



SANYO Semiconductors

## DATA SHEET

# MCH6610

N-Channel Silicon MOSFET

## General-Purpose Switching Device Applications

### Features

- Low ON-resistance.
- Ultrahigh-speed switching.
- 1.5V drive.
- Composite type with 2 MOSFETs contained in a single package, facilitating high-density mounting.

### Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V <sub>DSS</sub>		50	V
Gate-to-Source Voltage	V <sub>GSS</sub>		±10	V
Drain Current (DC)	I <sub>D</sub>		0.45	A
Drain Current (Pulse)	I <sub>DP</sub>	PW≤10μs, duty cycle≤1%	1.8	A
Allowable Power Dissipation	P <sub>D</sub>	Mounted on a ceramic board (900mm <sup>2</sup> ×0.8mm) 1unit	0.8	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	50			V
Zero-Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =50V, 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> =100μA	0.4		1.3	V
Forward Transfer Admittance	y <sub>fs</sub>	V <sub>DS</sub> =10V, I <sub>D</sub> =100mA	340	490		mS
Static Drain-to-Source On-State Resistance	R <sub>DS(on)1</sub>	I <sub>D</sub> =100mA, V <sub>GS</sub> =4V		1.9	2.4	Ω
	R <sub>DS(on)2</sub>	I <sub>D</sub> =50mA, V <sub>GS</sub> =2.5V		2.2	3.0	Ω
	R <sub>DS(on)3</sub>	I <sub>D</sub> =10mA, V <sub>GS</sub> =1.5V		3.2	6.4	Ω
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =10V, f=1MHz		25		pF
Output Capacitance	C <sub>oss</sub>	V <sub>DS</sub> =10V, f=1MHz		12		pF
Reverse Transfer Capacitance	C <sub>rss</sub>	V <sub>DS</sub> =10V, f=1MHz		4.5		pF

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**SANYO Semiconductor Co., Ltd.**

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# MCH6610

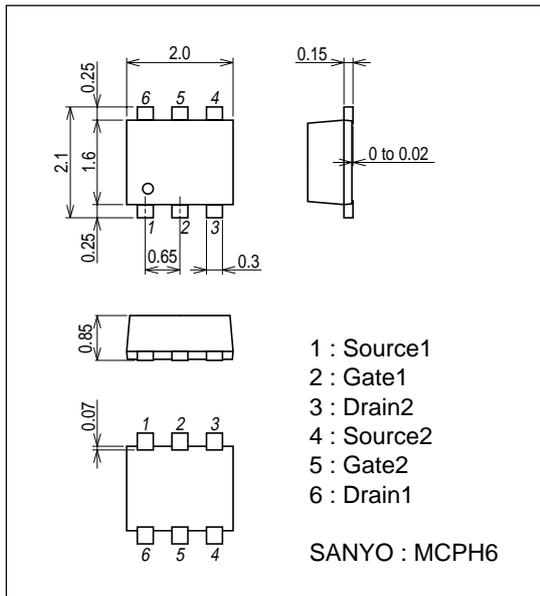
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		25		ns
Rise Time	$t_r$	See specified Test Circuit.		75		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		350		ns
Fall Time	$t_f$	See specified Test Circuit.		170		ns
Total Gate Charge	$Q_g$	$V_{DS}=10V, V_{GS}=10V, I_D=200mA$		2.18		nC
Gate-to-Source Charge	$Q_{gs}$	$V_{DS}=10V, V_{GS}=10V, I_D=200mA$		0.28		nC
Gate-to-Drain "Miller" Charge	$Q_{gd}$	$V_{DS}=10V, V_{GS}=10V, I_D=200mA$		0.45		nC
Diode Forward Voltage	$V_{SD}$	$I_S=200mA, V_{GS}=0V$		0.83	1.2	V

