Ordering number : ENN7756

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_{DSS}		60	V
Gate-to-Source Voltage	V_{GSS}		±20	V
Drain Current (DC)	I_D		5	A
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	14	A
Allowable Power Dissipation	P_D	Mounted on a ceramic board(1200mm²×0.8mm) 1unit, PW≤10s	2.0	W
Total Dissipation	P_T	Mounted on a ceramic board(1200mm²×0.8mm), PW≤10s	2.3	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	60			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=60V, V_{GS}=0			1	μA
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}= ±16V, V_{DS}=0			±10	μA
Cutoff Voltage	$V_{GS}(off)$	V_{DS}=10V, I_D=1mA	1.2		2.6	V
Forward Transfer Admittance	$\|yfs\|$	V_{DS}=10V, I_D=3A	4	6		S
Static Drain-to-Source On-State Resistance	$R_{DS}(on)1$	I_D=3A, V_{GS}=10V		43	58	mΩ
	$R_{DS}(on)2$	I_D=3A, V_{GS}=4V		56	84	mΩ
Input Capacitance	Ciss	V_{DS}=20V, f=1MHz		790		pF
Output Capacitance	Coss	V_{DS}=20V, f=1MHz		115		pF
Reverse Transfer Capacitance	Crss	V_{DS}=20V, f=1MHz		88		pF

Marking : W256

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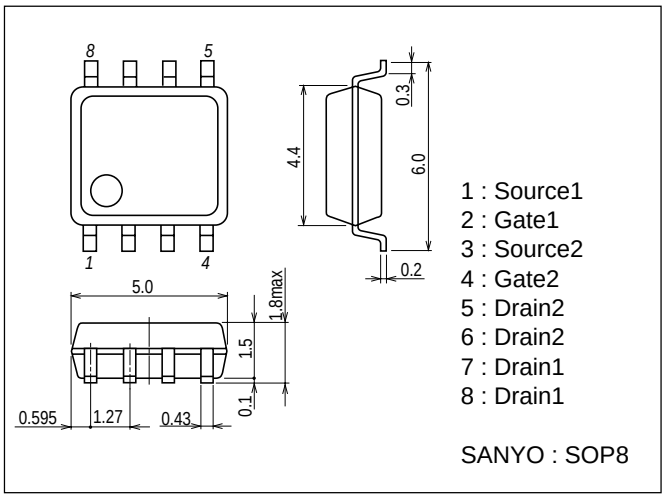
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Turn-ON Delay Time	t_{d}(on)	See specified Test Circuit.		10		ns
Rise Time	t_{r}	See specified Test Circuit.		22		ns
Turn-OFF Delay Time	t_{d}(off)	See specified Test Circuit.		74		ns
Fall Time	t_{f}	See specified Test Circuit.		48		ns
Total Gate Charge	Qg	V_{DS}=30V, V_{GS}=10V, I_{D}=5A		16		nC
Gate-to-Source Charge	Qgs	V_{DS}=30V, V_{GS}=10V, I_{D}=5A		4		nC
Gate-to-Drain “Miller” Charge	Qgd	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

