

Ordering number: ENN6071A

N-Channel Silicon MOSFET



**FW231**

## Load Switching Applications

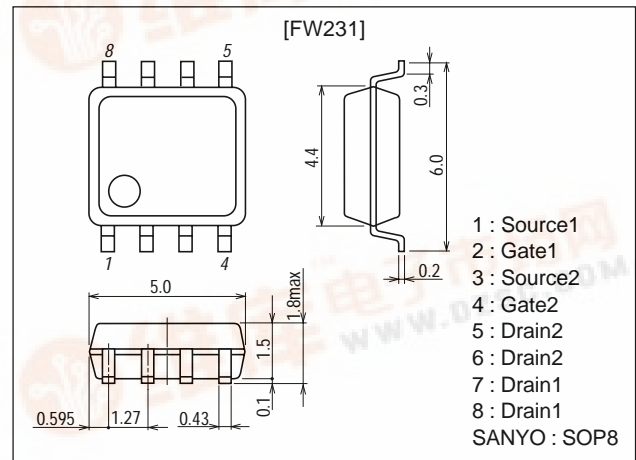
### Features

- Low ON resistance.
- 2.5V drive.

### Package Dimensions

unit:mm

2129



### Specifications

Absolute Maximum Ratings at Ta = 25°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)	$I_D$		9	A
Drain Current (pulse)	$I_{DP}$	$PW \leq 10\mu s$ , 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	Tch		150	°C
Storage Temperature	Tstg		-55 to +150	°C

Electrical Characteristics at Ta = 25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=1mA$ , $V_{GS}=0$	20			V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=20V$ , $V_{GS}=0$			1	μA
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 8V$ , $V_{DS}=0$			±10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=10V$ , $I_D=1mA$	0.4		1.3	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=10V$ , $I_D=9A$	16	24		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=9A$ , $V_{GS}=4V$		15	20	mΩ
	$R_{DS(on)2}$	$I_D=2A$ , $V_{GS}=2.5V$		20	27	mΩ

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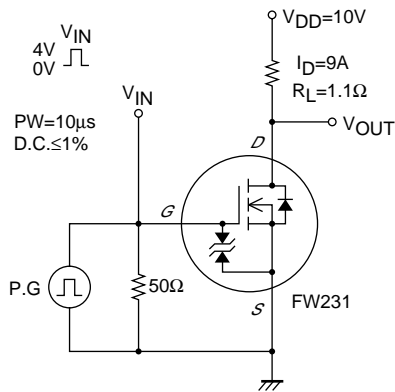


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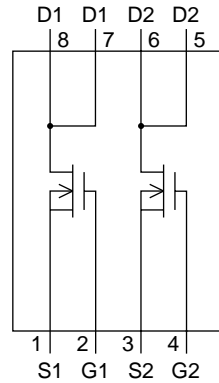
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	V <sub>DS</sub> =10V, f=1MHz		1950		pF
Output Capacitance	Coss	V <sub>DS</sub> =10V, f=1MHz		550		pF
Reverse Transfer Capacitance	Crss	V <sub>DS</sub> =10V, f=1MHz		370		pF
Turn-ON Delay Time	t <sub>d(on)</sub>	See specified Test Circuit		24		ns
Rise Time	t <sub>r</sub>	See specified Test Circuit		440		ns
Turn-OFF Delay Time	t <sub>d(off)</sub>	See specified Test Circuit		200		ns
Fall Time	t <sub>f</sub>	See specified Test Circuit		300		ns
Total Gate Charge	Qg	V <sub>DS</sub> =10V, V <sub>GS</sub> =10V, I <sub>D</sub> =9A		60		nC
Gate-to-Source Charge	Qgs	V <sub>DS</sub> =10V, V <sub>GS</sub> =10V, I <sub>D</sub> =9A		2.8		nC
Gate-to-Drain "Miller" Charge	Qgd	V <sub>DS</sub> =10V, V <sub>GS</sub> =10V, I <sub>D</sub> =9A		10		nC
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =9A, V <sub>GS</sub> =0		0.82	1.2	V