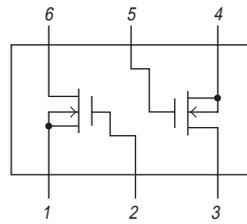
## Package Dimensions

unit : mm

7022A-006



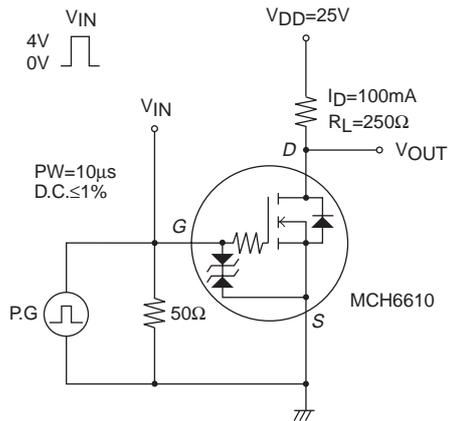
## Electrical Connection



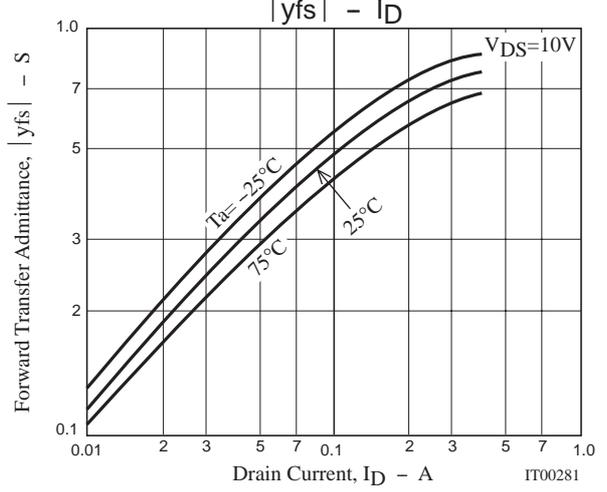
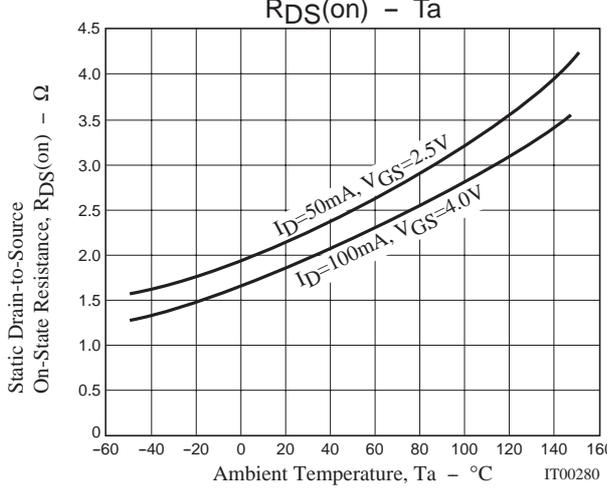
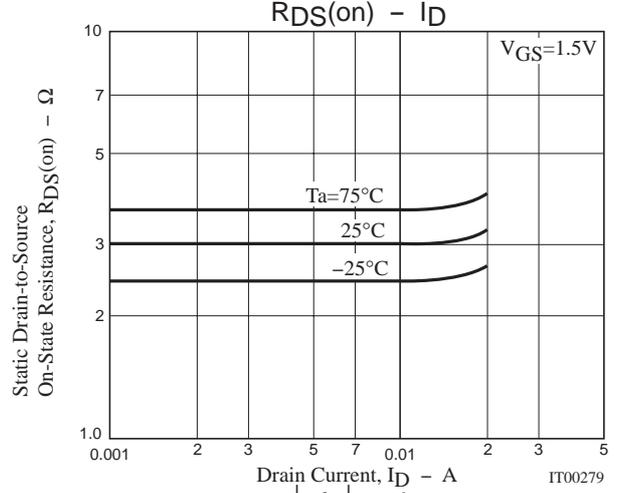
