



SANYO Semiconductors

DATA SHEET

N-Channel Silicon MOSFET

FW813 — General-Purpose Switching Device

Applications

Features

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

Specifications

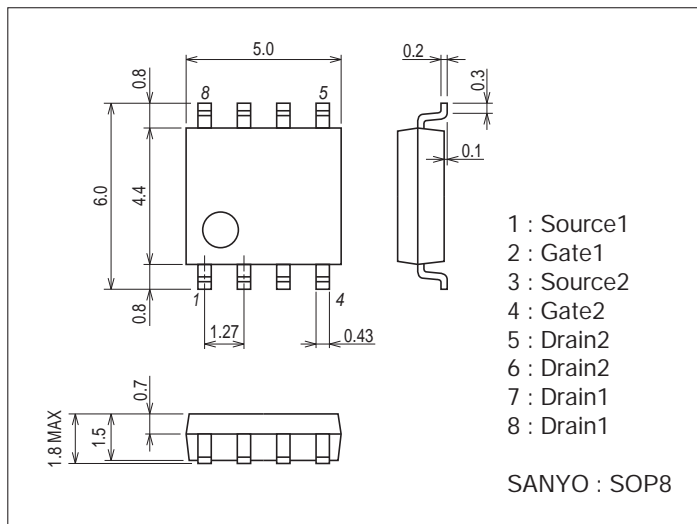
Absolute Maximum Ratings at $T_a = 25^\circ\text{C}$

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

Package Dimensions

unit : mm (typ)

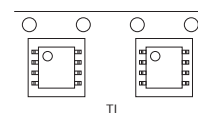
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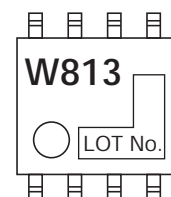
Product & Package Information

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

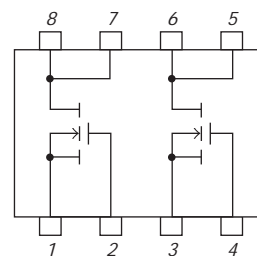
Packing Type : TL



Marking



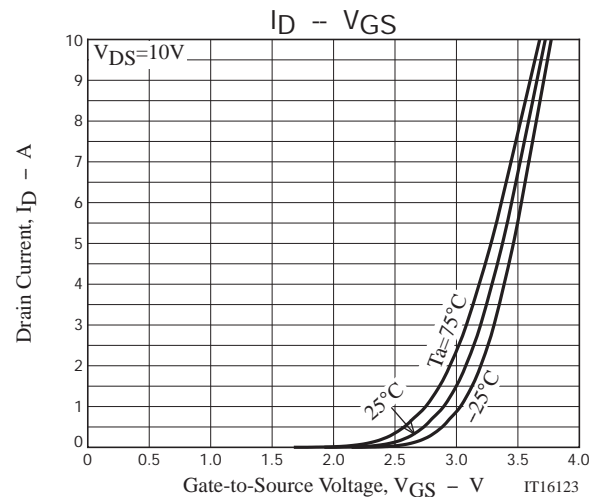
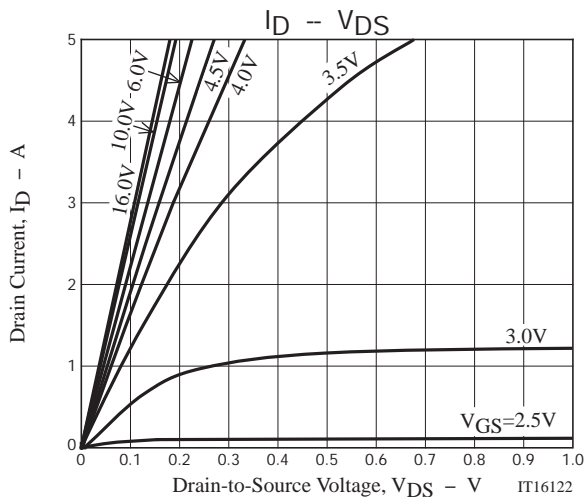
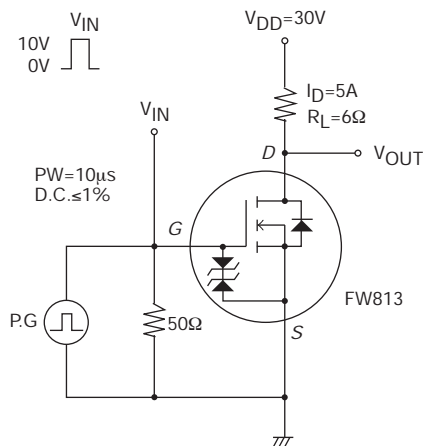
Electrical Connection

