



## DC-DC Converter Applications

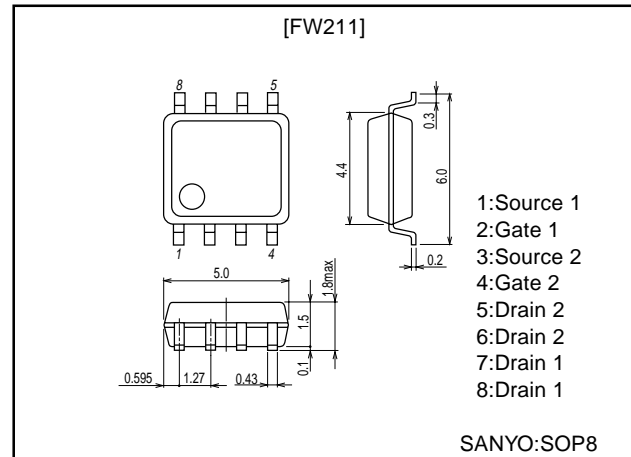
### Features

- Low ON resistance.
- 2.5V drive.

### Package Dimensions

unit:mm

2129



### Specifications

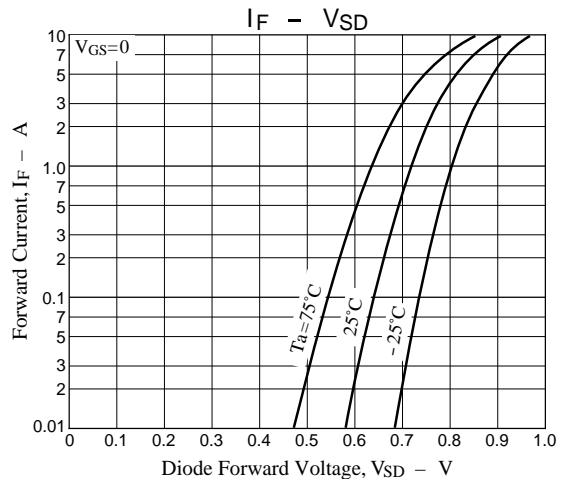
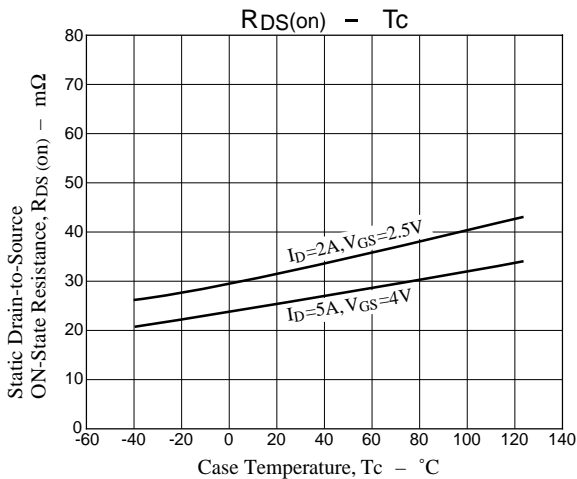
