Ordering number:EN5907

N-Channel Silicon MOSFET

FSS204

DC-DC Converter Applications

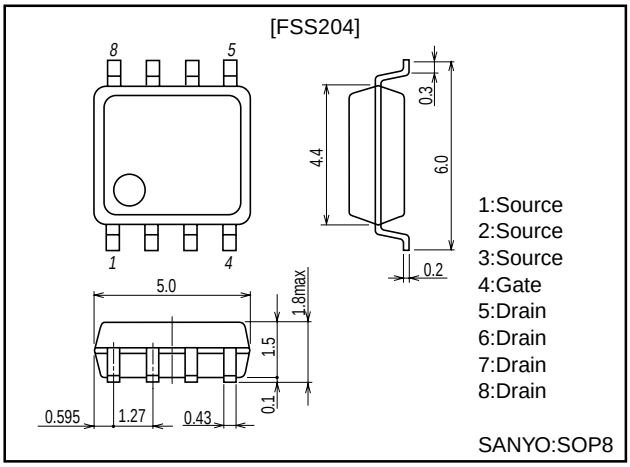
Features

- Low ON resistance.
- 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		8	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) 1unit	2	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			100	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=7A	10	16		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)}1$	I_D=8A, V_{GS}=10V		18	25	mΩ
	$R_{DS(on)}2$	I_D=4A, V_{GS}=4V		27	37	mΩ
Input Capacitance	Ciss	V_{DS}=10V, f=1MHz		960		pF
Output Capacitance	Coss	V_{DS}=10V, f=1MHz		530		pF
Reverse Transfer Capacitance	Crss	V_{DS}=10V, f=1MHz		240		pF

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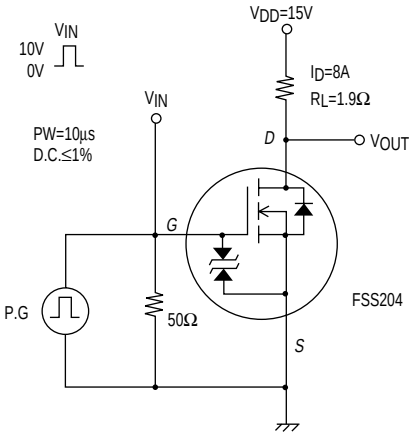
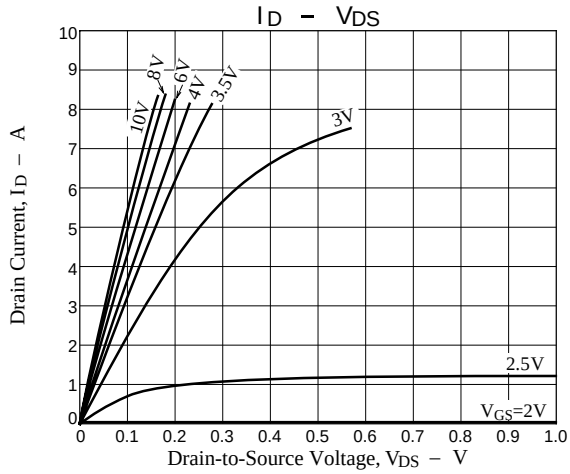
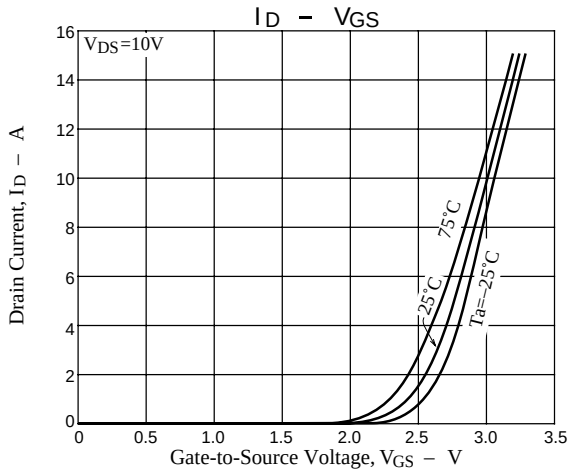
Continued from preceding page.

