

Ordering number : ENN6939

N-Channel Silicon MOSFET

FW241

SANYO

## Ultrahigh-Speed Swiching Applications

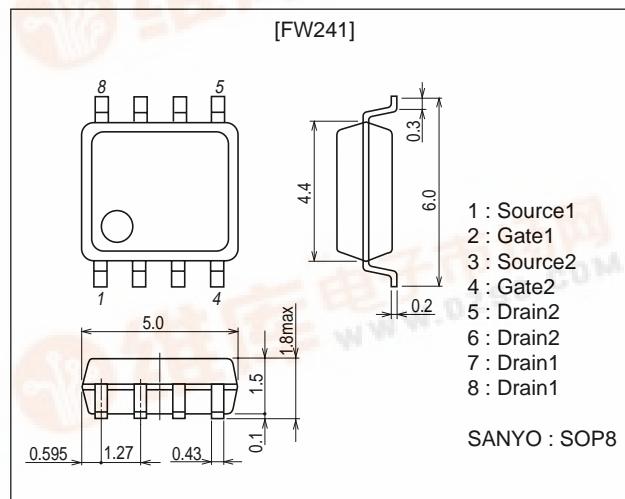
## Features

- This composite device allows high density mounting by incorporating two MOSFET chips in one package that feature low on-resistance, ultrahigh switching speed, and drive voltage of 4.5V.
- The two chips have near characteristics, and especially suited for HDD.

## Package Dimensions

unit : mm

2129



## Specifications

Absolute Maximum Ratings at  $T_a=25^\circ C$ 

Parameter	Symbol	Conditions	Ratings		Unit
Drain-to-Source Voltage	$V_{DSS}$			30	V
Gate-to-Source Voltage	$V_{GSS}$			$\pm 20$	V
Drain Current (DC)	$I_D$			3.5	A
Drain Current (Pulse)	$I_{DP}$	$PW \leq 10\mu s$ , duty cycle $\leq 1\%$		14	A
Allowable Power Dissipation	$P_D$	Mounted on a ceramic board (2000mm $^2$ $\times$ 0.8mm) 1 unit		1.4	W
		$T_c=25^\circ C$		2.0	W
Channel Temperature	$T_{ch}$			150	$^\circ C$
Storage Temperature	$T_{stg}$			-55 to +150	$^\circ C$

Electrical Characteristics at  $T_a=25^\circ C$ 

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	$I_{DSS}$	$V_{DS}=30V$ , $V_{GS}=0$			1	$\mu A$
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 16V$ , $V_{DS}=0$			$\pm 10$	$\mu A$
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ , $I_D=250\mu A$	1.2		2.5	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=10V$ , $I_D=3.5A$	3.7	5.3		S

