



Ultrahigh-Speed Switching Applications

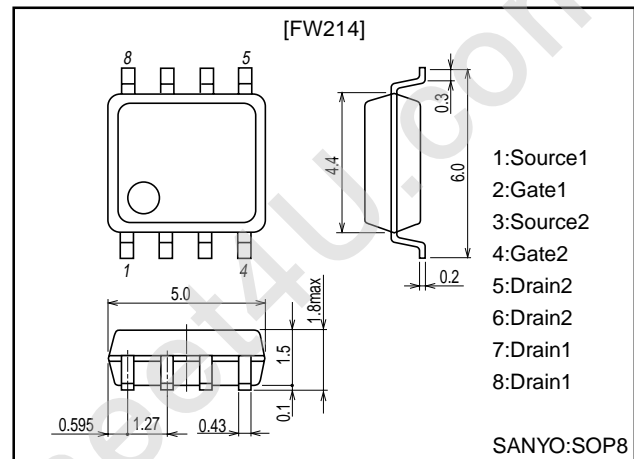
Features

- 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}		± 10	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 ceramic board (1200mm 2 \times 0.8mm) 1unit	1.7	W
Total Dissipation	P_T	Mounted on ceramic board (1200mm 2 \times 0.8mm)	2.0	W
Channel Temperature	T_{ch}		150	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +150	$^\circ\text{C}$

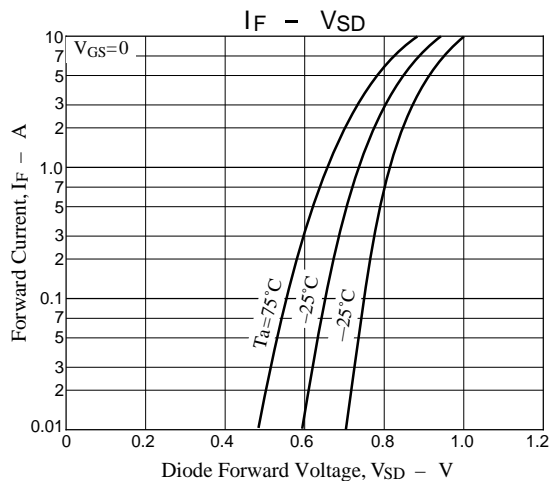
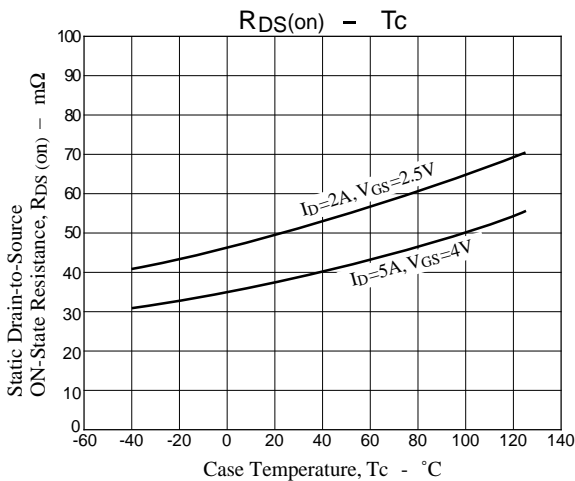
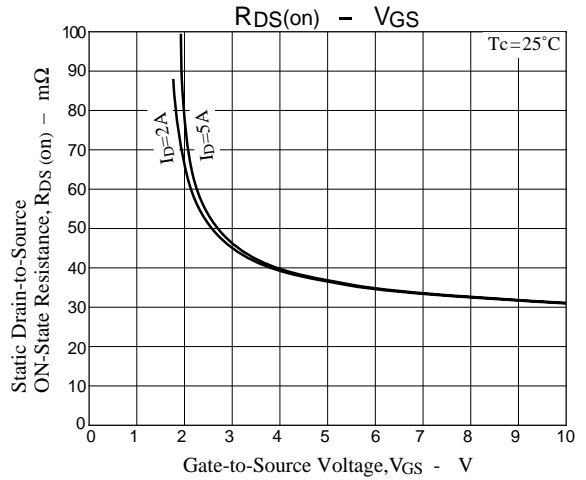
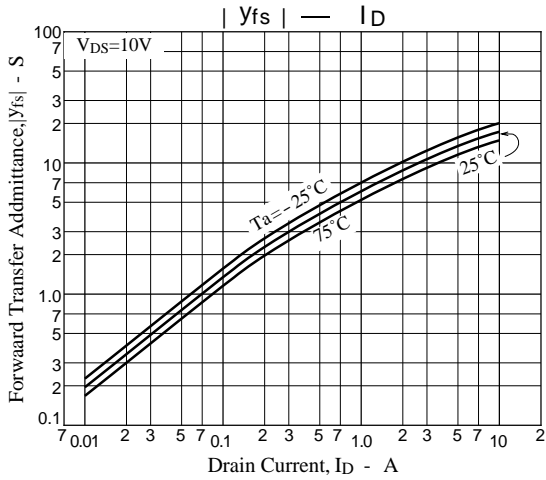
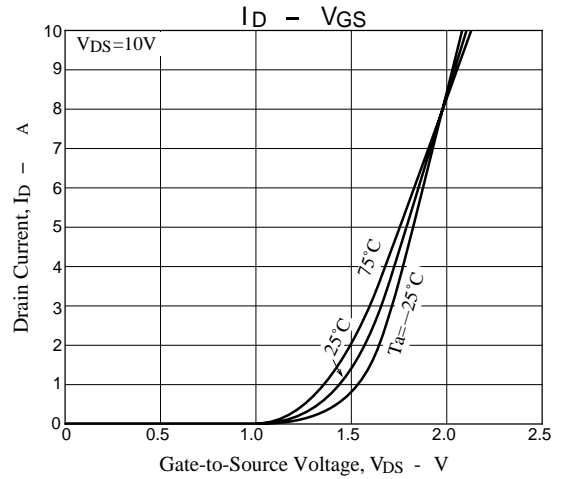
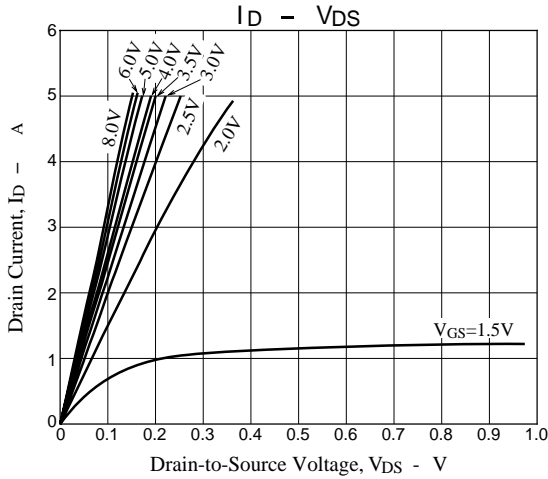
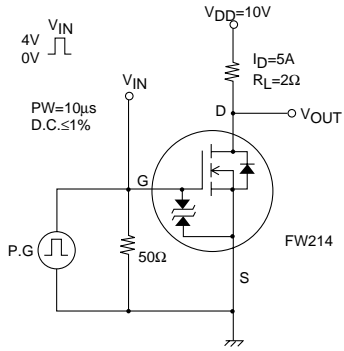
Electrical Characteristics at $T_a = 25^\circ\text{C}$

