

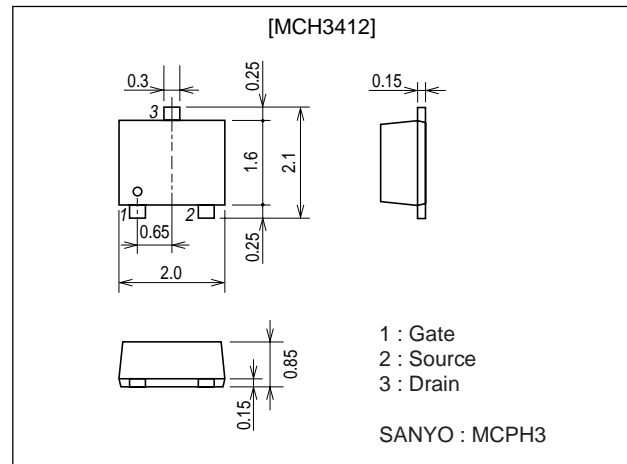
**MCH3412****Ultrahigh-Speed Switching Applications****Features**

- Low ON-resistance.
- Ultrahigh-speed switching.
- 4V drive.

Package Dimensions

unit : mm

2167

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

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DS}		30	V
Gate-to-Source Voltage	V_{GS}		± 20	V
Drain Current (DC)	I_D		3	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu\text{s}$, duty cycle $\leq 1\%$	12	A
Allowable Power Dissipation	P_D	Mounted on a ceramic board (900mm ² X0.8mm)	1	W
Channel Temperature	T_{ch}		150	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +125	$^\circ\text{C}$

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

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=1\text{mA}$, $V_{GS}=0$	30			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=30\text{V}$, $V_{GS}=0$			1	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 16\text{V}$, $V_{DS}=0$			± 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} $	$V_{DS}=10\text{V}$, $I_D=1.5\text{A}$	2.1	3		S

Marking : KM

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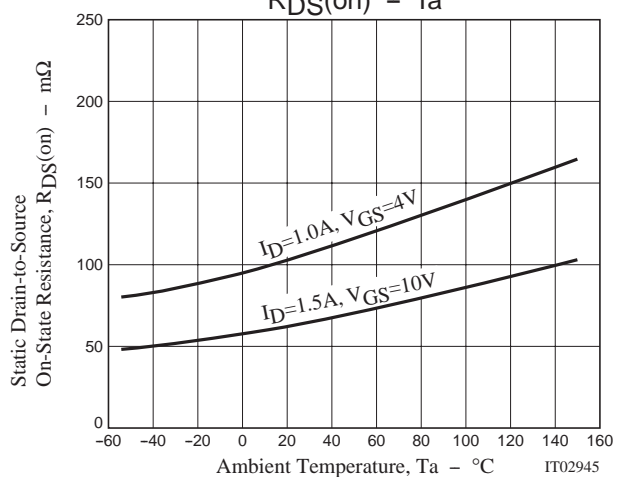
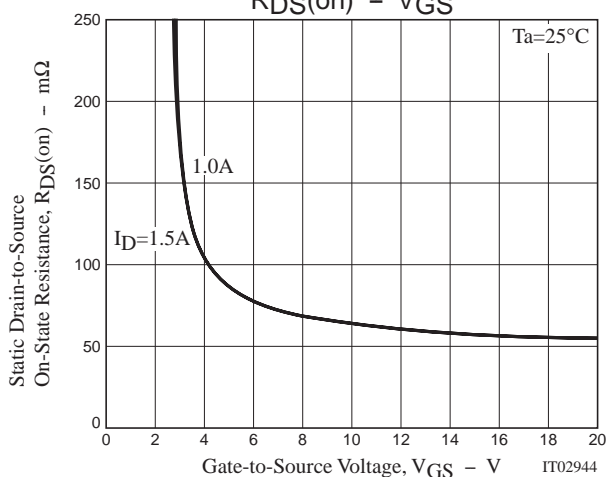
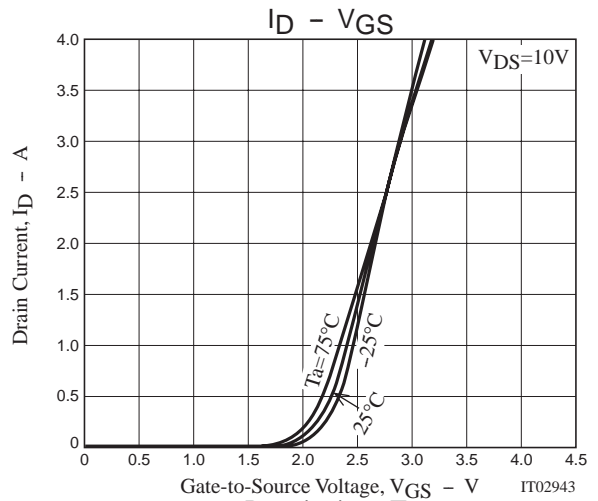
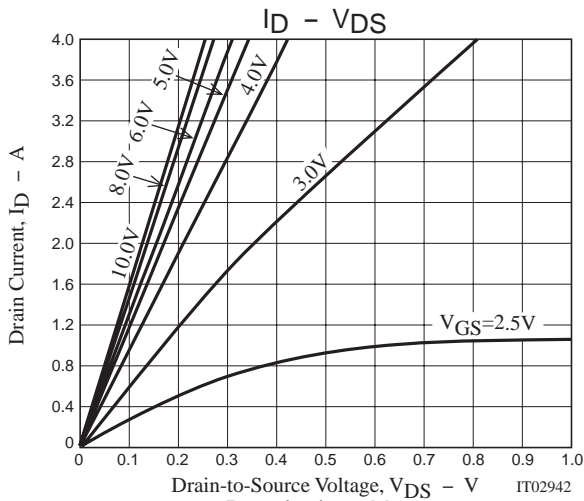
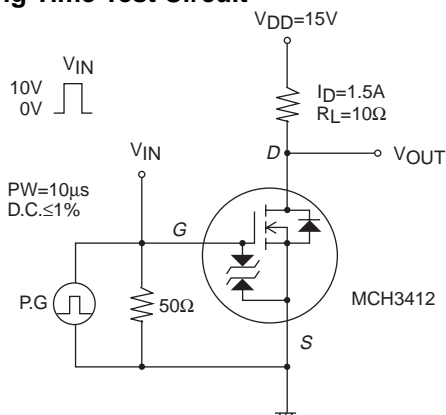
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MCH3412

