



# MCH6610

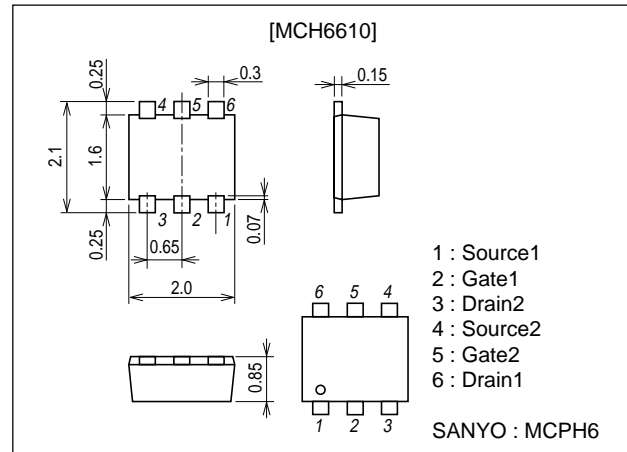
## Ultrahigh-Speed Switching Applications

### Features

- Low ON-resistance.
- Ultrahigh-speed switching.
- 2.5V drive.
- Composite type with 2 MOSFETs contained in a single package, facilitating high-density mounting.

### Package Dimensions

unit : mm  
2173A



### Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	$V_{DSS}$		50	V
Gate-to-Source Voltage	$V_{GSS}$		$\pm 10$	V
Drain Current (DC)	$I_D$		0.45	A
Drain Current (Pulse)	$I_{DP}$	$PW \leq 10\mu\text{s}$ , duty cycle $\leq 1\%$	1.8	A
Allowable Power Dissipation	$P_D$	Mounted on a ceramic board (900mm <sup>2</sup> X0.8mm)1unit	0.8	W
Channel Temperature	$T_{ch}$		150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$		-55 to +150	$^\circ\text{C}$

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

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=1\text{mA}$ , $V_{GS}=0$	50			V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=50\text{V}$ , $V_{GS}=0$			10	$\mu\text{A}$
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 8\text{V}$ , $V_{DS}=0$			$\pm 10$	$\mu\text{A}$
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=10\text{V}$ , $I_D=100\mu\text{A}$	0.4		1.3	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=10\text{V}$ , $I_D=100\text{mA}$	340	490		mS
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=100\text{mA}$ , $V_{GS}=4\text{V}$		1.9	2.4	$\Omega$
	$R_{DS(on)2}$	$I_D=50\text{mA}$ , $V_{GS}=2.5\text{V}$		2.2	3	$\Omega$
	$R_{DS(on)3}$	$I_D=10\text{mA}$ , $V_{GS}=1.5\text{V}$		3.2	6.4	$\Omega$

