Ordering number : ENA1598

SANYO Semiconductors
DATA SHEET

N-Channel Silicon MOSFET

FW274 — General-Purpose Switching Device Applications

Features

- 4V drive.
- Composite type, facilitating high-density mounting.

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		6	A
Drain Current (PW≤10s)	I_D	Duty cycle≤1%	6.5	A
Drain Current (PW≤10μs)	I_{DP}	Duty cycle≤1%	24	A
Allowable Power Dissipation	P_D	When mounted on ceramic substrate (2000mm^2×0.8mm) 1unit, PW≤10s	1.8	W
Total Dissipation	P_T	When mounted on ceramic substrate (2000mm^2×0.8mm), 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=6A	1.8	3		S
Static Drain-to-Source On-State Resistance	$R_{DS}(on)1$	I_D=6A, V_{GS}=10V		28	37	mΩ
	$R_{DS}(on)2$	I_D=3A, V_{GS}=4.5V		43	61	mΩ
	$R_{DS}(on)3$	I_D=3A, V_{GS}=4V		52	73	mΩ

Marking : W274

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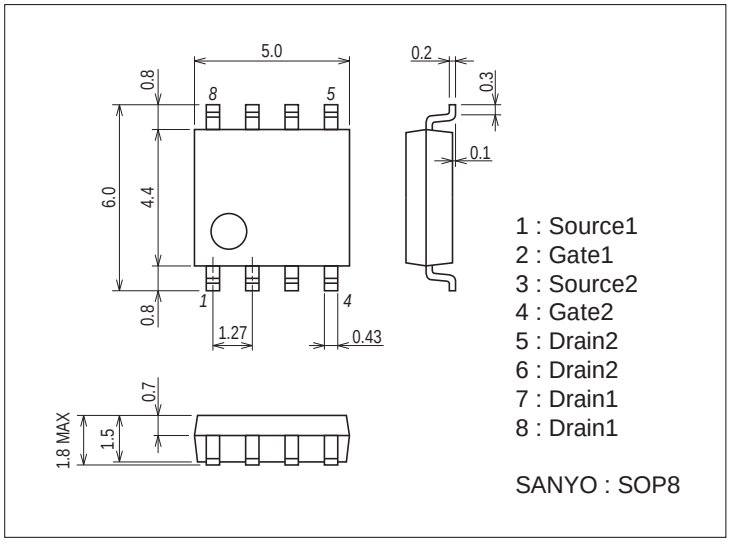
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	V_{DS}=10V, f=1MHz		490		pF
Output Capacitance	Coss	V_{DS}=10V, f=1MHz		85		pF
Reverse Transfer Capacitance	Crss	V_{DS}=10V, f=1MHz		45		pF
Turn-ON Delay Time	t_{d}(on)	See specified Test Circuit.		8		ns
Rise Time	t_{r}	See specified Test Circuit.		45		ns
Turn-OFF Delay Time	t_{d}(off)	See specified Test Circuit.		31		ns
Fall Time	t_{f}	See specified Test Circuit.		28		ns
Total Gate Charge	Qg	V_{DS}=15V, V_{GS}=10V, I_{D}=6A		9.1		nC
Gate-to-Source Charge	Qgs	V_{DS}=15V, V_{GS}=10V, I_{D}=6A		1.7		nC
Gate-to-Drain “Miller” Charge	Qgd	V_{DS}=15V, V_{GS}=10V, I_{D}=6A		1.7		nC
Diode Forward Voltage	V_{SD}	I_{S}=6A, V_{GS}=0V		0.84	1.2	V

Package Dimensions

unit : mm (typ)

