



SANYO Semiconductors

## DATA SHEET

N-Channel Silicon MOSFET

# FW256 — General-Purpose Switching Device Applications

## Features

- For DC / DC converters, Motor drives, Inverters.
- Low ON-resistance.
- Ultrahigh-speed switching.
- 4V drive.

## Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V <sub>DSS</sub>		60	V
Gate-to-Source Voltage	V <sub>GSS</sub>		±20	V
Drain Current (DC)	I <sub>D</sub>		5	A
Drain Current (Pulse)	I <sub>DP</sub>	PW≤10μs, duty cycle≤1%	14	A
Allowable Power Dissipation	P <sub>D</sub>	Mounted on a ceramic board(1200mm²×0.8mm) 1unit, PW≤10s	2.0	W
Total Dissipation	P <sub>T</sub>	Mounted on a ceramic board(1200mm²×0.8mm), PW≤10s	2.3	W
Channel Temperature	T <sub>ch</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-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 <sub>D</sub> =1mA, V <sub>GS</sub> =0	60			V
Zero-Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>D</sub> =60V, V <sub>GS</sub> =0			1	μA
Gate-to-Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> = ±16V, V <sub>DS</sub> =0			±10	μA
Cutoff Voltage	V <sub>GS(off)</sub>	V <sub>DS</sub> =10V, I <sub>D</sub> =1mA	1.2		2.6	V
Forward Transfer Admittance	y <sub>fs</sub>	V <sub>DS</sub> =10V, I <sub>D</sub> =3A	4	6		S
Static Drain-to-Source On-State Resistance	R <sub>DS(on)1</sub>	I <sub>D</sub> =3A, V <sub>GS</sub> =10V		43	58	mΩ
	R <sub>DS(on)2</sub>	I <sub>D</sub> =3A, V <sub>GS</sub> =4V		56	84	mΩ
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =20V, f=1MHz		790		pF
Output Capacitance	C <sub>oss</sub>	V <sub>DS</sub> =20V, f=1MHz		115		pF
Reverse Transfer Capacitance	C <sub>rss</sub>	V <sub>DS</sub> =20V, f=1MHz		88		pF

Marking : W256

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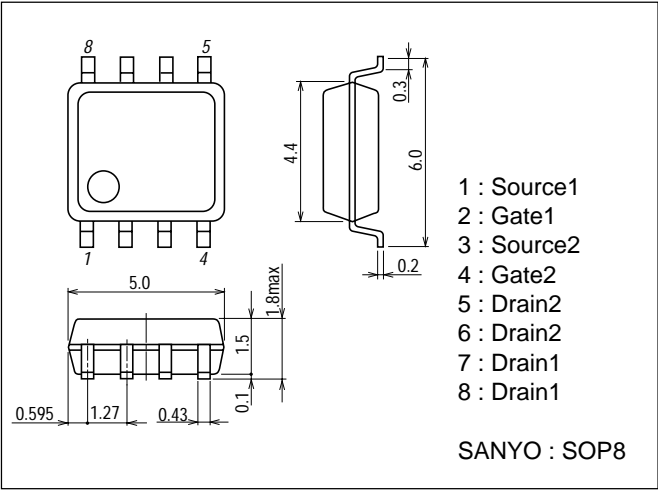
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		10		ns
Rise Time	$t_r$	See specified Test Circuit.		22		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		74		ns
Fall Time	$t_f$	See specified Test Circuit.		48		ns
Total Gate Charge	$Q_g$	$V_{DS}=30V, V_{GS}=10V, I_D=5A$		16		nC
Gate-to-Source Charge	$Q_{gs}$	$V_{DS}=30V, V_{GS}=10V, I_D=5A$		4		nC
Gate-to-Drain "Miller" Charge	$Q_{gd}$	$V_{DS}=30V, V_{GS}=10V, I_D=5A$		3.4		nC
Diode Forward Voltage	$V_{SD}$	$I_S=5A, V_{GS}=0$		0.86	1.2	V

