Ordering number : EN8937

SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

N-Channel Silicon MOSFET

FSS294 — General-Purpose Switching Device Applications

Features

- ON-resistance $R_{DS}(on)1=7.8m\Omega$(typ.)
- Input capacitance Ciss=2650pF(typ.)
- 4V drive
- Protection diode in
- Halogen free compliance

Specifications

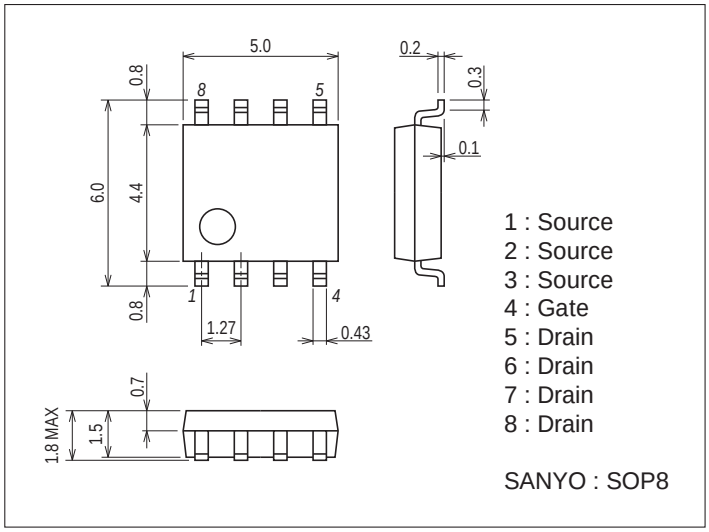
Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		40	V
Gate-to-Source Voltage	V_{GSS}		±20	V
Drain Current (DC)	I_D		13	A
Drain Current (PW≤10μs)	I_{DP}	Duty cycle≤1%	52	A
Allowable Power Dissipation	P_D	When mounted on ceramic substrate (1200mm²×0.8mm), PW≤10s	3.0	W
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		−55 to +150	°C

Package Dimensions

unit : mm (typ)

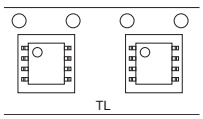
7005A-002



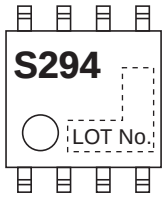
Product & Package Information

- Package : SOP8
- JEITA, JEDEC : SC-87, SOT-96
- Minimum Packing Quantity : 1,000 pcs./reel

