



# FW813 — N-Channel Silicon MOSFET

## General-Purpose Switching Device

### Applications

#### Features

- ON-resistance  $R_{DS(on)} = 39m\Omega$  (typ.)
- 4V drive
- Nch + Nch MOSFET

#### Specifications

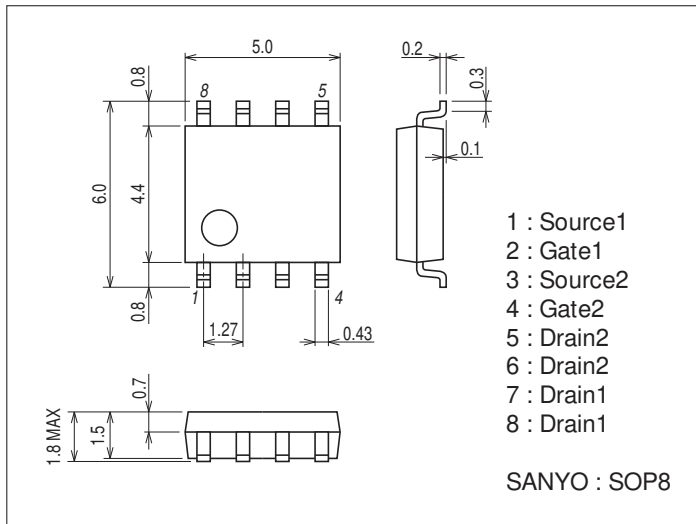
Absolute Maximum Ratings at  $T_a = 25^\circ C$

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	$V_{DSS}$		60	V
Gate-to-Source Voltage	$V_{GSS}$		$\pm 20$	V
Drain Current (DC)	$I_D$		5	A
Drain Current (Pulse)	$I_{DP}$	$PW \leq 10\mu s$ , duty cycle $\leq 1\%$	52	A
Allowable Power Dissipation	$P_D$	When mounted on ceramic substrate (2000mm <sup>2</sup> × 0.8mm) 1unit, $PW \leq 10s$	2.3	W
Total Dissipation	$P_T$	When mounted on ceramic substrate (2000mm <sup>2</sup> × 0.8mm), $PW \leq 10s$	2.5	W
Channel Temperature	$T_{ch}$		150	$^\circ C$
Storage Temperature	$T_{stg}$		-55 to +150	$^\circ C$

#### Package Dimensions

unit : mm (typ)

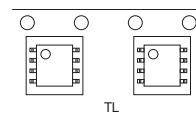
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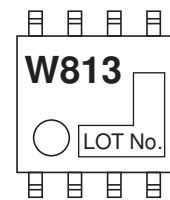
#### Product & Package Information

- Package : SOP8
- JEITA, JEDEC : SC-87, SOT96
- Minimum Packing Quantity : 1,000 pcs./reel