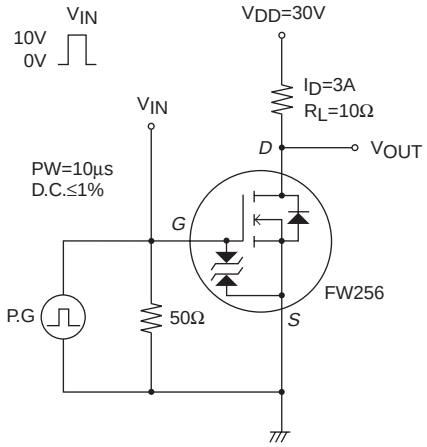
Package Dimensions

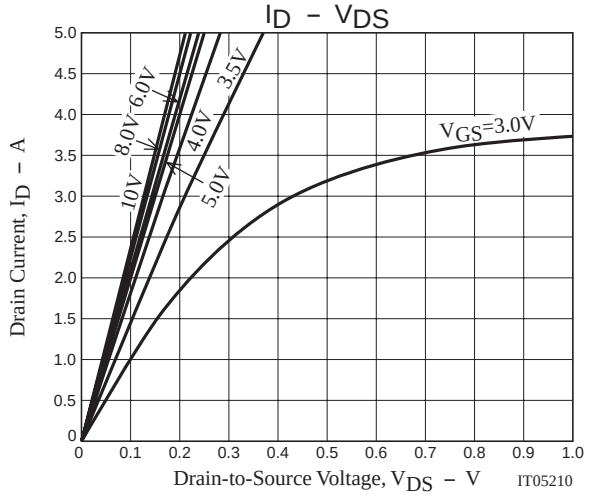
unit : mm

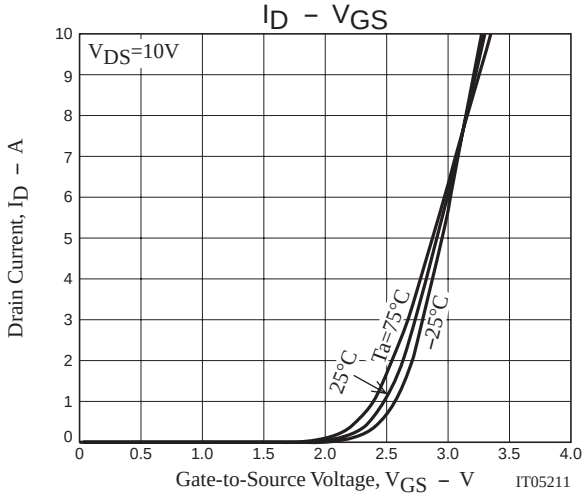
2129



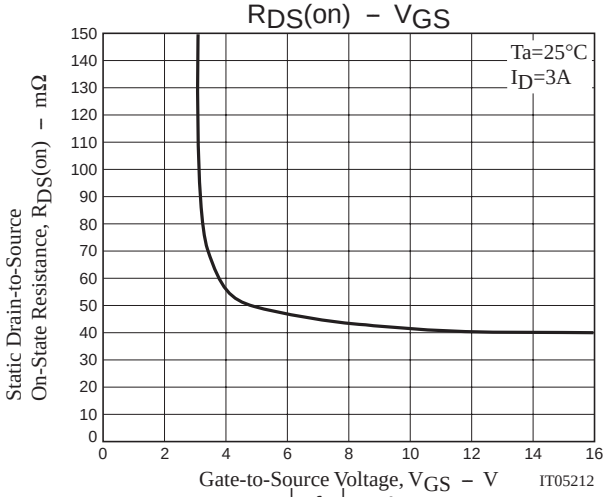
Switching Time Test Circuit



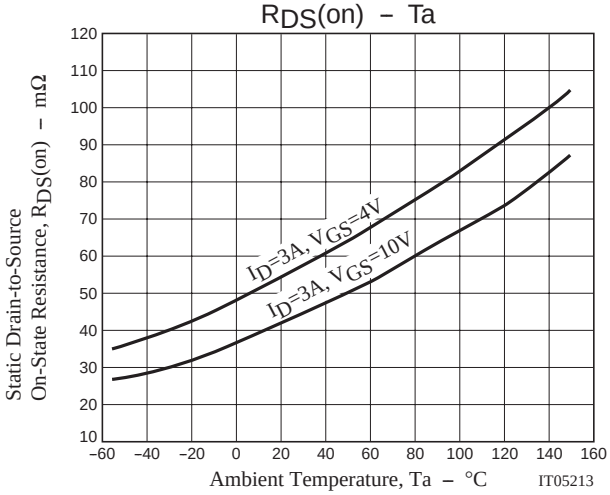