## Switching Time Test Circuit

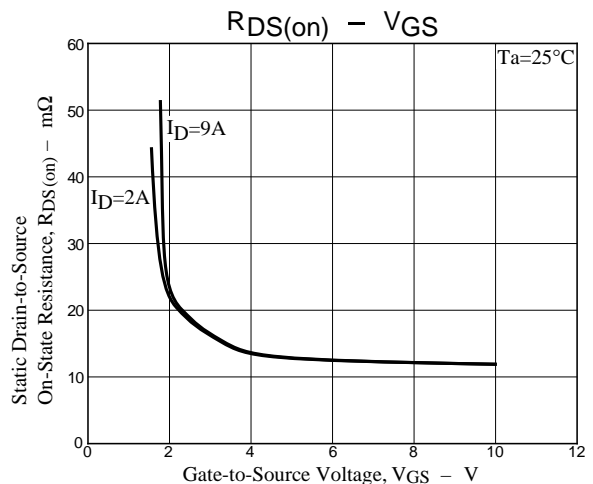
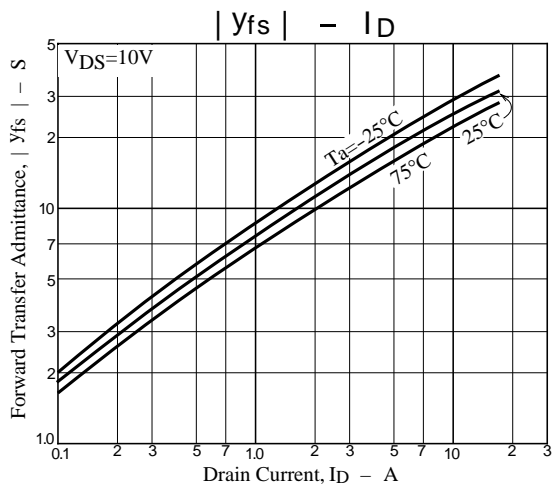
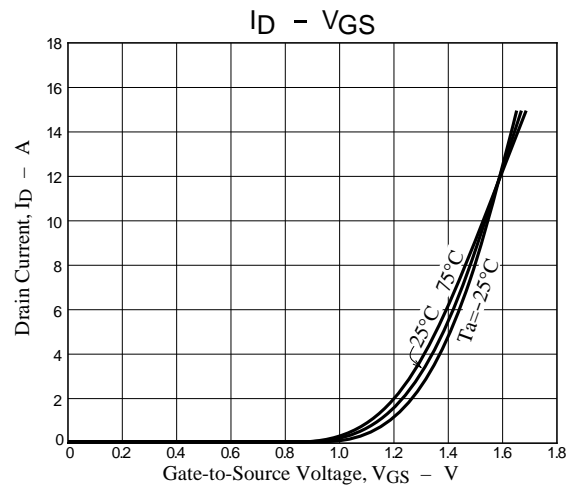
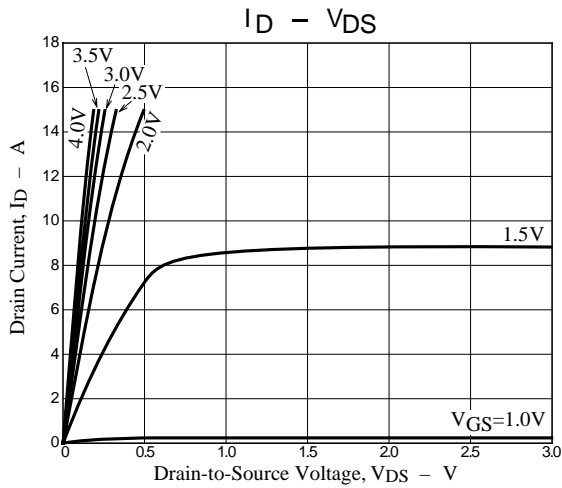


