

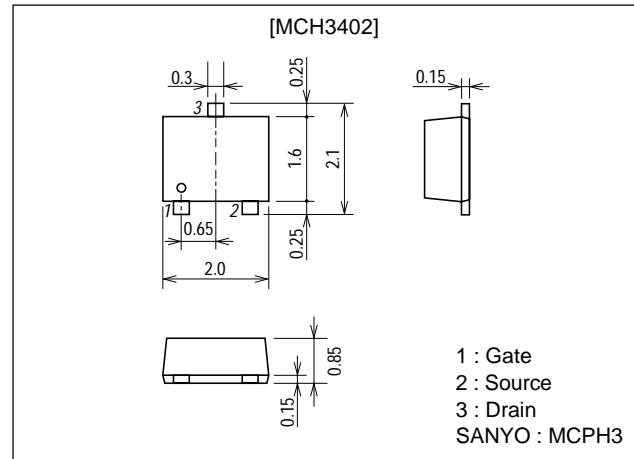
**MCH3402****Ultrahigh-Speed Switching Applications****Features**

- 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_{DSS}		30	V
Gate-to-Source Voltage	V_{GSS}		± 20	V
Drain Current (DC)	I_D		1.4	A
Drain Current (pulse)	I_{DP}	$PW \leq 10\mu\text{s}$, duty cycle $\leq 1\%$	5.6	A
Allowable Power Dissipation	P_D	Mounted on a ceramic board (900mm 2 \times 0.8mm)	1	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	$V_{(BR)DSS}$	$I_D=1\text{mA}$, $V_{GS}=0$	30			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=30\text{V}$, $V_{GS}=0$			10	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 16\text{V}$, $V_{DS}=0$			± 10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=10\text{V}$, $I_D=1\text{mA}$	1.0		2.4	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=10\text{V}$, $I_D=700\text{mA}$	1.1	1.6		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=700\text{mA}$, $V_{GS}=10\text{V}$		220	280	$\text{m}\Omega$
	$R_{DS(on)2}$	$I_D=400\text{mA}$, $V_{GS}=4\text{V}$		340	480	$\text{m}\Omega$
Input Capacitance	C_{iss}	$V_{DS}=10\text{V}$, $f=1\text{MHz}$		90		pF
Output Capacitance	C_{oss}	$V_{DS}=10\text{V}$, $f=1\text{MHz}$		50		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS}=10\text{V}$, $f=1\text{MHz}$		22		pF

