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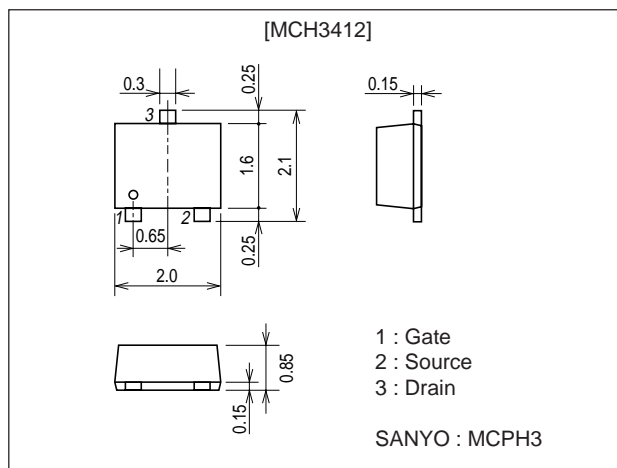
MCH3412 — N-Channel Silicon MOSFET Ultrahigh-Speed Switching Applications

Features

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

Package Dimensions

unit : mm
2167



Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V _{DSS}		30	V
Gate-to-Source Voltage	V _{GS}		±20	V
Drain Current (DC)	I _D		3	A
Drain Current (Pulse)	I _{DP}	PW≤10μs, duty cycle≤1%	12	A
Allowable Power Dissipation	P _D	Mounted on a ceramic board (900mm ² ×0.8mm)	1	W
Channel Temperature	T _{ch}		150	°C
Storage Temperature	T _{stg}		-55 to +125	°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	30			V
Zero-Gate Voltage Drain Current	I _{DSS}	V _{DS} =30V, V _{GS} =0			1	μA
Gate-to-Source Leakage Current	I _{GSS}	V _{GS} =±16V, V _{DS} =0			±10	μA
Cutoff Voltage	V _{GS(off)}	V _{DS} =10V, I _D =1mA	1.2		2.6	V
Forward Transfer Admittance	y _{fs}	V _{DS} =10V, I _D =1.5A	2.1	3		S

