



## Ultrahigh-Speed Switching Applications

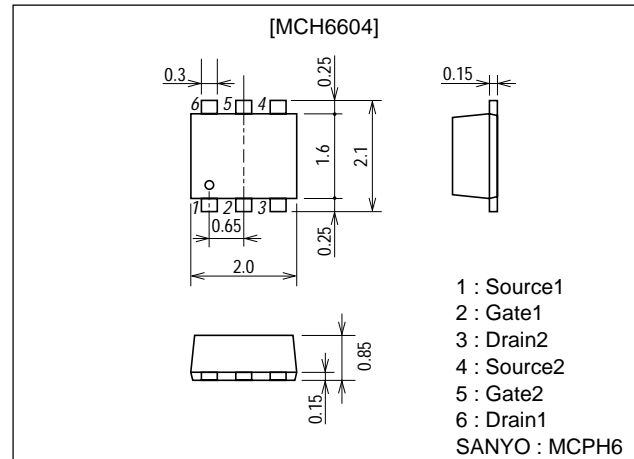
### Features

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

### Package Dimensions

unit:mm

2173



### Specifications

#### Absolute Maximum Ratings at Ta = 25°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)	$I_D$		0.25	A
Drain Current (pulse)	$I_{DP}$	$PW \leq 10\mu s$ , duty cycle $\leq 1\%$	1	A
Allowable Power Dissipation	$P_D$	Mounted on a ceramic board (900mm <sup>2</sup> ×0.8mm) 1unit	0.8	W
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		-55 to +150	°C

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

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=1mA$ , $V_{GS}=0$	50			V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=50V$ , $V_{GS}=0$			10	$\mu A$
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 8V$ , $V_{DS}=0$			$\pm 10$	$\mu A$
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=10V$ , $I_D=100\mu A$	0.4		1.3	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=10V$ , $I_D=50mA$	130	180		mS
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=50mA$ , $V_{GS}=4V$		6	7.8	$\Omega$
	$R_{DS(on)2}$	$I_D=30mA$ , $V_{GS}=2.5V$		7.1	9.9	$\Omega$
	$R_{DS(on)3}$	$I_D=10mA$ , $V_{GS}=1.5V$		10	20	$\Omega$

