

# SANYO Semiconductors DATA SHEET

# 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	VDSS		20	V
Gate-to-Source Voltage	VGSS		±10	V
Drain Current (DC)	ID		8	Α
Drain Current (PW≤10s)	ΙD	Duty cycle≤1%	9	Α
Drain Current (PW≤10μs)	IDP	Duty cycle≤1%	52	Α
Allowable Power Dissipation	PD	Mounted on a ceramic board (1500mm²X0.8mm) 1unit, PW≤10s	2.3	W
Total Dissipation	PT	Mounted on a ceramic board (1500mm²X0.8mm) 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			Linit
			min	typ	max	Unit
Drain-to-Source Breakdown Voltage	V(BR)DSS	ID=1mA, VGS=0V	20			V
Zero-Gate Voltage Drain Current	IDSS	V <sub>DS</sub> =20V, V <sub>GS</sub> =0V			1	μΑ
Gate-to-Source Leakage Current	IGSS	VGS=±8V, VDS=0V			±10	μΑ
Cutoff Voltage	VGS(off)	V <sub>DS</sub> =10V, I <sub>D</sub> =1mA	0.5		1.3	V
Forward Transfer Admittance	yfs	V <sub>DS</sub> =10V, I <sub>D</sub> =8A	9	15		S
Static Drain-to-Source On-State Resistance	RDS(on)1	ID=8A, VGS=4.5V	10	17	23	mΩ
	R <sub>DS</sub> (on)2	ID=8A, VGS=4V	11	18	24	mΩ
	RDS(on)3	ID=4A, VGS=2.5V	12	20	33	mΩ
Input Capacitance	Ciss	V <sub>DS</sub> =10V, f=1MHz		1530		pF
Output Capacitance	Coss	V <sub>DS</sub> =10V, f=1MHz		230		pF
Reverse Transfer Capacitance	Crss	V <sub>DS</sub> =10V, f=1MHz		215		pF
Turn-ON Delay Time	t <sub>d</sub> (on)	See specified Test Circuit.		19		ns
Rise Time	tr	See specified Test Circuit.		225		ns
Turn-OFF Delay Time	td(off)	See specified Test Circuit.		125		ns
Fall Time	tf	See specified Test Circuit.		125		ns

Marking: W231A Continued on next page.

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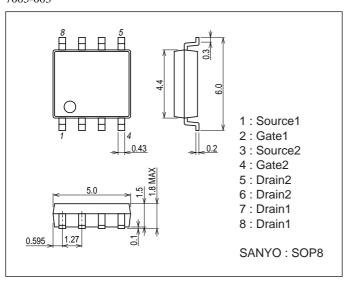
# **FW231A**

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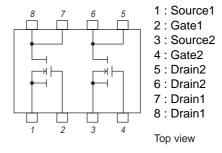
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	Offic
Total Gate Charge	Qg	V <sub>DS</sub> =10V, V <sub>GS</sub> =4.5V, I <sub>D</sub> =8A		21		nC
Gate-to-Source Charge	Qgs	V <sub>DS</sub> =10V, V <sub>GS</sub> =4.5V, I <sub>D</sub> =8A		3.4		nC
Gate-to-Drain "Miller" Charge	Qgd	V <sub>DS</sub> =10V, V <sub>GS</sub> =4.5V, I <sub>D</sub> =8A		4.8		nC
Diode Forward Voltage	VSD	IS=8A, VGS=0V		0.8	1.2	V

### **Package Dimensions**

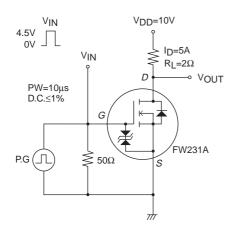
unit : mm (typ) 7005-003

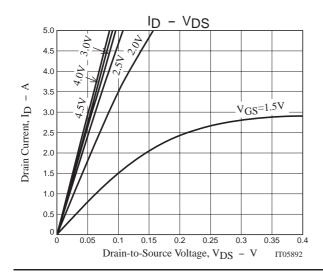


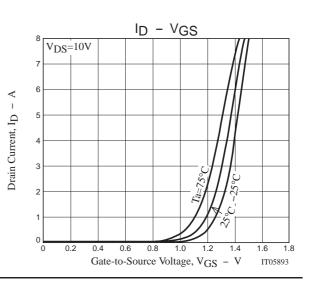
### **Electrical Connection**

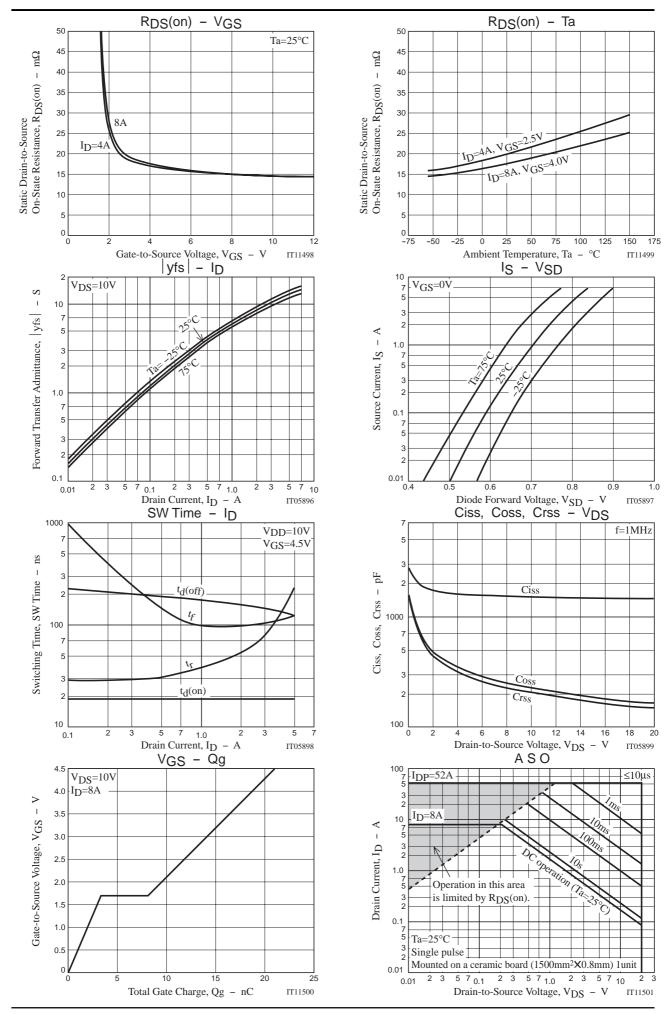


# **Switching Time Test Circuit**

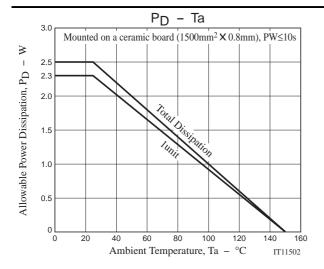


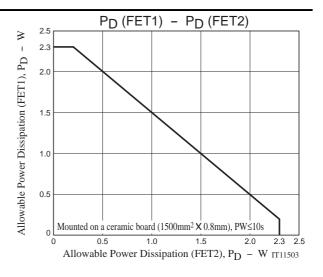






#### **FW231A**





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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