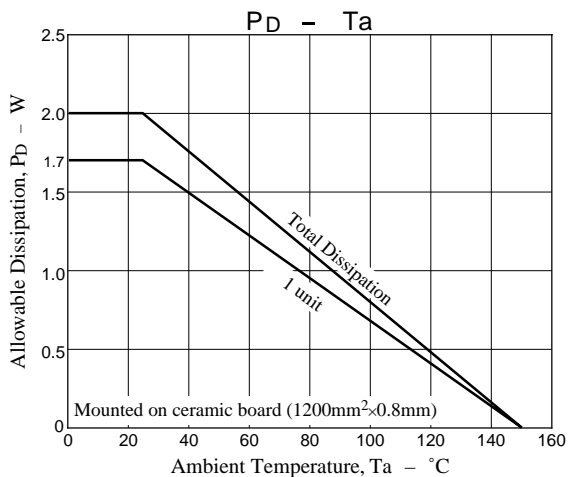
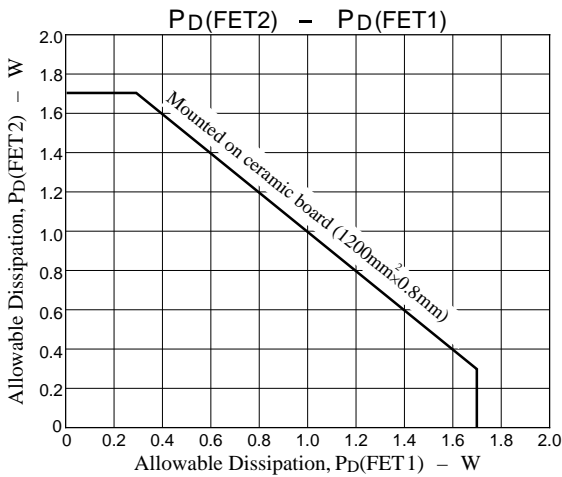
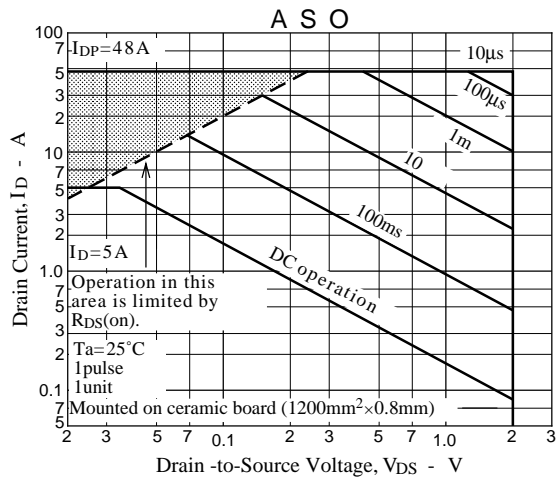
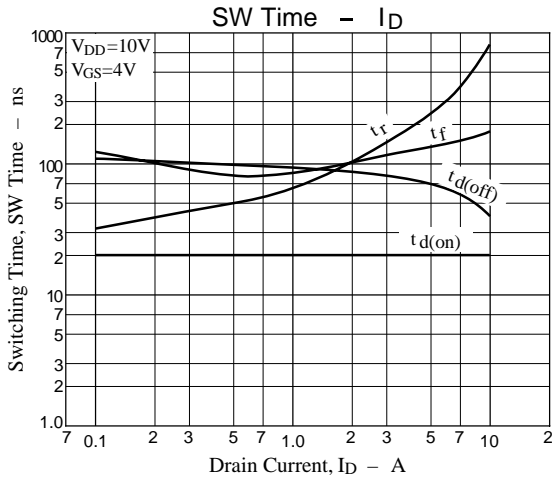
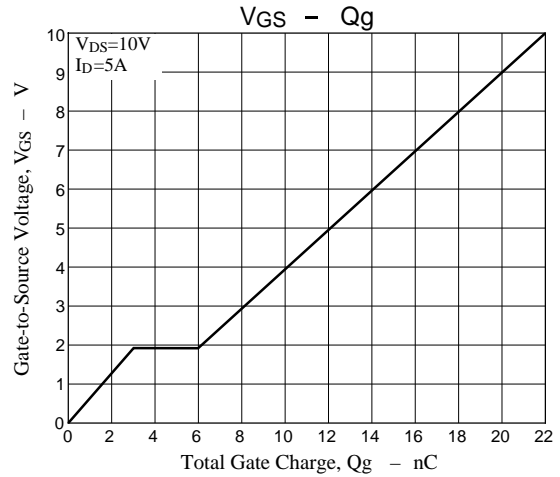
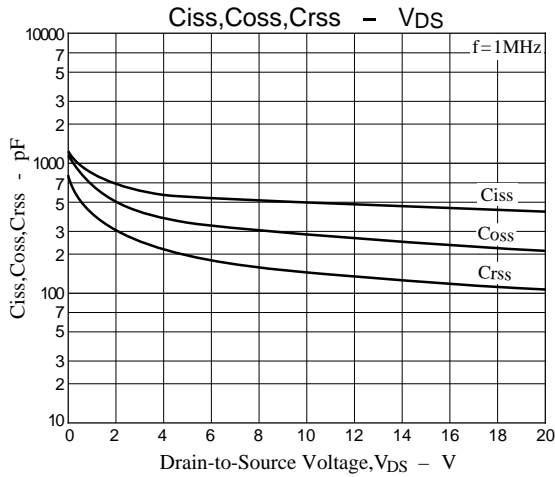
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
D-S Breakdown Voltage	$V_{(BR)DSS}$	$I_D=1\text{mA}$, $V_{GS}=0$	20			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=20\text{V}$, $V_{GS}=0$			100	μA
Gate-to-Source Leak Current	I_{GSS}	$V_{GS}=\pm 8\text{V}$, $V_{DS}=0$			± 10	μA
Cutoff Current	$V_{GS(off)}$	$V_{DS}=10\text{V}$, $I_D=1\text{mA}$	0.4		1.3	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=10\text{V}$, $I_D=5\text{A}$	8	13		S
Static Drain-to-Source ON-State Resistance	$R_{DS(on)1}$	$I_D=5\text{A}$, $V_{GS}=4\text{V}$		38	50	$\text{m}\Omega$
	$R_{DS(on)2}$	$I_D=2\text{A}$, $V_{GS}=2.5\text{V}$		50	70	$\text{m}\Omega$
Input Capacitance	C_{iss}	$V_{DS}=10\text{V}$, $f=1\text{MHz}$		500		pF
Output Capacitance	C_{oss}	$V_{DS}=10\text{V}$, $f=1\text{MHz}$		280		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS}=10\text{V}$, $f=1\text{MHz}$		150		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit		20		ns
Rise Time	t_r	See specified Test Circuit		250		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit		70		ns
Fall Time	t_f	See specified Test Circuit		130		ns
Total Gate Charge	Q_g	$V_{DS}=10\text{V}$, $V_{GS}=10\text{V}$, $I_D=5\text{A}$		22		nC
Gate-to-Source Charge	Q_{gs}	$V_{DS}=10\text{V}$, $V_{GS}=10\text{V}$, $I_D=5\text{A}$		3		nC
Gate-to-Drain ("Miller") Charge	Q_{gd}	$V_{DS}=10\text{V}$, $V_{GS}=10\text{V}$, $I_D=5\text{A}$		3		nC
Diode Forward Voltage	V_{SD}	$I_S=5\text{A}$, $V_{GS}=0$	1.0	1.2		V

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Switching Time Test Circuit





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