Ordering number : EN8749

SANYO Semiconductors
DATA SHEET

N-Channel Silicon MOSFET

FW261 — General-Purpose Switching Device Applications

Features

- Low ON-resistance.
- 4V drive.

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		5	A
Drain Current (PW≤10s)	I_D	Duty cycle≤1%	6	A
Drain Current (PW≤100ms)	I_D	Duty cycle≤1%	10	A
Drain Current (PW≤10μs)	I_{DP}	Duty cycle≤1%	20	A
Allowable Power Dissipation	P_D	Mounted on a ceramic board (2000mm²×0.8mm) 1unit, PW≤10s	1.8	W
Total Dissipation	P_T	Mounted on a ceramic board (2000mm²×0.8mm), PW≤10s	2.2	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}=0V	30			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=30V, 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	1.2		2.6	V
Forward Transfer Admittance	$\|yfs\|$	V_{DS}=10V, I_D=5A	3.9	5.5		S
Static Drain-to-Source On-State Resistance	$R_{DS}(on)1$	I_D=5A, V_{GS}=10V		37	48	mΩ
	$R_{DS}(on)2$	I_D=3A, V_{GS}=4V		64	83	mΩ
Input Capacitance	Ciss	V_{DS}=10V, f=1MHz		460		pF
Output Capacitance	Coss	V_{DS}=10V, f=1MHz		95		pF
Reverse Transfer Capacitance	Crss	V_{DS}=10V, f=1MHz		75		pF
Turn-ON Delay Time	$t_d(on)$	See specified Test Circuit.		15		ns
Rise Time	t_r	See specified Test Circuit.		20		ns
Turn-OFF Delay Time	$t_d(off)$	See specified Test Circuit.		30		ns
Fall Time	t_f	See specified Test Circuit.		20		ns

Marking : W261

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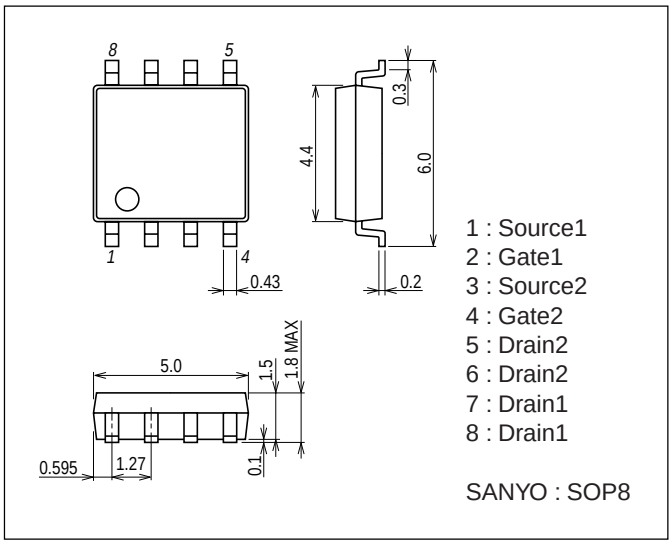
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Total Gate Charge	Qg	V_{DS}=10V, V_{GS}=10V, I_D=5A		8.6		nC
Gate-to-Source Charge	Qgs	V_{DS}=10V, V_{GS}=10V, I_D=5A		2.0		nC
Gate-to-Drain “Miller” Charge	Qgd	V_{DS}=10V, V_{GS}=10V, I_D=5A		1.6		nC
Diode Forward Voltage	V_{SD}	I_S=5A, V_{GS}=0V		0.9	1.2	V

Package Dimensions

unit : mm

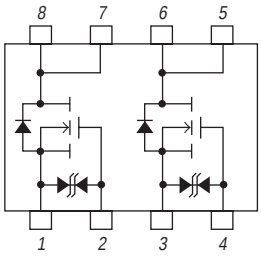
7005-003



1 : Source1
2 : Gate1
3 : Source2
4 : Gate2
5 : Drain2
6 : Drain2
7 : Drain1
8 : Drain1