Marking : W241

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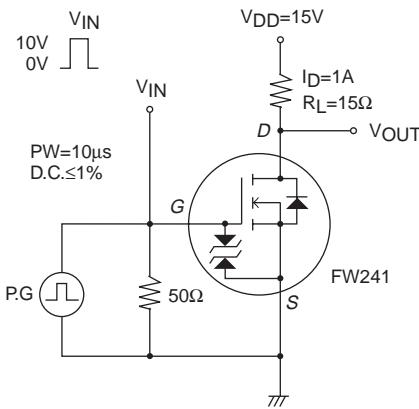
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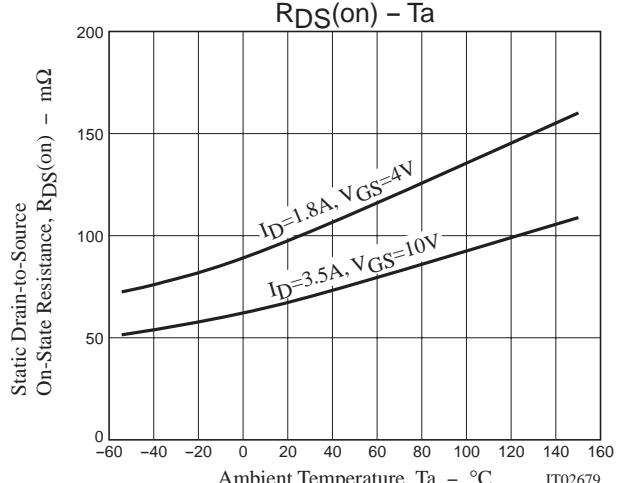
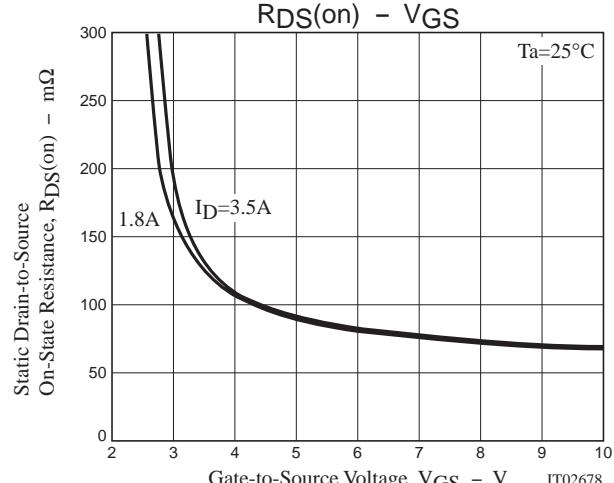
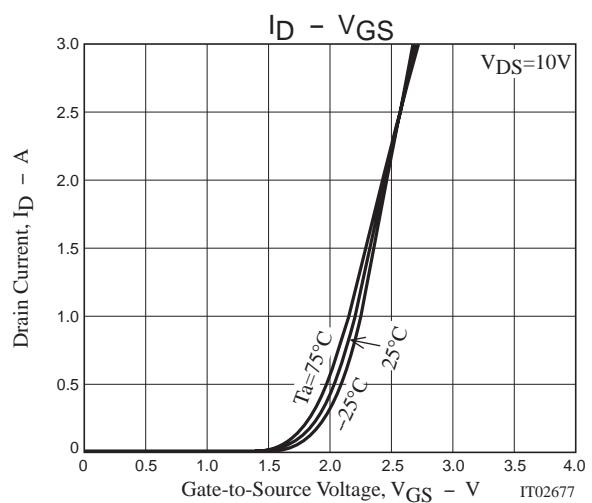
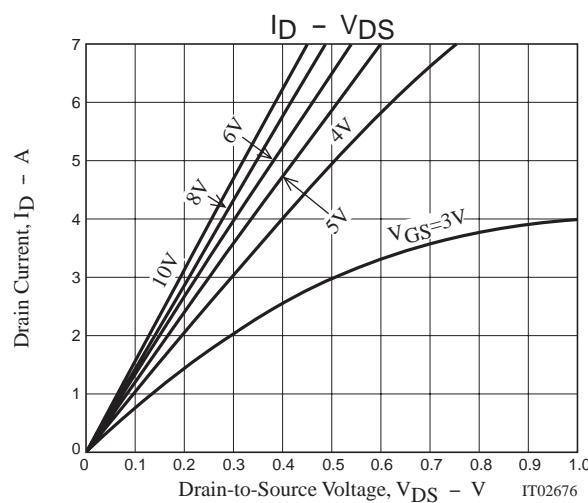
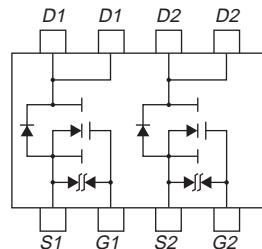
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Static Drain-to-Source On-State Resistance	R <sub>DS(on)1</sub>	I <sub>D</sub> =3.5A, V <sub>GS</sub> =10V		64	84	mΩ
	R <sub>DS(on)2</sub>	I <sub>D</sub> =1.8A, V <sub>GS</sub> =4.5V		105	150	mΩ
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =10V, f=1MHz		180		pF
Output Capacitance	C <sub>oss</sub>	V <sub>DS</sub> =10V, f=1MHz		42		pF
Reverse Transfer Capacitance	C <sub>rss</sub>	V <sub>DS</sub> =10V, f=1MHz		25		pF
Turn-ON Delay Time	t <sub>d(on)</sub>	See specified Test Circuit		7		ns
Rise Time	t <sub>r</sub>	See specified Test Circuit		3		ns
Turn-OFF Delay Time	t <sub>d(off)</sub>	See specified Test Circuit		20		ns
Fall Time	t <sub>f</sub>	See specified Test Circuit		6		ns
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =10V, V <sub>GS</sub> =10V, I <sub>D</sub> =3.5A		5.0		nC
Gate-to-Source Charge	Q <sub>gs</sub>	V <sub>DS</sub> =10V, V <sub>GS</sub> =10V, I <sub>D</sub> =3.5A		0.9		nC
Gate-to-Drain "Miller" Charge	Q <sub>gd</sub>	V <sub>DS</sub> =10V, V <sub>GS</sub> =10V, I <sub>D</sub> =3.5A		0.6		nC
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =3.5A, V <sub>GS</sub> =0		0.88	1.2	V