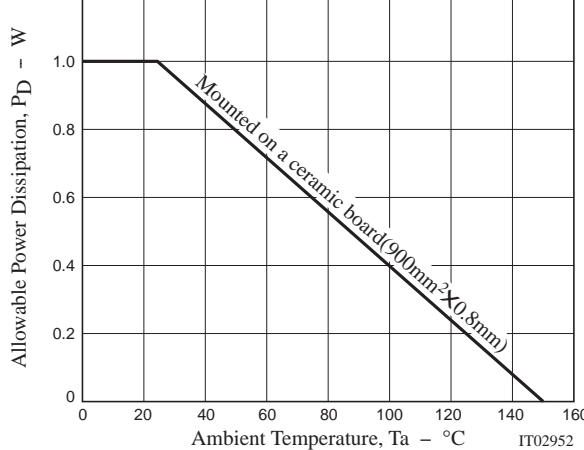
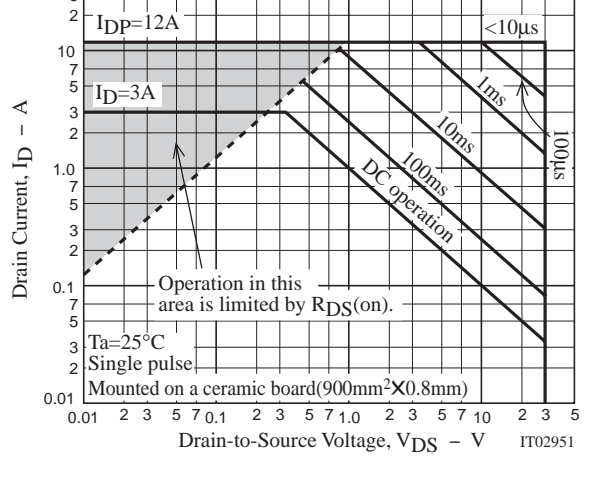
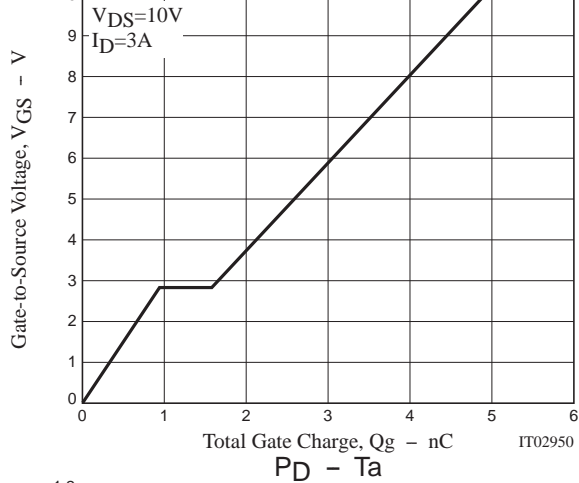
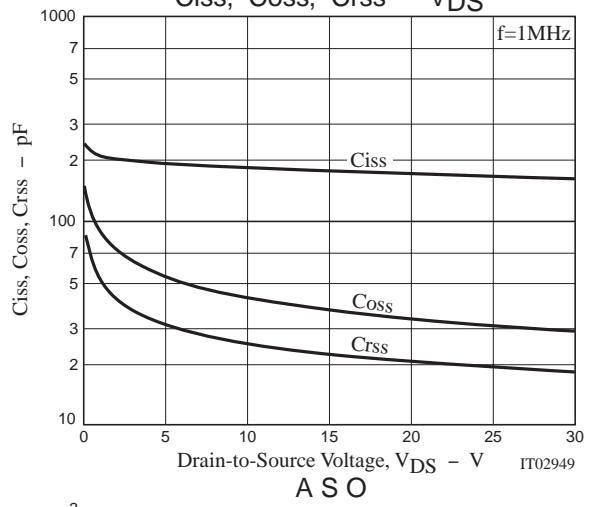
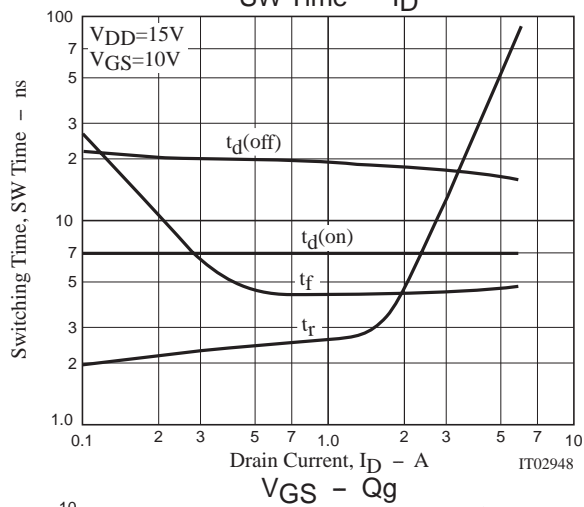
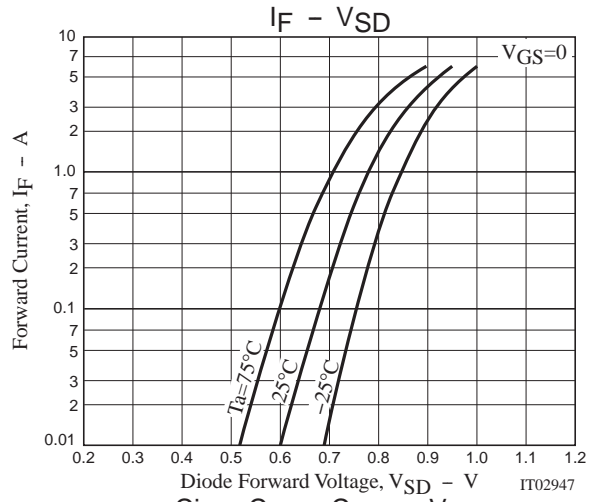
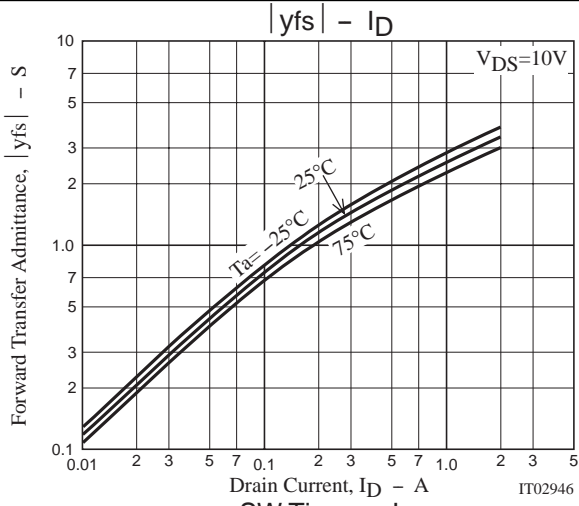
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=1.5A, V_{GS}=10V$		64	84	$m\Omega$
	$R_{DS(on)2}$	$I_D=1A, V_{GS}=4V$		105	150	$m\Omega$
Input Capacitance	C_{iss}	$V_{DS}=10V, f=1MHz$		180		pF
Output Capacitance	C_{oss}	$V_{DS}=10V, f=1MHz$		42		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS}=10V, f=1MHz$		25		pF
Turn-ON Delay Time	$t_d(on)$	See specified Test Circuit		7		ns
Rise Time	t_r	See specified Test Circuit		2.8		ns
Turn-OFF Delay Time	$t_d(off)$	See specified Test Circuit		18.5		ns
Fall Time	t_f	See specified Test Circuit		4.4		ns
Total Gate Charge	Q_g	$V_{DS}=10V, V_{GS}=10V, I_D=3A$		4.9		nC
Gate-to-Source Charge	Q_{gs}	$V_{DS}=10V, V_{GS}=10V, I_D=3A$		0.93		nC
Gate-to-Drain "Miller" Charge	Q_{gd}	$V_{DS}=10V, V_{GS}=10V, I_D=3A$		0.63		nC
Diode Forward Voltage	V_{SD}	$I_S=3A, V_{GS}=0$		0.85	1.2	V

Switching Time Test Circuit



MCH3412



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