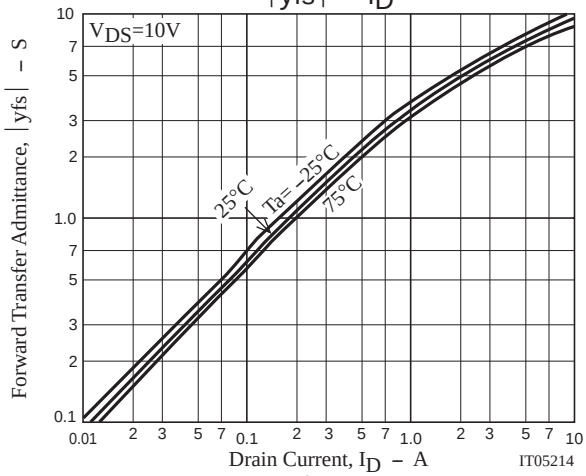
$R_{DS}(on)$ – V_{GS}



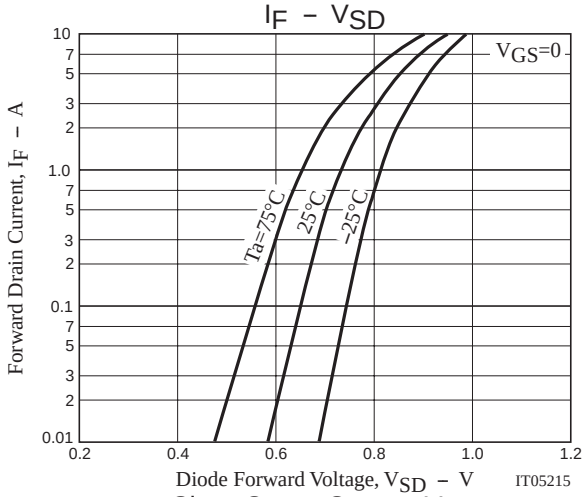
$R_{DS}(on)$ – Ta



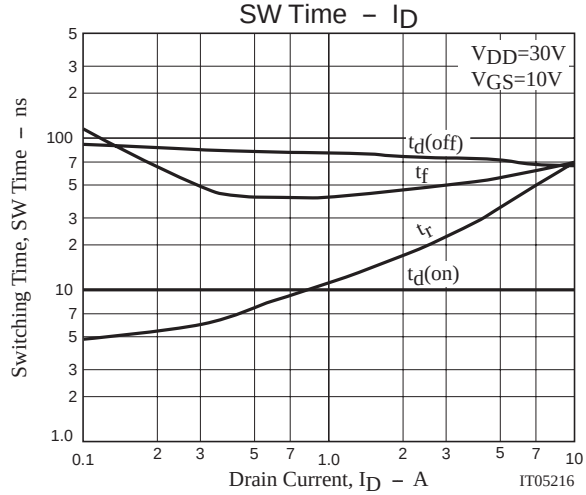
$|yfs|$ – I_D



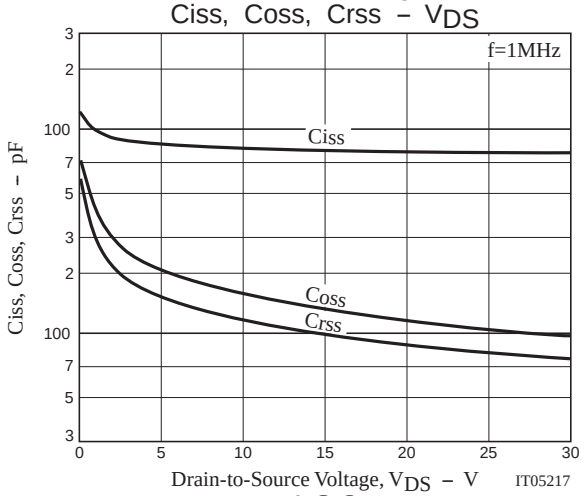
I_F – V_{SD}



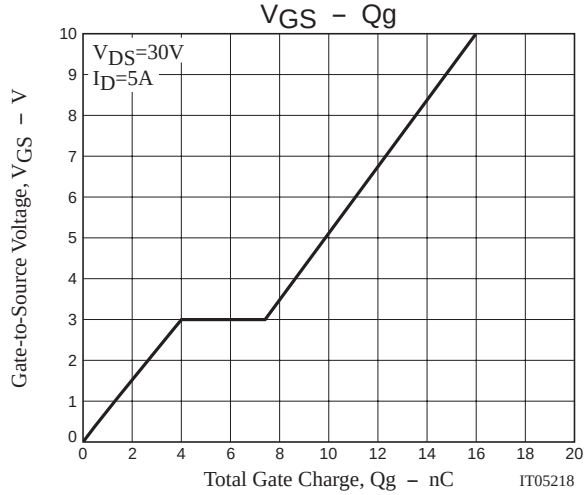
SW Time – I_D



