



SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

MCH3475 — N-Channel Silicon MOSFET General-Purpose Switching Device Applications

Features

- Ultrahigh-speed switching.
- 4V drive.

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		1.8	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu\text{s}$, duty cycle $\leq 1\%$	7.2	A
Allowable Power Dissipation	P_D	Mounted on a ceramic board (900mm ² ×0.8mm)	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	$V_{(BR)DSS}$	$I_D=1\text{mA}$, $V_{GS}=0\text{V}$	30			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=30\text{V}$, $V_{GS}=0\text{V}$			1	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 16\text{V}$, $V_{DS}=0\text{V}$			± 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} $	$V_{DS}=10\text{V}$, $I_D=0.9\text{A}$	0.66	1.1		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=0.9\text{A}$, $V_{GS}=10\text{V}$		135	180	$\text{m}\Omega$
	$R_{DS(on)2}$	$I_D=0.5\text{A}$, $V_{GS}=4\text{V}$		230	330	$\text{m}\Omega$
Input Capacitance	C_{iss}	$V_{DS}=10\text{V}$, $f=1\text{MHz}$		88		pF
Output Capacitance	C_{oss}	$V_{DS}=10\text{V}$, $f=1\text{MHz}$		19		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS}=10\text{V}$, $f=1\text{MHz}$		11		pF

Marking : FG

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MCH3475

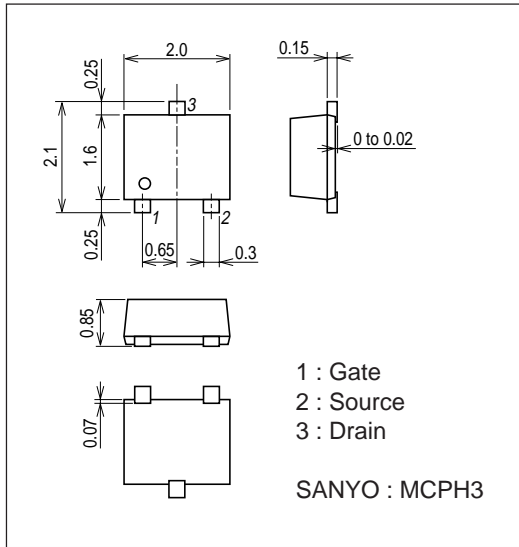
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		3.4		ns
Rise Time	t_r	See specified Test Circuit.		3.6		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		10.5		ns
Fall Time	t_f	See specified Test Circuit.		4.0		ns
Total Gate Charge	Q_g	$V_{DS}=10V, V_{GS}=10V, I_D=1.8A$		2.0		nC
Gate-to-Source Charge	Q_{gs}	$V_{DS}=10V, V_{GS}=10V, I_D=1.8A$		0.33		nC
Gate-to-Drain "Miller" Charge	Q_{gd}	$V_{DS}=10V, V_{GS}=10V, I_D=1.8A$		0.29		nC
Diode Forward Voltage	V_{SD}	$I_S=1.8A, V_{GS}=0V$		0.86	1.2	V

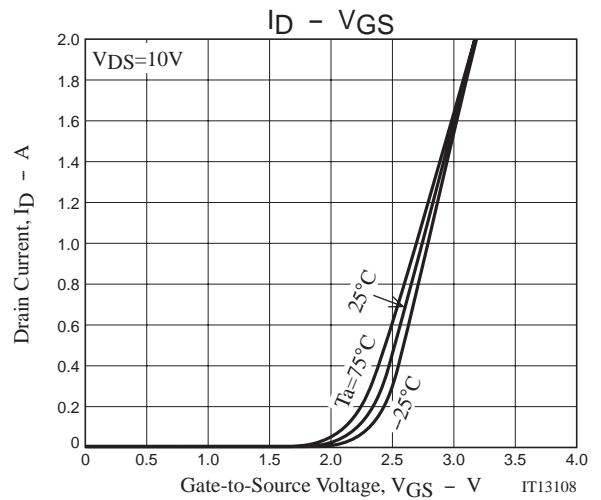
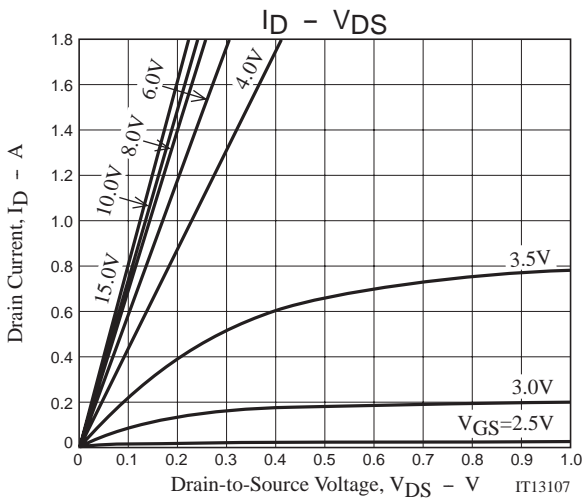
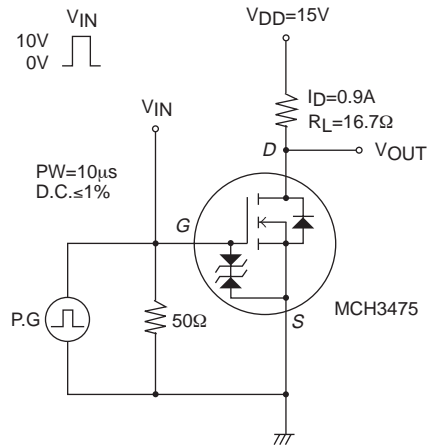
Package Dimensions