Marking : FJ

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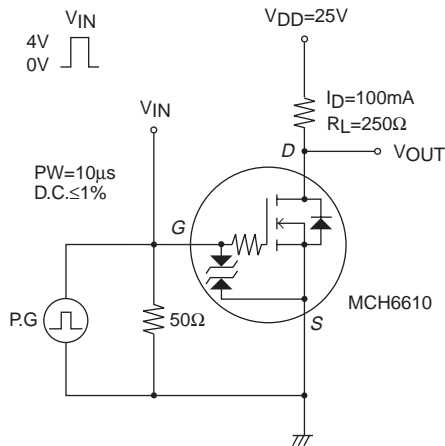
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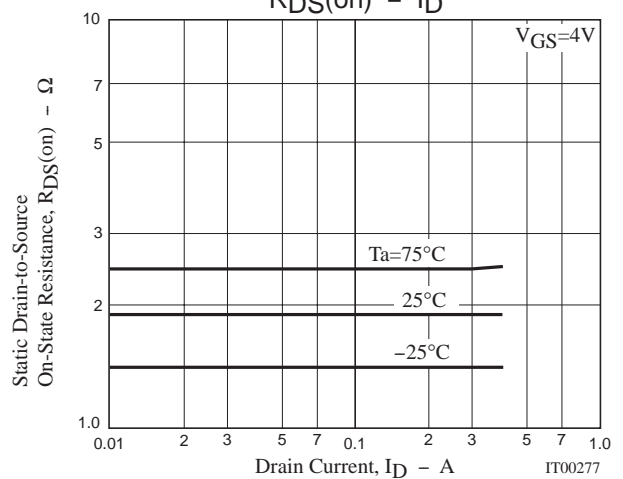
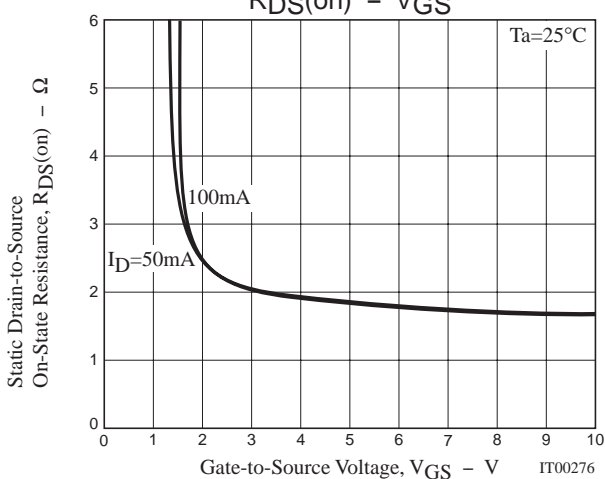
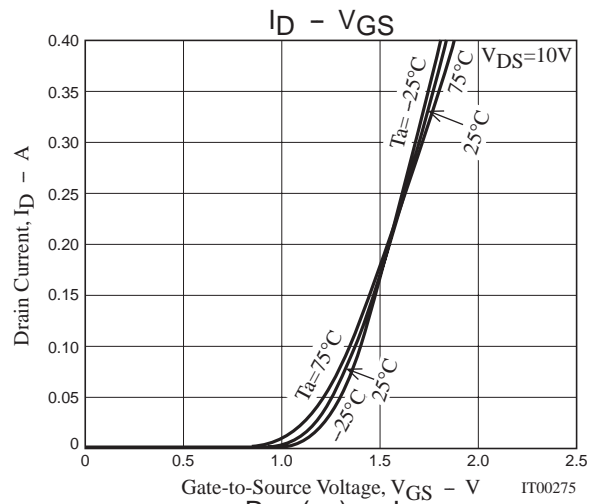
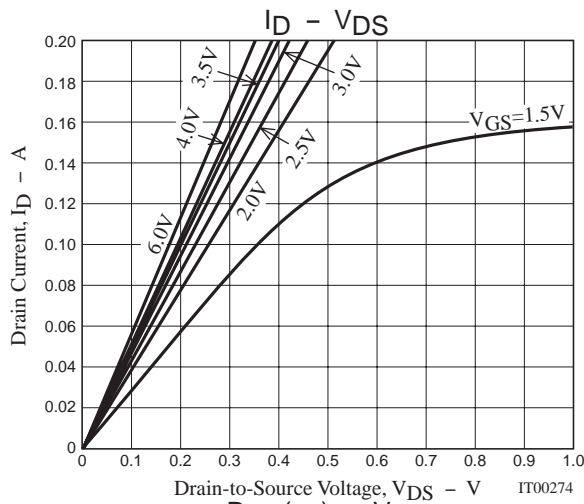
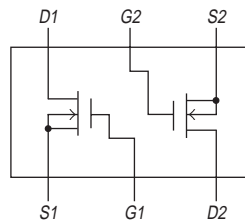
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	V <sub>DS</sub> =10V, f=1MHz		25		pF
Output Capacitance	Coss	V <sub>DS</sub> =10V, f=1MHz		12		pF
Reverse Transfer Capacitance	Crss	V <sub>DS</sub> =10V, f=1MHz		4.5		pF
Turn-ON Delay Time	t <sub>d(on)</sub>	See specified Test Circuit.		25		ns
Rise Time	t <sub>r</sub>	See specified Test Circuit.		75		ns
Turn-OFF Delay Time	t <sub>d(off)</sub>	See specified Test Circuit.		350		ns
Fall Time	t <sub>f</sub>	See specified Test Circuit.		170		ns
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =10V, V <sub>GS</sub> =10V, I <sub>D</sub> =200mA		2.18		nC
Gate-to-Source Charge	Q <sub>gs</sub>	V <sub>DS</sub> =10V, V <sub>GS</sub> =10V, I <sub>D</sub> =200mA		0.28		nC
Gate-to-Drain "Miller" Charge	Q <sub>gd</sub>	V <sub>DS</sub> =10V, V <sub>GS</sub> =10V, I <sub>D</sub> =200mA		0.45		nC
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =200mA, V <sub>GS</sub> =0		0.83	1.2	V

