Ordering number:ENN6400

P-Channel Silicon MOSFET

FSS138

DC/DC Converter Applications

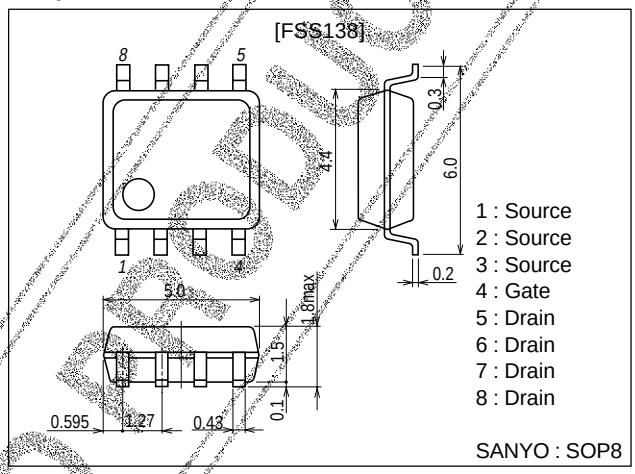
Features

- Low ON resistance.
- Ultrahigh-speed switching.
- 4V drive.

Package Dimensions

unit:mm

2116



Specifications

Absolute Maximum Ratings at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		–30	V
Gate-to-Source Voltage	V_{GSS}		±20	V
Drain Current (DC)	I_D		–11	A
Drain Current (pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	–52	A
Allowable Power Dissipation	P_D	Mounted on a ceramic board (1200mm²×0.8mm)	2.0	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	–30			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=–30V, 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	–1.0		–2.4	V
Forward Transfer Admittance	|yfs|	V_{DS}=–10V, I_D=–11A	17	25		S
Static Drain-to-Source On-State Resistance	$R_{DS}(on)1$	I_D=–11A, V_{GS}=–10V		11	15	mΩ
	$R_{DS}(on)2$	I_D=–4A, V_{GS}=–4.5V		15	21	mΩ
	$R_{DS}(on)3$	I_D=–4A, V_{GS}=–4V		16	23	mΩ

Marking : S138

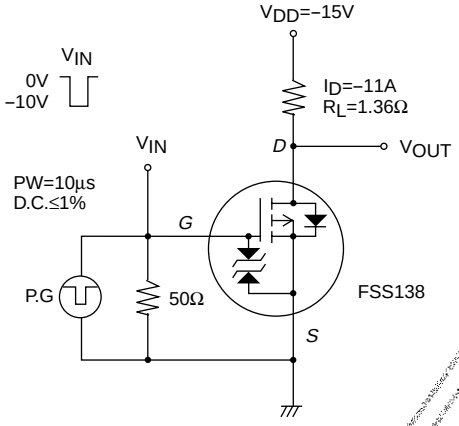
Continued on next page.

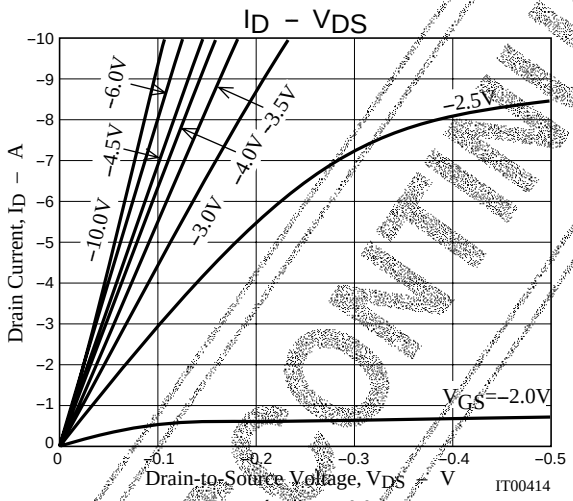
SANYO Electric Co.,Ltd. Semiconductor Company
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

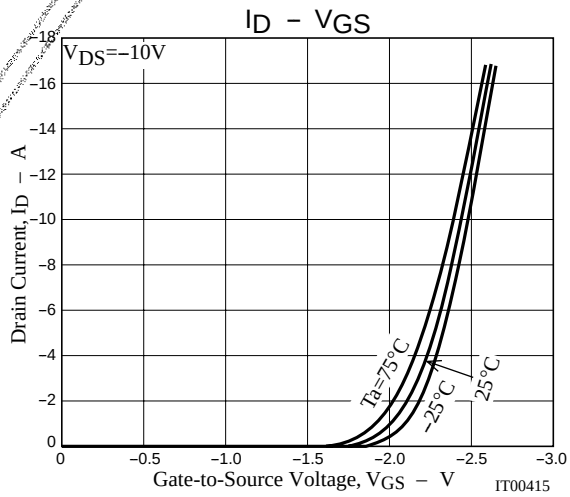
Continued from preceding page.