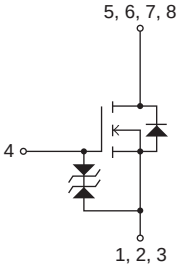
Packing Type : TL



Marking



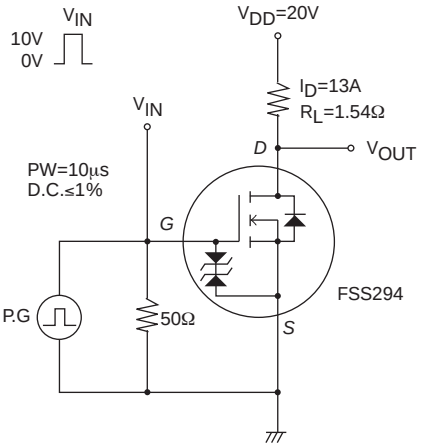
Electrical Connection

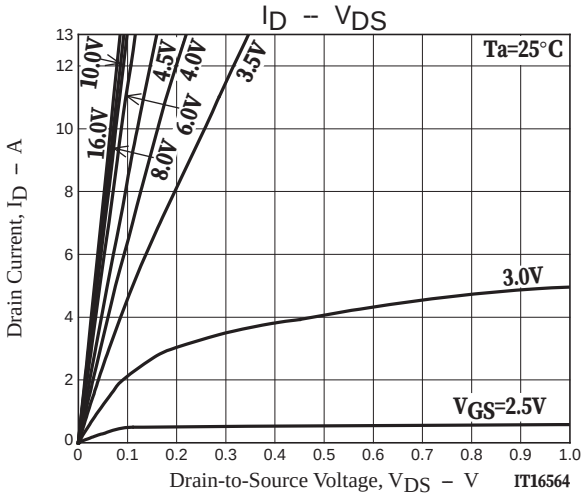


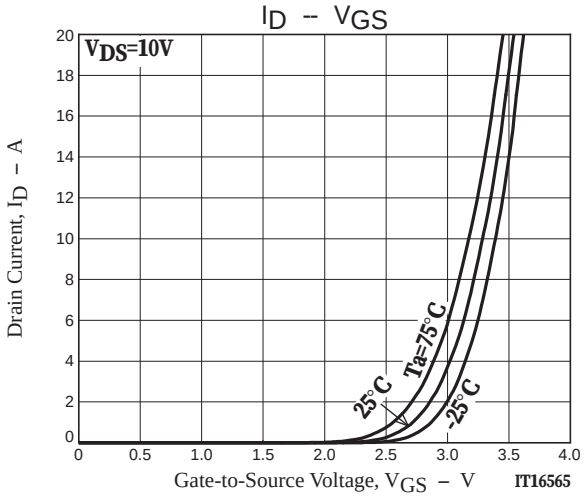
Electrical Characteristics at Ta=25°C

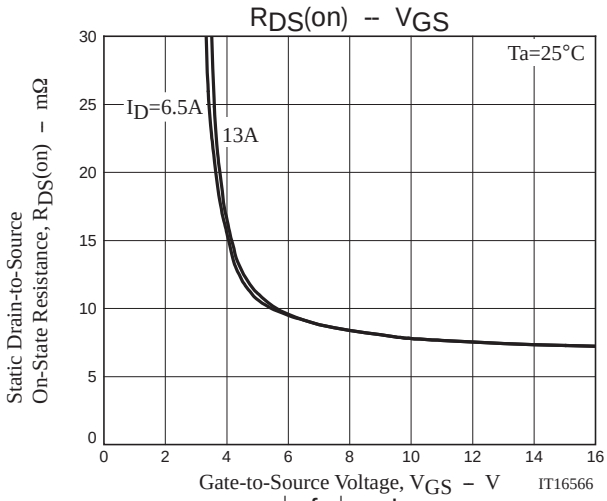
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	I_D=1mA, V_{GS}=0V	40			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=40V, V_{GS}=0V			1	μA
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}=±16V, V_{DS}=0V			±10	μA
Cutoff Voltage	V_{GS}(off)	V_{DS}=10V, I_D=1mA	1.5		2.6	V
Forward Transfer Admittance	| yfs |	V_{DS}=10V, I_D=13A		11		S
Static Drain-to-Source On-State Resistance	R_{DS}(on)1	I_D=13A, V_{GS}=10V		7.8	10.2	mΩ
	R_{DS}(on)2	I_D=6.5A, V_{GS}=4.5V		12	17	mΩ
	R_{DS}(on)3	I_D=6.5A, V_{GS}=4V		15.5	22	mΩ
Input Capacitance	Ciss	V_{DS}=20V, f=1MHz		2650		pF
Output Capacitance	Coss			320		pF
Reverse Transfer Capacitance	Crss			235		pF
Turn-ON Delay Time	t_d(on)	See specified Test Circuit.		27		ns
Rise Time	t_r			180		ns
Turn-OFF Delay Time	t_d(off)			154		ns
Fall Time	t_f			118		ns
Total Gate Charge	Qg	V_{DS}=20V, V_{GS}=10V, I_D=13A		52		nC
Gate-to-Source Charge	Qgs			9.6		nC
Gate-to-Drain “Miller” Charge	Qgd			10.5		nC
Diode Forward Voltage	V_{SD}	I_S=13A, V_{GS}=0V		0.81	1.2	V

