

Ordering number : ENN6939

N-Channel Silicon MOSFET

**FW241**

**SANYO**

## Ultrahigh-Speed Switching Applications

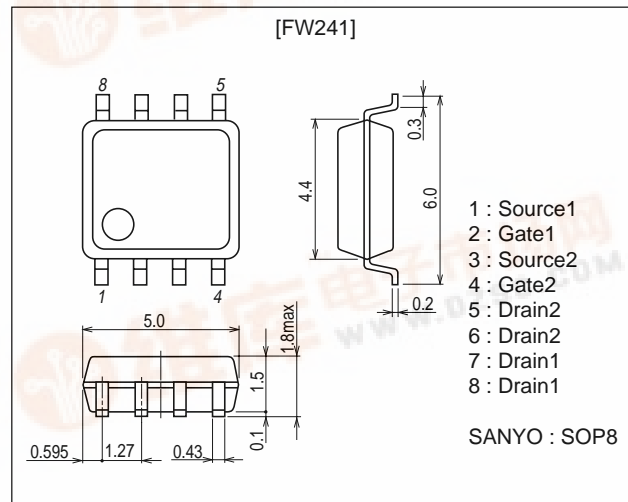
### Features

- 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 Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	$V_{DS}$		30	V
Gate-to-Source Voltage	$V_{GS}$		$\pm 20$	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 <sup>2</sup> X0.8mm)1unit	1.4	W
		Tc=25°C	2.0	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	$V_{(BR)DS}$	$I_D=1mA$ , $V_{GS}=0$	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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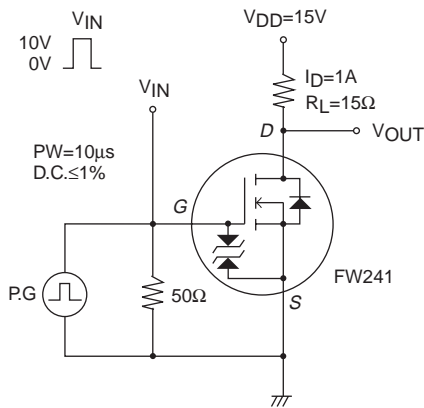
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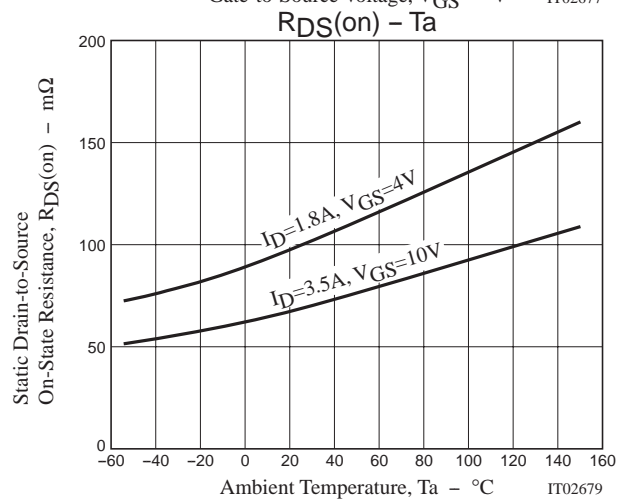
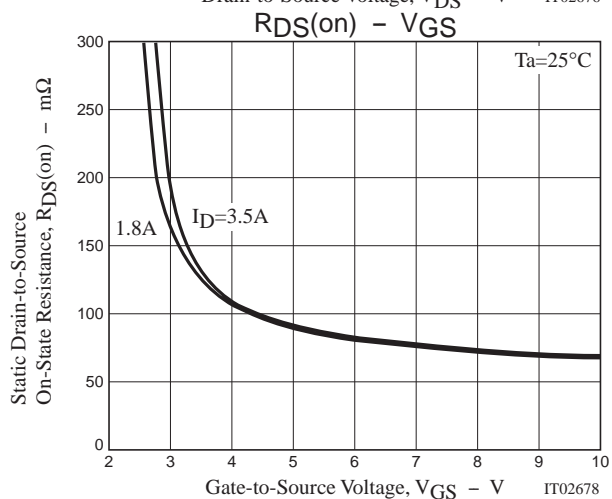
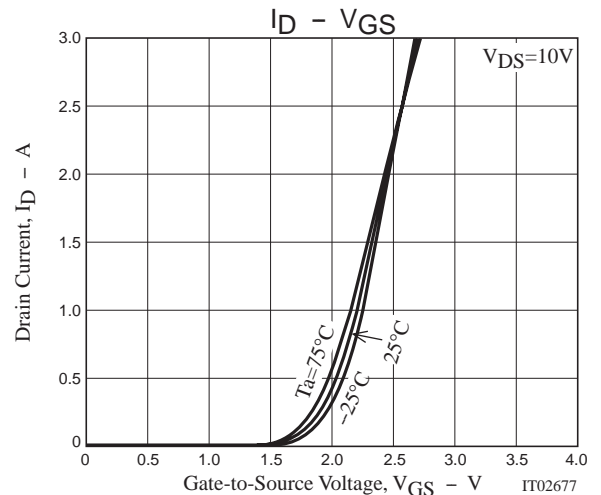
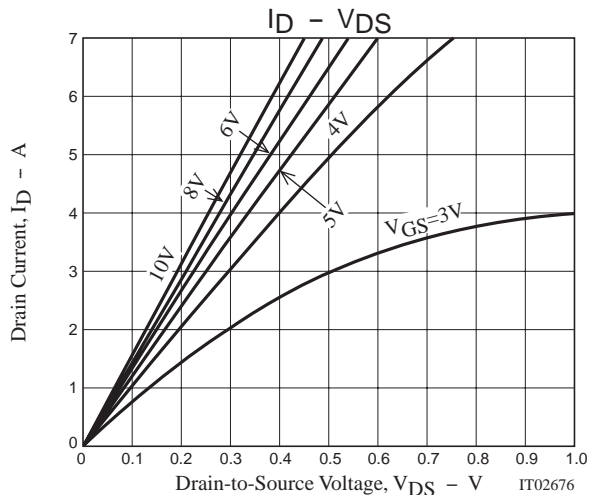