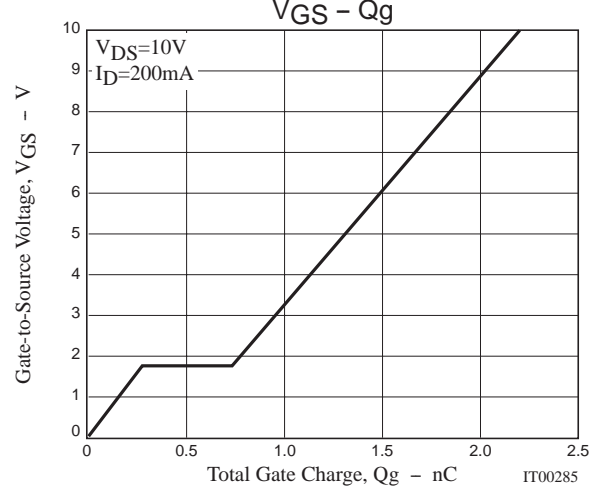
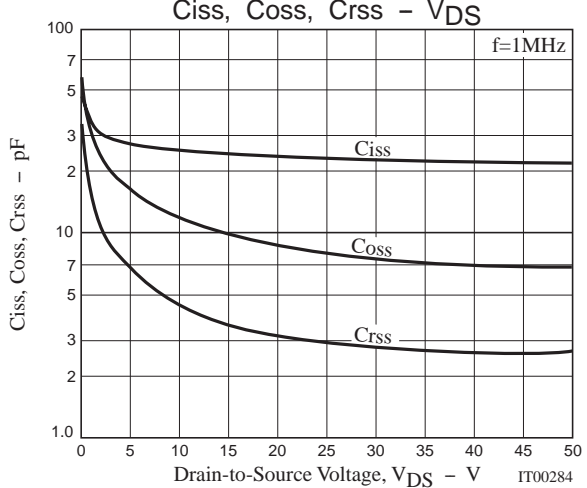
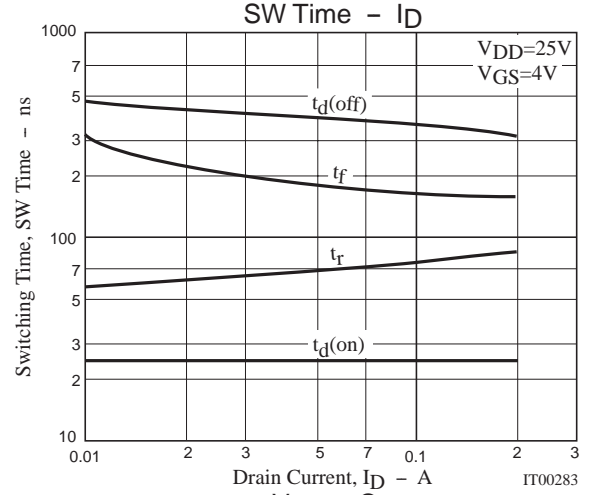
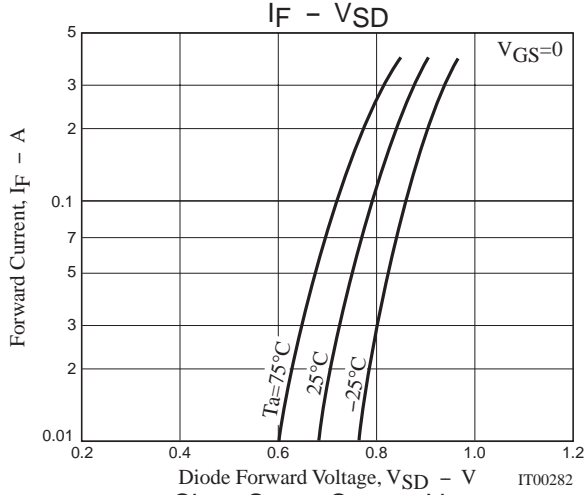
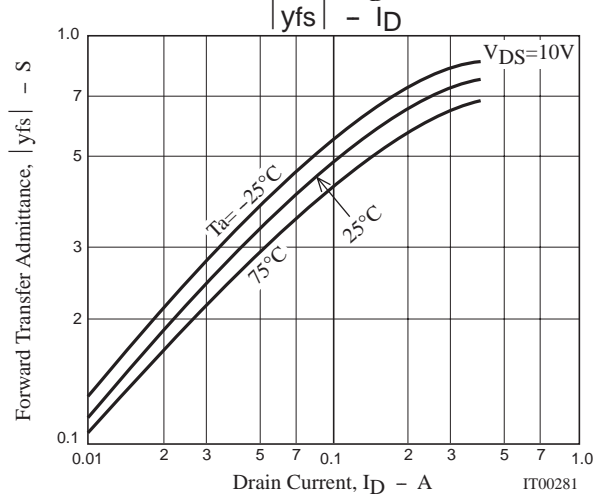
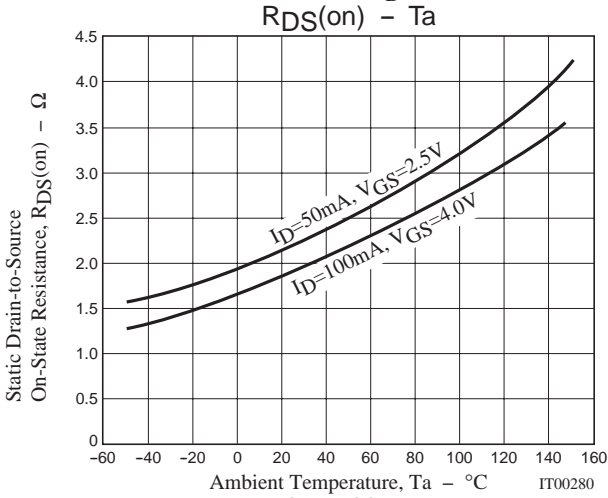
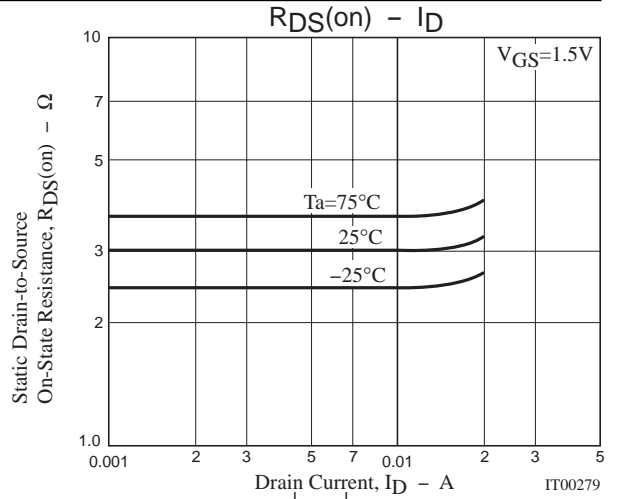
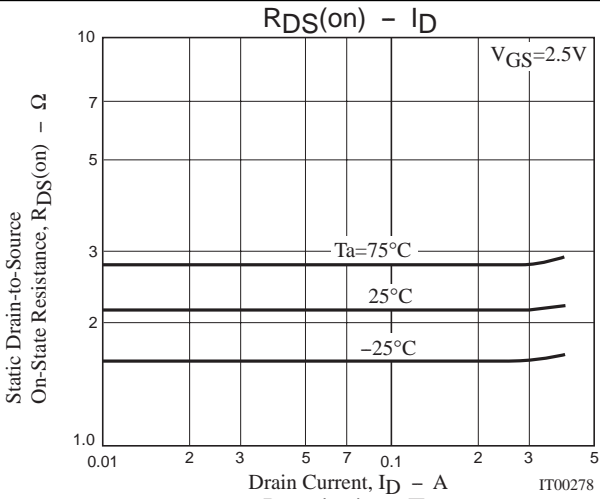
## Switching Time Test Circuit



