



DC-DC Converter Applications

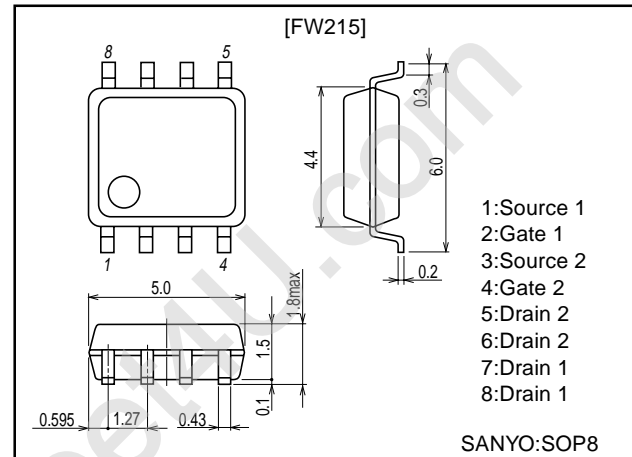
Features

- Low ON resistance.
- 4V 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}		30	V
Gate-to-Source Voltage	V_{GSS}		± 20	V
Drain Current (DC)	I_D		5	A
Drain Current (pulse)	I_{DP}	$PW \leq 10\mu\text{s}$, duty cycle $\leq 1\%$	48	A
Allowable Power Dissipation	P_D	Mounted on a ceramic board (1200mm ² ×0.8mm) 1unit	1.7	W
Total Dissipation	P_T	Mounted on a ceramic board (1200mm ² ×0.8mm)	2.0	W
Channel Temperature	T_{ch}		150	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +150	$^\circ\text{C}$