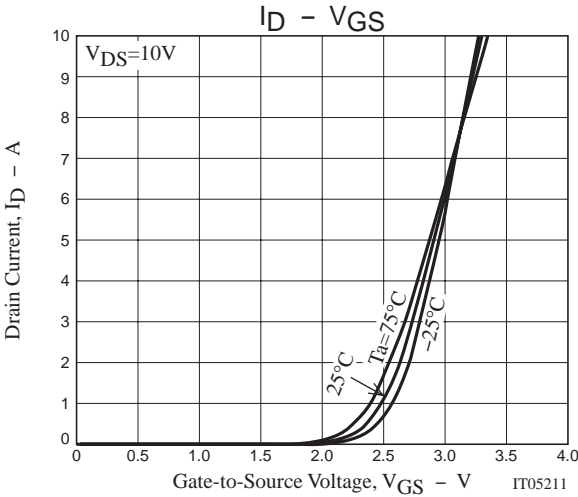
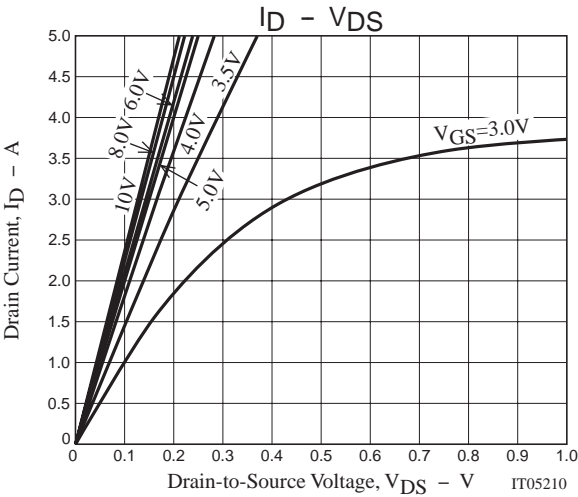
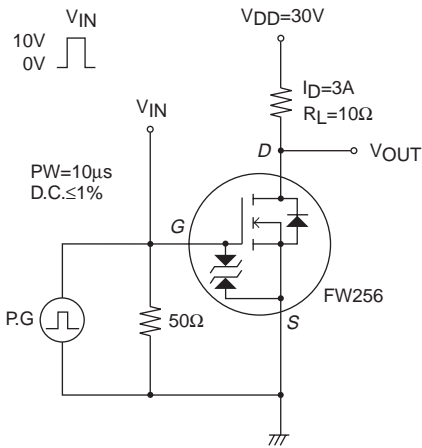
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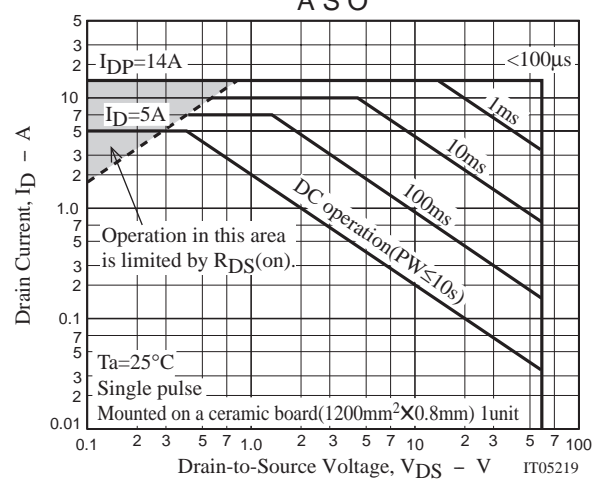
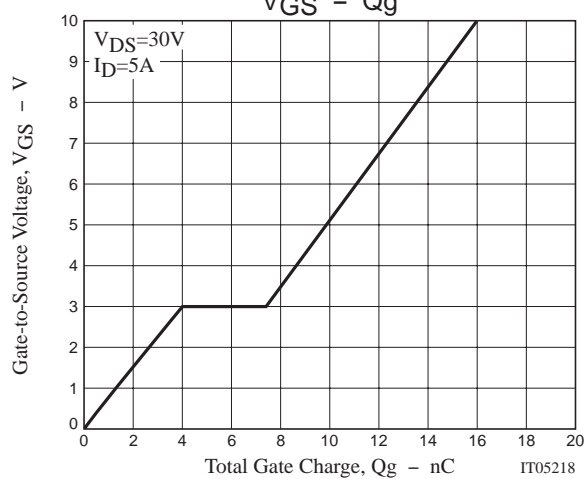
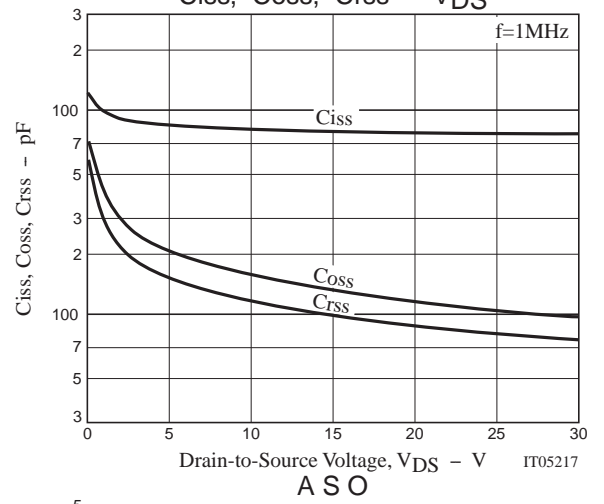
