



SANYO Semiconductors

DATA SHEET

N-Channel Silicon MOSFET

FW231A — General-Purpose Switching Device Applications

Features

- 2.5V drive.
- Composite type, facilitating high-density mounting.

Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DS}		20	V
Gate-to-Source Voltage	V_{GS}		±10	V
Drain Current (DC)	I_D		8	A
Drain Current (PW≤10s)	I_D	Duty cycle≤1%	9	A
Drain Current (PW≤10μs)	I_{DP}	Duty cycle≤1%	52	A
Allowable Power Dissipation	P_D	Mounted on a ceramic board (1500mm²×0.8mm) 1unit, PW≤10s	2.3	W
Total Dissipation	P_T	Mounted on a ceramic board (1500mm²×0.8mm) 1unit, PW≤10s	2.5	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	$V_{(BR)DS}$	$I_D=1mA, V_{GS}=0V$	20			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=20V, V_{GS}=0V$			1	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS}=±8V, V_{DS}=0V$			±10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=10V, I_D=1mA$	0.5		1.3	V
Forward Transfer Admittance	yfs	$V_{DS}=10V, I_D=8A$	9	15		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=8A, V_{GS}=4.5V$	10	17	23	mΩ
	$R_{DS(on)2}$	$I_D=8A, V_{GS}=4V$	11	18	24	mΩ
	$R_{DS(on)3}$	$I_D=4A, V_{GS}=2.5V$	12	20	33	mΩ
Input Capacitance	C_{iss}	$V_{DS}=10V, f=1MHz$		1530		pF
Output Capacitance	C_{oss}	$V_{DS}=10V, f=1MHz$		230		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS}=10V, f=1MHz$		215		pF
Turn-ON Delay Time	$t_d(on)$	See specified Test Circuit.		19		ns
Rise Time	t_r	See specified Test Circuit.		225		ns
Turn-OFF Delay Time	$t_d(off)$	See specified Test Circuit.		125		ns
Fall Time	t_f	See specified Test Circuit.		125		ns

Marking :W231A

Continued on next page.

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SANYO Semiconductor Co., Ltd.

TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

FW231A

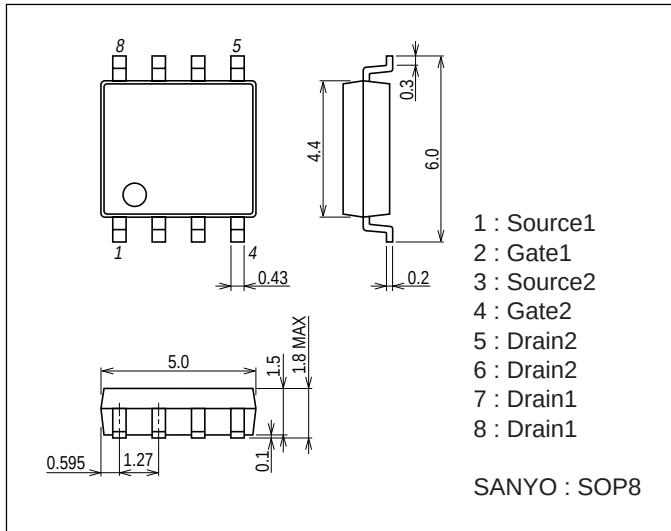
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Total Gate Charge	Qg	V _{DS} =10V, V _{GS} =4.5V, I _D =8A		21		nC
Gate-to-Source Charge	Qgs	V _{DS} =10V, V _{GS} =4.5V, I _D =8A		3.4		nC
Gate-to-Drain "Miller" Charge	Qgd	V _{DS} =10V, V _{GS} =4.5V, I _D =8A		4.8		nC
Diode Forward Voltage	V _{SD}	I _S =8A, V _{GS} =0V		0.8	1.2	V

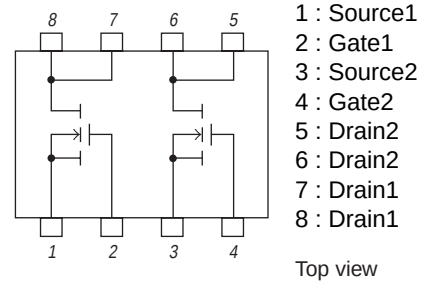
Package Dimensions

unit : mm (typ)