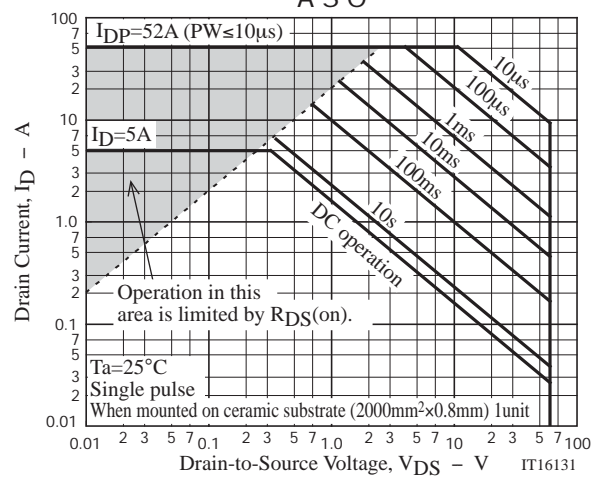
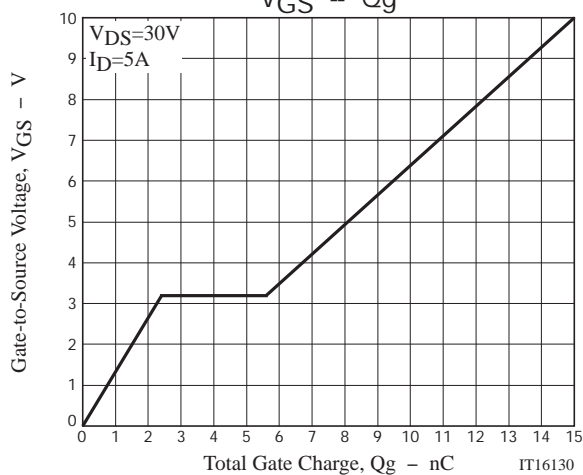
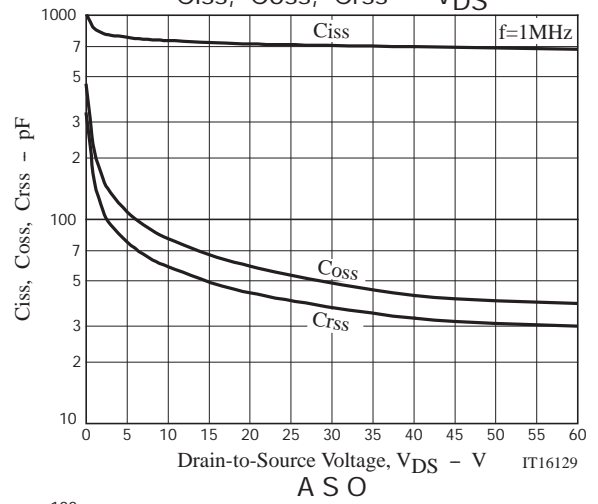
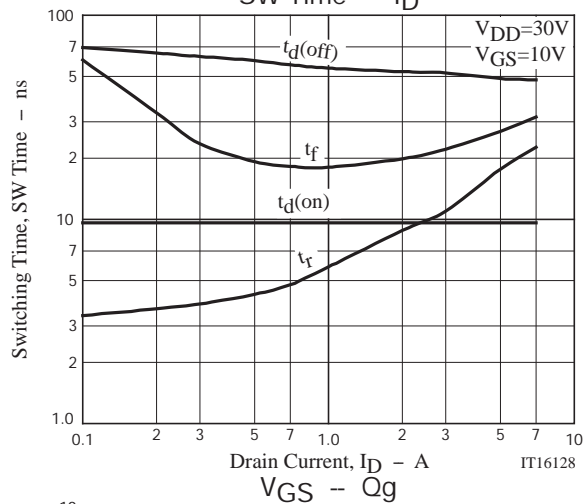