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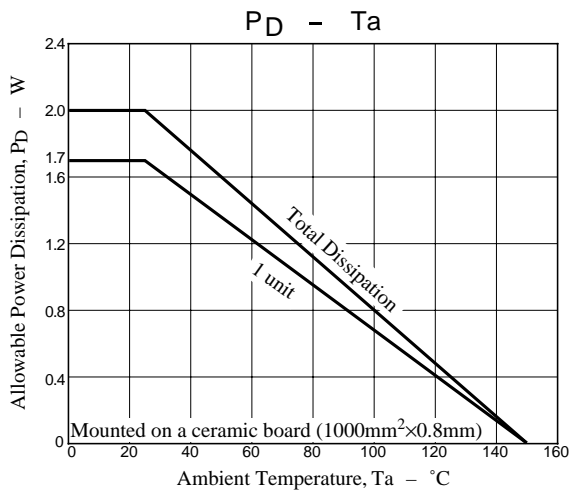
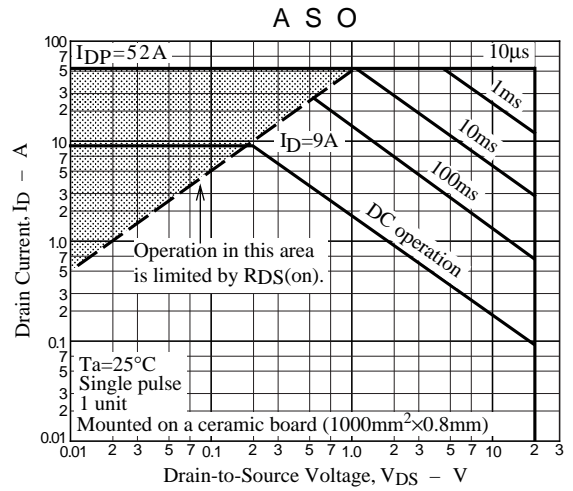
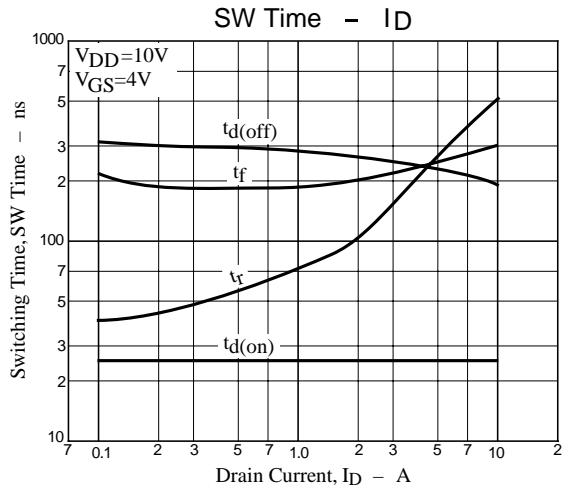
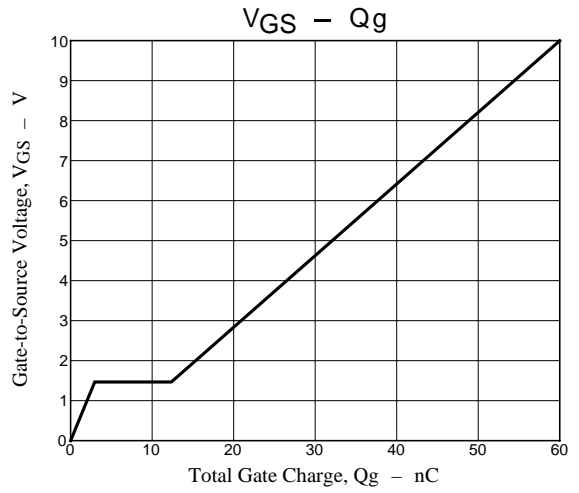
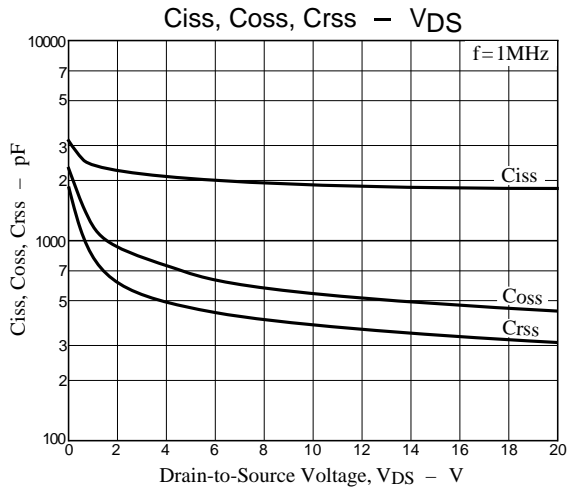
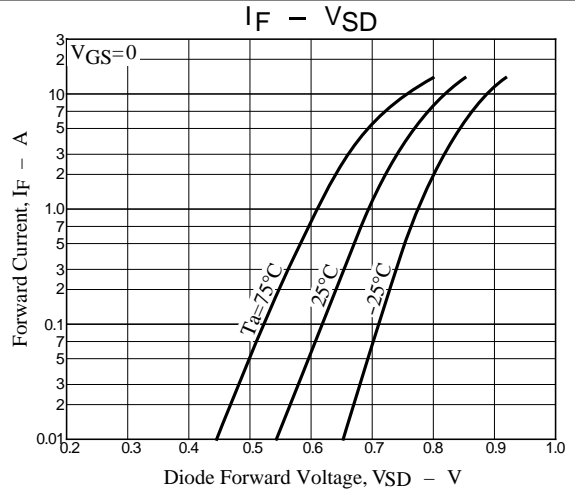
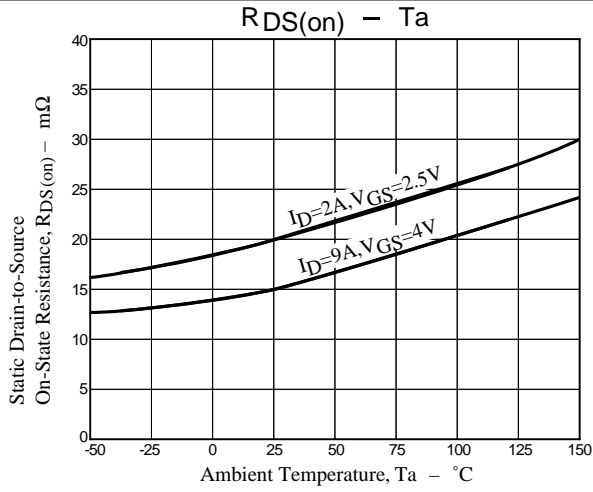
## Electrical Connection



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