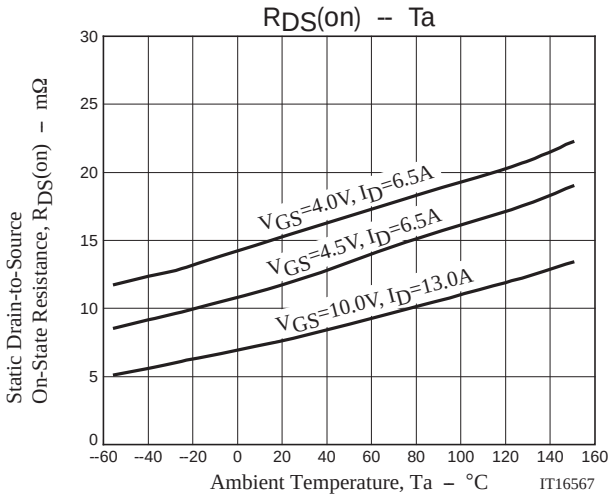
Switching Time Test Circuit

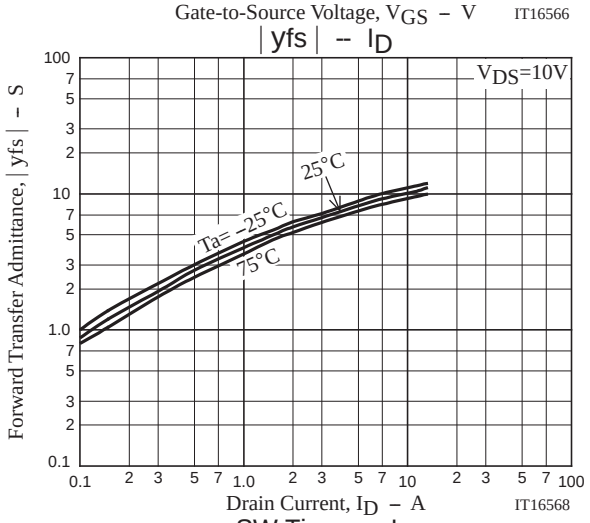


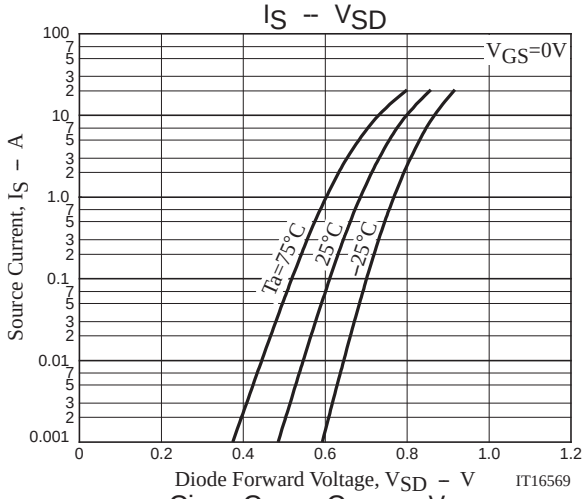


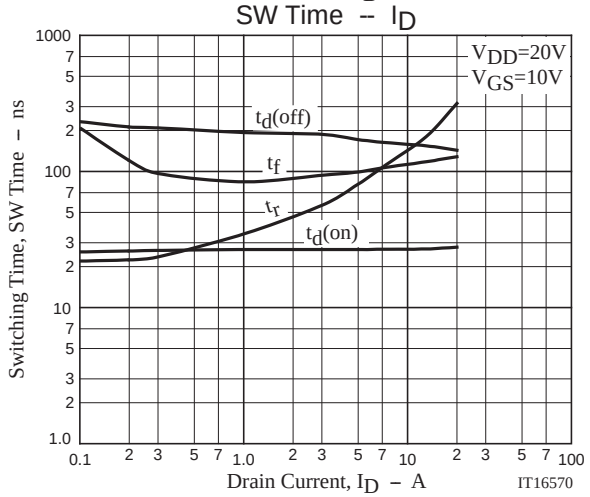


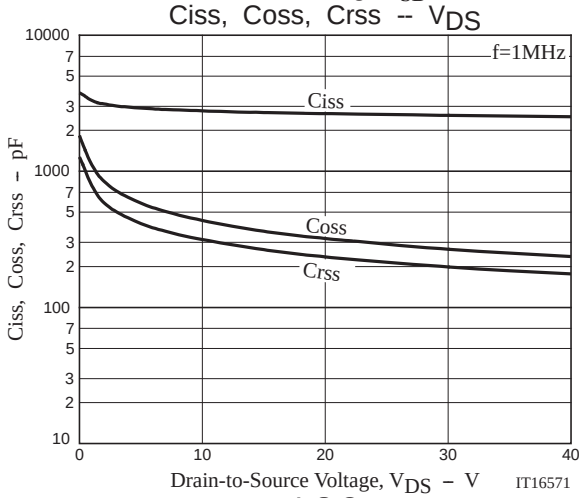

RDS(on) -- VGS
Ta=25°C
ID=6.5A
13A
Static Drain-to-Source On-State Resistance, RDS(on) – mΩ
Gate-to-Source Voltage, VGS – V
IT16566