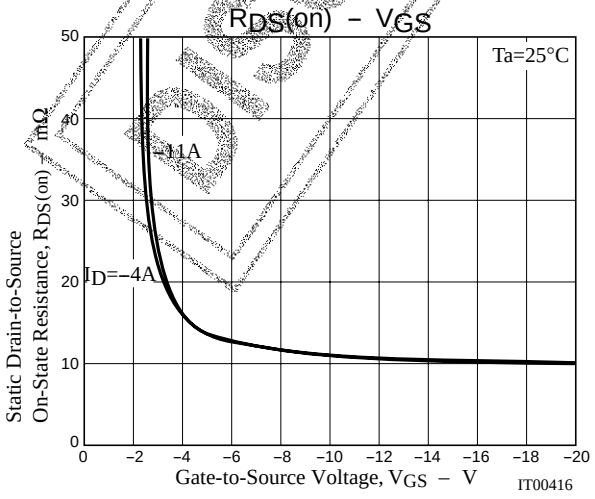
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	V_{DS}=–10V, f=1MHz		3700		pF
Output Capacitance	Coss	V_{DS}=–10V, f=1MHz		840		pF
Reverse Transfer Capacitance	Crss	V_{DS}=–10V, f=1MHz		440		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit		24		ns
Rise Time	t_r	See specified Test Circuit		265		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit		240		ns
Fall Time	t_f	See specified Test Circuit		165		ns
Total Gate Charge	Qg	V_{DS}=–10V, V_{GS}=–10V, I_D=–11A		75		nC
Gate-to-Source Charge	Qgs	V_{DS}=–10V, V_{GS}=–10V, I_D=–11A		10		nC
Gate-to-Drain "Miller" Charge	Qgd	V_{DS}=–10V, V_{GS}=–10V, I_D=–11A		12		nC
Diode Forward Voltage	V_{SD}	I_S=–11A, V_{GS}=0		–0.79	–1.5	V

