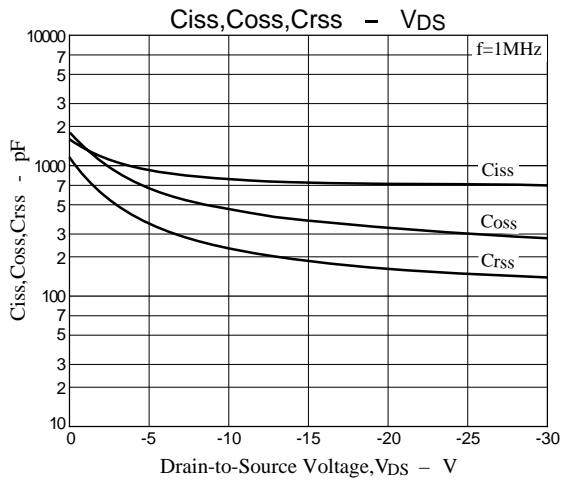
| Parameter                                  | Symbol        | Conditions   | Ratings |      |          | Unit             |
|--|---------------|--|---------|------|----------|------------------|
|  |               |  | min     | typ  | max      |                  |
| D-S Breakdown Voltage                      | $V_{(BR)DSS}$ | $I_D = -1\text{mA}$ , $V_{GS} = 0$                                   | -30     |      |          | V                |
| Zero Gate Voltage Drain Current            | $I_{DSS}$     | $V_{DS} = -30\text{V}$ , $V_{GS} = 0$                                |         |      | -100     | $\mu\text{A}$    |
| Gate-to-Source Leakage Current             | $I_{GSS}$     | $V_{GS} = \pm 16\text{V}$ , $V_{DS} = 0$                             |         |      | $\pm 10$ | $\mu\text{A}$    |
| Cutoff Current                             | $V_{GS(off)}$ | $V_{DS} = -10\text{V}$ , $I_D = -1\text{mA}$                         | -1.0    |      | -2.5     | V                |
| Forward Transfer Admittance                | $ y_{fs} $    | $V_{DS} = -10\text{V}$ , $I_D = -5\text{A}$                          | 5       | 8    |          | S                |
| Static Drain-to-Source ON-State Resistance | $R_{DS(on)1}$ | $I_D = -5\text{A}$ , $V_{GS} = -10\text{V}$                          |         | 42   | 53       | $\text{m}\Omega$ |
|  | $R_{DS(on)2}$ | $I_D = -2\text{A}$ , $V_{GS} = -4\text{V}$                           |         | 85   | 120      | $\text{m}\Omega$ |
| Input Capacitance                          | $C_{iss}$     | $V_{DS} = -10\text{V}$ , $f = 1\text{MHz}$                           |         | 820  |          | pF               |
| Output Capacitance                         | $C_{oss}$     | $V_{DS} = -10\text{V}$ , $f = 1\text{MHz}$                           |         | 470  |          | pF               |
| Reverse Transfer Capacitance               | $C_{rss}$     | $V_{DS} = -10\text{V}$ , $f = 1\text{MHz}$                           |         | 230  |          | pF               |
| Turn-ON Delay Time                         | $t_{d(on)}$   | See specified Test Circuit   |         | 15   |          | ns               |
| Rise Time                                  | $t_r$         | See specified Test Circuit   |         | 150  |          | ns               |
| Turn-OFF Delay Time                        | $t_{d(off)}$  | See specified Test Circuit   |         | 85   |          | ns               |
| Fall Time                                  | $t_f$         | See specified Test Circuit   |         | 90   |          | ns               |
| Total Gate Charge                          | $Q_g$         | $V_{DS} = -10\text{V}$ , $V_{GS} = -10\text{V}$ , $I_D = -5\text{A}$ |         | 25   |          | nC               |
| Gate-to-Source Charge                      | $Q_{gs}$      | $V_{DS} = -10\text{V}$ , $V_{GS} = -10\text{V}$ , $I_D = -5\text{A}$ |         | 5    |          | nC               |
| Gate-to-Drain ("Miller") Charge            | $Q_{gd}$      | $V_{DS} = -10\text{V}$ , $V_{GS} = -10\text{V}$ , $I_D = -5\text{A}$ |         | 7    |          | nC               |
| Diode Forward Voltage                      | $V_{SD}$      | $I_S = -5\text{A}$ , $V_{GS} = 0$                                    | -1.0    | -1.5 |          | V                |

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Switching Time Test Circuit





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