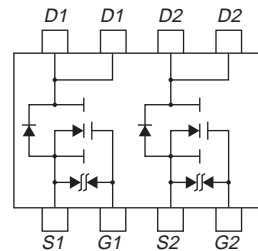
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=3.5A, V_{GS}=10V$		64	84	$m\Omega$
	$R_{DS(on)2}$	$I_D=1.8A, V_{GS}=4.5V$		105	150	$m\Omega$
Input Capacitance	$C_{iss}$	$V_{DS}=10V, f=1MHz$		180		pF
Output Capacitance	$C_{oss}$	$V_{DS}=10V, f=1MHz$		42		pF
Reverse Transfer Capacitance	$C_{rss}$	$V_{DS}=10V, f=1MHz$		25		pF
Turn-ON Delay Time	$t_d(on)$	See specified Test Circuit		7		ns
Rise Time	$t_r$	See specified Test Circuit		3		ns
Turn-OFF Delay Time	$t_d(off)$	See specified Test Circuit		20		ns
Fall Time	$t_f$	See specified Test Circuit		6		ns
Total Gate Charge	$Q_g$	$V_{DS}=10V, V_{GS}=10V, I_D=3.5A$		5.0		nC
Gate-to-Source Charge	$Q_{gs}$	$V_{DS}=10V, V_{GS}=10V, I_D=3.5A$		0.9		nC
Gate-to-Drain "Miller" Charge	$Q_{gd}$	$V_{DS}=10V, V_{GS}=10V, I_D=3.5A$		0.6		nC
Diode Forward Voltage	$V_{SD}$	$I_S=3.5A, V_{GS}=0$		0.88	1.2	V