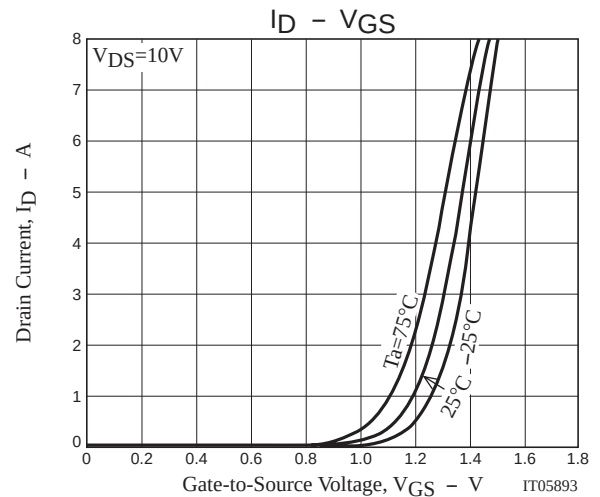
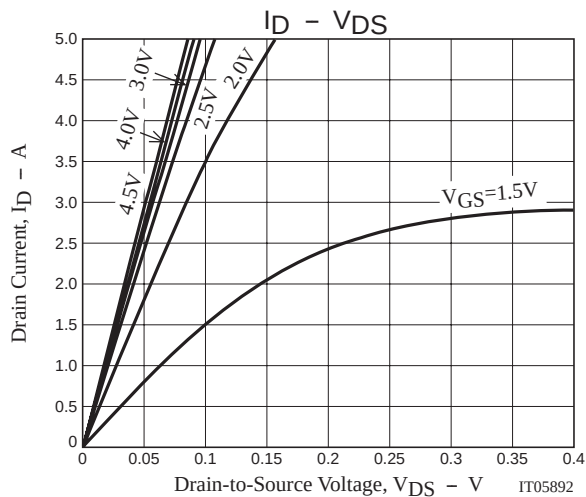
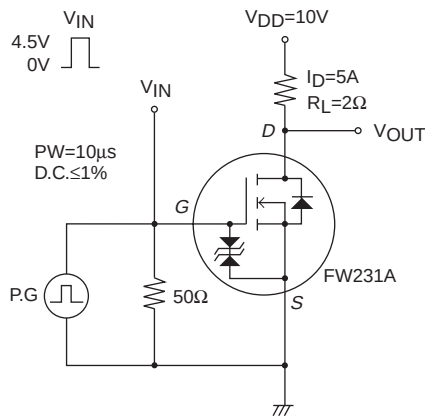
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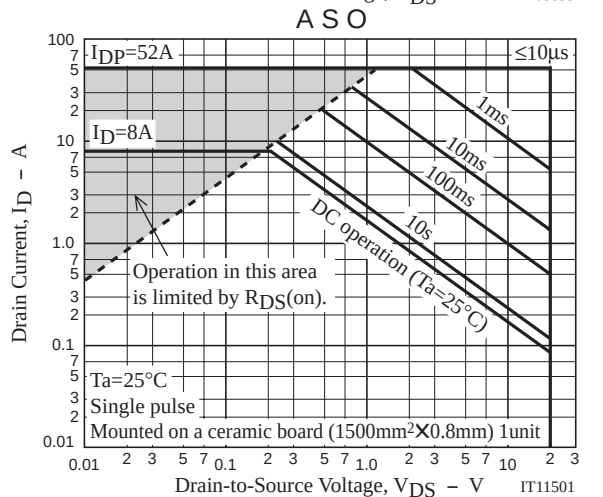
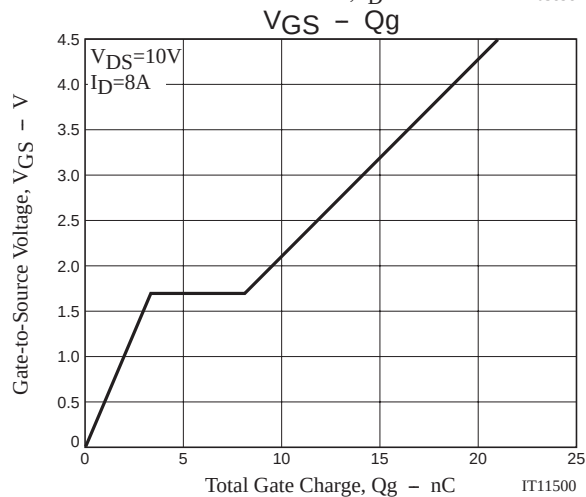