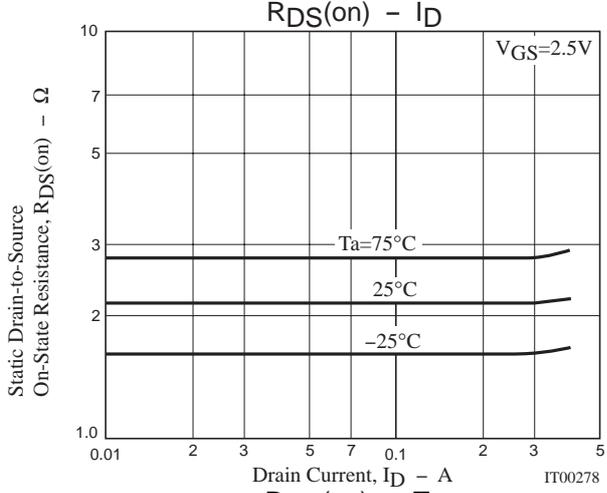
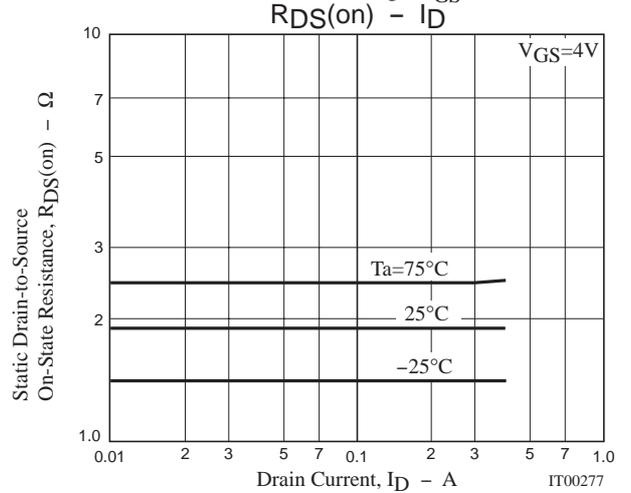
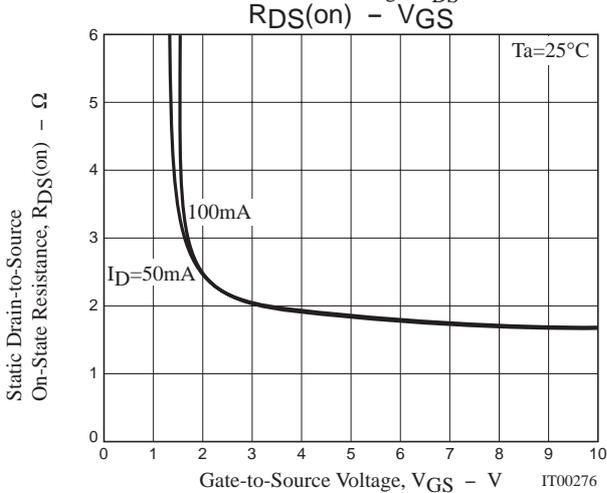
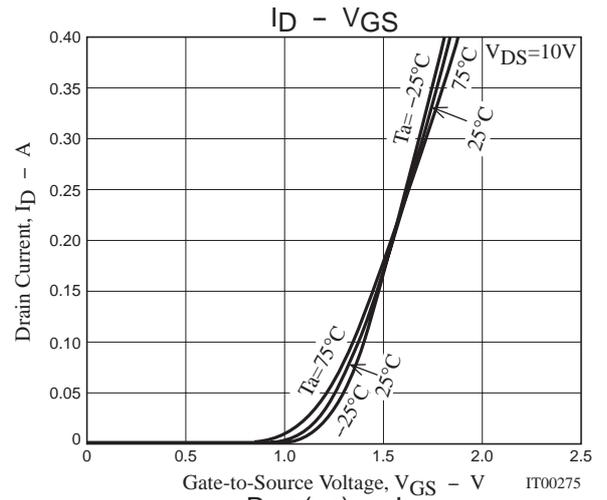
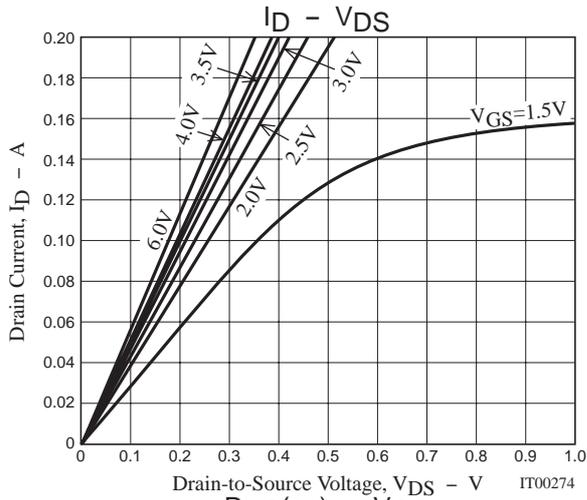
- 1 : Source1
- 2 : Gate1
- 3 : Drain2
- 4 : Source2
- 5 : Gate2
- 6 : Drain1

