Ordering number:ENN5993A

N-Channel Silicon MOSFET

FTS2003

DC/DC Converter Applications

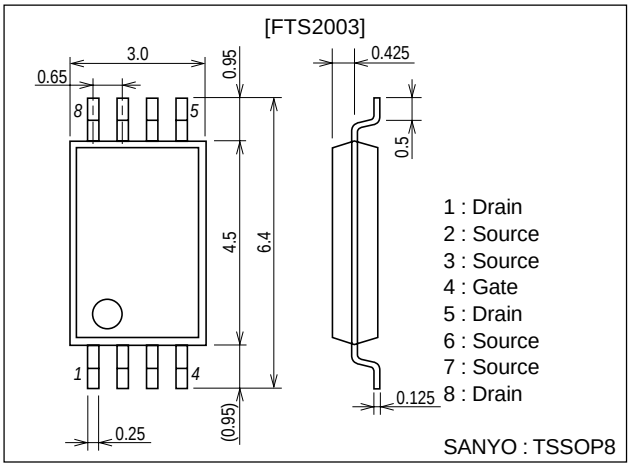
Features

- Low ON resistance.
- 2.5V drive.
- Mount height of 1.1mm.

Package Dimensions

unit:mm

2147A



Specifications

Absolute Maximum Ratings at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		20	V
Gate-to-Source Voltage	V_{GSS}		±10	V
Drain Current (DC)	I_D		4	A
Drain Current (pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	25	A
Allowable Power Dissipation	P_D	Mounted on a ceramic board (1000mm²×0.8mm)	1.3	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	20			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=20V, V_{GS}=0			10	μA
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}=±8V, V_{DS}=0			±10	μA
Cutoff Voltage	$V_{GS(off)}$	V_{DS}=10V, I_D=1mA	0.4		1.3	V
Forward Transfer Admittance	| yfs |	V_{DS}=10V, I_D=4A	7	10		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)}1$	I_D=4A, V_{GS}=4V		38	50	mΩ
	$R_{DS(on)}2$	I_D=2A, V_{GS}=2.5V		50	70	mΩ
Input Capacitance	Ciss	V_{DS}=10V, f=1MHz		500		pF
Output Capacitance	Coss	V_{DS}=10V, f=1MHz		280		pF
Reverse Transfer Capacitance	Crss	V_{DS}=10V, f=1MHz		150		pF

Marking : S2003

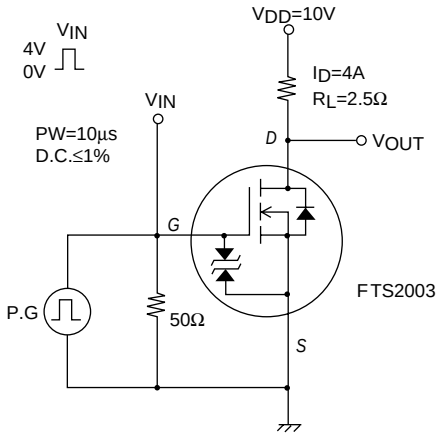
Continued on next page.

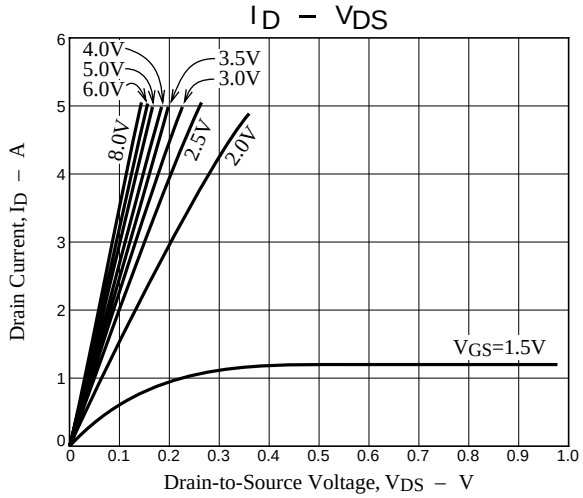
SANYO Electric Co.,Ltd. Semiconductor Company
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