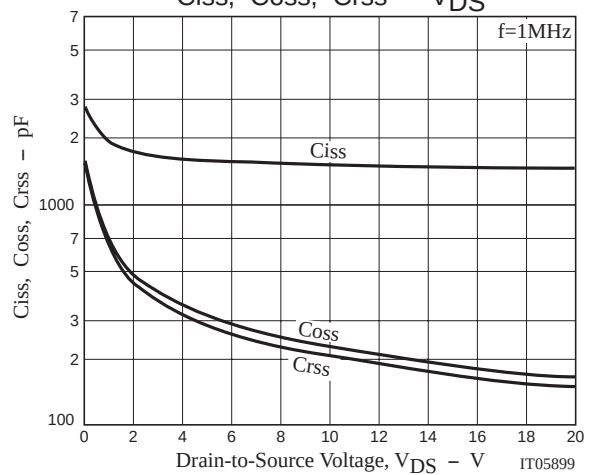
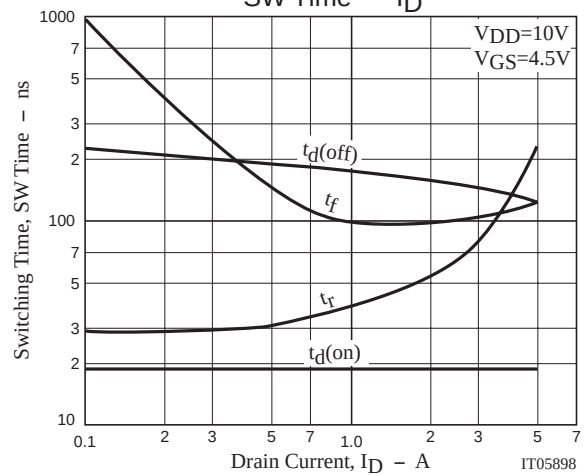
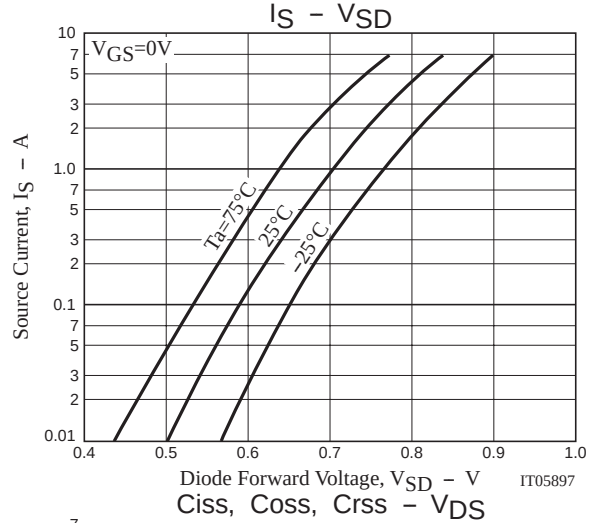
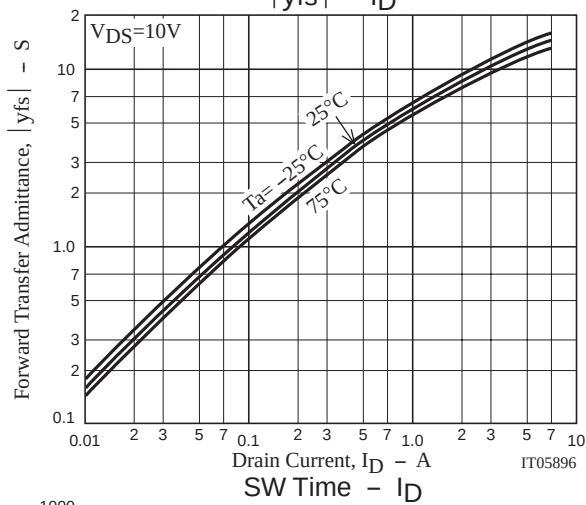
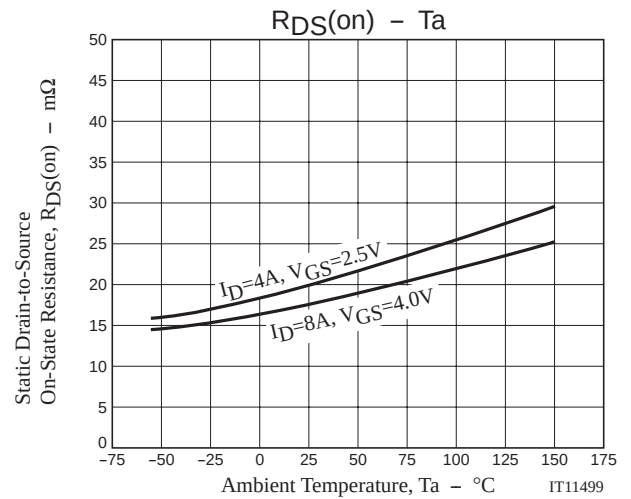
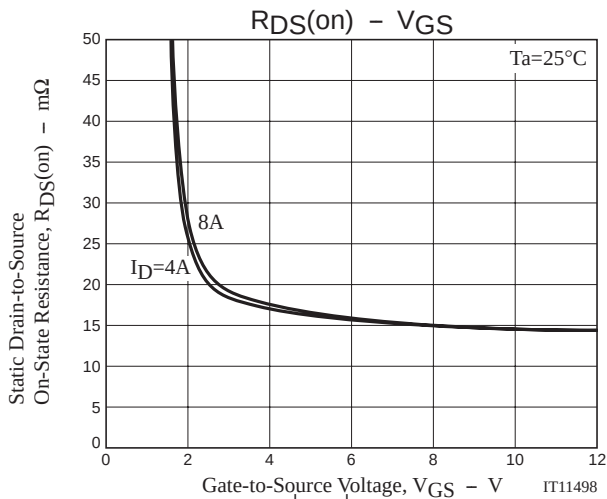