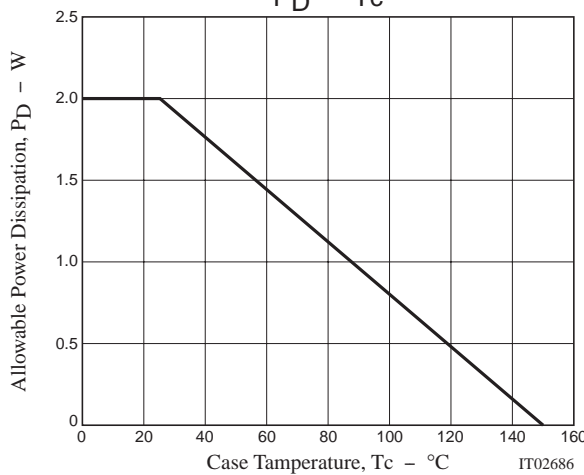
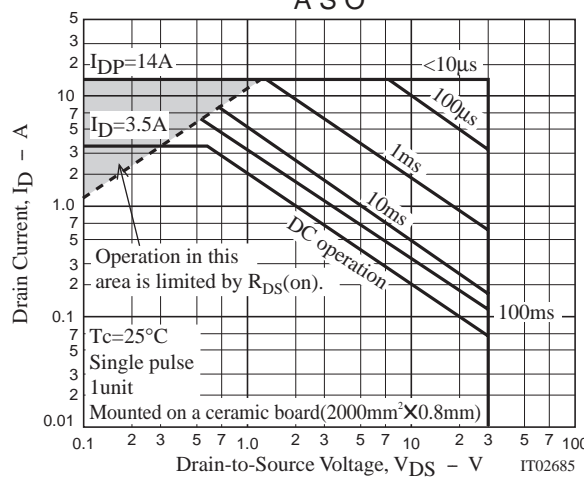
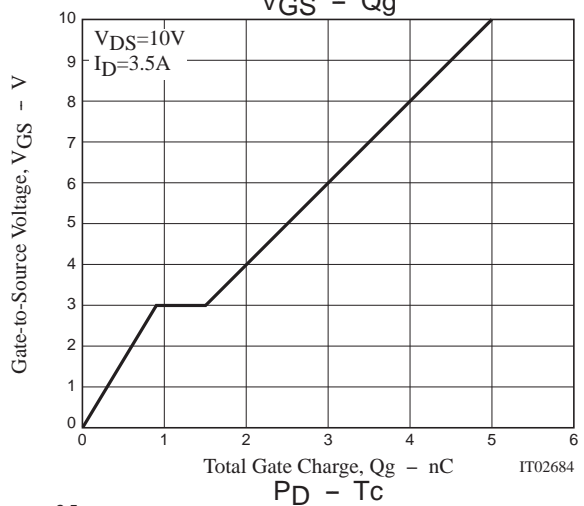
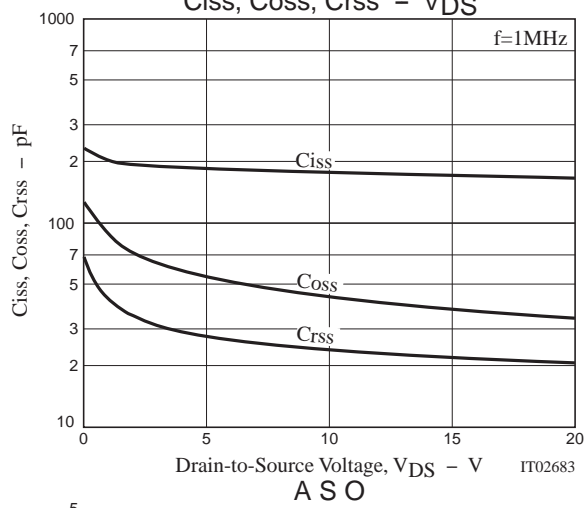
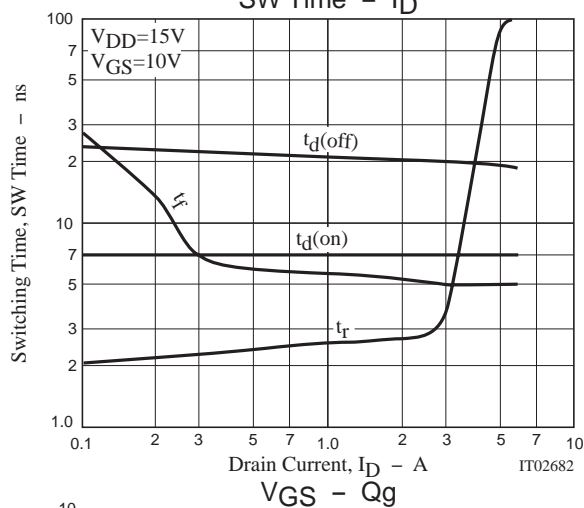
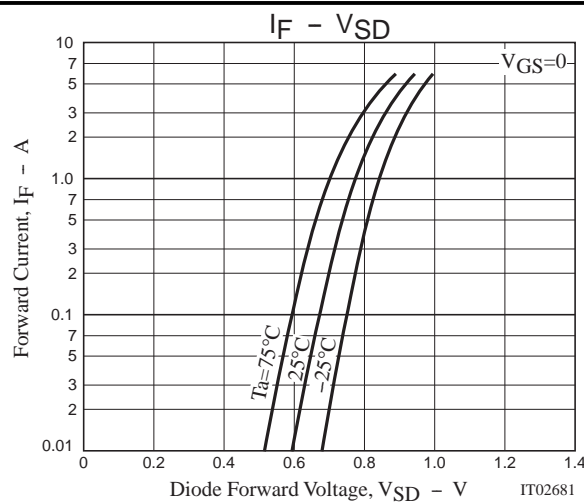
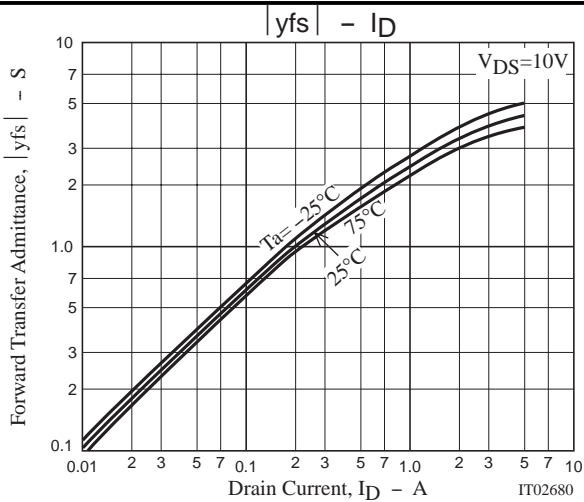
## Switching Time Test Circuit



## Electrical Connection



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