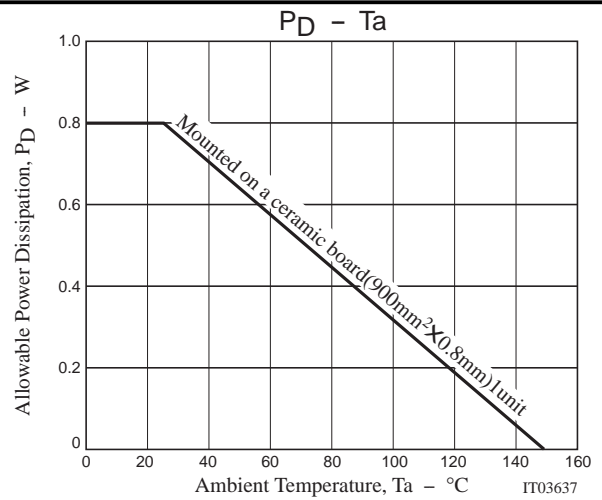
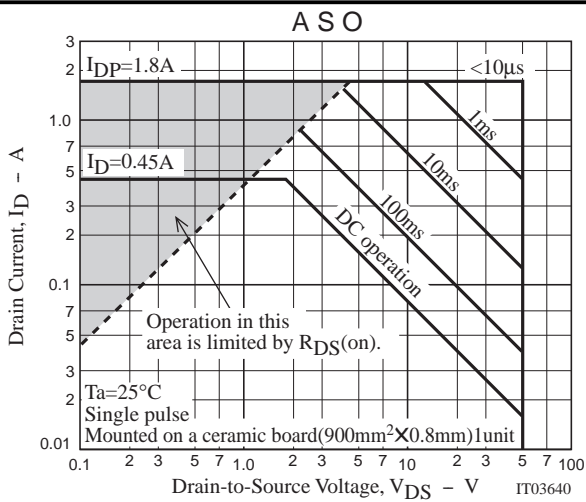
## Electrical Connection



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Note on usage : Since the MCH6610 is designed for high-speed switching applications, please avoid using this device in the vicinity of highly charged objects.

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