Ciss, Coss, Crss – V_{DS}



V_{GS} – Qg



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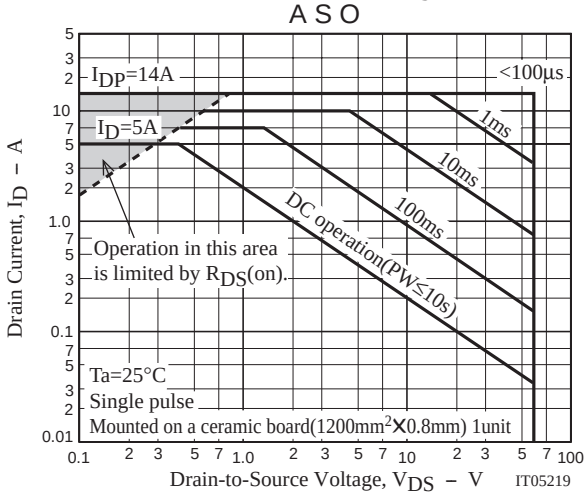

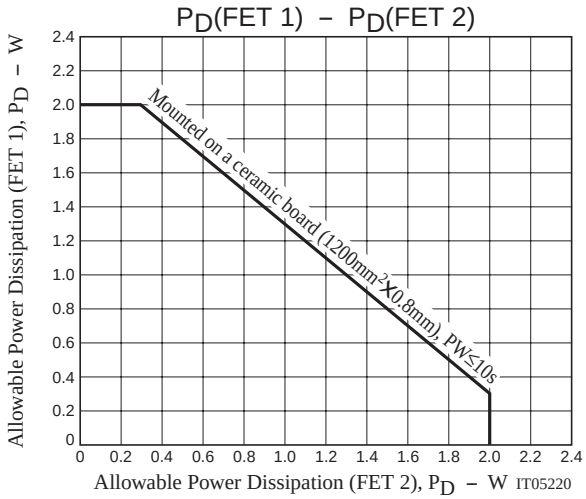

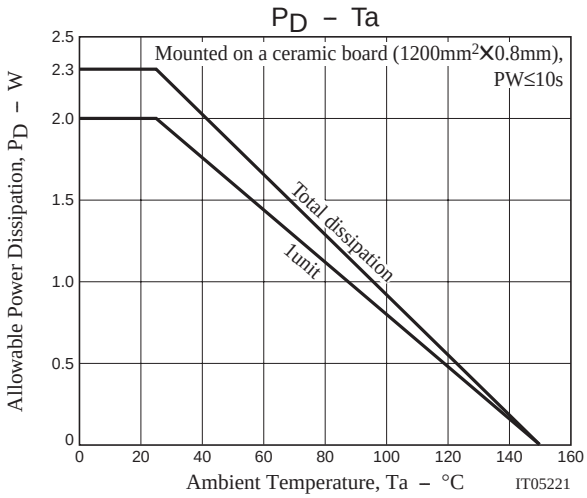

Note on usage : Since the FW256 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.