SANYO : SOP8

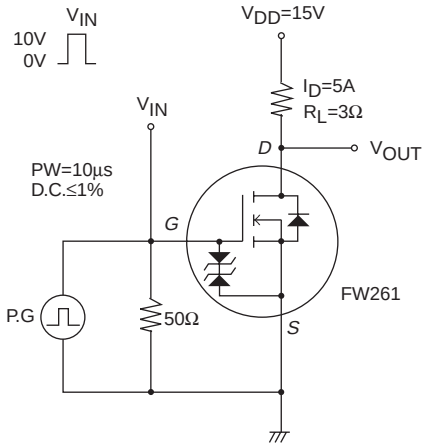
Electrical Connection

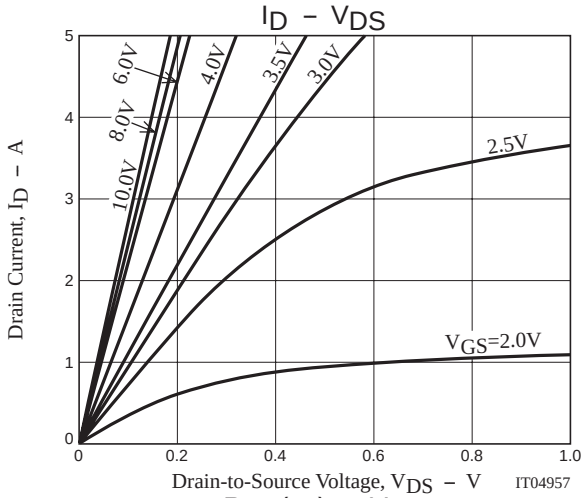


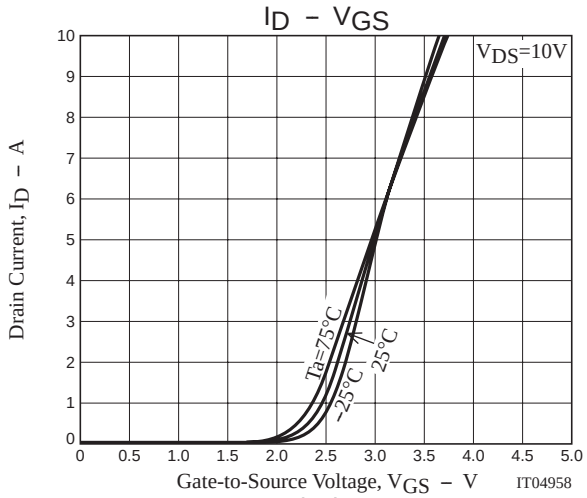
1 : Source1
2 : Gate1
3 : Source2
4 : Gate2
5 : Drain2
6 : Drain2
7 : Drain1
8 : Drain1