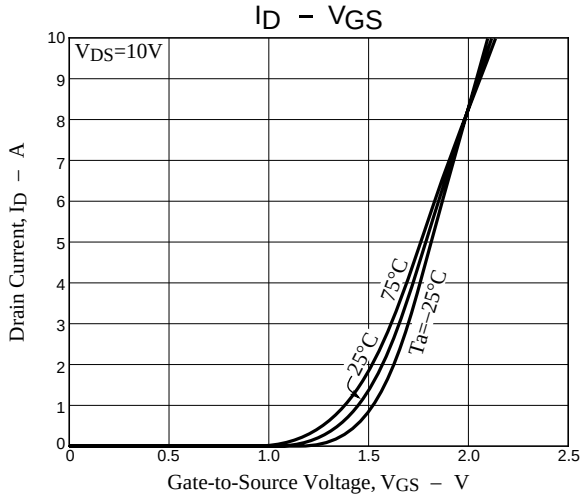
Continued from preceding page.

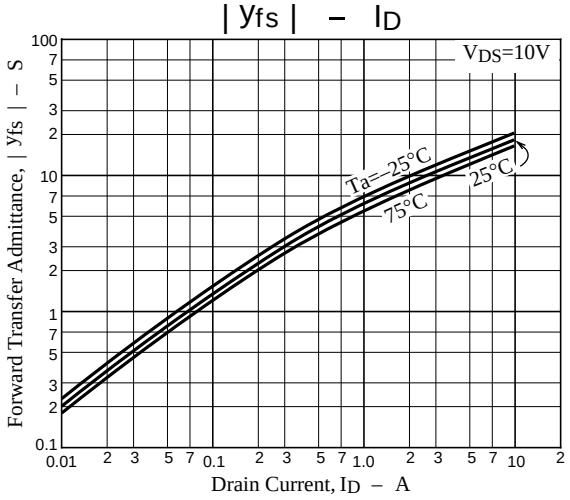
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit		20		ns
Rise Time	t_r	See specified Test Circuit		200		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit		80		ns
Fall Time	t_f	See specified Test Circuit		150		ns
Total Gate Charge	Qg	V_{DS}=10V, V_{GS}=10V, I_D=4A		22		nC
Gate-to-Source Charge	Qgs	V_{DS}=10V, V_{GS}=10V, I_D=4A		3		nC
Gate-to-Drain "Miller" Charge	Qgd	V_{DS}=10V, V_{GS}=10V, I_D=4A		3		nC
Diode Forward Voltage	V_{SD}	I_S=4A, V_{GS}=0		0.82	1.2	V