unit : mm (typ)

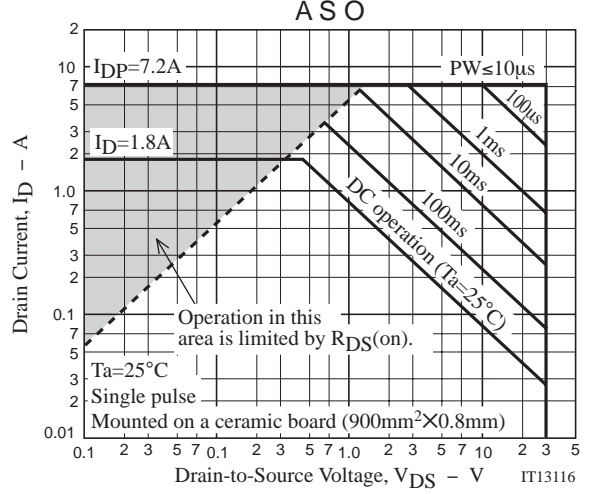
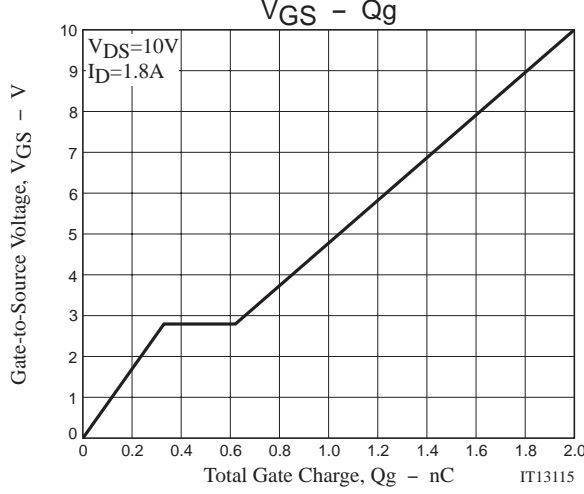
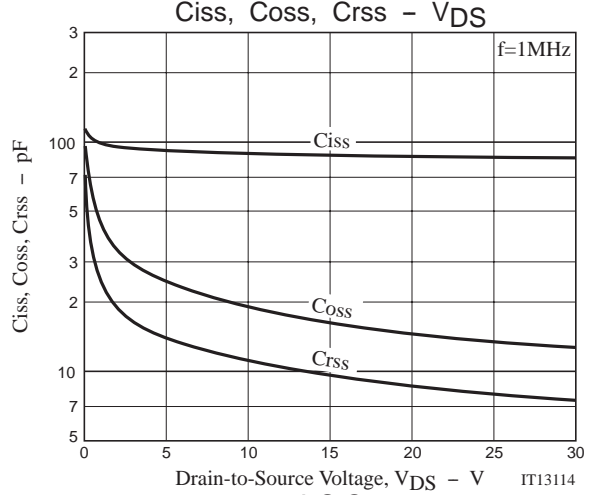
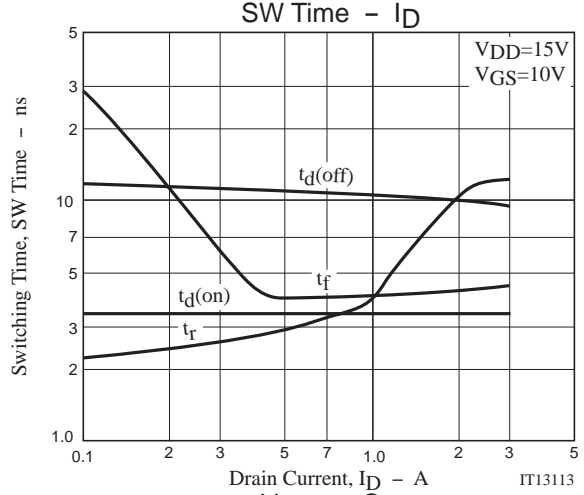
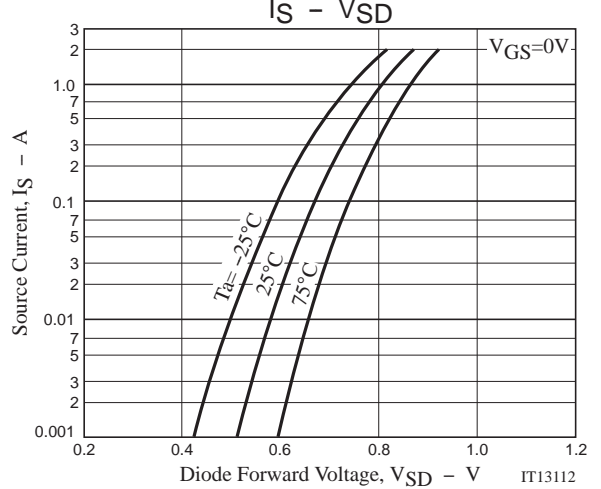
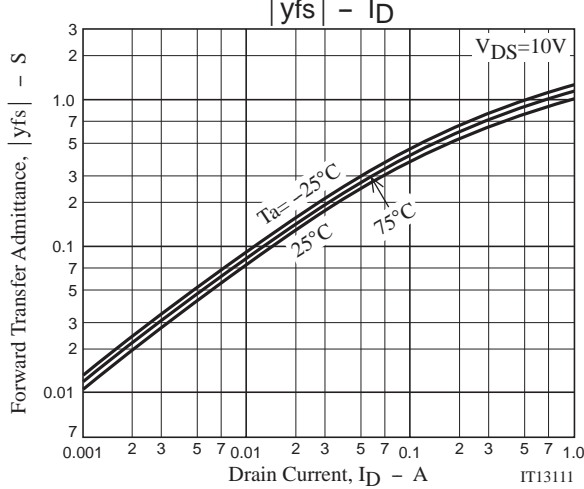
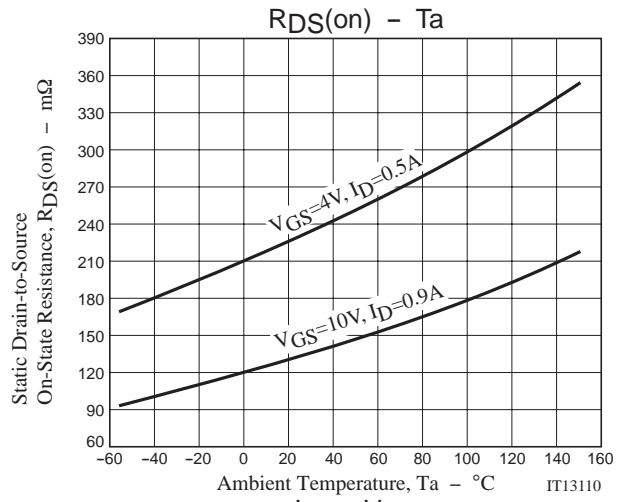