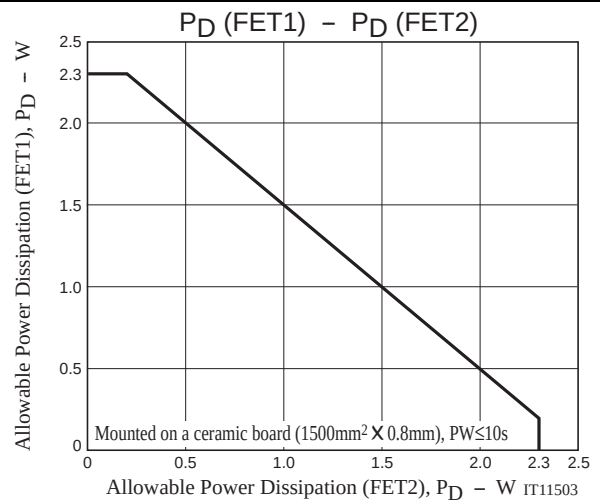
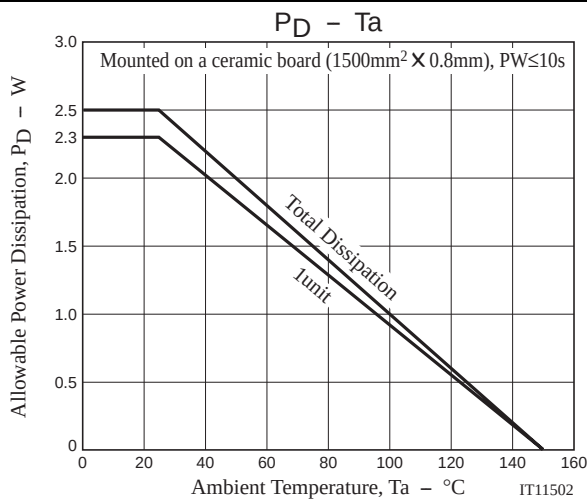
Electrical Connection



Switching Time Test Circuit







Note on usage : Since the FW231A is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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