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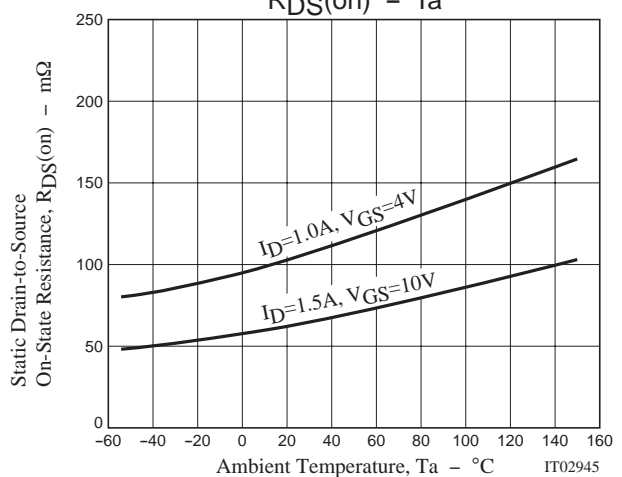
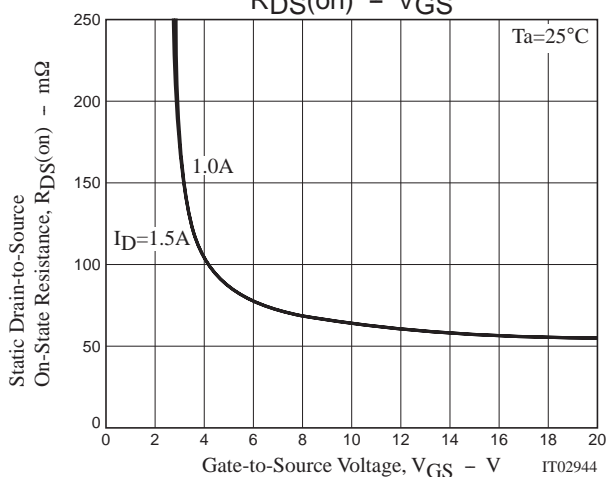
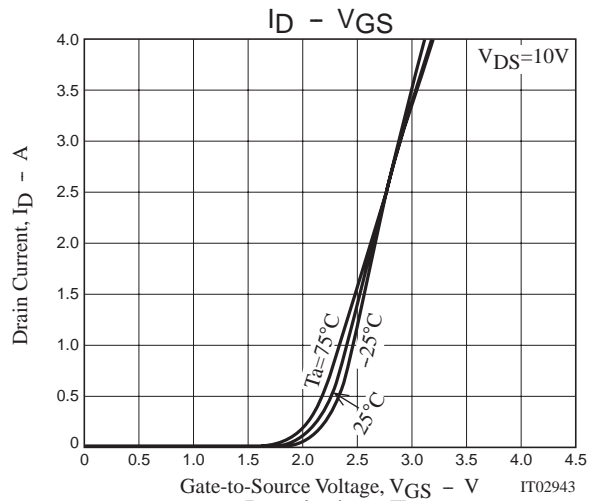
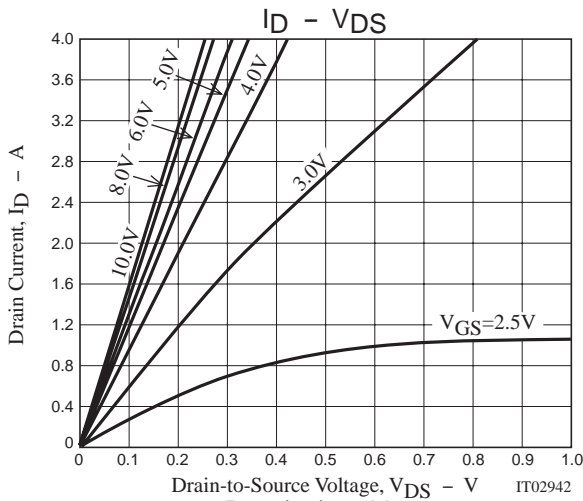
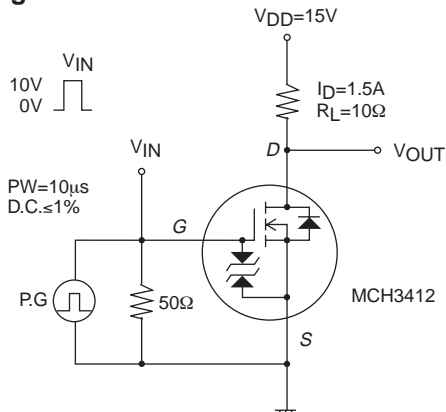
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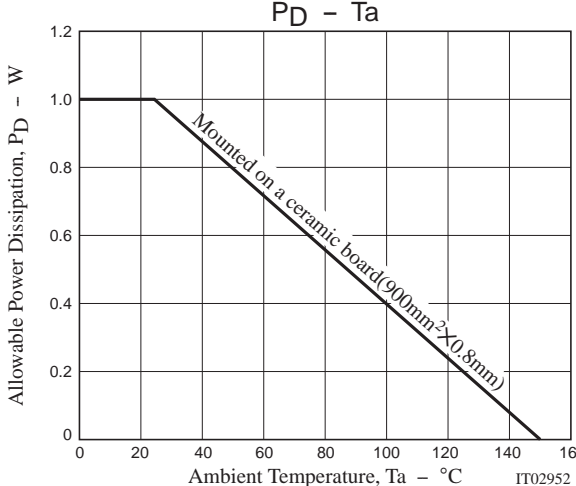
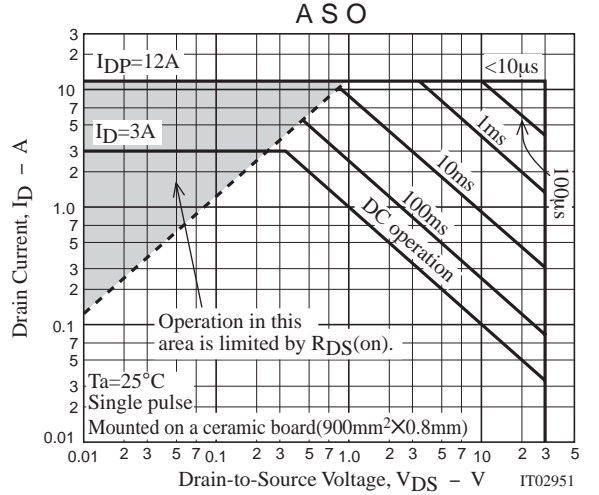
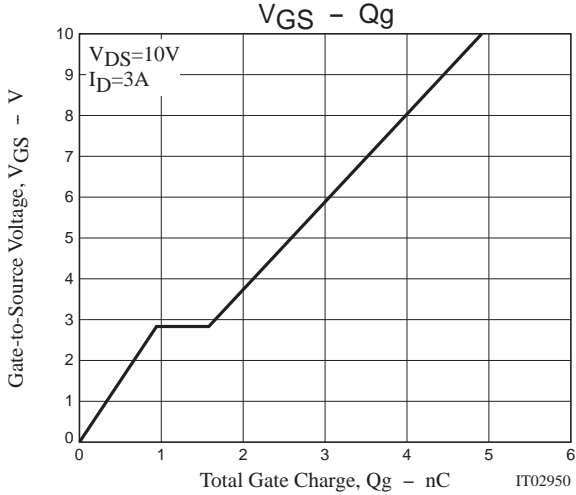