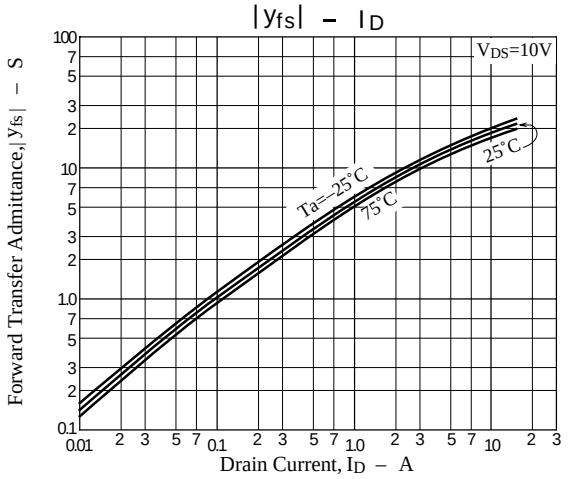
Parameter	Symbol	Conditions	Ratings			Unit
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit		15		ns
Rise Time	t_r	See specified Test Circuit		200		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit		140		ns
Fall Time	t_f	See specified Test Circuit		120		ns
Total Gate Charge	Qg	V_{DS}=10V, V_{GS}=10V, I_D=8A		30		nC
Gate-to-Source Charge	Qgs	V_{DS}=10V, V_{GS}=10V, I_D=8A		5		nC
Gate-to-Drain "Miller" Charge	Qgd	V_{DS}=10V, V_{GS}=10V, I_D=8A		10		nC
Diode Forward Voltage	V_{SD}	I_S=8A, V_{GS}=0		1.0	1.2	V