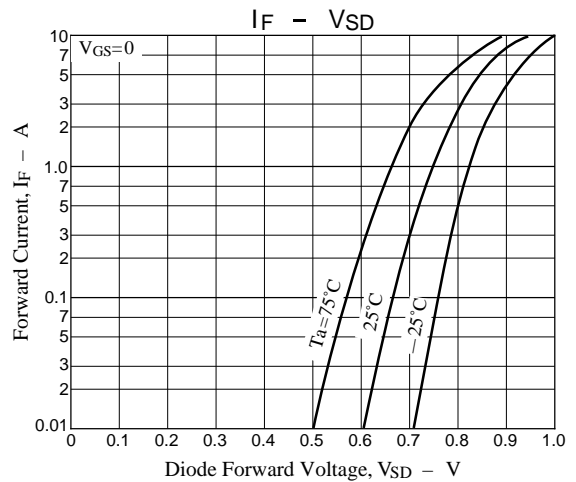
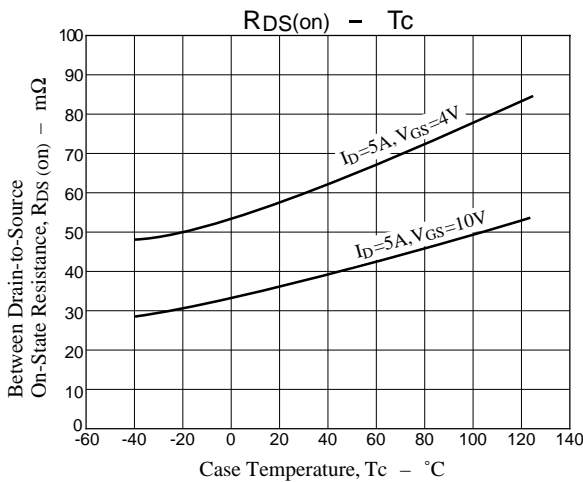
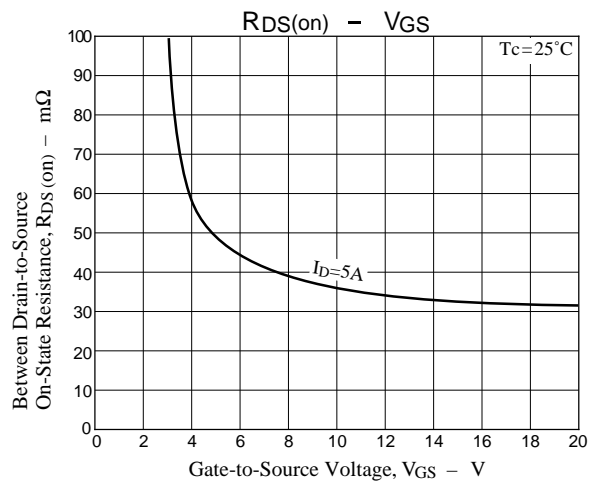
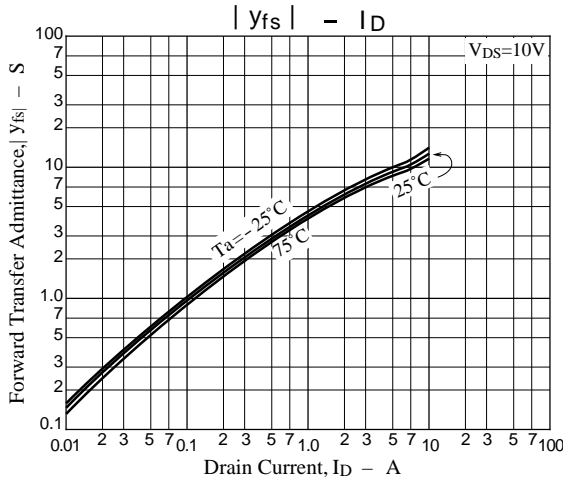
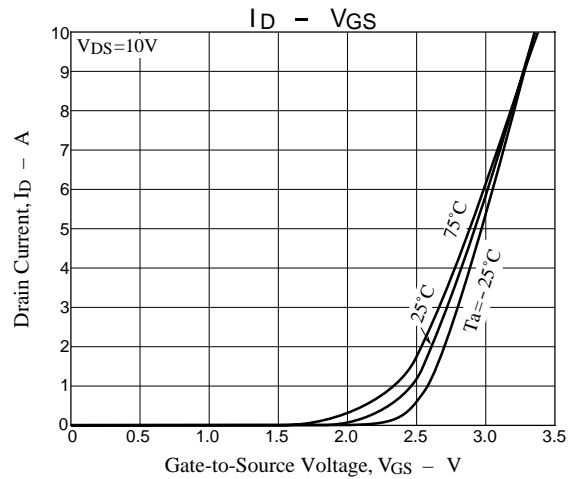
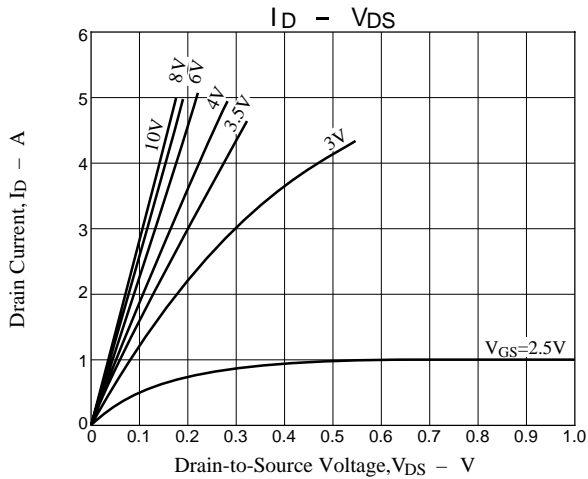
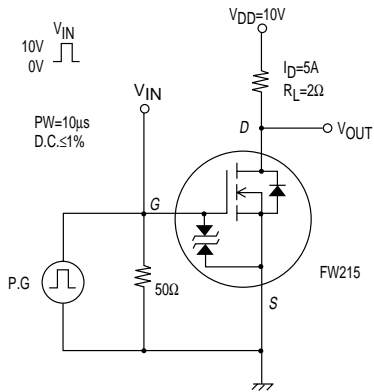
Electrical Characteristics at $T_a = 25^\circ\text{C}$