Top View

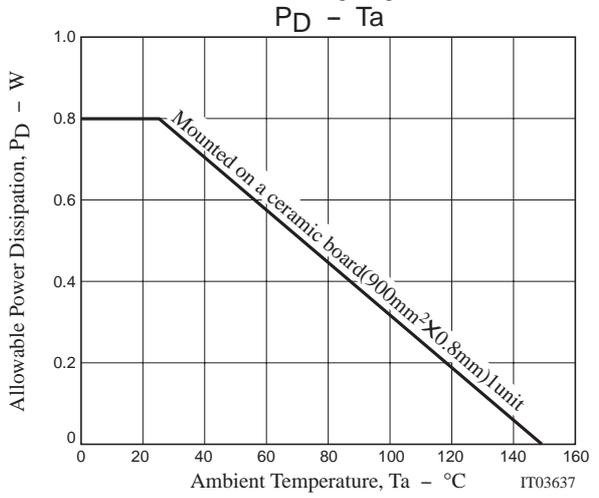
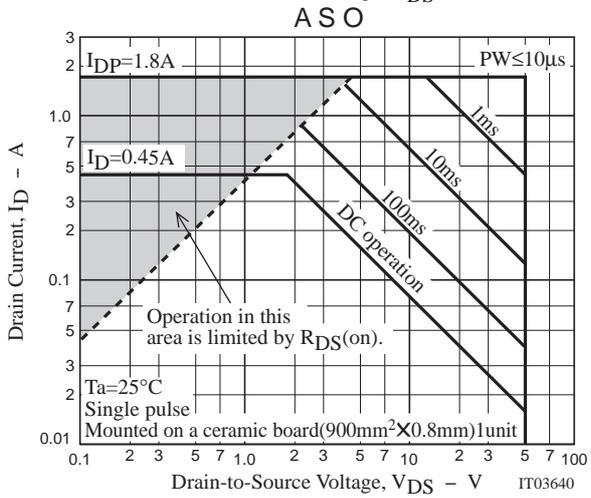
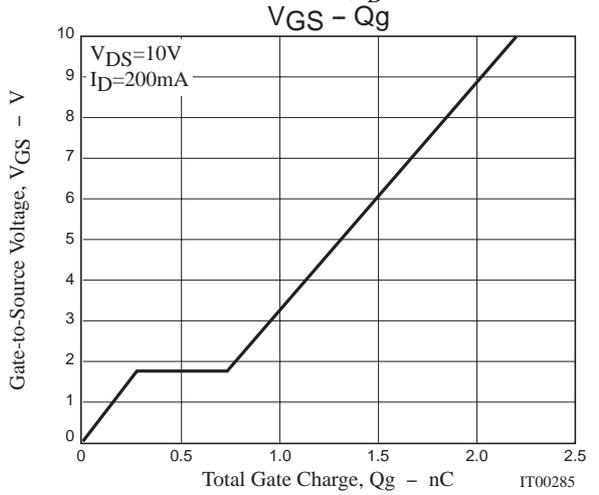
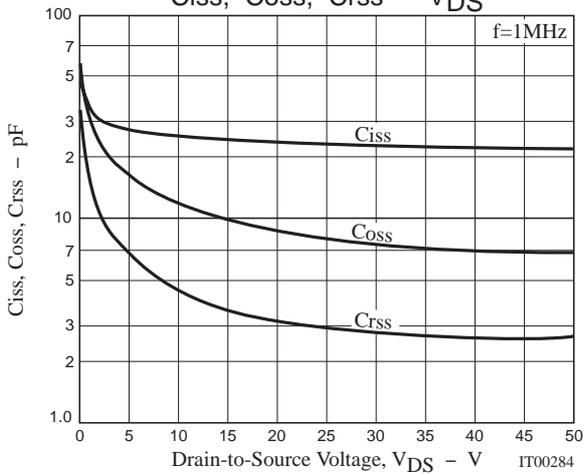
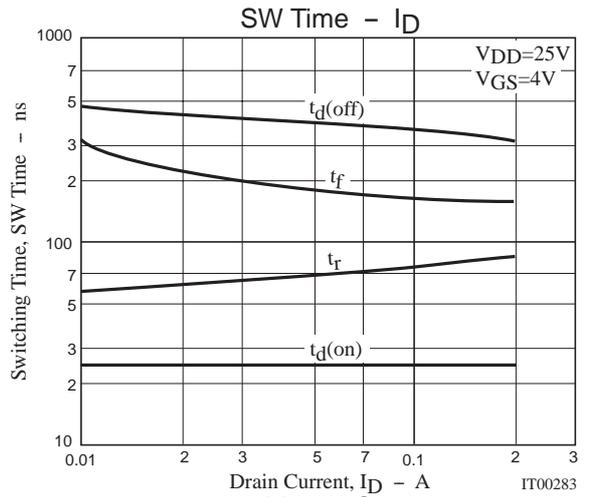
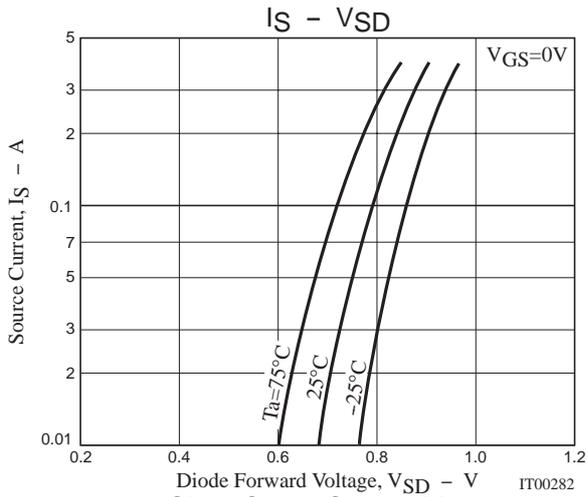
## Switching Time Test Circuit



# MCH6610



# MCH6610



Note on usage : Since the MCH6610 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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