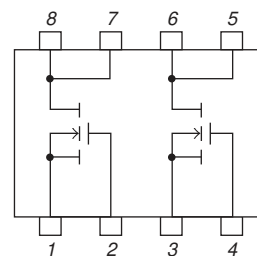
#### Packing Type : TL



#### Marking



#### Electrical Connection

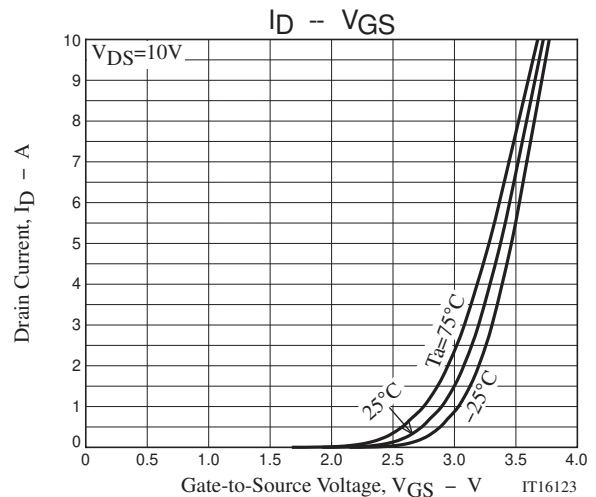
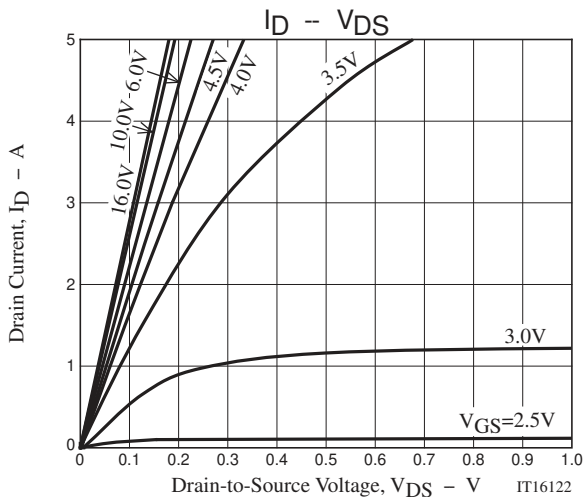
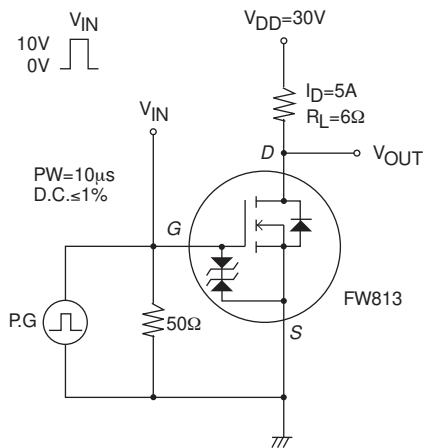