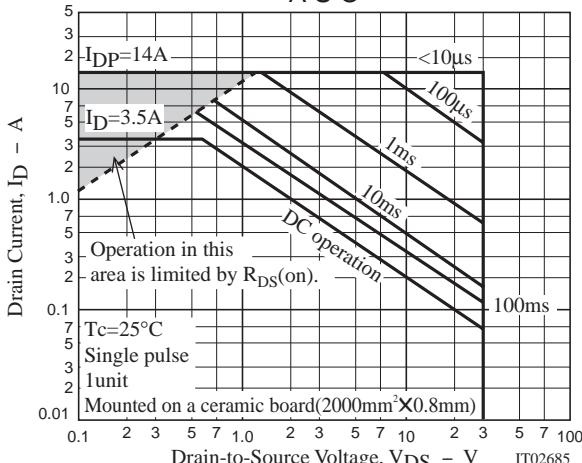
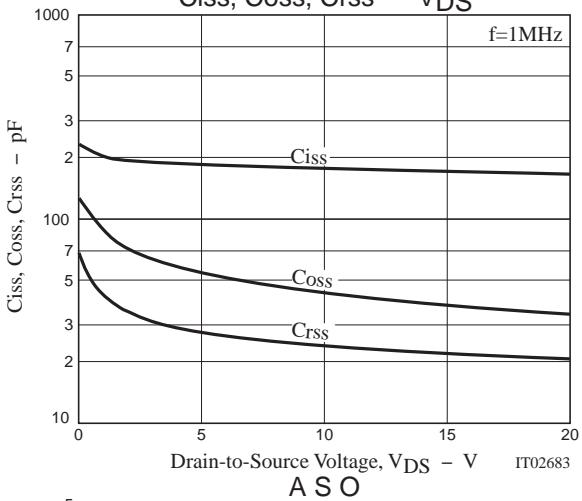
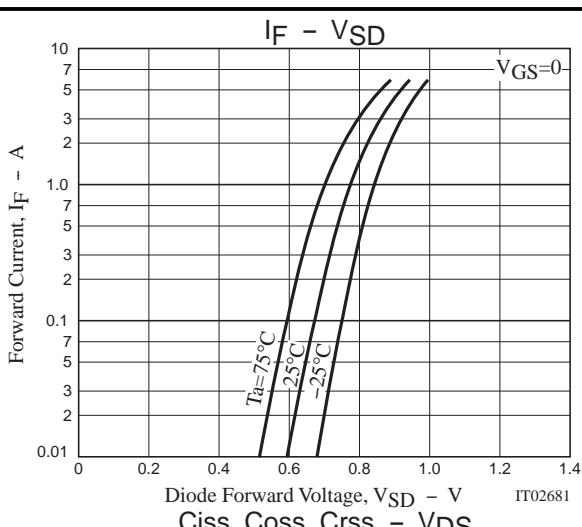
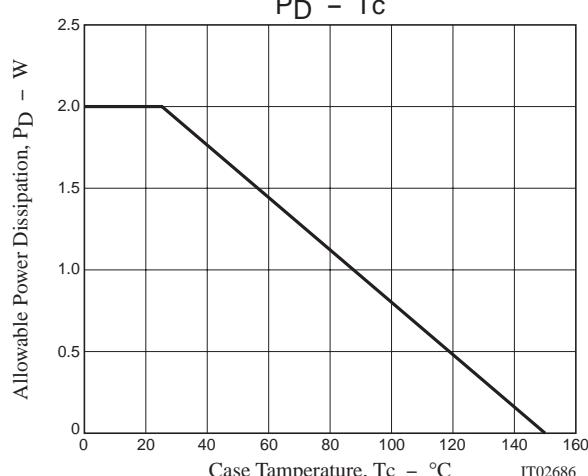
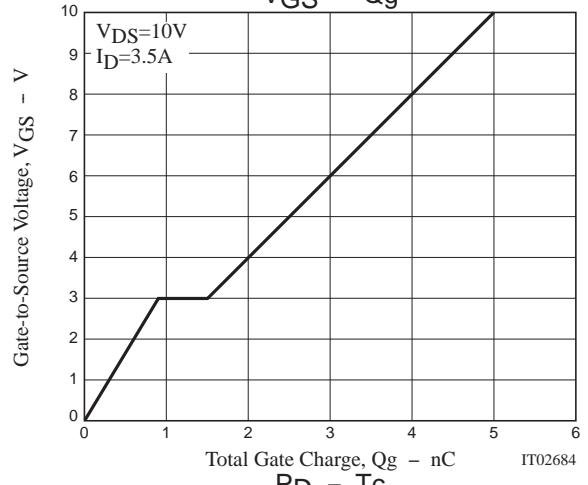
