



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 _{DSS}		20	V
Gate-to-Source Voltage	V _{GSS}		±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 (1500mm ² ×0.8mm) 1unit, PW≤10s	2.3	W
Total Dissipation	P _T	Mounted on a ceramic board (1500mm ² ×0.8mm) 1unit, PW≤10s	2.5	W
Channel Temperature	T _{ch}		150	°C
Storage Temperature	T _{stg}		-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} =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	y _{fs}	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

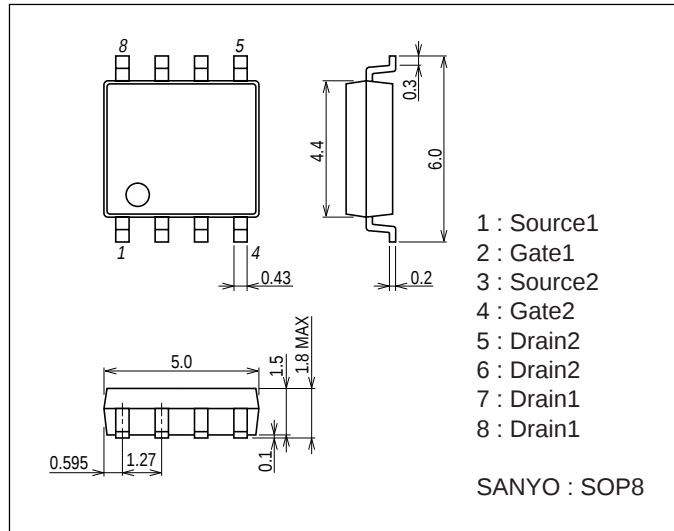
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Total Gate Charge	Qg	$V_{DS}=10V, V_{GS}=4.5V, I_D=8A$		21		nC
Gate-to-Source Charge	Qgs	$V_{DS}=10V, V_{GS}=4.5V, I_D=8A$		3.4		nC
Gate-to-Drain "Miller" Charge	Qgd	$V_{DS}=10V, V_{GS}=4.5V,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

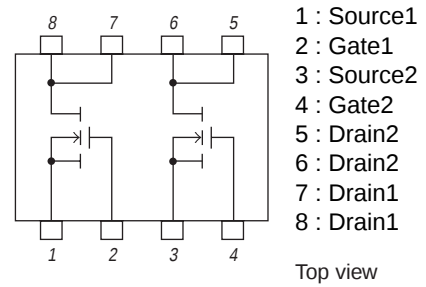
Package Dimensions

unit : mm (typ)