Marking : FD

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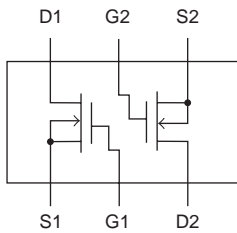
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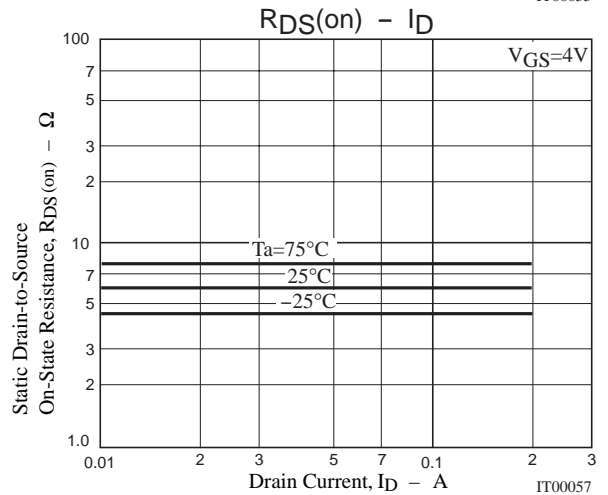
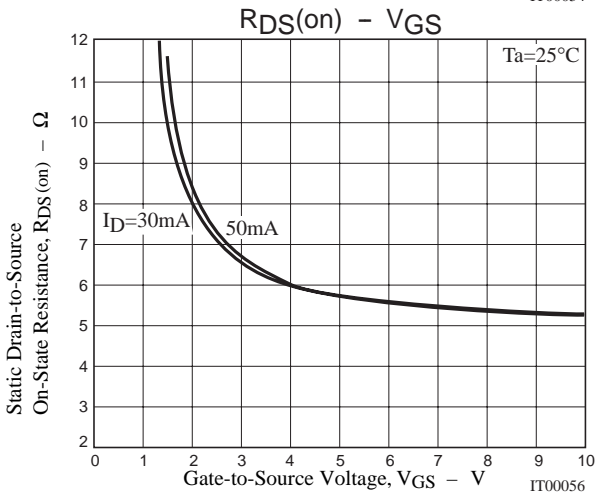
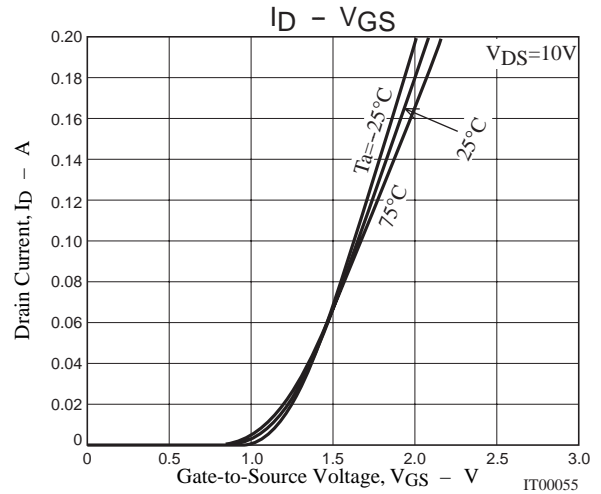
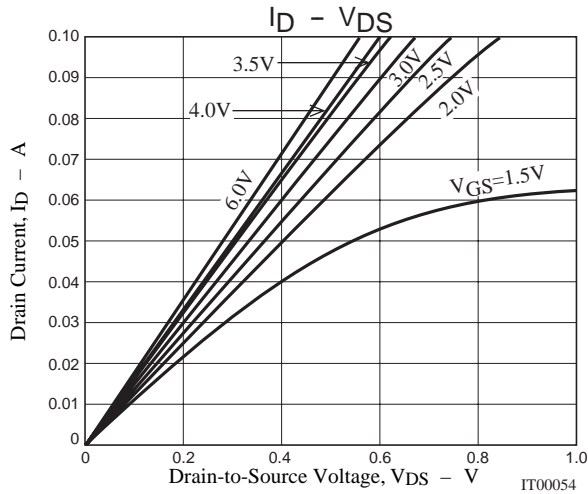
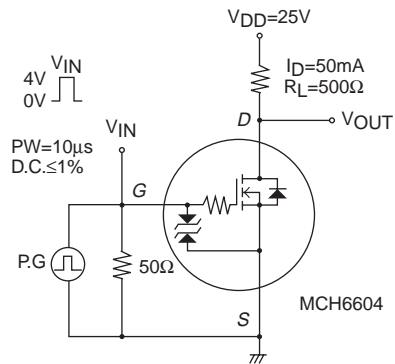
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	$V_{DS}=10V, f=1MHz$		6.6		pF
Output Capacitance	Coss	$V_{DS}=10V, f=1MHz$		4.7		pF
Reverse Transfer Capacitance	Crss	$V_{DS}=10V, f=1MHz$		1.7		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit		18		ns
Rise Time	$t_r$	See specified Test Circuit		42		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit		190		ns
Fall Time	$t_f$	See specified Test Circuit		105		ns
Total Gate Charge	Qg	$V_{DS}=10V, V_{GS}=10V, I_D=100mA$		1.57		nC
Gate-to-Source Charge	Qgs	$V_{DS}=10V, V_{GS}=10V, I_D=100mA$		0.20		nC
Gate-to-Drain "Miller" Charge	Qgd	$V_{DS}=10V, V_{GS}=10V, I_D=100mA$		0.32		nC
Diode Forward Voltage	$V_{SD}$	$I_S=100mA, V_{GS}=0$		0.85	1.2	V