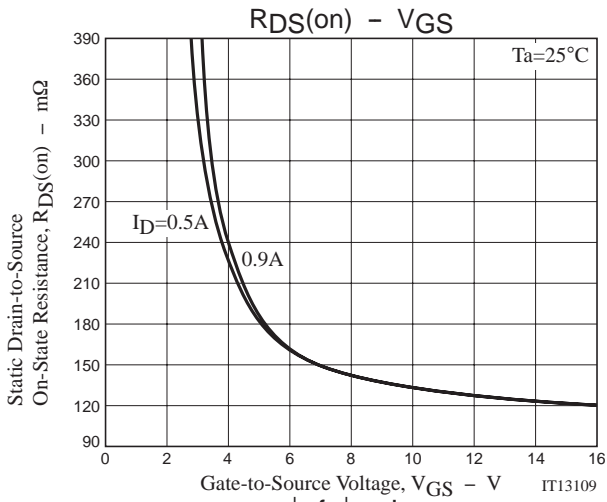
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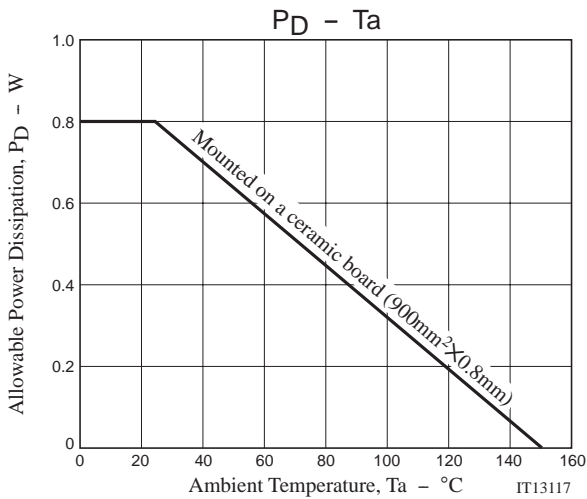


Switching Time Test Circuit



MCH3475





Note on usage : Since the MCH3475 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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