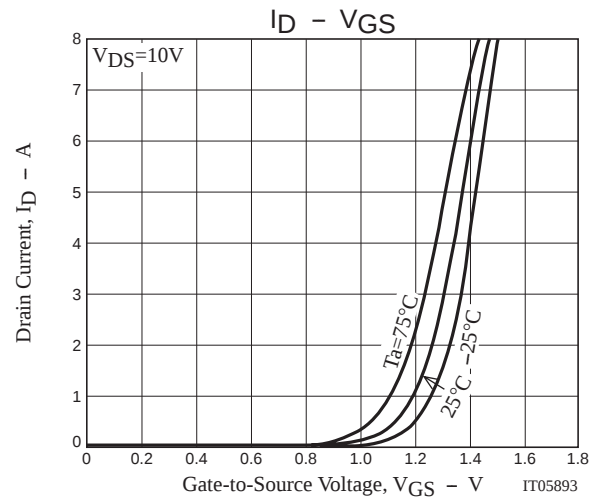
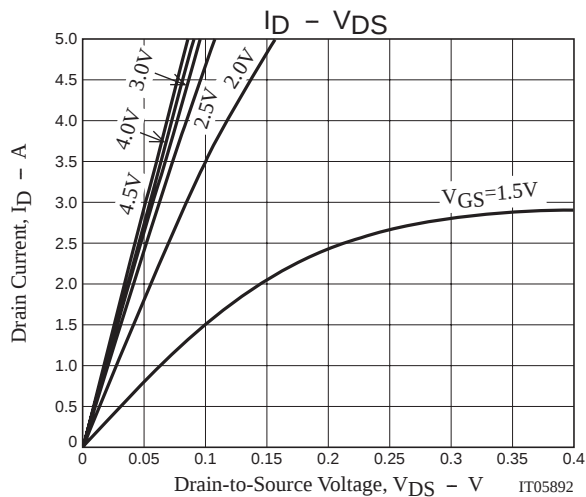
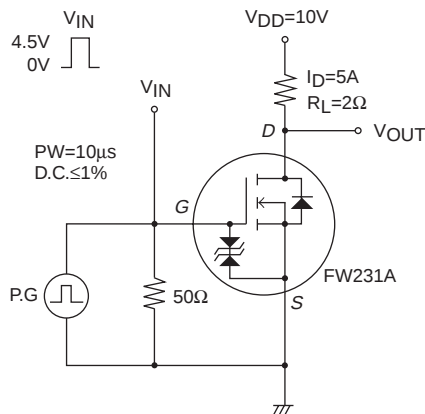
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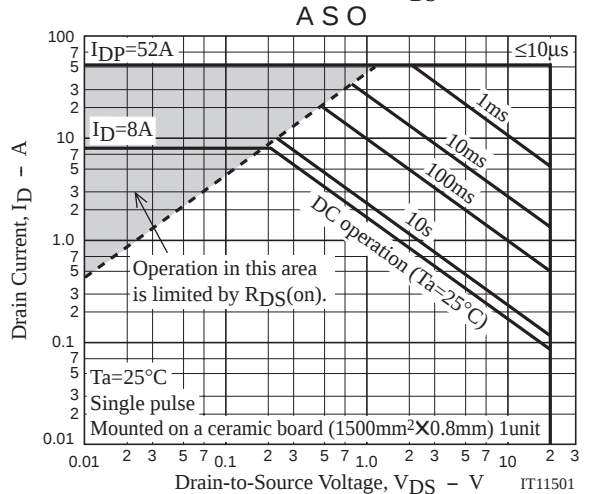
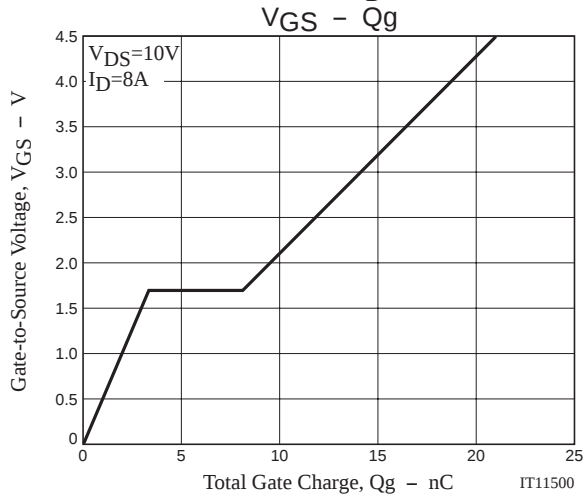
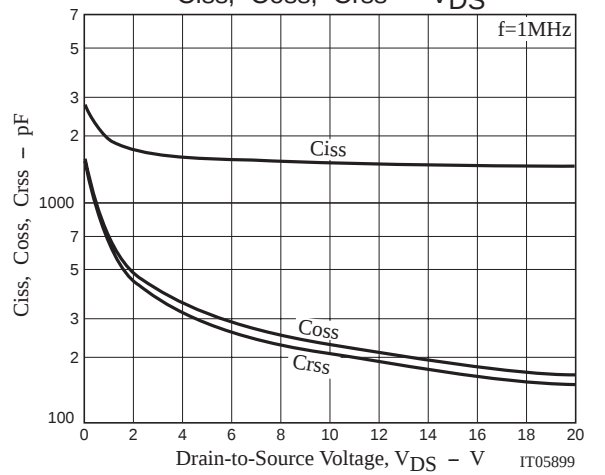
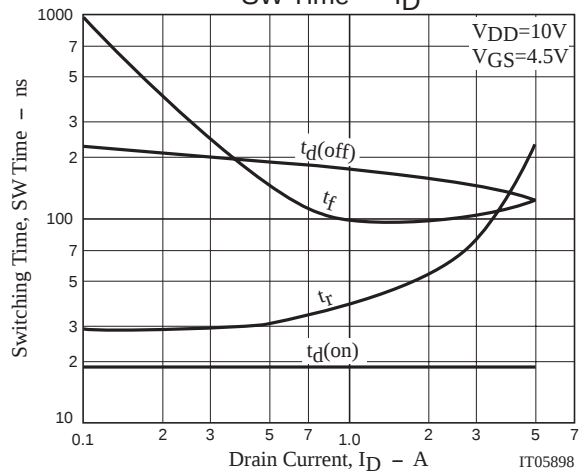
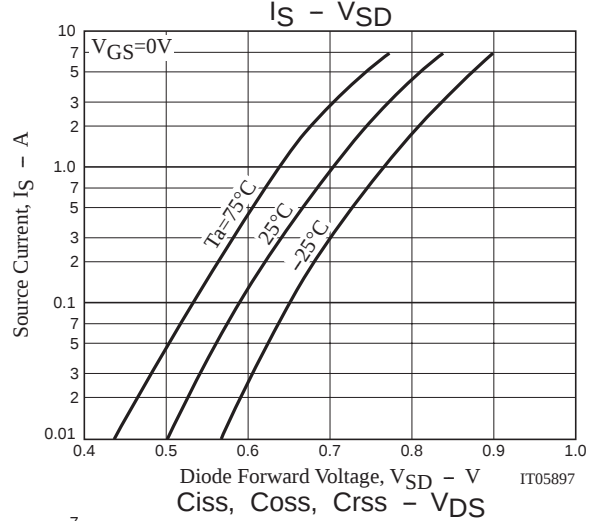
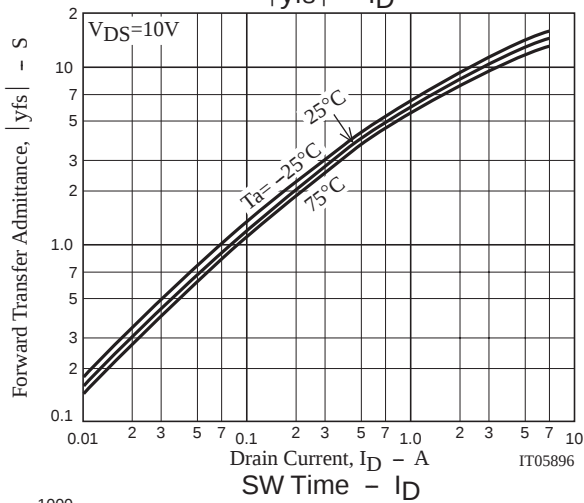
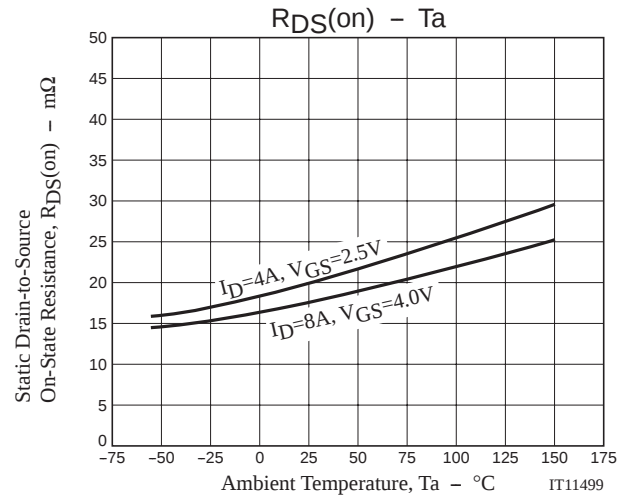
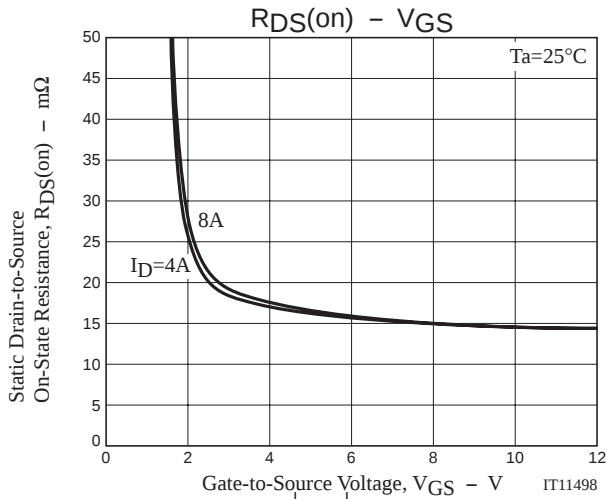