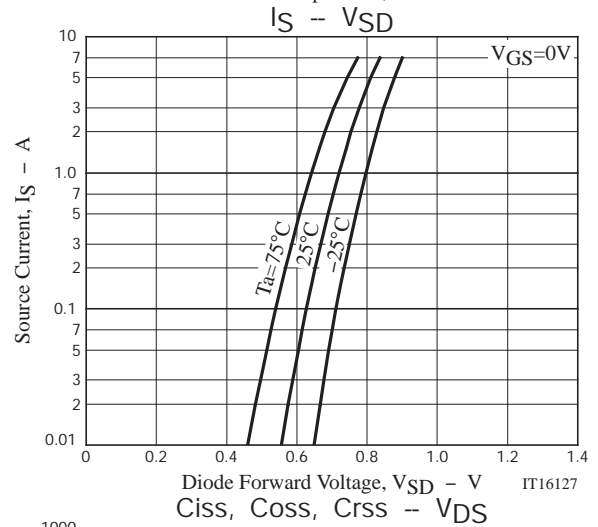
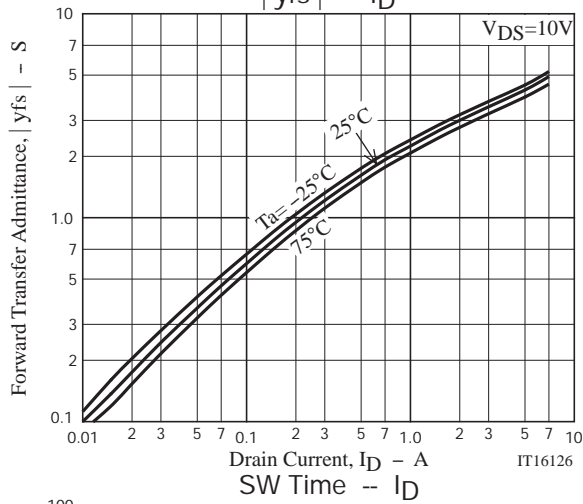
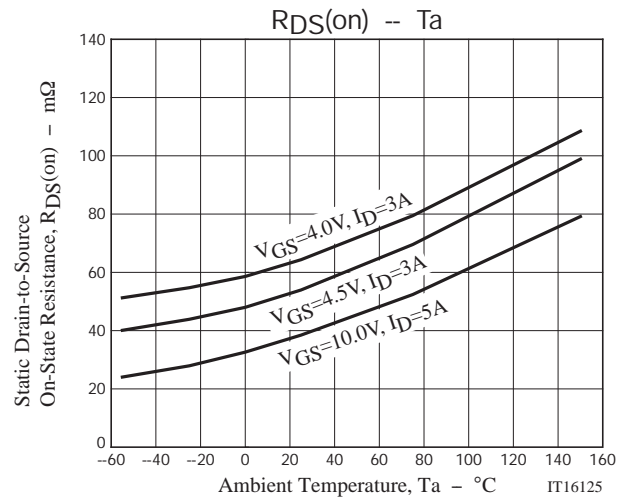
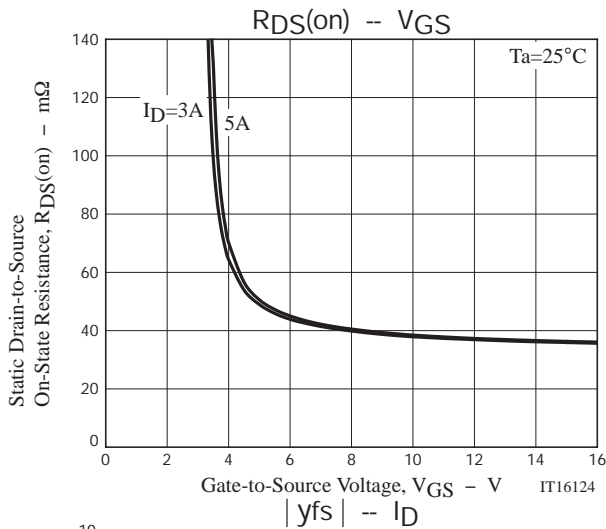