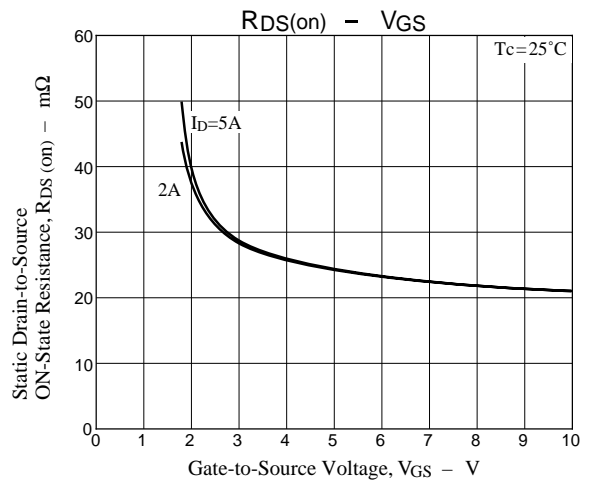
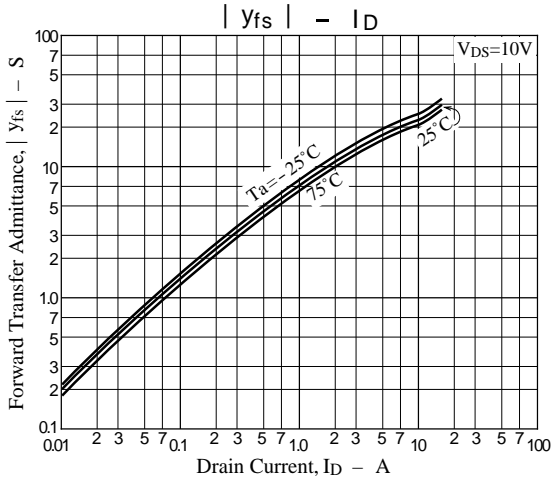
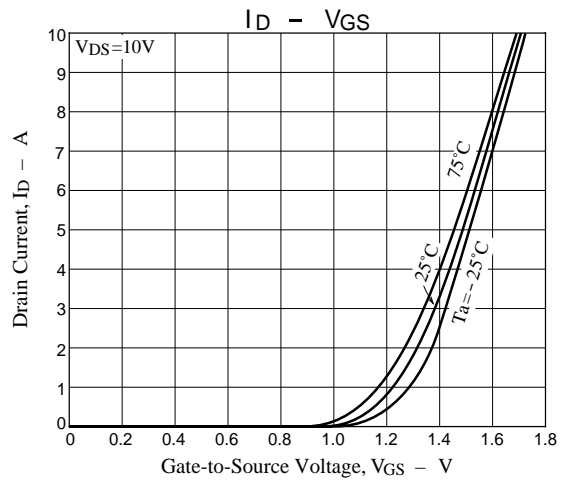
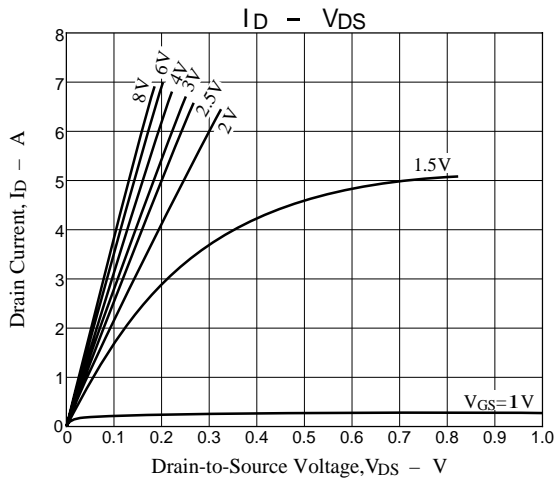
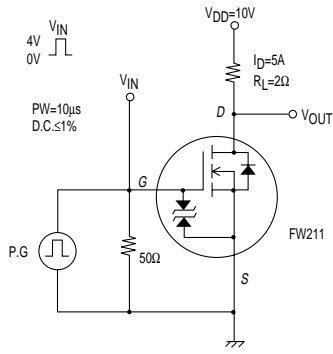
**Absolute Maximum Ratings** at  $T_a = 25^\circ\text{C}$