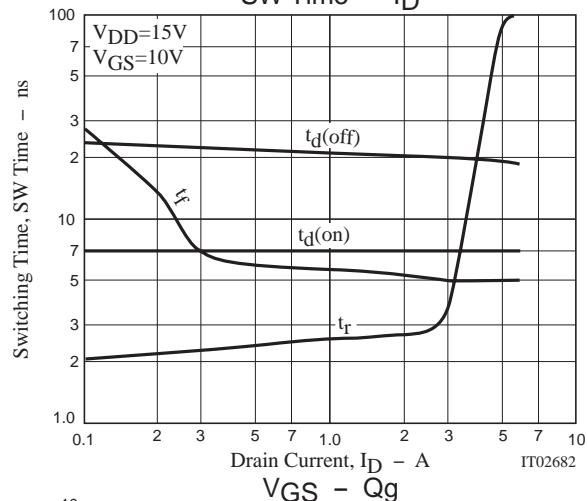
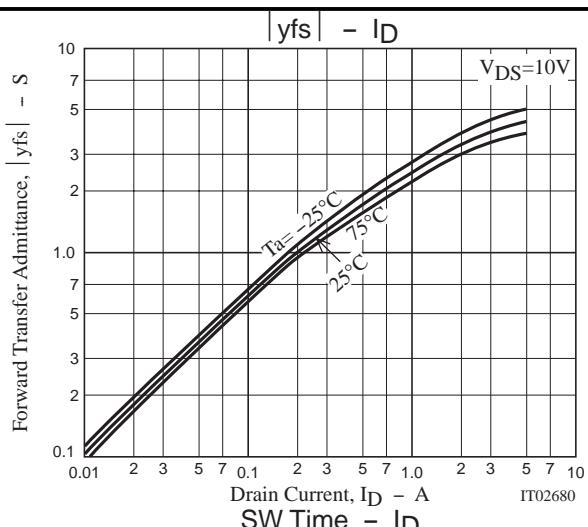
## Switching Time Test Circuit



## Electrical Connection



## FW241



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