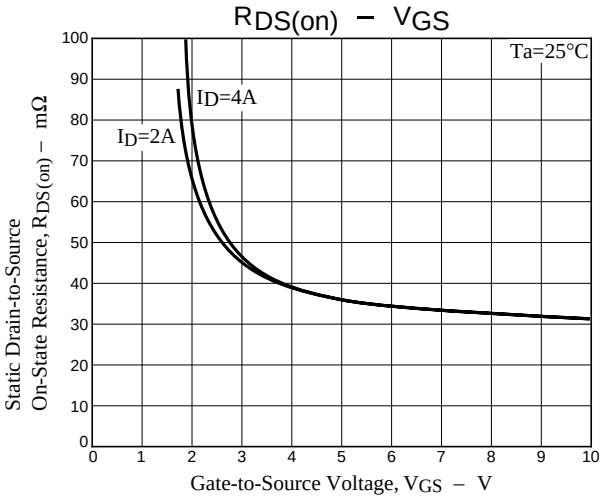
Switching Time Test Circuit

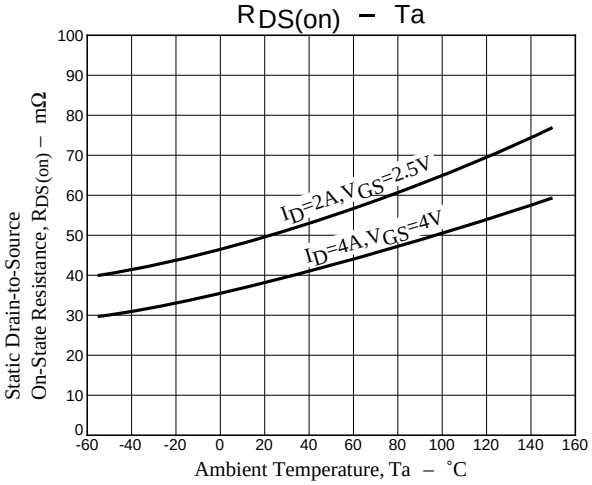


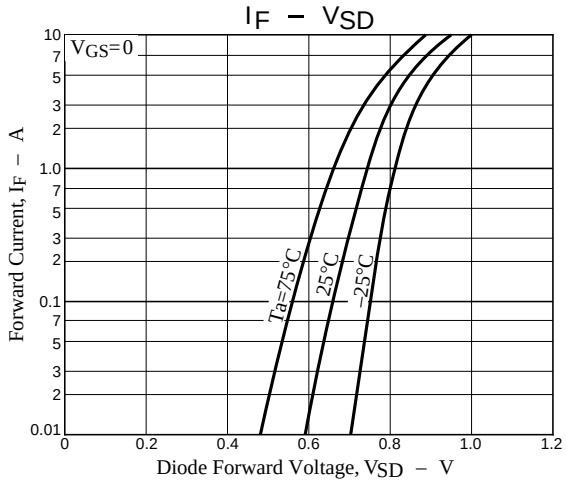


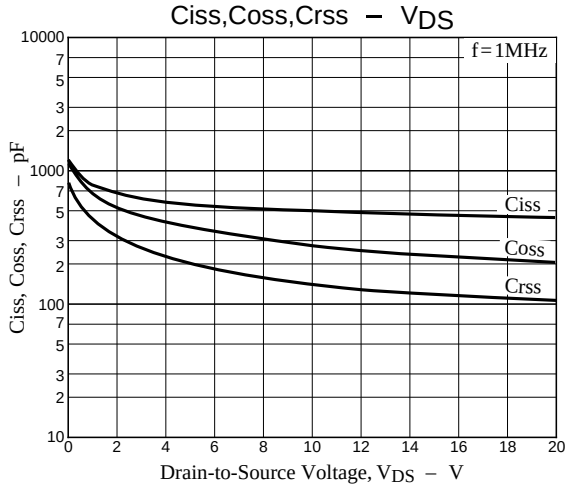


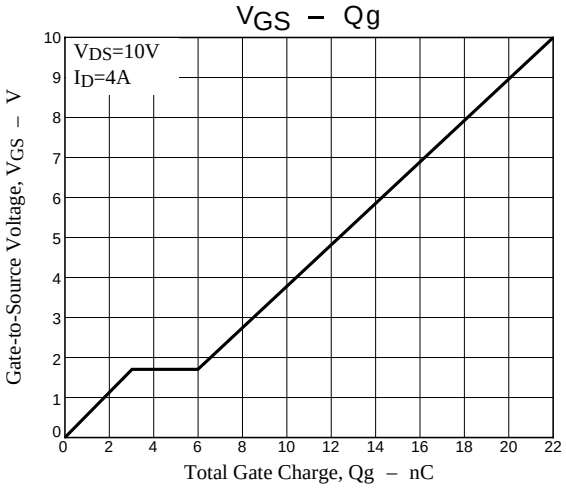


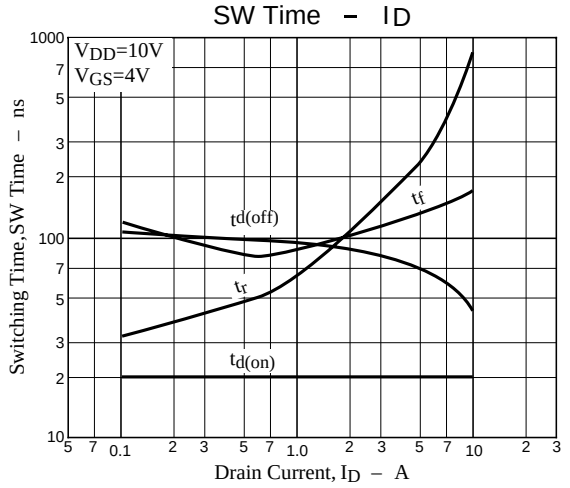


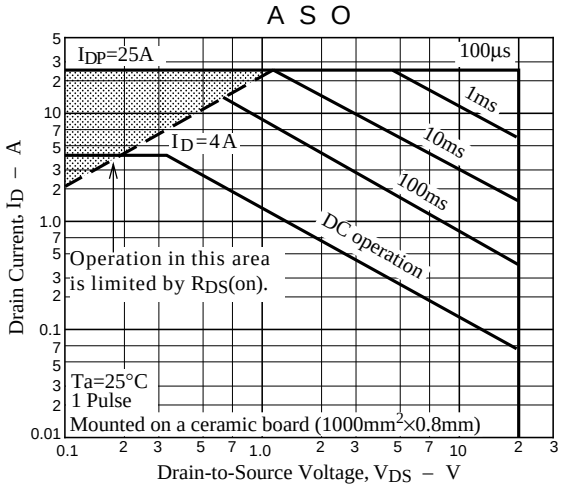

RDS(on) – Ta
Static Drain-to-Source On-State Resistance, RDS(on) – mΩ
ID=2A,VGS=2.5V
ID=4A,VGS=4V
Ambient Temperature, Ta – °C

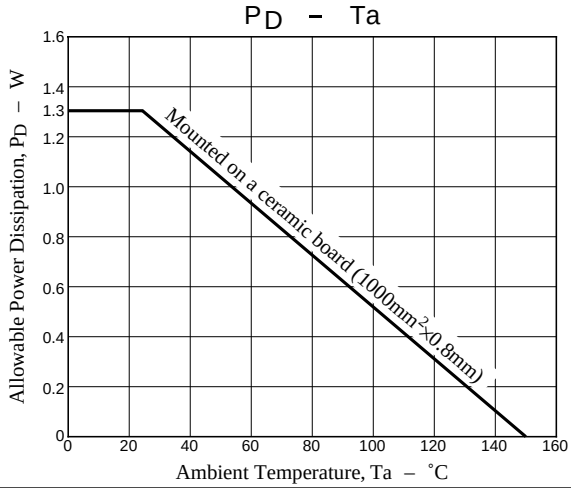

IF – VSD
VGS=0
Ta=75°C
25°C
–25°C
Forward Current, IF – A
Diode Forward Voltage, VSD – V


Ciss,Coss,Crss – VDS
f=1MHz
Ciss
Coss
Crss
Ciss, Coss, Crss – pF
Drain-to-Source Voltage, VDS – V


VGS – Qg
VDS=10V
ID=4A
Gate-to-Source Voltage, VGS – V
Total Gate Charge, Qg – nC


SW Time – ID
VDD=10V
VGS=4V
td(off)
tf
tr
td(on)
Switching Time,SW Time – ns
Drain Current, ID – A


A S O
IDP=25A
100µs
1ms
10ms
100ms
DC operation
ID=4A
Operation in this area is limited by RDS(on).
Ta=25°C
1 Pulse
Mounted on a ceramic board (1000mm2×0.8mm)
Drain Current, ID – A
Drain-to-Source Voltage, VDS – V


PD – Ta
Mounted on a ceramic board (1000mm2×0.8mm)
Allowable Power Dissipation, PD – W
Ambient Temperature, Ta – °C