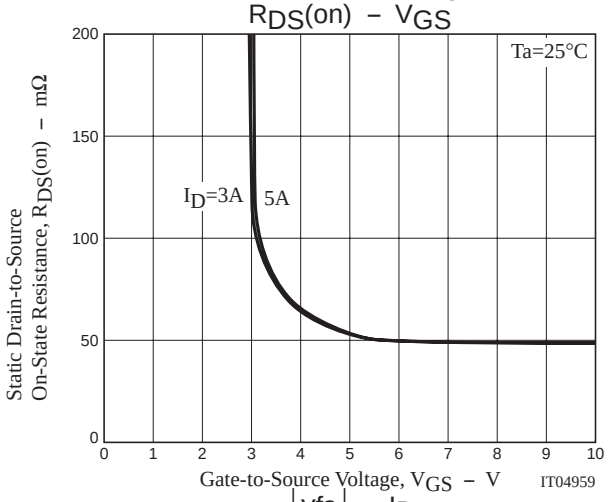
Top view

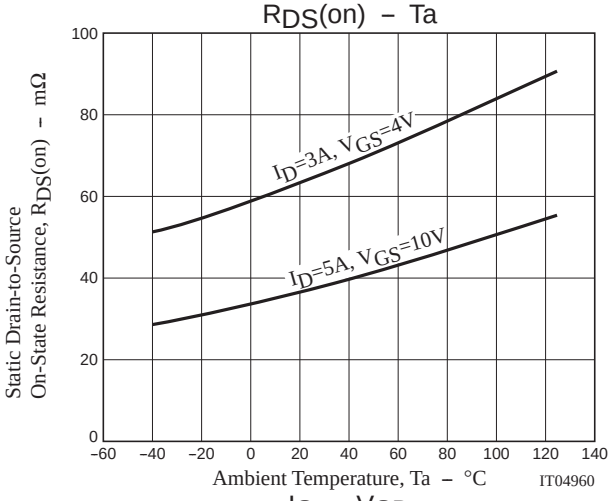
Switching Time Test Circuit

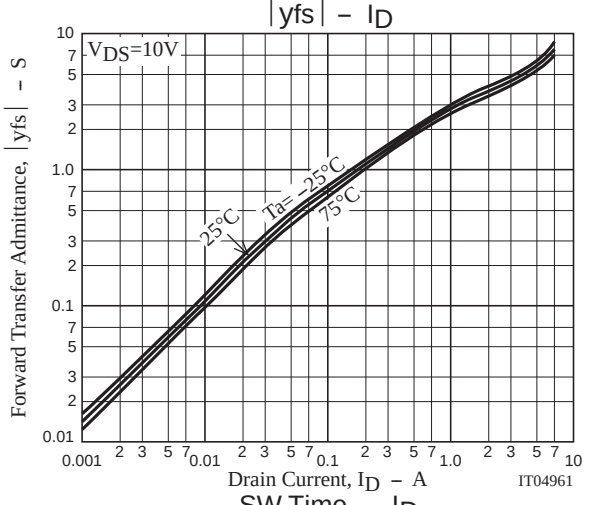


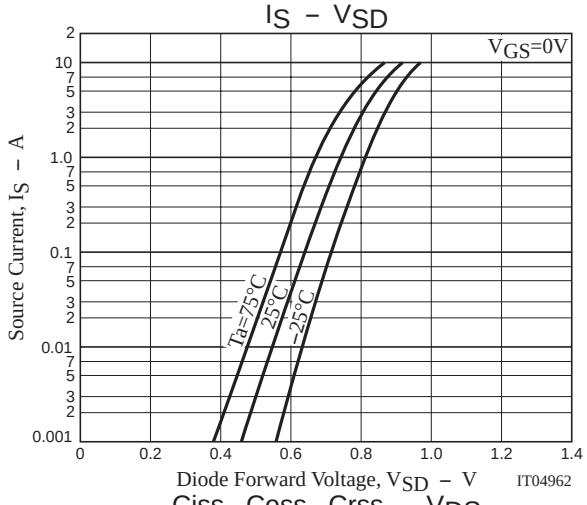

ID – VDS
Drain Current, ID – A
6.0V
4.0V
3.5V
3.0V
8.0V
10.0V
2.5V
VGS=2.0V
Drain-to-Source Voltage, VDS – V
IT04957

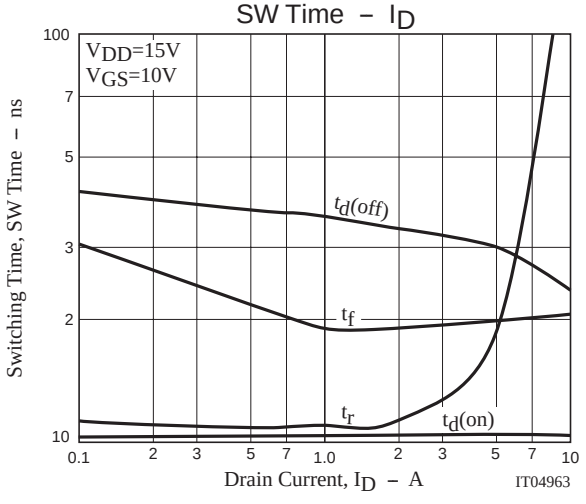

ID – VGS
VDS=10V
Drain Current, ID – A
Ta=75°C
25°C
–25°C
Gate-to-Source Voltage, VGS – V
IT04958

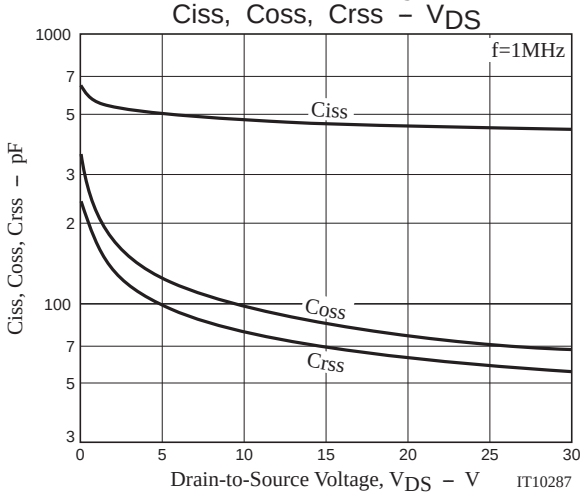

RDS(on) – VGS
Ta=25°C
Static Drain-to-Source
On-State Resistance, RDS(on) – mΩ
ID=3A
5A
Gate-to-Source Voltage, VGS – V
IT04959

