



SANYO Semiconductors

# DATA SHEET

An ON Semiconductor Company

## MCH3477 — N-Channel Silicon MOSFET General-Purpose Switching Device Applications

### Features

- Ultrahigh-speed switching.
- 1.8V drive.

### Specifications

**Absolute Maximum Ratings** at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V <sub>DSS</sub>		20	V
Gate-to-Source Voltage	V <sub>GSS</sub>		±12	V
Drain Current (DC)	I <sub>D</sub>		4.5	A
Drain Current (Pulse)	I <sub>DP</sub>	PW≤10μs, duty cycle≤1%	18	A
Allowable Power Dissipation	P <sub>D</sub>	When mounted on ceramic substrate (900mm <sup>2</sup> ×0.8mm)	1.0	W
Channel Temperature	T <sub>ch</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-55 to +150	°C

**Electrical Characteristics** at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	I <sub>D</sub> =1mA, V <sub>GS</sub> =0V	20			V
Zero-Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =20V, V <sub>GS</sub> =0V			1	μA
Gate-to-Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±8V, V <sub>DS</sub> =0V			±10	μA
Cutoff Voltage	V <sub>GS(off)</sub>	V <sub>DS</sub> =10V, I <sub>D</sub> =1mA	0.4		1.3	V
Forward Transfer Admittance	y <sub>fs</sub>	V <sub>DS</sub> =10V, I <sub>D</sub> =2A	2.0	3.4		S
Static Drain-to-Source On-State Resistance	R <sub>DS(on)1</sub>	I <sub>D</sub> =2A, V <sub>GS</sub> =4.5V		29	38	mΩ
	R <sub>DS(on)2</sub>	I <sub>D</sub> =1A, V <sub>GS</sub> =2.5V		43	61	mΩ
	R <sub>DS(on)3</sub>	I <sub>D</sub> =0.5A, V <sub>GS</sub> =1.8V		69	99	mΩ
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =10V, f=1MHz		410		pF
Output Capacitance	C <sub>oss</sub>	V <sub>DS</sub> =10V, f=1MHz		84		pF
Reverse Transfer Capacitance	C <sub>rss</sub>	V <sub>DS</sub> =10V, f=1MHz		59		pF

Marking : FJ

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# MCH3477

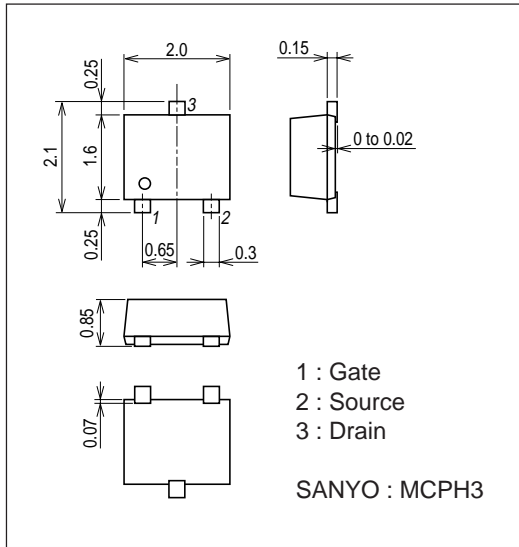
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		7.5		ns
Rise Time	$t_r$	See specified Test Circuit.		26		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		38		ns
Fall Time	$t_f$	See specified Test Circuit.		32		ns
Total Gate Charge	$Q_g$	$V_{DS}=10V, V_{GS}=4.5V, I_D=4.5A$		5.1		nC
Gate-to-Source Charge	$Q_{gs}$	$V_{DS}=10V, V_{GS}=4.5V, I_D=4.5A$		0.7		nC
Gate-to-Drain "Miller" Charge	$Q_{gd}$	$V_{DS}=10V, V_{GS}=4.5V, I_D=4.5A$		1.7		nC
Diode Forward Voltage	$V_{SD}$	$I_S=4.5A, V_{GS}=0V$		0.78	1.2	V