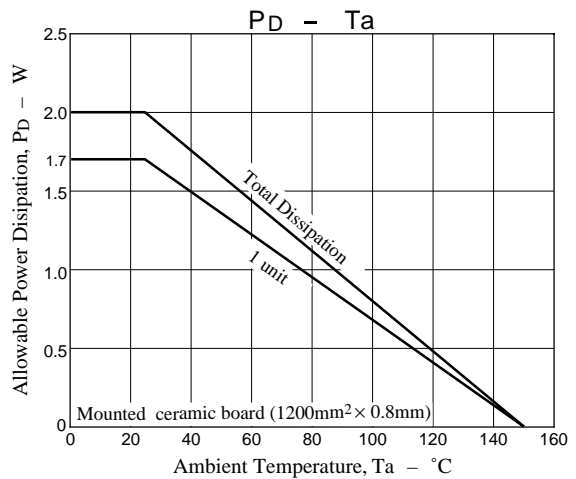
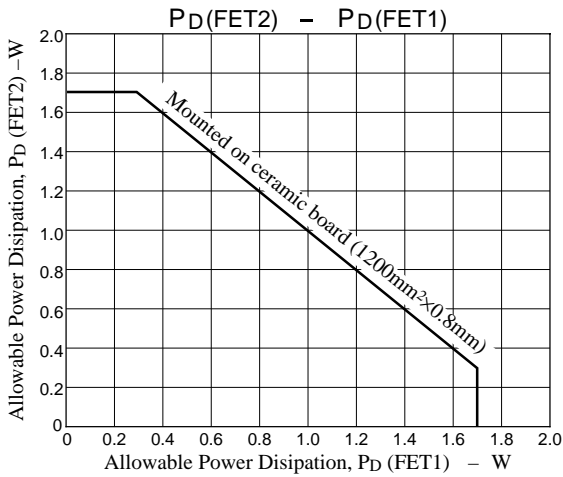
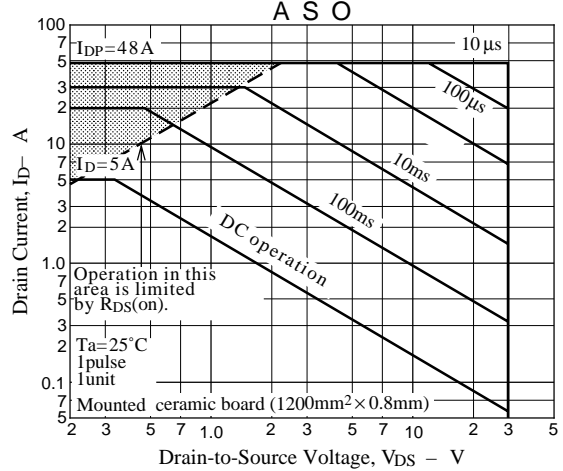
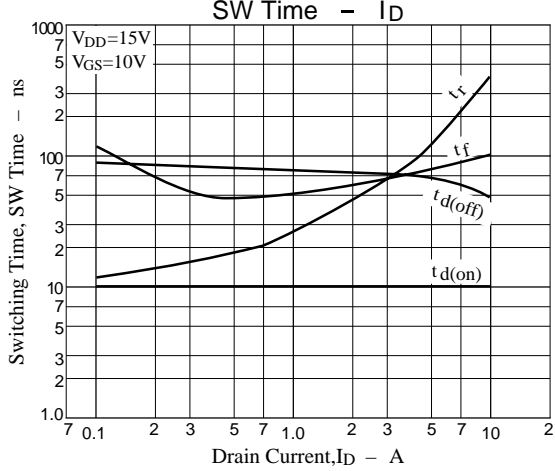
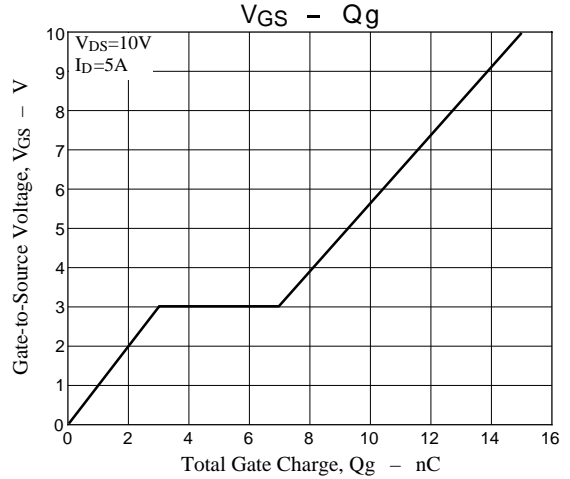
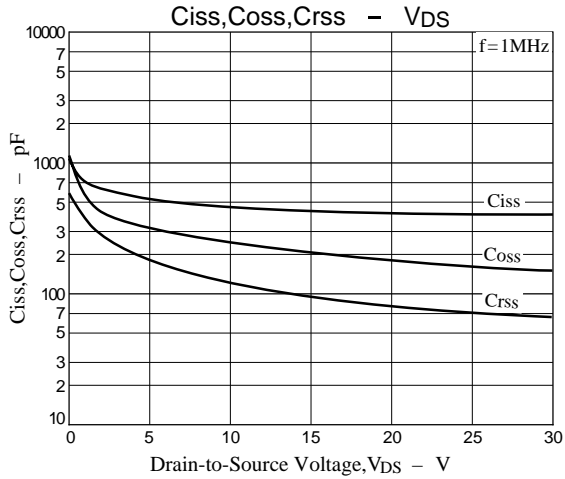
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = 1\text{mA}$, $V_{GS} = 0$	30			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 30\text{V}$, $V_{GS} = 0$			100	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS} = \pm 16\text{V}$, $V_{DS} = 0$			± 10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS} = 10\text{V}$, $I_D = 1\text{mA}$	1.0		2.4	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS} = 10\text{V}$, $I_D = 5\text{A}$	5		9	S
Static Drain-to-Source ON-State Resistance	$R_{DS(on)1}$	$I_D = 5\text{A}$, $V_{GS} = 10\text{V}$		36	46	$\text{m}\Omega$
	$R_{DS(on)2}$	$I_D = 5\text{A}$, $V_{GS} = 4\text{V}$		58	78	$\text{m}\Omega$
Input Capacitance	C_{iss}	$V_{DS} = 10\text{V}$, $f = 1\text{MHz}$		460		pF
Output Capacitance	C_{oss}	$V_{DS} = 10\text{V}$, $f = 1\text{MHz}$		250		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS} = 10\text{V}$, $f = 1\text{MHz}$		120		pF
Turn-ON Delay Time	$t_{d(on)}$	See Specified Test Circuit		10		ns
Rise Time	t_r	See Specified Test Circuit		120		ns
Turn-OFF Delay Time	$t_{d(off)}$	See Specified Test Circuit		70		ns
Fall Time	t_f	See Specified Test Circuit		80		ns
Total Gate Charge	Q_g	$V_{DS} = 10\text{V}$, $V_{GS} = 10\text{V}$, $I_D = 5\text{A}$		15		nC
Gate-to-Source Charge	Q_{gs}			3		nC
Gate-to-Drain "Miller" Charge	Q_{gd}			4		nC
Diode Forward Voltage	V_{SD}		$I_S = 5\text{A}$, $V_{GS} = 0$	1.0	1.2	

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Switching Time Test Circuit





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