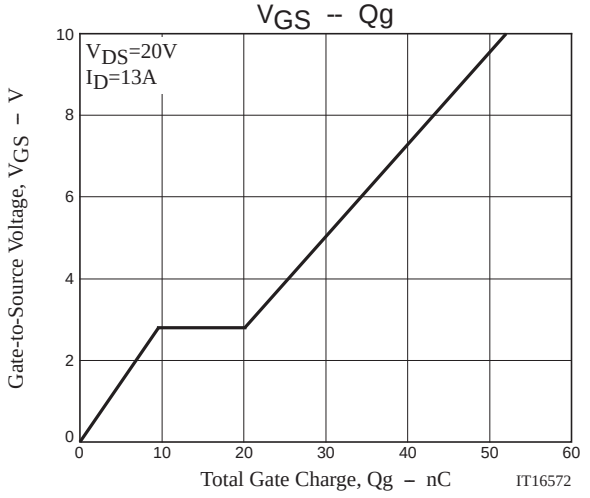

RDS(on) -- Ta
VGS=4.0V, ID=6.5A
VGS=4.5V, ID=6.5A
VGS=10.0V, ID=13.0A
Static Drain-to-Source On-State Resistance, RDS(on) – mΩ
Ambient Temperature, Ta – °C
IT16567

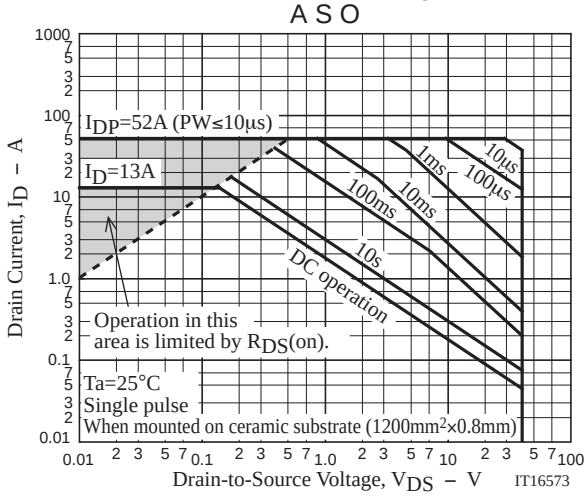

| yfs | -- ID
VDS=10V
25°C
Ta=–25°C
75°C
Forward Transfer Admittance, | yfs | – S
Drain Current, ID – A
IT16568

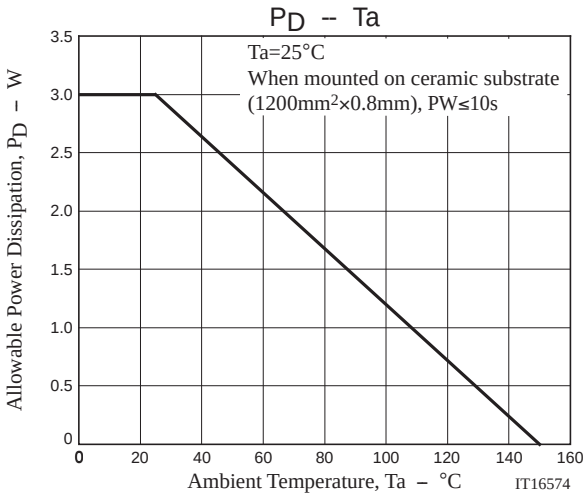

IS -- VSD
VGS=0V
Ta=75°C
25°C
–25°C
Source Current, IS – A
Diode Forward Voltage, VSD – V
IT16569


SW Time -- ID
VDD=20V
VGS=10V
td(off)
tf
tr
td(on)
Switching Time, SW Time – ns
Drain Current, ID – A
IT16570


Ciss, Coss, Crss -- VDS
f=1MHz
Ciss
Coss
Crss
Ciss, Coss, Crss – pF
Drain-to-Source Voltage, VDS – V
IT16571


VGS -- Qg
VDS=20V
ID=13A
Gate-to-Source Voltage, VGS – V
Total Gate Charge, Qg – nC
IT16572


A S O
IDP=52A (PW≤10μs)
ID=13A
1ms
10μs
100μs
100ms
10ms
10s
DC operation
Operation in this area is limited by RDS(on).
Ta=25°C
Single pulse
When mounted on ceramic substrate (1200mm2×0.8mm)
Drain Current, ID – A
Drain-to-Source Voltage, VDS – V
IT16573



Note on usage : Since the FSS294 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

This catalog provides information as of August, 2011. Specifications and information herein are subject to change without notice.