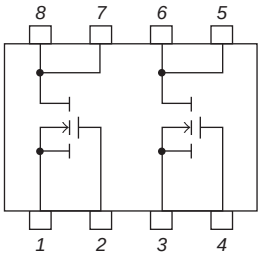
7005A-003



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

SANYO : SOP8

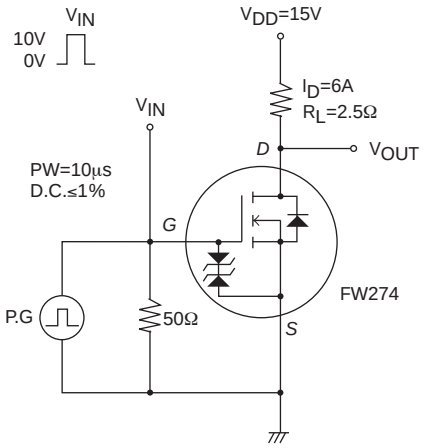
Electrical Connection

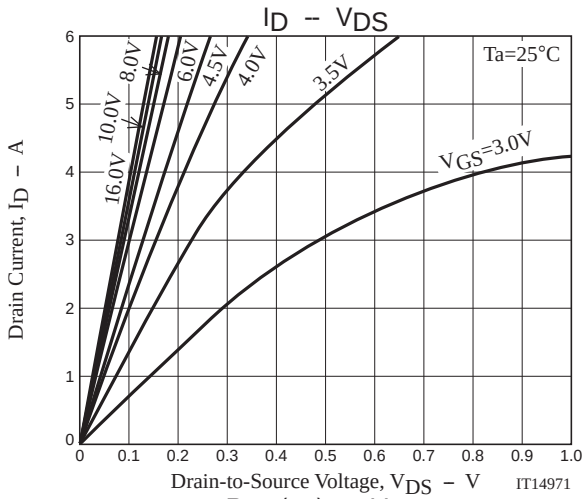


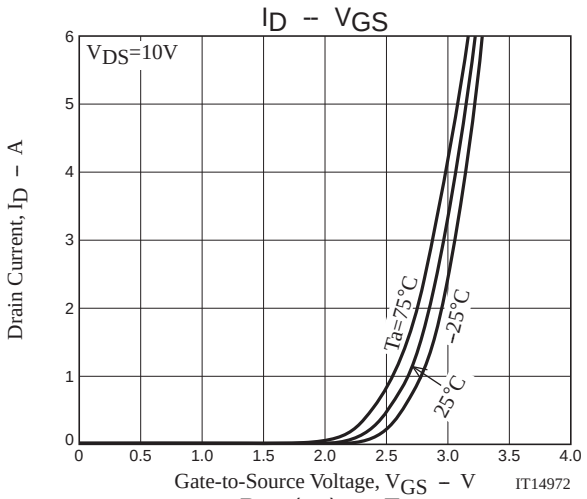
1 : Source1
2 : Gate1
3 : Source2
4 : Gate2
5 : Drain2
6 : Drain2
7 : Drain1
8 : Drain1