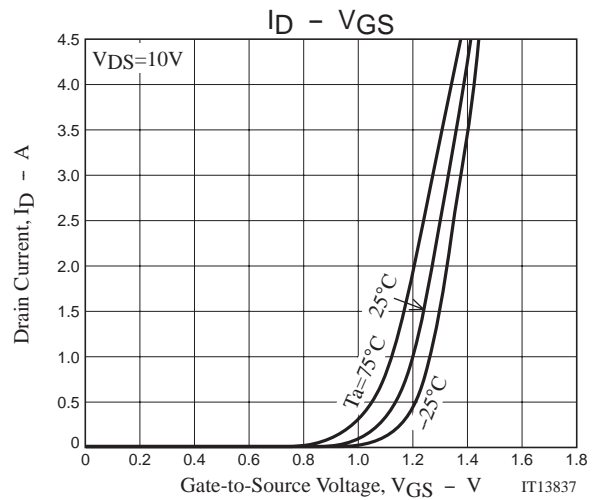
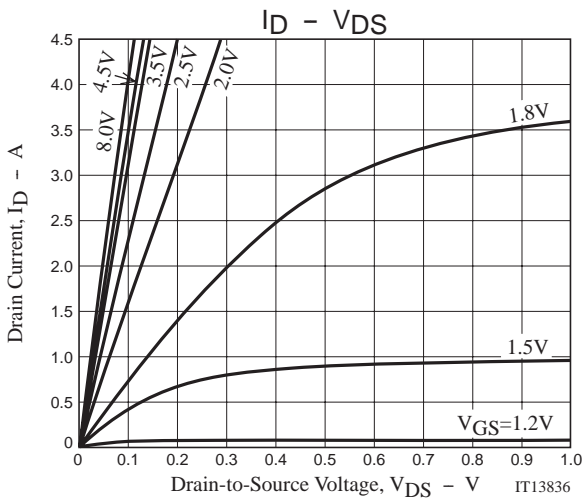
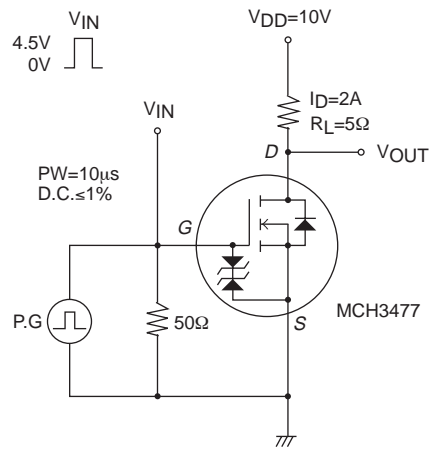
## Package Dimensions

unit : mm (typ)