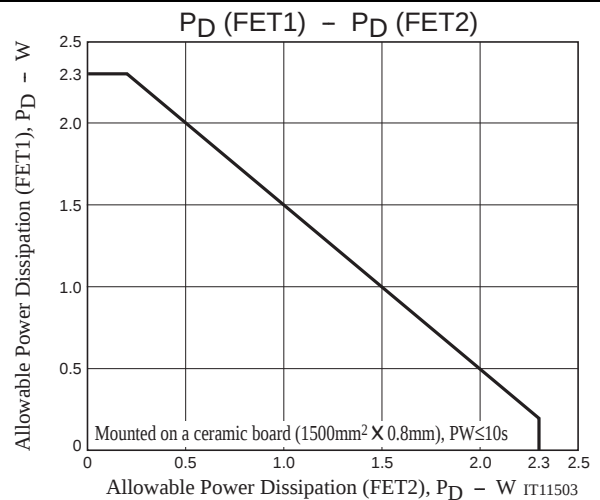
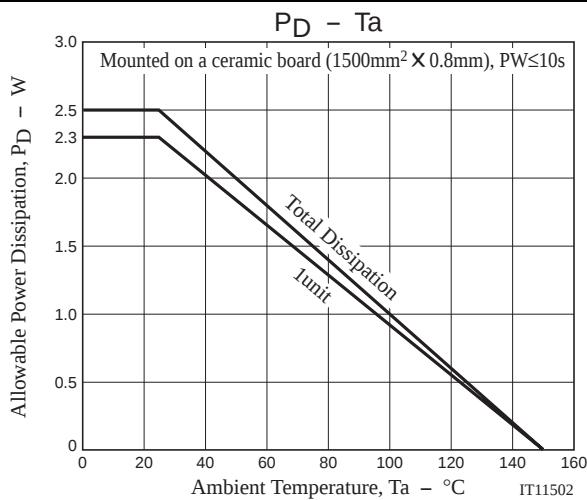
Electrical Connection



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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