Ordering number:ENN6129

N-Channel Silicon MOSFET

5HN02M

Ultrahigh-Speed Switching Applications

Features

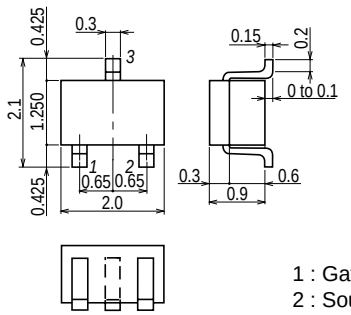
- Low ON resistance.
- Ultrahigh-speed switching.
- 4V drive.

Package Dimensions

unit:mm

2158

[5HN02M]



1 : Gate
2 : Source
3 : Drain
SANYO : MCP3

Specifications

Absolute Maximum Ratings at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		50	V
Gate-to-Source Voltage	V_{GSS}		±20	V
Drain Current (DC)	I_D		0.2	A
Drain Current (pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	0.8	A
Allowable Power Dissipation	P_D		0.15	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	50			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=50V, V_{GS}=0			10	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=100μA	1		2.4	V
Forward Transfer Admittance	| yfs |	V_{DS}=10V, I_D=100mA	0.22	0.31		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)}1$	I_D=100mA, V_{GS}=10V		1.8	2.3	Ω
	$R_{DS(on)}2$	I_D=50mA, V_{GS}=4V		2.3	3.2	Ω

Marking : YF

Continued on next page.

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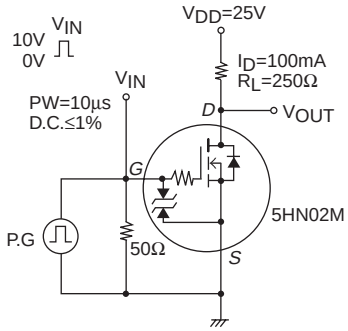
■ SANYO assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges,or other parameters) listed in products specifications of any and all SANYO products described or contained herein.

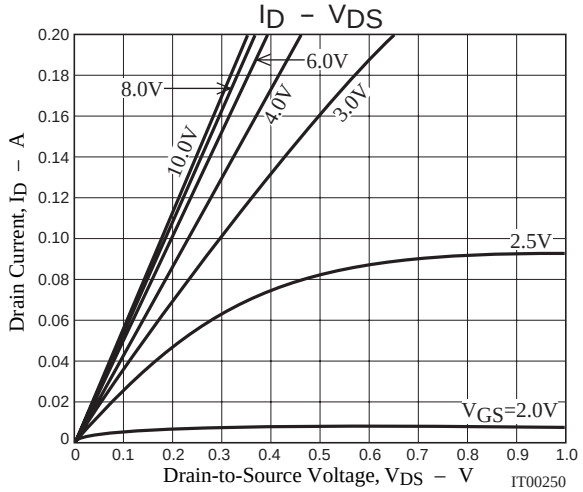
SANYO Electric Co.,Ltd. Semiconductor Company
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

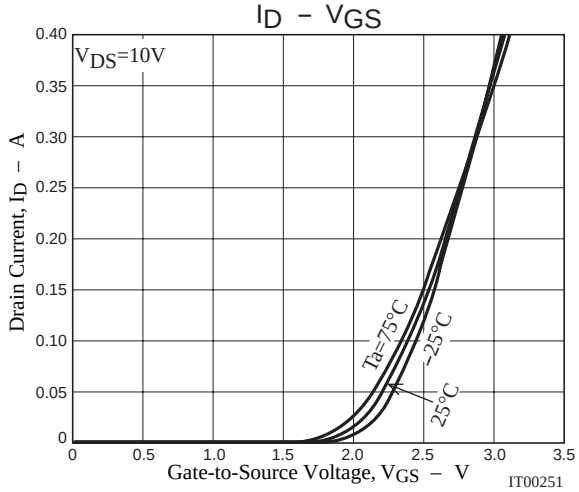
Continued from preceding page.

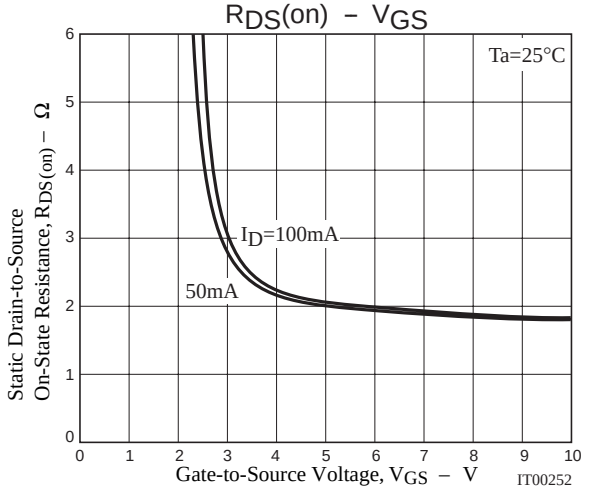
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	V_{DS}=10V, f=1MHz		22		pF
Output Capacitance	Coss	V_{DS}=10V, f=1MHz		12		pF
Reverse Transfer Capacitance	Crss	V_{DS}=10V, f=1MHz		4.6		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit		12		ns
Rise Time	t_r	See specified Test Circuit		12		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit		260		ns
Fall Time	t_f	See specified Test Circuit		110		ns
Total Gate Charge	Qg	V_{DS}=10V, V_{GS}=10V, I_D=200mA		1.86		nC
Gate-to-Source Charge	Qgs	V_{DS}=10V, V_{GS}=10V, I_D=200mA		0.28		nC
Gate-to-Drain "Miller" Charge	Qgd	V_{DS}=10V, V_{GS}=10V, I_D=200mA		0.45		nC
Diode Forward Voltage	V_{SD}	I_S=200mA, V_{GS}=0		0.83	1.2	V