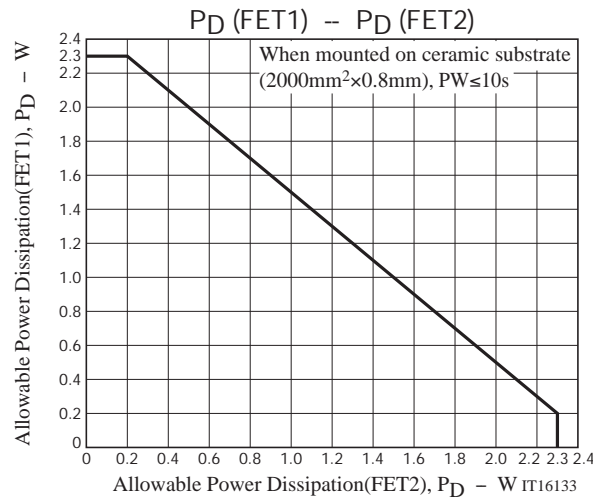
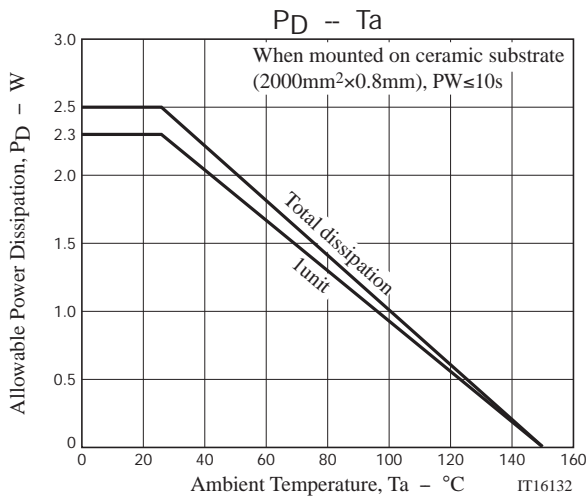
Electrical Characteristics at $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=1\text{mA}$, $V_{GS}=0\text{V}$	60			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=60\text{V}$, $V_{GS}=0\text{V}$			1	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 16\text{V}$, $V_{DS}=0\text{V}$			± 10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=10\text{V}$, $I_D=1\text{mA}$	1.2		2.6	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=10\text{V}$, $I_D=5\text{A}$		4.2		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=5\text{A}$, $V_{GS}=10\text{V}$		39	49	$\text{m}\Omega$
	$R_{DS(on)2}$	$I_D=3\text{A}$, $V_{GS}=4.5\text{V}$		54	76	$\text{m}\Omega$
	$R_{DS(on)3}$	$I_D=3\text{A}$, $V_{GS}=4\text{V}$		64	90	$\text{m}\Omega$
Input Capacitance	C_{iss}	$V_{DS}=20\text{V}$, $f=1\text{MHz}$		725		pF
Output Capacitance	C_{oss}	$V_{DS}=20\text{V}$, $f=1\text{MHz}$		60		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS}=20\text{V}$, $f=1\text{MHz}$		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	$V_{DS}=30\text{V}$, $V_{GS}=10\text{V}$, $I_D=5\text{A}$		15		nC
Gate-to-Source Charge	Q_{gs}	$V_{DS}=30\text{V}$, $V_{GS}=10\text{V}$, $I_D=5\text{A}$		2.4		nC
Gate-to-Drain "Miller" Charge	Q_{gd}	$V_{DS}=30\text{V}$, $V_{GS}=10\text{V}$, $I_D=5\text{A}$		3.2		nC
Diode Forward Voltage	V_{SD}	$I_S=5\text{A}$, $V_{GS}=0\text{V}$		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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