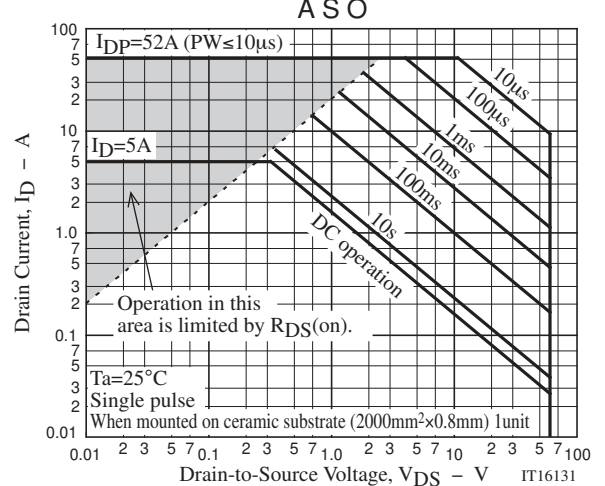
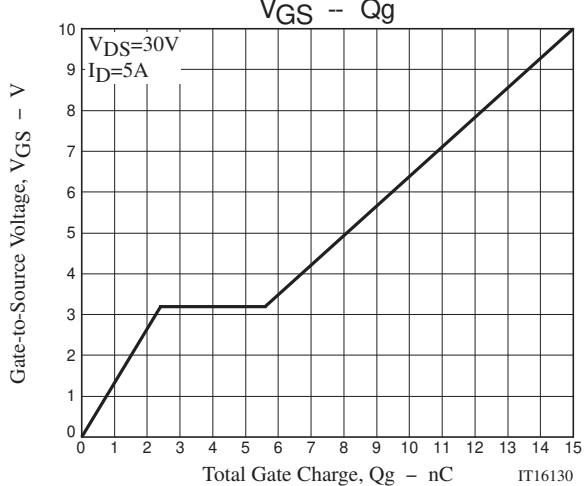
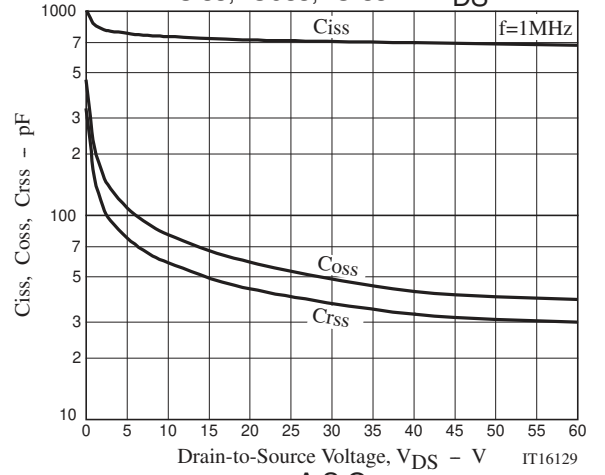
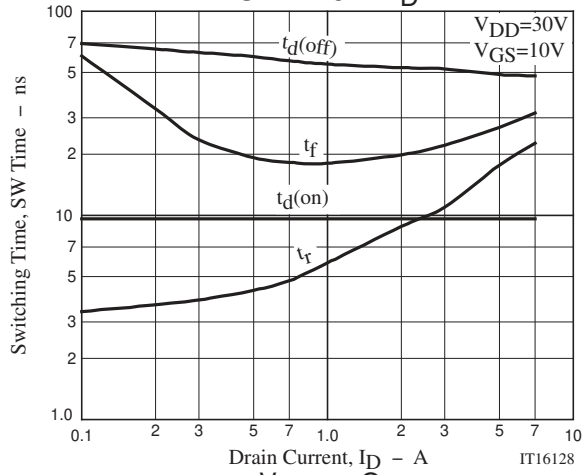
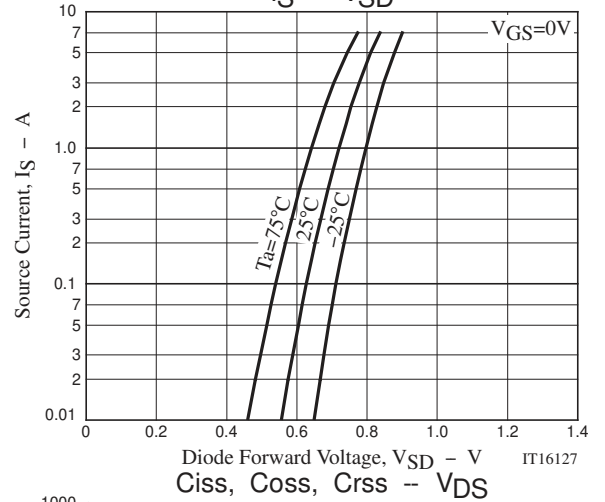
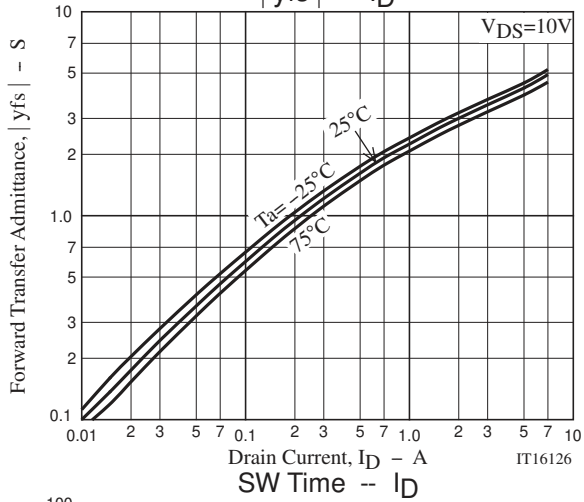
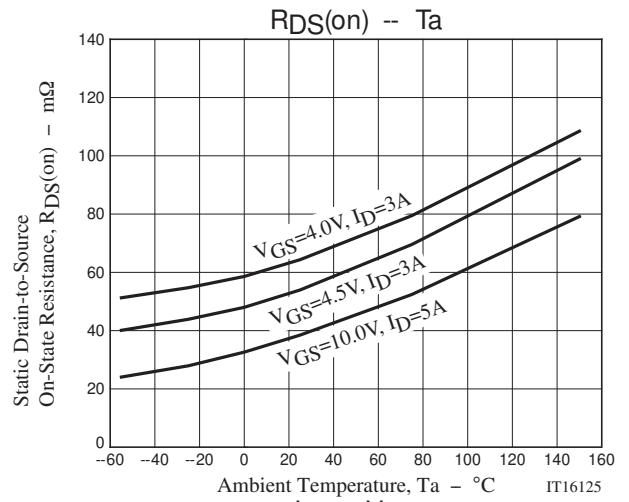
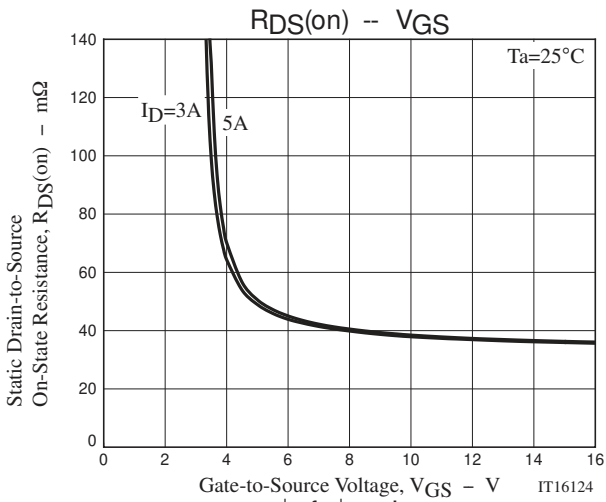
# FW813