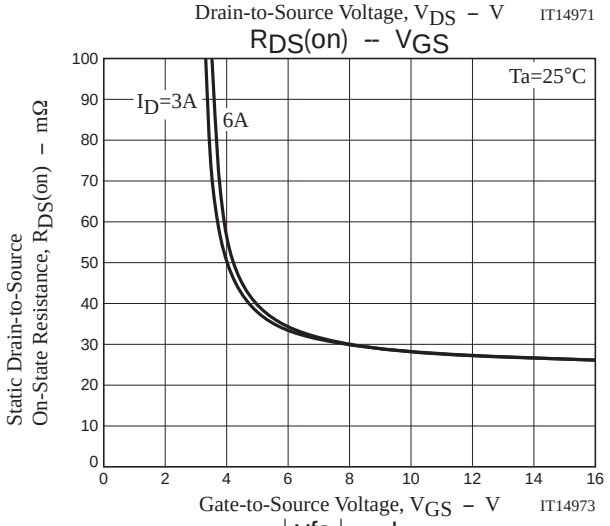
Top view

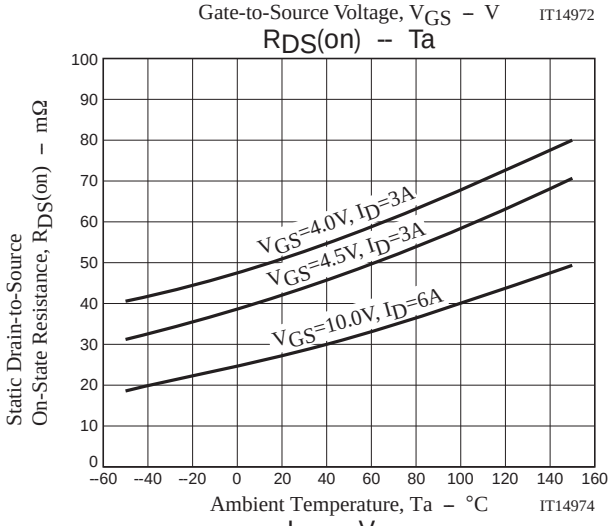
Switching Time Test Circuit

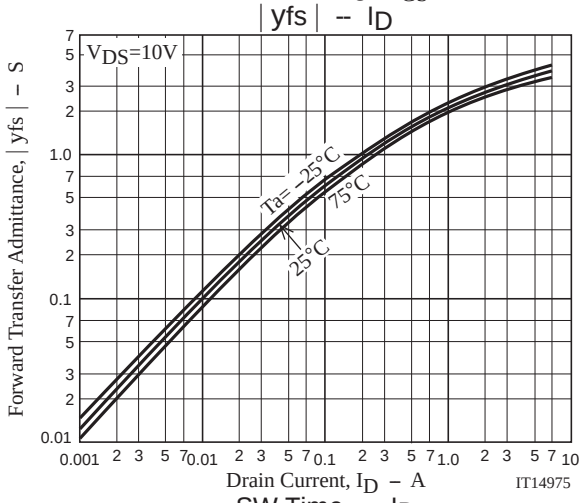


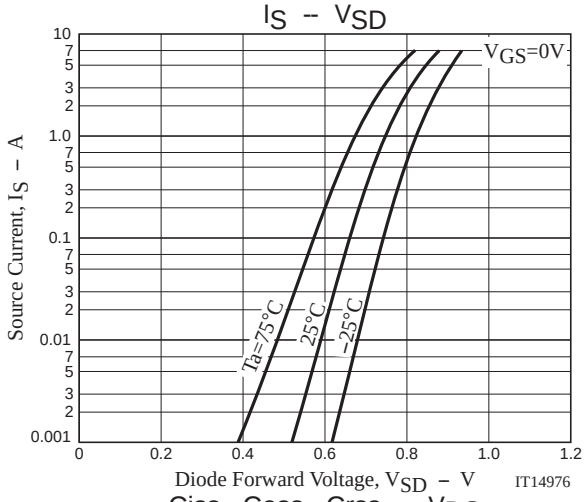

ID -- VDS
Ta=25°C
10.0V
8.0V
6.0V
4.5V
4.0V
3.5V
VGS=3.0V
16.0V
Drain Current, ID – A
Drain-to-Source Voltage, VDS – V
IT14971

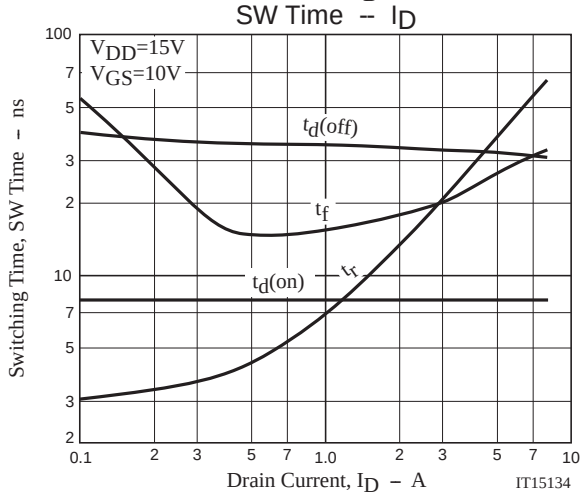

ID -- VGS
VDS=10V
Ta=75°C
–25°C
25°C
Drain Current, ID – A
Gate-to-Source Voltage, VGS – V
IT14972

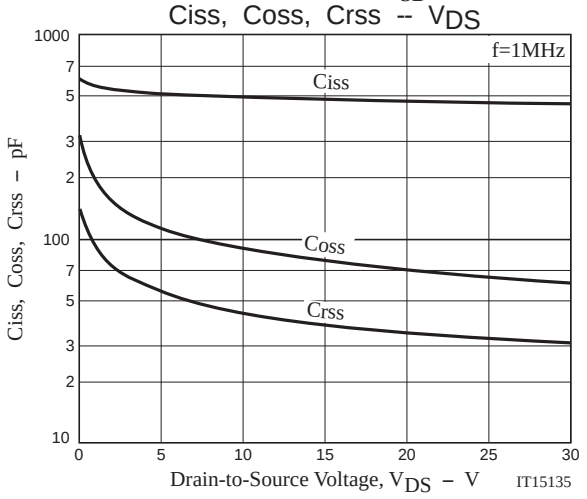

RDS(on) -- VGS
Ta=25°C
ID=3A
6A
Static Drain-to-Source On-State Resistance, RDS(on) – mΩ
Gate-to-Source Voltage, VGS – V
IT14973