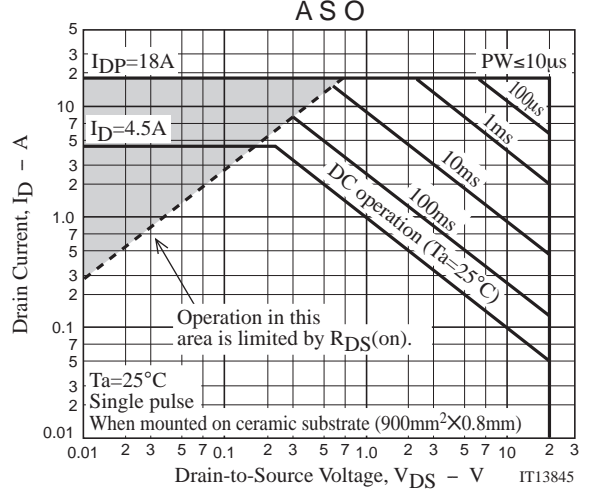
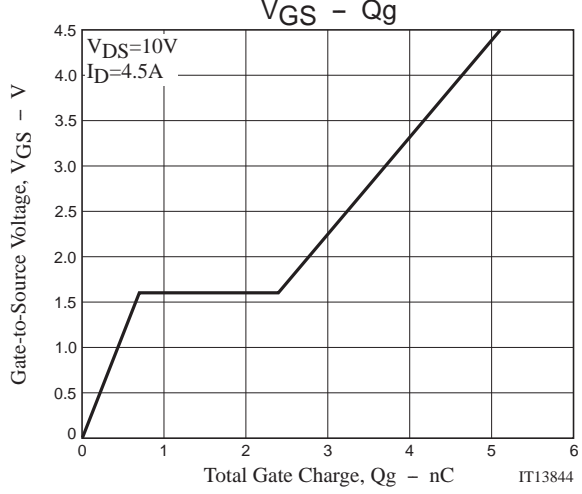
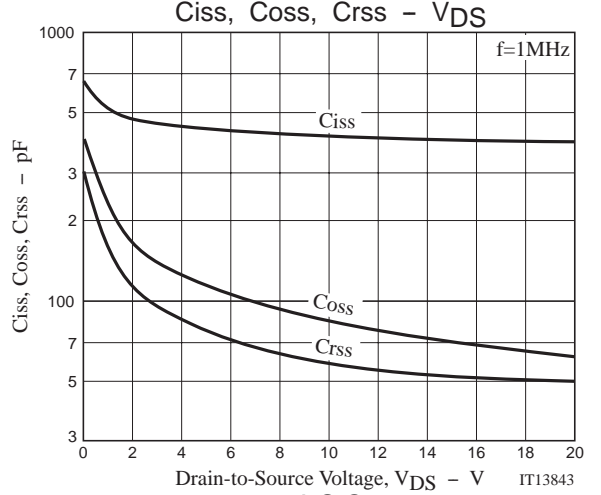
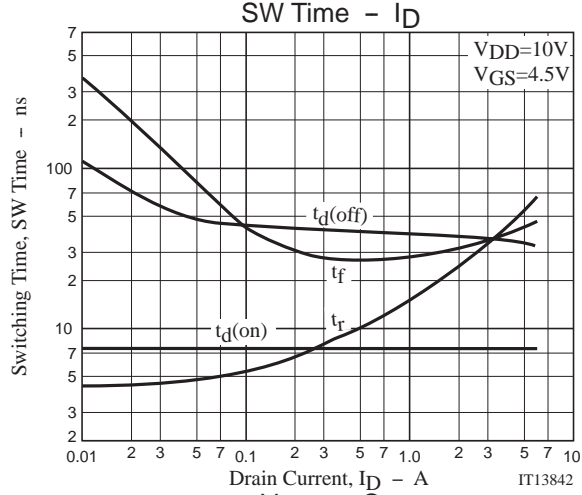
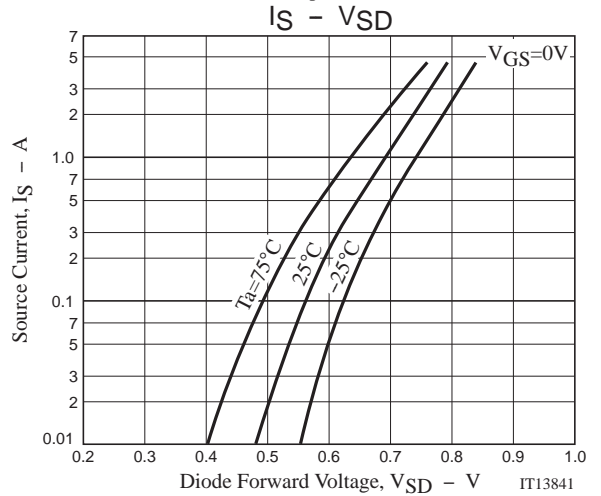
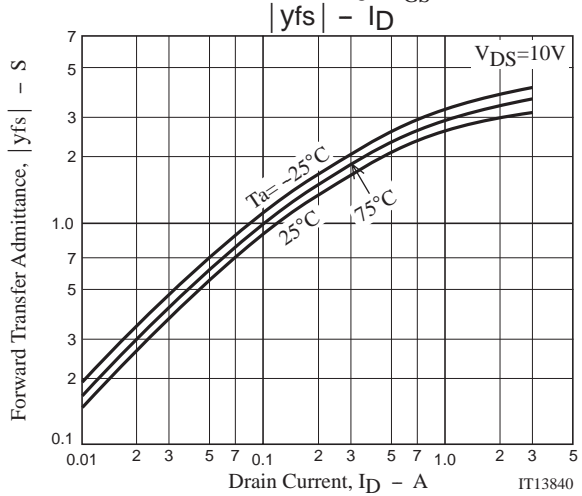
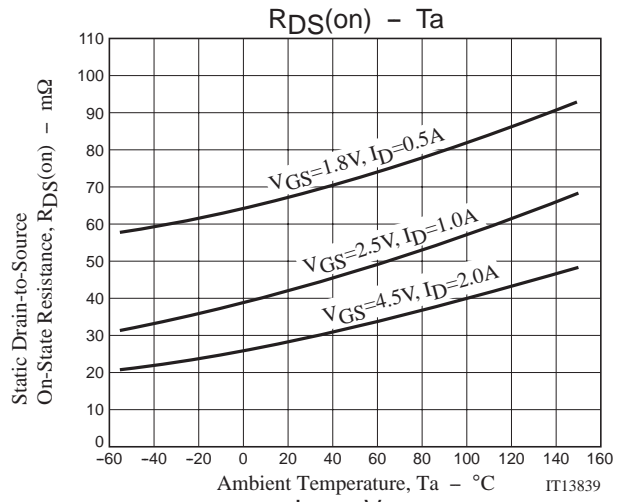