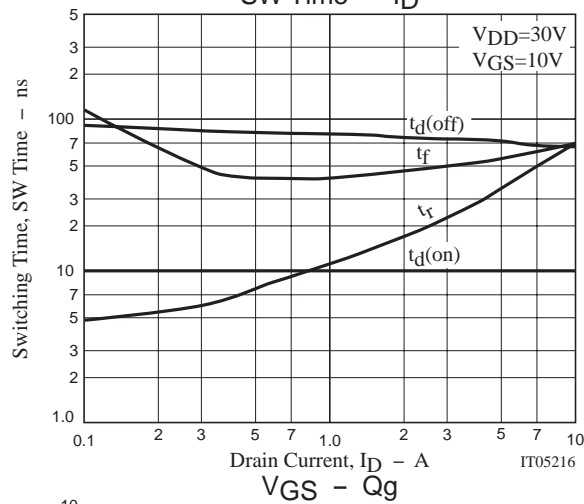
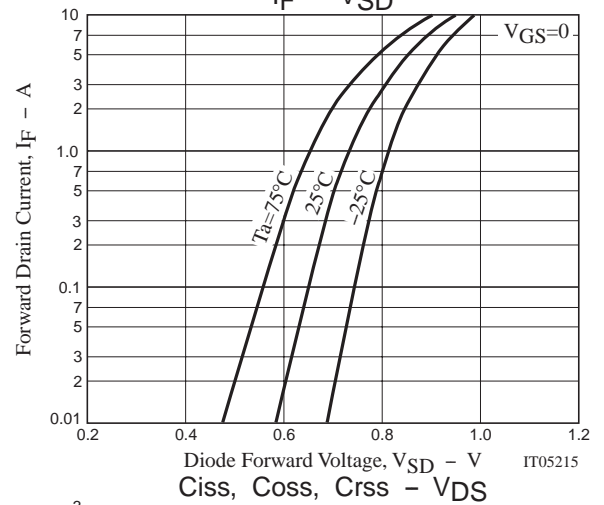
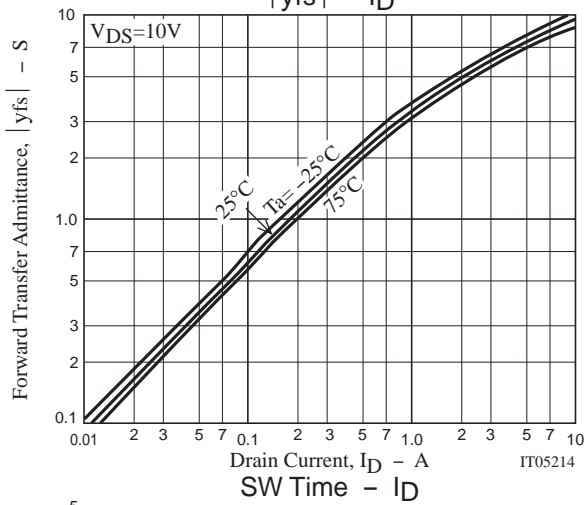
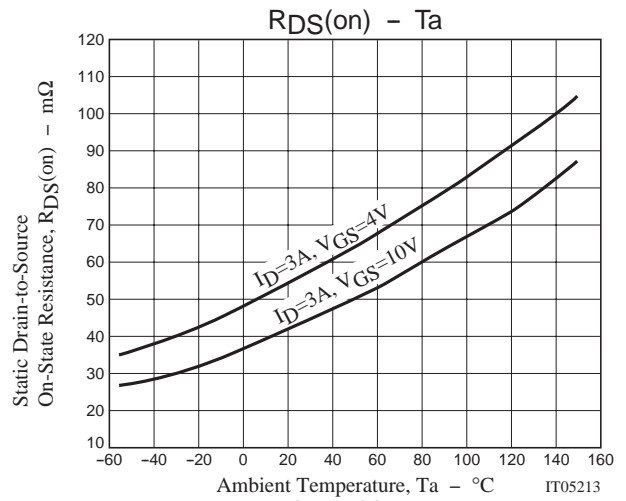
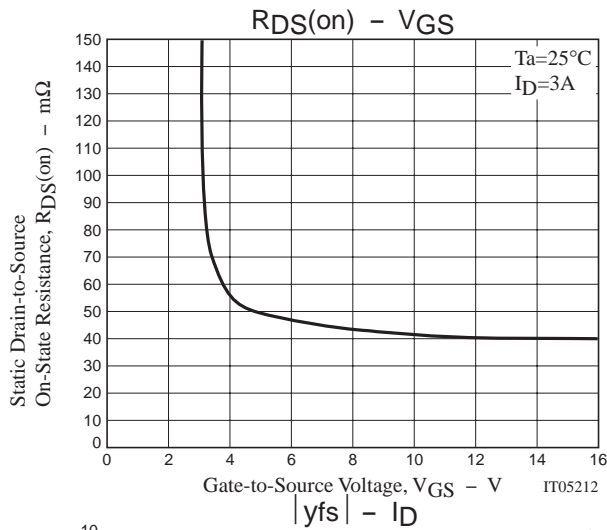
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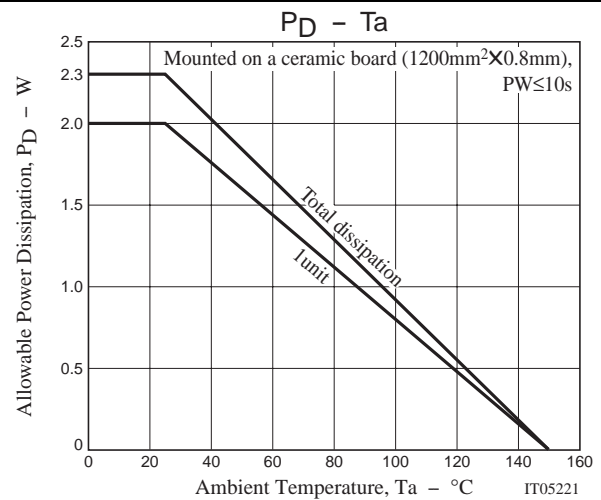
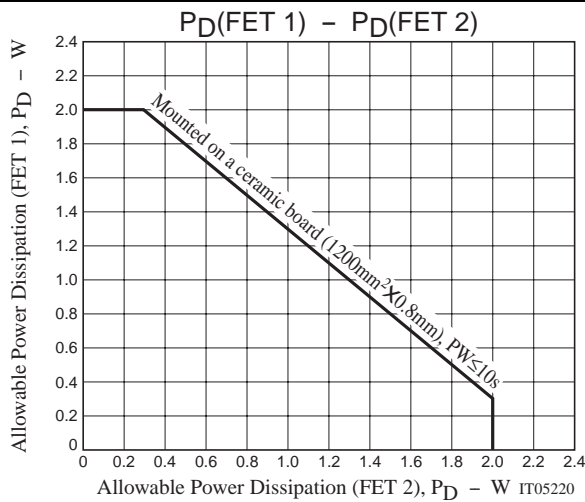
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Switching Time Test Circuit







Note on usage : Since the FW256 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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