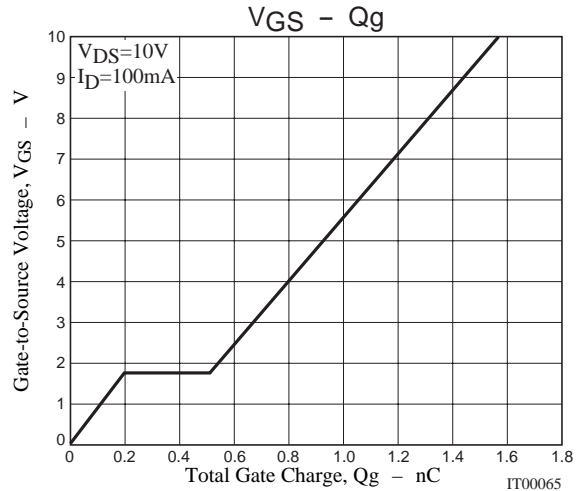
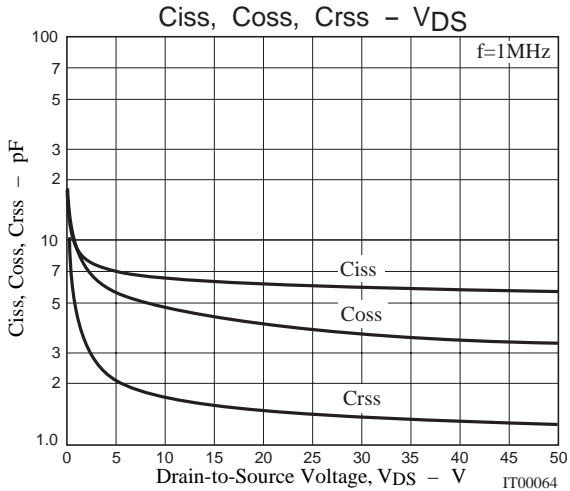
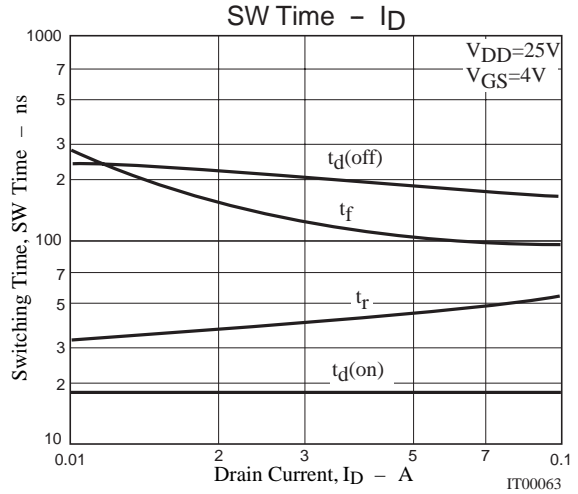
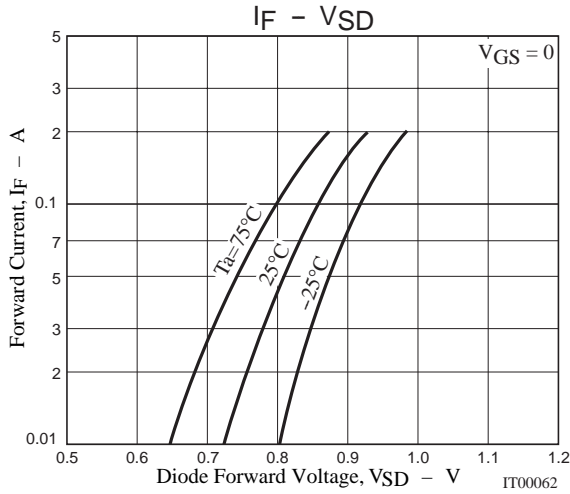
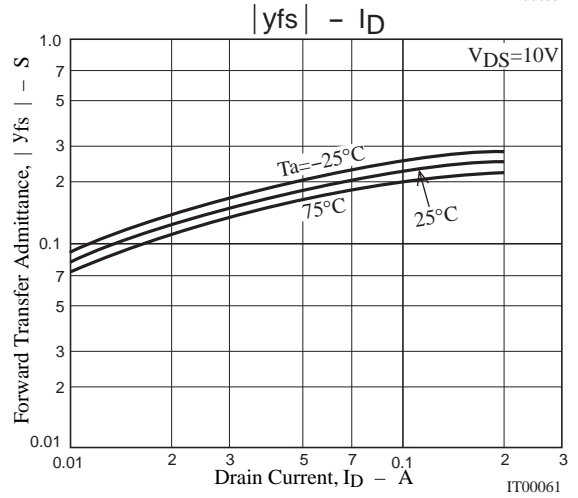
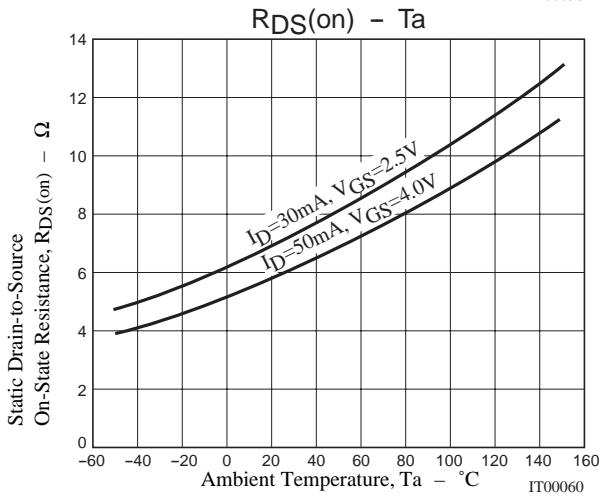
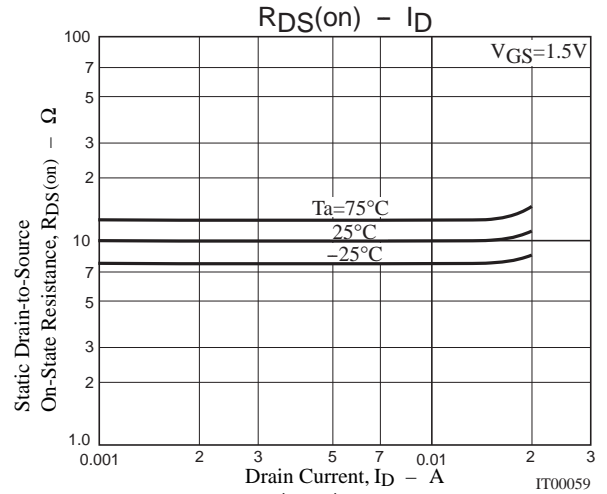
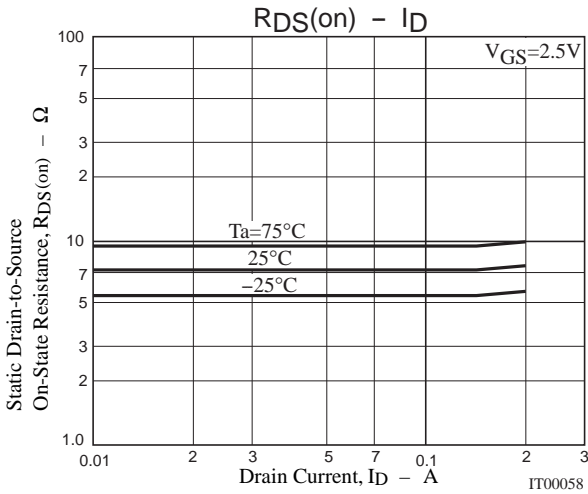
## Electrical Connection