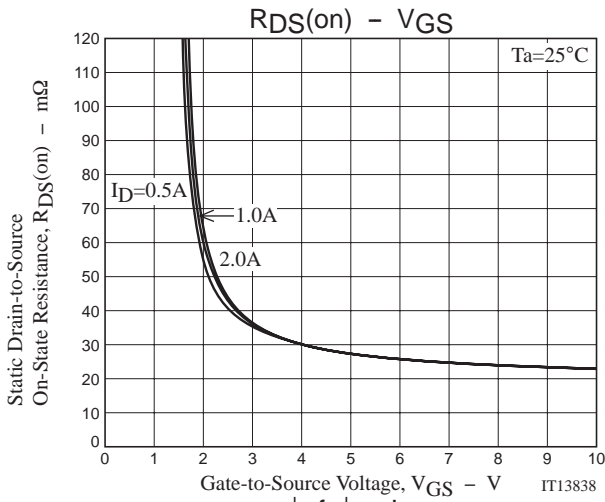
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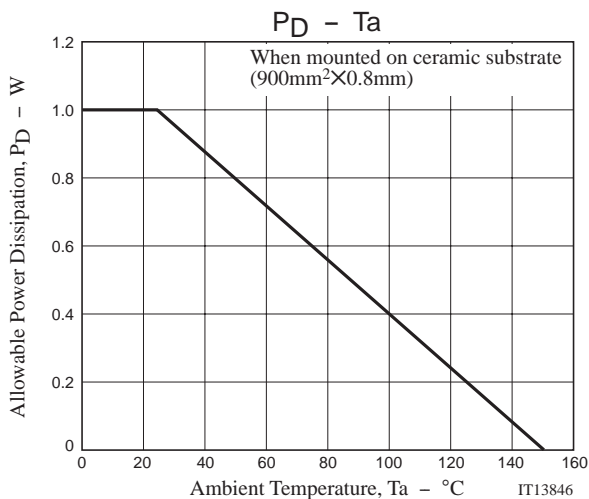


## Switching Time Test Circuit



# MCH3477





Note on usage : Since the MCH3477 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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