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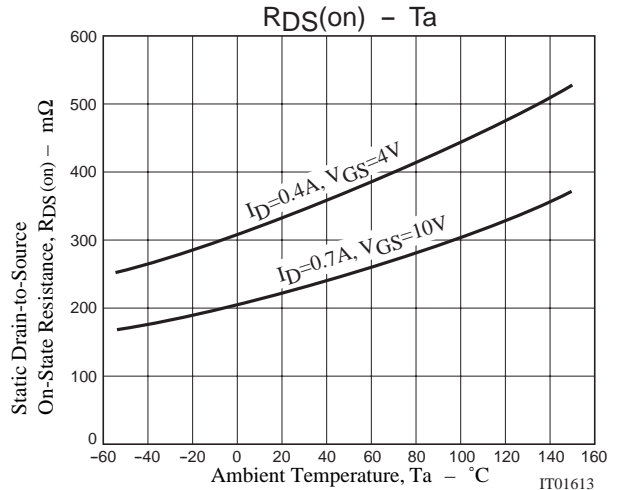
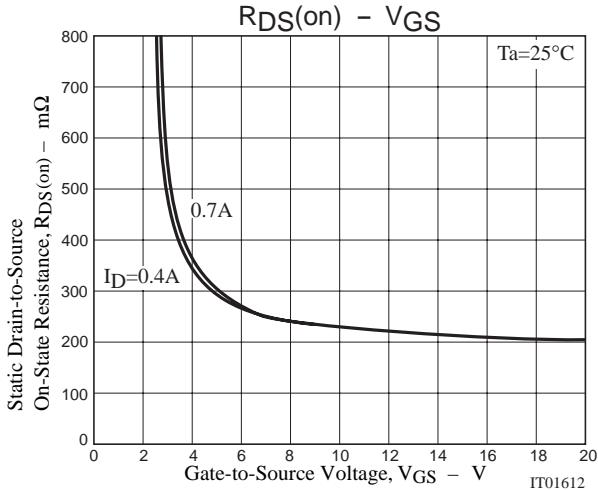
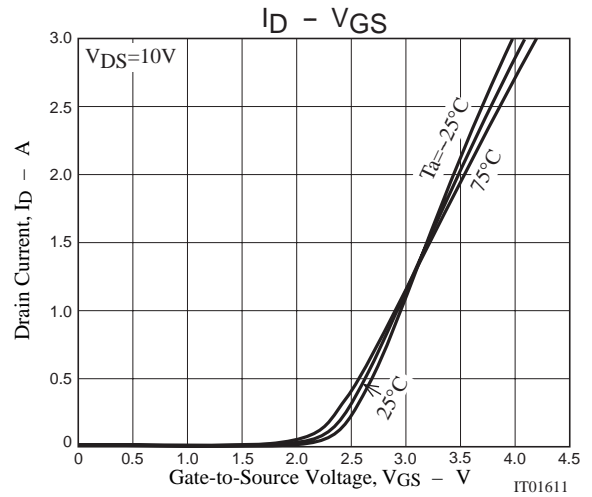
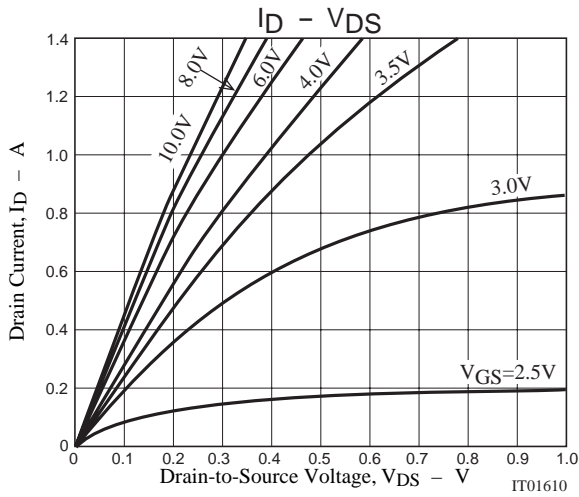
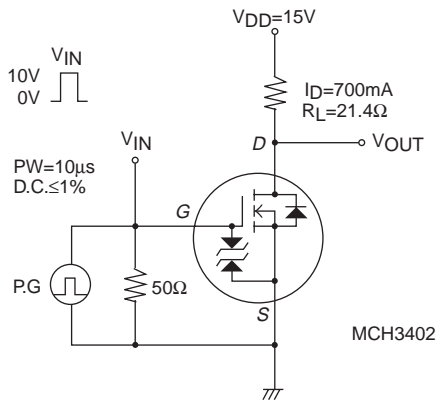
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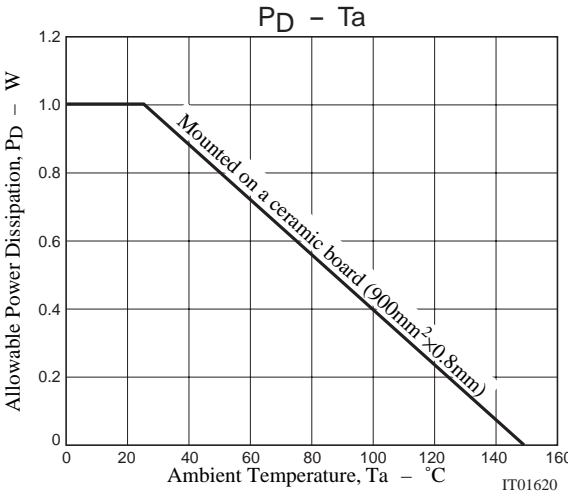
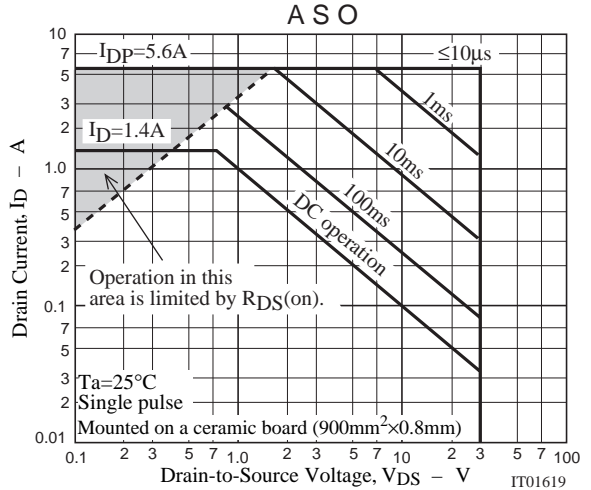
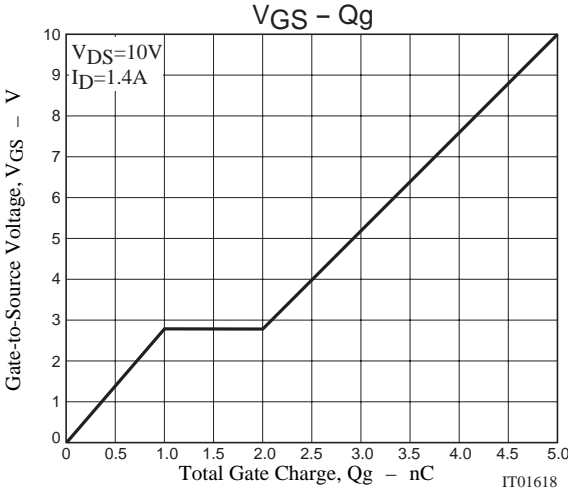
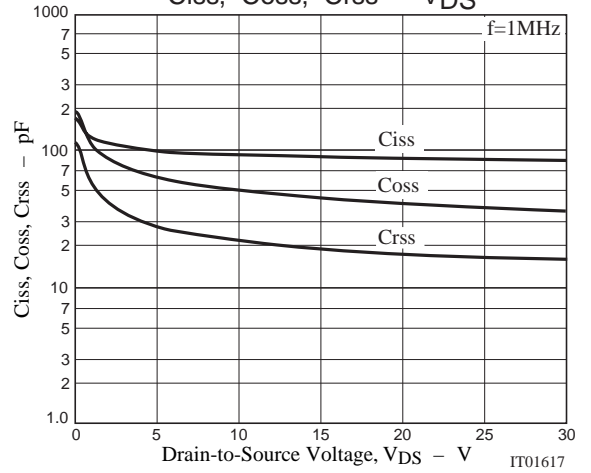
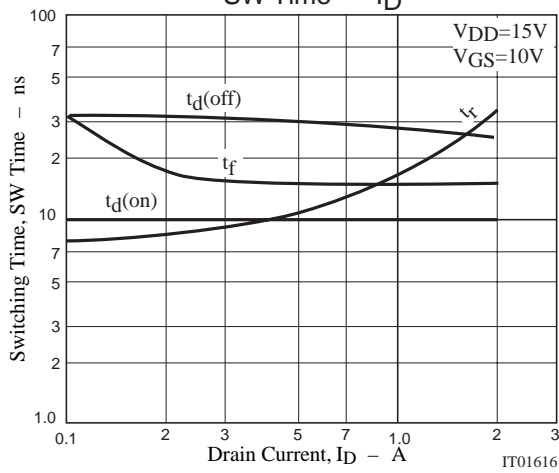
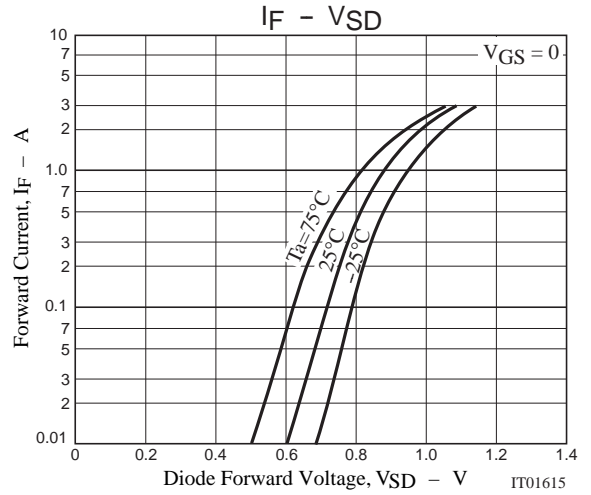
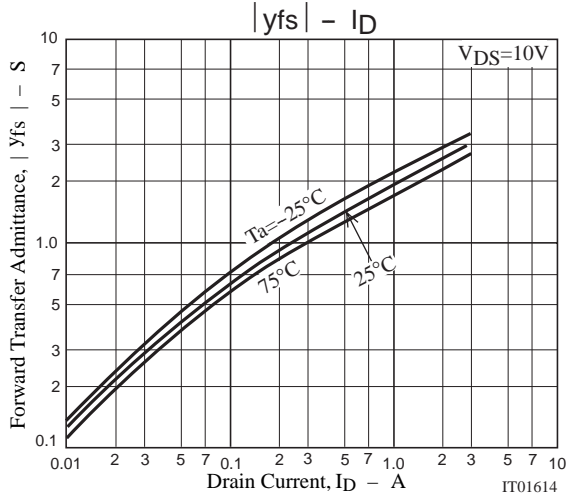
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit		10		ns
Rise Time	t_r	See specified Test Circuit		13		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit		29		ns
Fall Time	t_f	See specified Test Circuit		15		ns
Total Gate Charge	Q_g	$V_{DS}=10V, V_{GS}=10V, I_D=1.4A$		5		nC
Gate-to-Source Charge	Q_{gs}	$V_{DS}=10V, V_{GS}=10V, I_D=1.4A$		1		nC
Gate-to-Drain "Miller" Charge	Q_{gd}	$V_{DS}=10V, V_{GS}=10V, I_D=1.4A$		1		nC
Diode Forward Voltage	V_{SD}	$I_S=1.4A, V_{GS}=0$		0.9	1.2	V

Switching Time Test Circuit



MCH3402



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