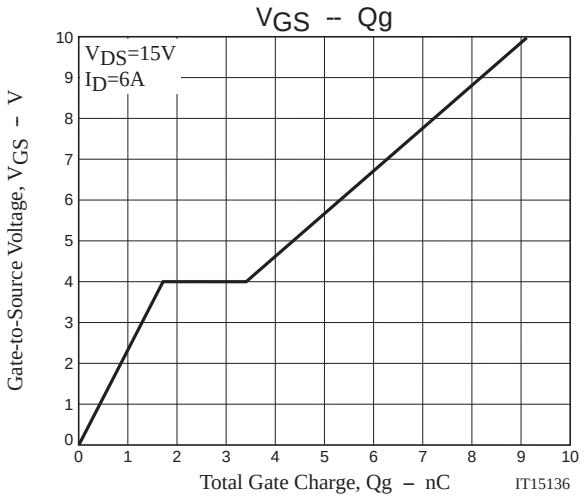

RDS(on) -- Ta
VGS=4.0V, ID=3A
VGS=4.5V, ID=3A
VGS=10.0V, ID=6A
Static Drain-to-Source On-State Resistance, RDS(on) – mΩ
Ambient Temperature, Ta – °C
IT14974

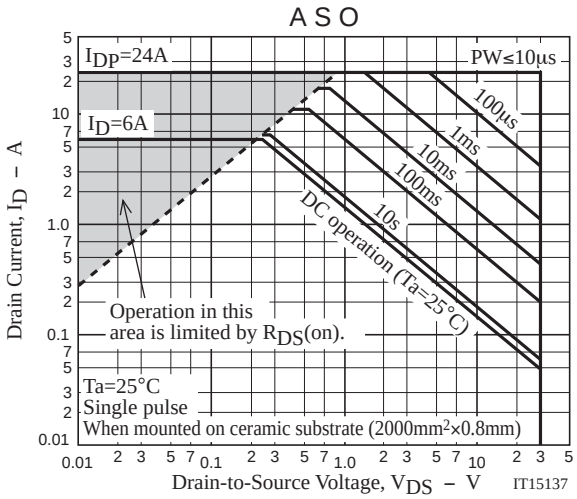

| yfs | -- ID
VDS=10V
Ta= –25°C
75°C
25°C
Forward Transfer Admittance, | yfs | – S
Drain Current, ID – A
IT14975

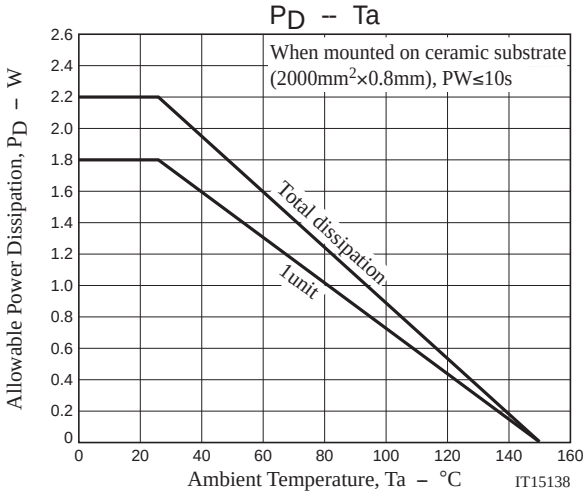

IS -- VSD
VGS=0V
Ta=75°C
25°C
–25°C
Source Current, IS – A
Diode Forward Voltage, VSD – V
IT14976


SW Time -- ID
VDD=15V
VGS=10V
td(off)
tf
td(on)
tr
Switching Time, SW Time – ns
Drain Current, ID – A
IT15134


Ciss, Coss, Crss -- VDS
f=1MHz
Ciss
Coss
Crss
Ciss, Coss, Crss – pF
Drain-to-Source Voltage, VDS – V
IT15135







Note on usage : Since the FW274 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

This catalog provides information as of November, 2009. Specifications and information herein are subject to change without notice.

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