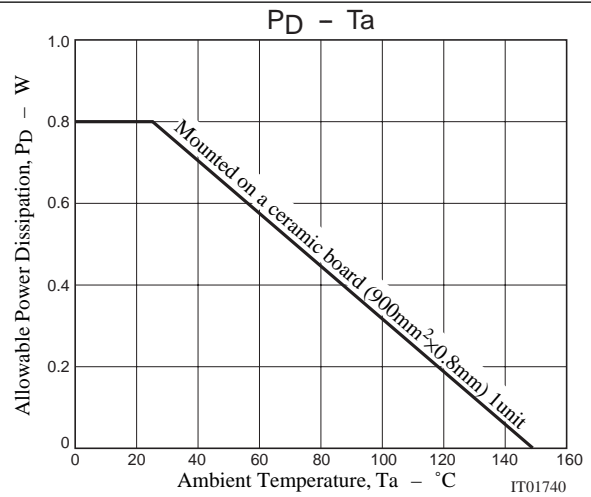
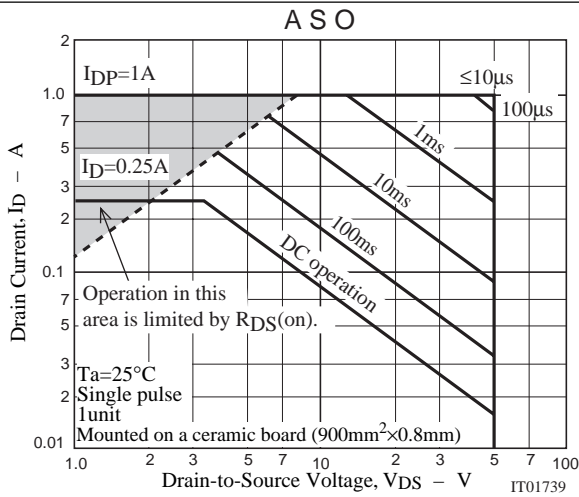
## Switching Time Test Circuit



# MCH6604



# MCH6604



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