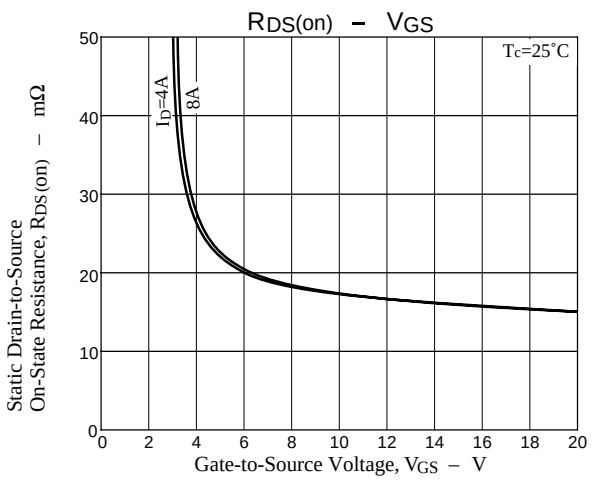
Switching Time Test Circuit

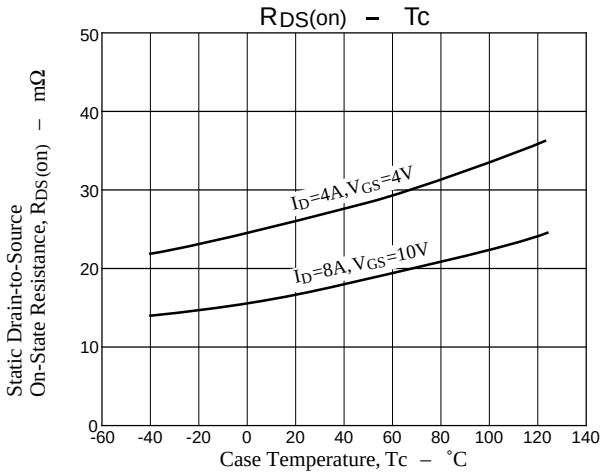


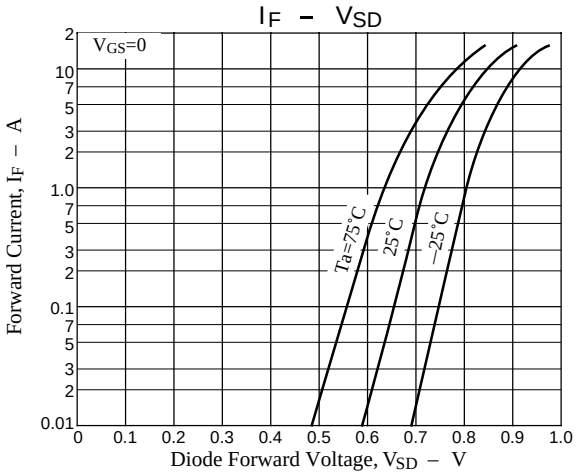


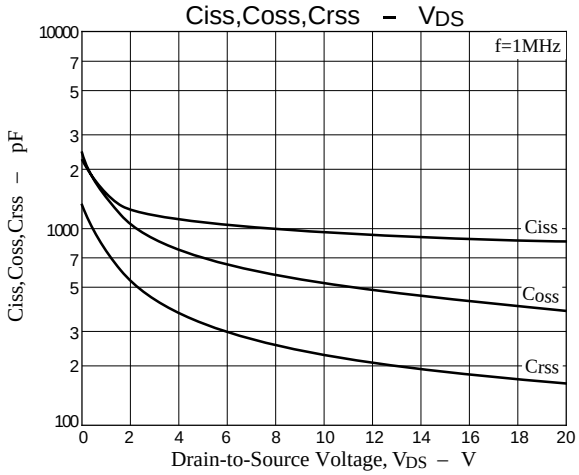


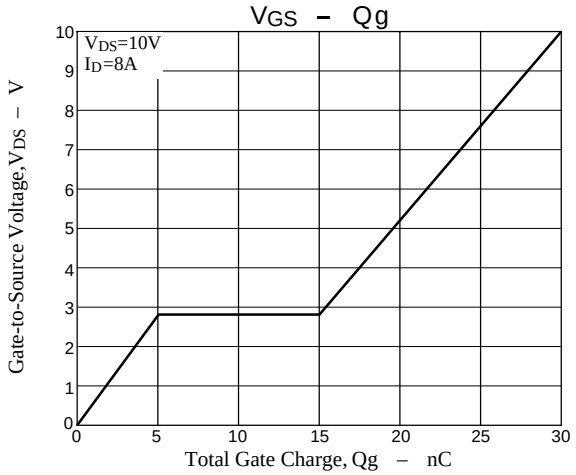


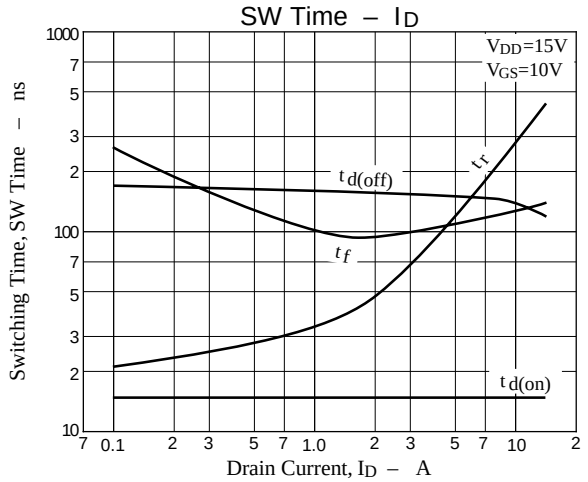


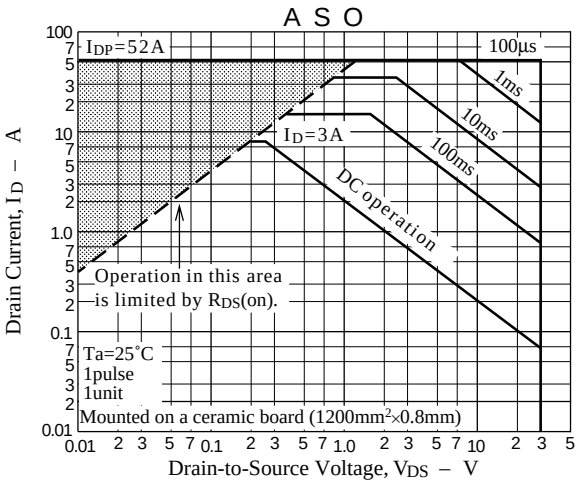

RDS(on) – Tc
Static Drain-to-Source On-State Resistance, RDS(on) – mΩ
ID=4A,VGS=4V
ID=8A,VGS=10V
Case Temperature, Tc – ˚C

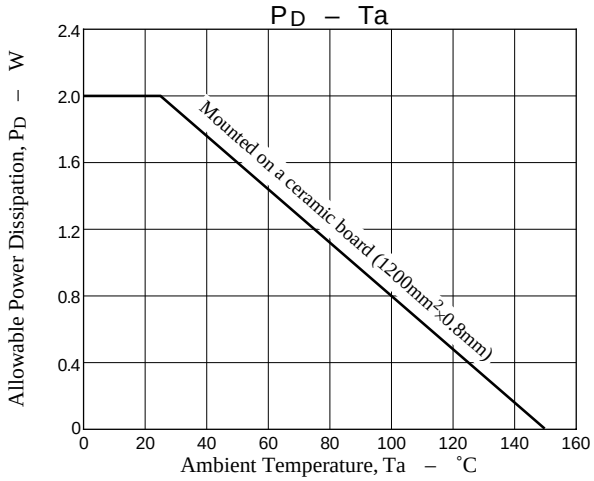

IF – VSD
VGS=0
Ta=75˚C
25˚C
–25˚C
Forward Current, IF – A
Diode Forward Voltage, VSD – V


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


VGS – Qg
VDS=10V
ID=8A
Gate-to-Source Voltage, VDS – V
Total Gate Charge, Qg – nC


SW Time – ID
VDD=15V
VGS=10V
td(off)
tf
tr
td(on)
Switching Time, SW Time – ns
Drain Current, ID – A


A S O
IDP=52A
ID=3A
100µs
1ms
10ms
100ms
DC operation
Operation in this area is limited by RDS(on).
Ta=25˚C
1pulse
1unit
Mounted on a ceramic board (1200mm²×0.8mm)
Drain Current, ID – A
Drain-to-Source Voltage, VDS – V


PD – Ta
Mounted on a ceramic board (1200mm²×0.8mm)
Allowable Power Dissipation, PD – W
Ambient Temperature, Ta – ˚C