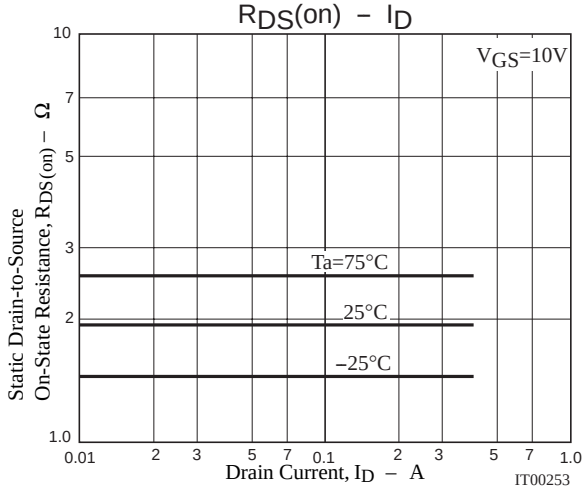
Switching Time Test Circuit



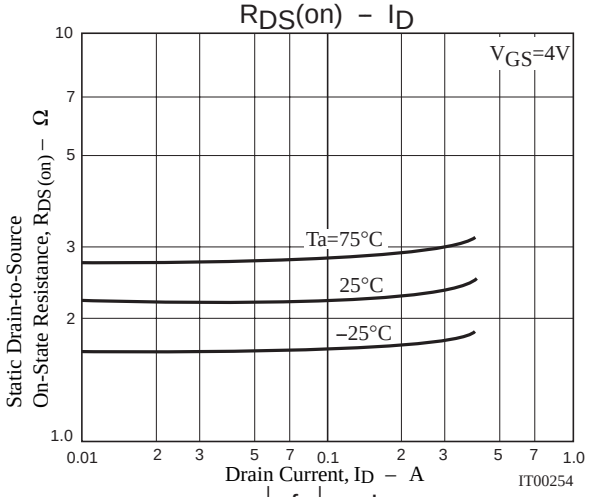




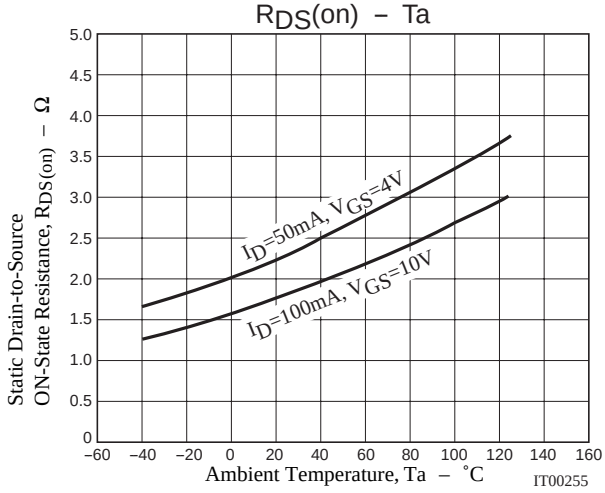




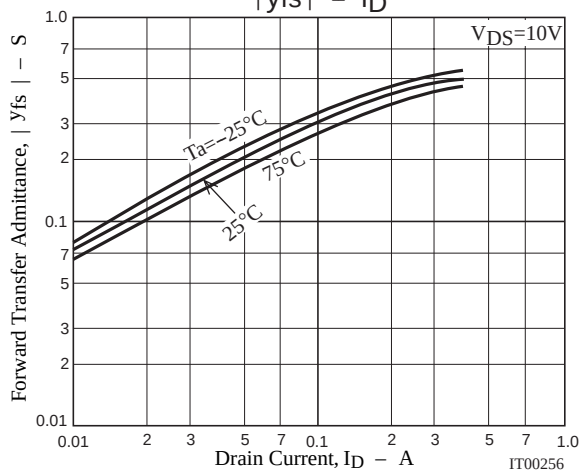
$R_{DS(on)}$ – I_D



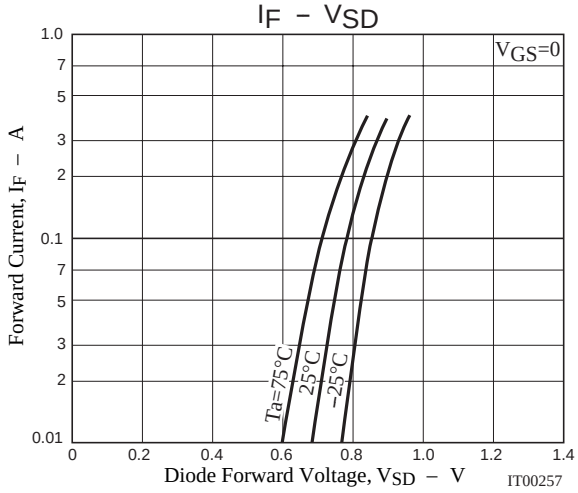
$R_{DS(on)}$ – Ta



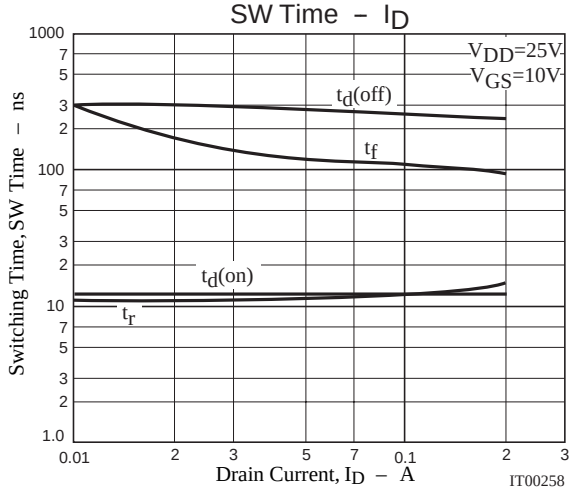
$|y_{fs}|$ – I_D



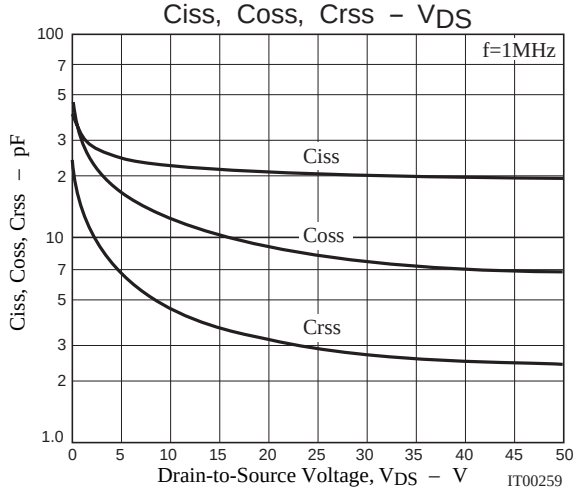