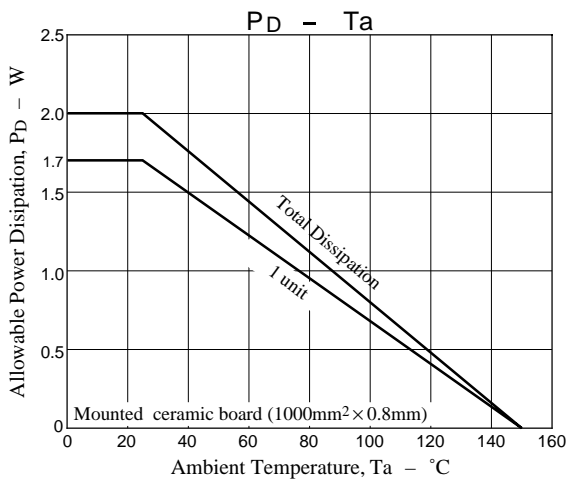
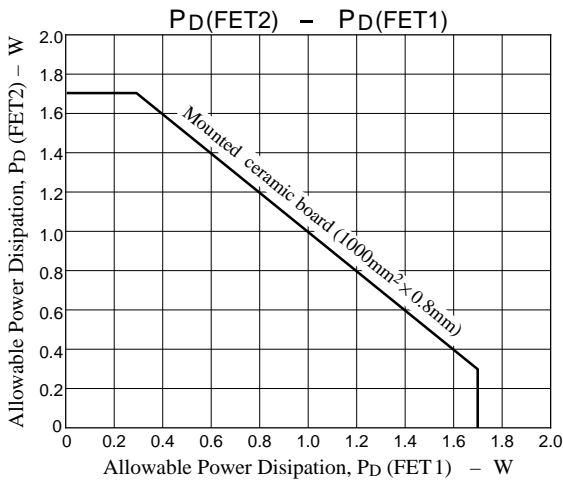
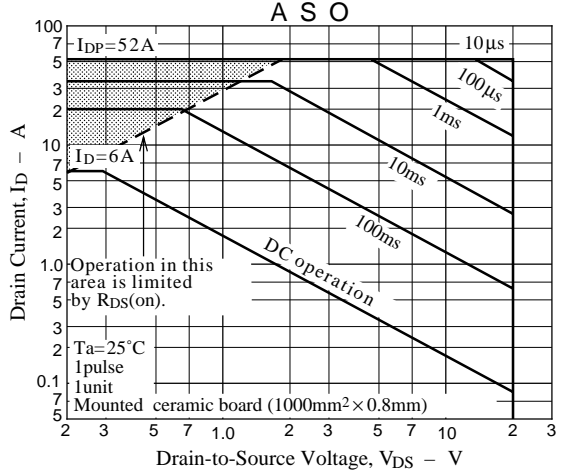
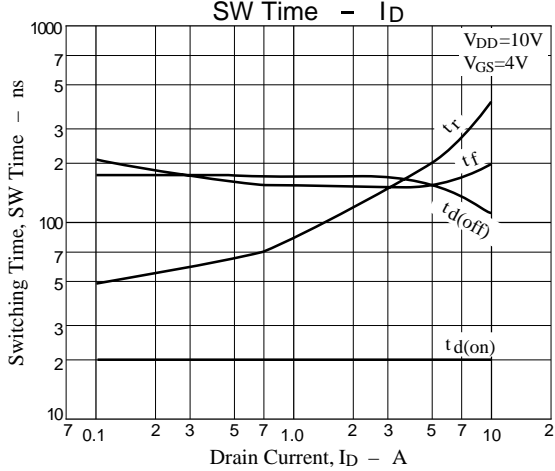
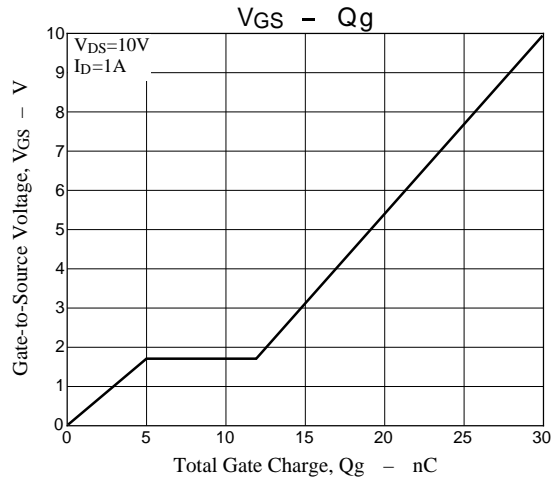
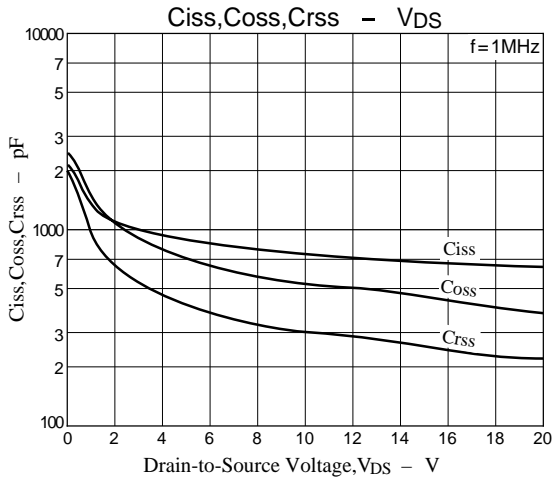
Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	$V_{DSS}$		20	V
Gate-to-Source Voltage	$V_{GSS}$		$\pm 10$	V
Drain Current (DC)	$I_D$		6	A
Drain Current (pulse)	$I_{DP}$	$PW \leq 10\mu\text{s}$ , duty cycle $\leq 1\%$	52	A
Allowable Power Dissipation	$P_D$	Mounted on a ceramic board (1000mm <sup>2</sup> ×0.8mm) 1unit	1.7	W
Total Dissipation	$P_T$	Mounted on a 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		
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = 1\text{mA}$ , $V_{GS} = 0$	20			V	
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 20\text{V}$ , $V_{GS} = 0$			100	$\mu\text{A}$	
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS} = \pm 8\text{V}$ , $V_{DS} = 0$			$\pm 10$	$\mu\text{A}$	
Cutoff Voltage	$V_{GS(off)}$	$V_{DS} = 10\text{V}$ , $I_D = 1\text{mA}$	0.4		1.3	V	