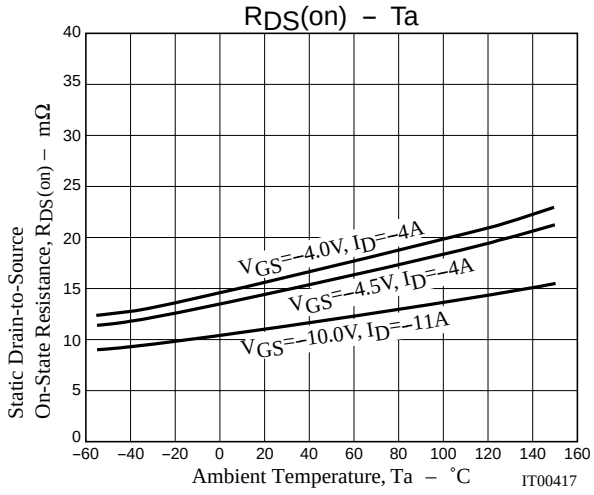
Switching Time Test Circuit

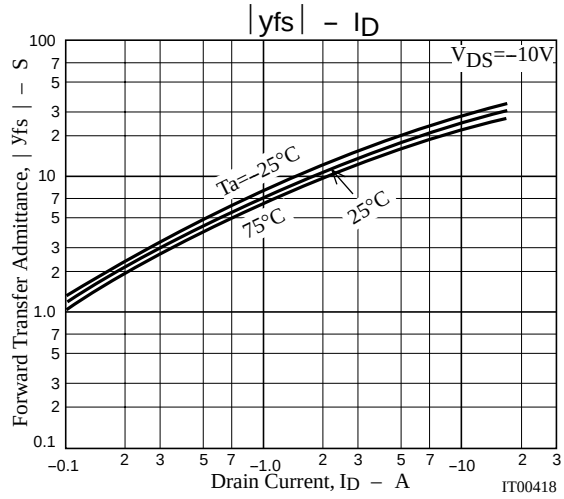


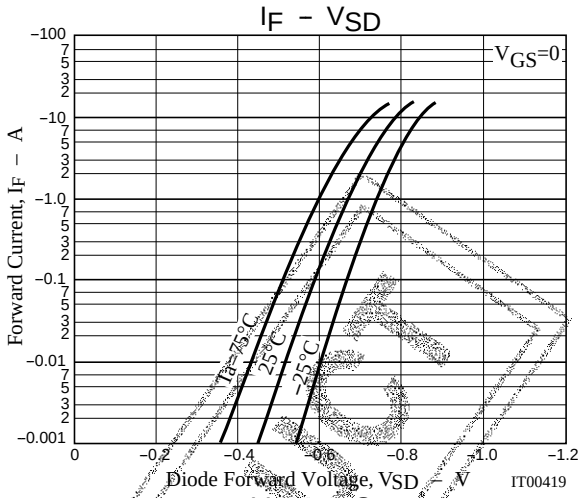


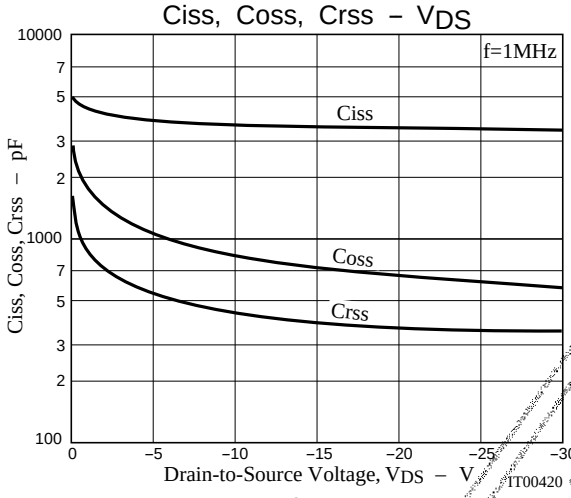


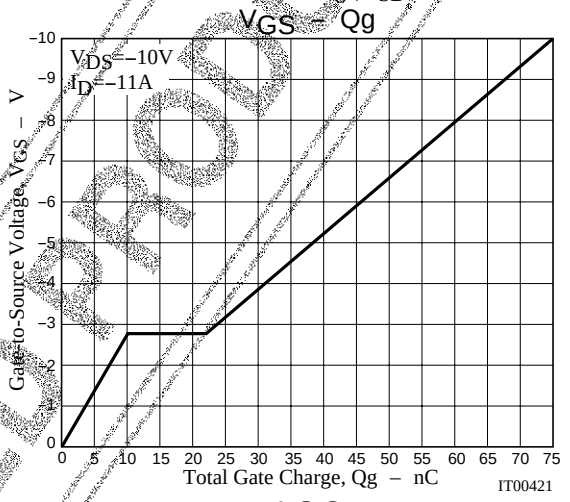


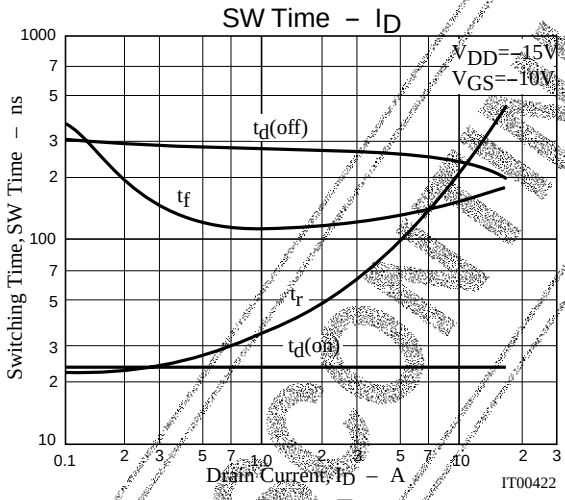


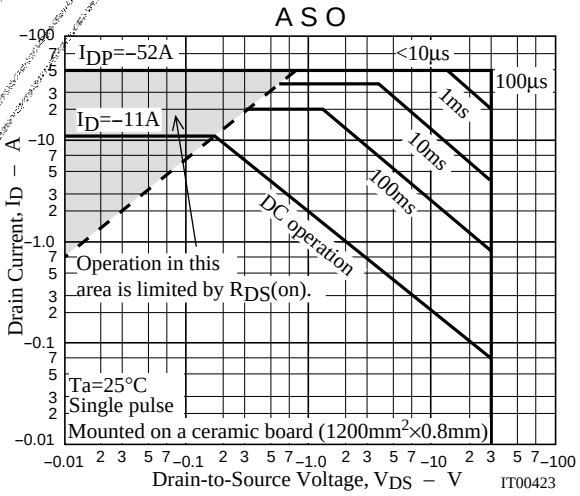


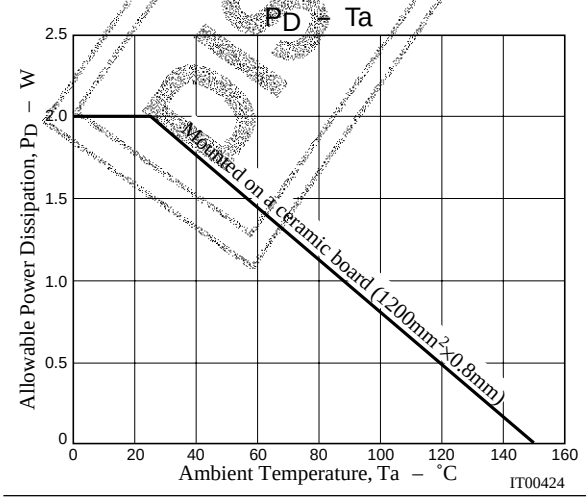












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