I_F – V_{SD}



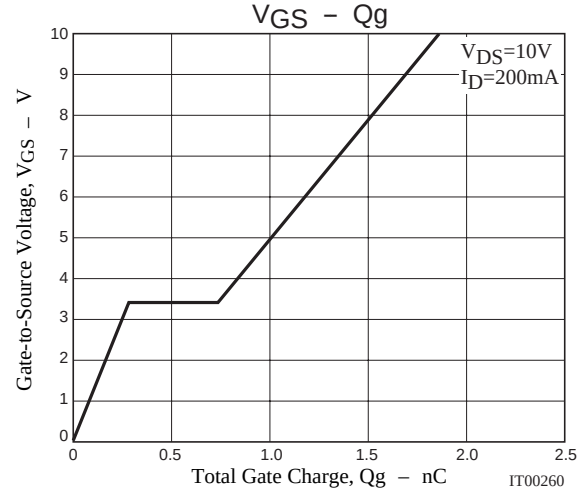
SW Time – I_D



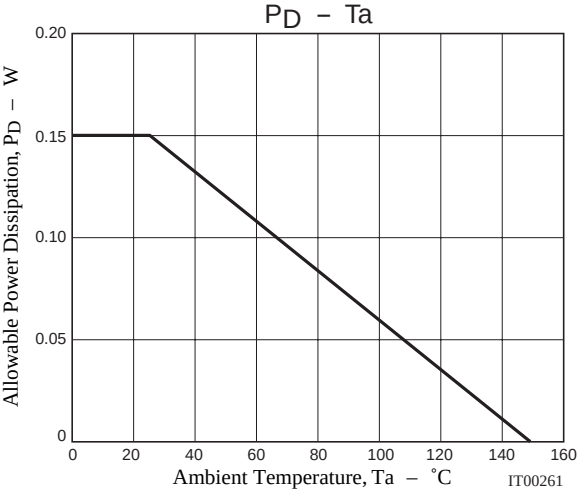
Ciss, Coss, Crss – V_{DS}



V_{GS} – Qg



P_D – Ta



Note on usage : Keep the 5HN02M away from the surroundings that is easy to charge or greatly charged since this device is designed for use in high-speed switching applications.

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