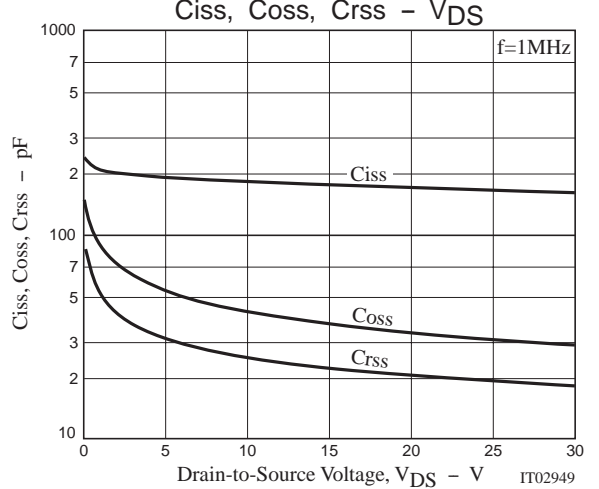
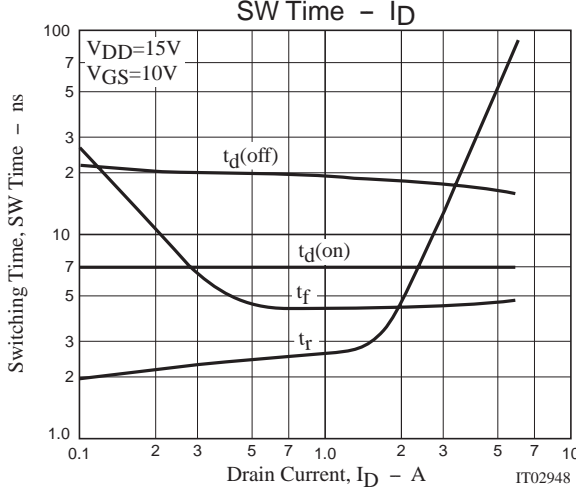
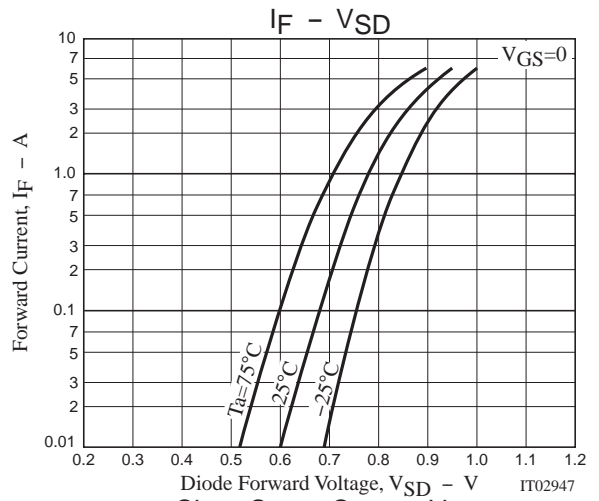
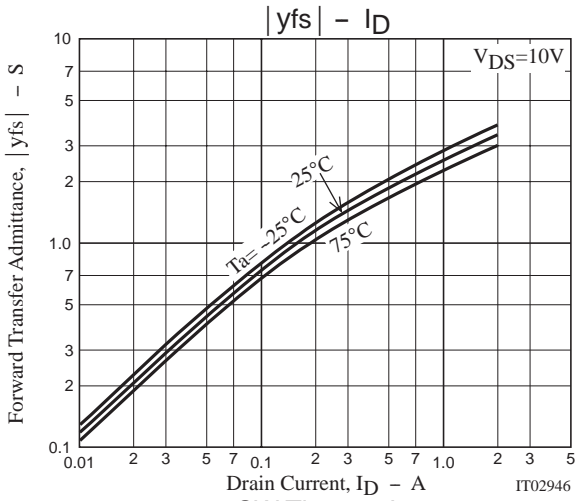
MCH3412

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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 Ω
	$R_{DS(on)2}$	$I_D=1A, V_{GS}=4V$		105	150	m Ω
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





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