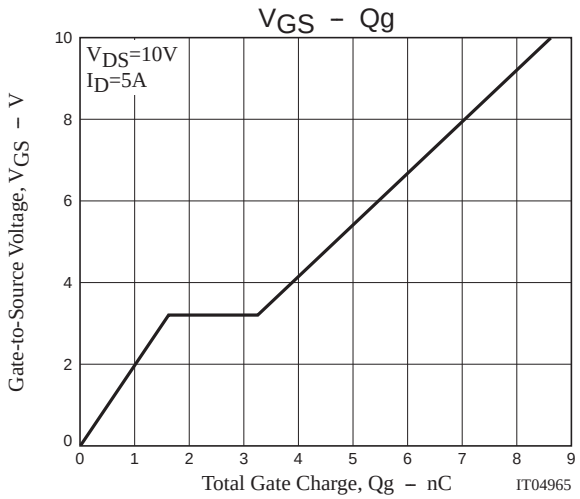

RDS(on) – Ta
Static Drain-to-Source
On-State Resistance, RDS(on) – mΩ
ID=3A, VGS=4V
ID=5A, VGS=10V
Ambient Temperature, Ta – °C
IT04960

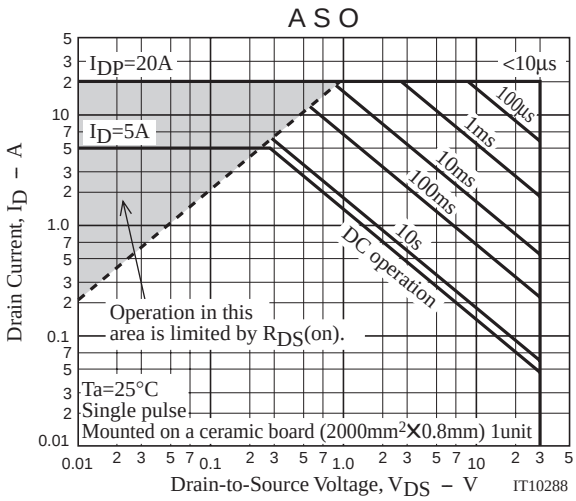

|yfs| – ID
VDS=10V
Forward Transfer Admittance, |yfs| – S
25°C
Ta= –25°C
75°C
Drain Current, ID – A
IT04961

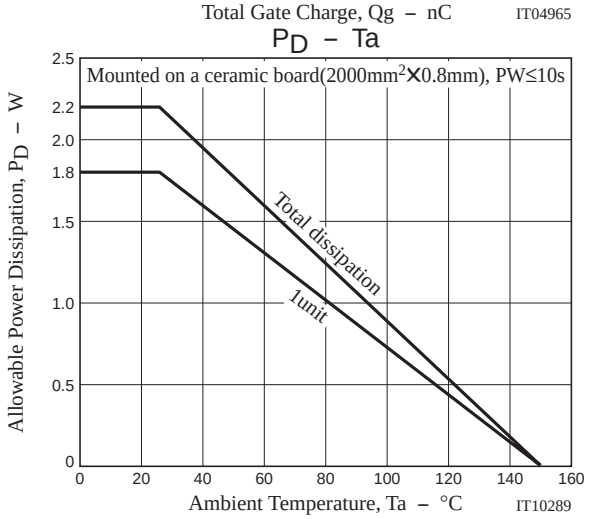

IS – VSD
VGS=0V
Source Current, IS – A
Ta=75°C
25°C
–25°C
Diode Forward Voltage, VSD – V
IT04962


SW Time – ID
VDD=15V
VGS=10V
Switching Time, SW Time – ns
td(off)
tf
tr
td(on)
Drain Current, ID – A
IT04963


Ciss, Coss, Crss – VDS
f=1MHz
Ciss, Coss, Crss – pF
Ciss
Coss
Crss
Drain-to-Source Voltage, VDS – V
IT10287







Note on usage : Since the FW261 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.