Forward Transfer Admittance	$ y_{fs} $	$V_{DS} = 10\text{V}$ , $I_D = 5\text{A}$		9	15	S	
Static Drain-to-Source ON-State Resistance	$R_{DS(on)1}$	$I_D = 5\text{A}$ , $V_{GS} = 4\text{V}$			27	35	$\text{m}\Omega$
	$R_{DS(on)2}$	$I_D = 2\text{A}$ , $V_{GS} = 2.5\text{V}$			35	48	$\text{m}\Omega$
Input Capacitance	$C_{iss}$	$V_{DS} = 10\text{V}$ , $f = 1\text{MHz}$			750	pF	
Output Capacitance	$C_{oss}$	$V_{DS} = 10\text{V}$ , $f = 1\text{MHz}$			520	pF	
Reverse Transfer Capacitance	$C_{rss}$	$V_{DS} = 10\text{V}$ , $f = 1\text{MHz}$			300	pF	
Turn-ON Delay Time	$t_{d(on)}$	See Specified Test Circuit			20	ns	
Rise Time	$t_r$	See Specified Test Circuit			200	ns	
Turn-OFF Delay Time	$t_{d(off)}$	See Specified Test Circuit			150	ns	
Fall Time	$t_f$	See Specified Test Circuit			150	ns	
Total Gate Charge	$Q_g$	$V_{DS} = 10\text{V}$ , $V_{GS} = 10\text{V}$ , $I_D = 1\text{A}$			30	nC	
Gate-to-Source Charge	$Q_{gs}$				5	nC	
Gate-to-Drain "Miller" Charge	$Q_{gd}$				7	nC	
Diode Forward Voltage	$V_{SD}$		$I_S = 5\text{A}$ , $V_{GS} = 0$	1.0	1.2	V	

Switching Time Test Circuit





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