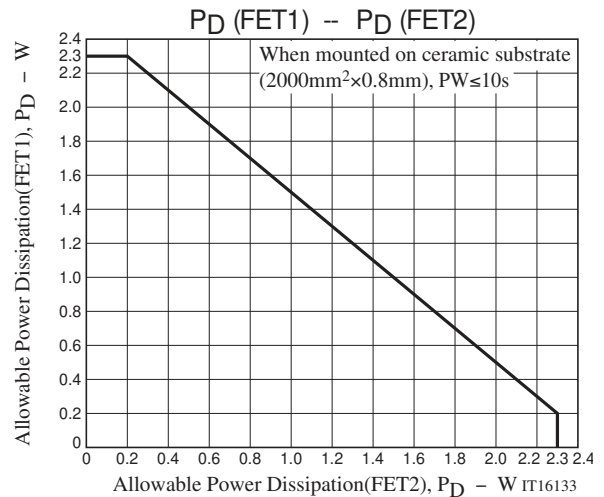
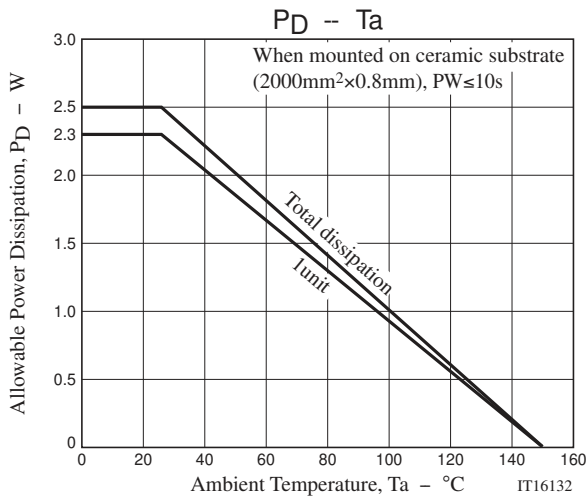
## Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=1mA, V_{GS}=0V$	60			V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=60V, V_{GS}=0V$			1	$\mu A$
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 16V, V_{DS}=0V$			$\pm 10$	$\mu A$
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=10V, I_D=1mA$	1.2		2.6	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=10V, I_D=5A$		4.2		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=5A, V_{GS}=10V$		39	49	$m\Omega$
	$R_{DS(on)2}$	$I_D=3A, V_{GS}=4.5V$		54	76	$m\Omega$
	$R_{DS(on)3}$	$I_D=3A, V_{GS}=4V$		64	90	$m\Omega$
Input Capacitance	$C_{iss}$	$V_{DS}=20V, f=1MHz$		725		pF
Output Capacitance	$C_{oss}$	$V_{DS}=20V, f=1MHz$		60		pF
Reverse Transfer Capacitance	$C_{rss}$	$V_{DS}=20V, f=1MHz$		45		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		9.6		ns
Rise Time	$t_r$	See specified Test Circuit.		18		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		49		ns
Fall Time	$t_f$	See specified Test Circuit.		27		ns
Total Gate Charge	$Q_g$	$V_{DS}=30V, V_{GS}=10V, I_D=5A$		15		nC
Gate-to-Source Charge	$Q_{gs}$	$V_{DS}=30V, V_{GS}=10V, I_D=5A$		2.4		nC
Gate-to-Drain "Miller" Charge	$Q_{gd}$	$V_{DS}=30V, V_{GS}=10V, I_D=5A$		3.2		nC
Diode Forward Voltage	$V_{SD}$	$I_S=5A, V_{GS}=0V$		0.81	1.2	V

### Switching Time Test Circuit







Note on usage : Since the FW813 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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