



SANYO Semiconductors

DATA SHEET

MCH3474 — N-Channel Silicon MOSFET

General-Purpose Switching Device Applications

Features

- Low ON-resistance.
- Ultrahigh speed switching.
- 1.8V 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}		± 12	V
Drain Current (DC)	I_D		4	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu\text{s}$, duty cycle $\leq 1\%$	16	A
Allowable Power Dissipation	P_D	When mounted on ceramic substrate (900mm ² x 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	$V_{(BR)DSS}$	$I_D=1\text{mA}$, $V_{GS}=0\text{V}$	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}	$V_{GS}=\pm 8\text{V}$, $V_{DS}=0\text{V}$			± 10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=10\text{V}$, $I_D=1\text{mA}$	0.4		1.3	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=10\text{V}$, $I_D=2\text{A}$	2.0	3.4		S

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MCH3474

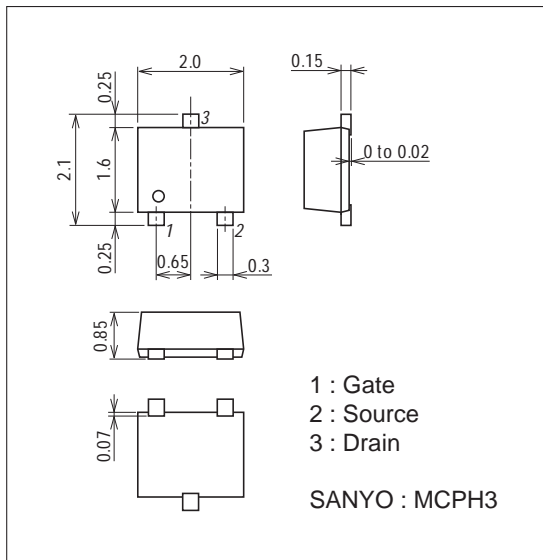
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=2A, V_{GS}=4.5V$		38	50	$m\Omega$
	$R_{DS(on)2}$	$I_D=1A, V_{GS}=2.5V$		51	72	$m\Omega$
	$R_{DS(on)3}$	$I_D=0.5A, V_{GS}=1.8V$		80	130	$m\Omega$
Input Capacitance	C_{iss}	$V_{DS}=10V, f=1MHz$		430		pF
Output Capacitance	C_{oss}	$V_{DS}=10V, f=1MHz$		59		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS}=10V, f=1MHz$		38		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		10		ns
Rise Time	t_r	See specified Test Circuit.		41		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		36		ns
Fall Time	t_f	See specified Test Circuit.		37		ns
Total Gate Charge	Q_g	$V_{DS}=15V, V_{GS}=4.5V, I_D=4A$		4.7		nC
Gate-to-Source Charge	Q_{gs}	$V_{DS}=15V, V_{GS}=4.5V, I_D=4A$		0.8		nC
Gate-to-Drain "Miller" Charge	Q_{gd}	$V_{DS}=15V, V_{GS}=4.5V, I_D=4A$		1.1		nC
Diode Forward Voltage	V_{SD}	$I_S=4A, V_{GS}=0V$		0.82	1.2	V

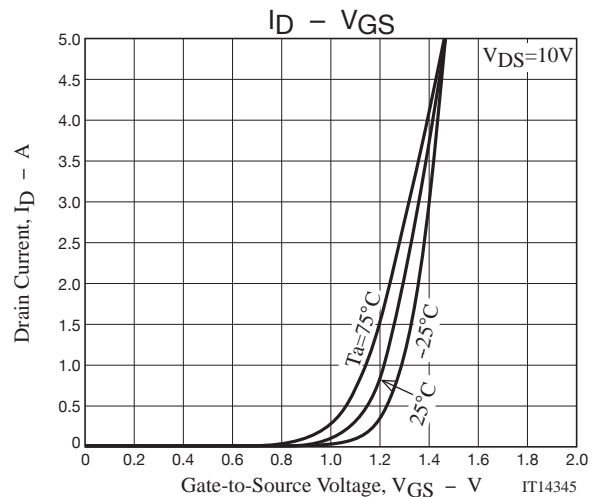
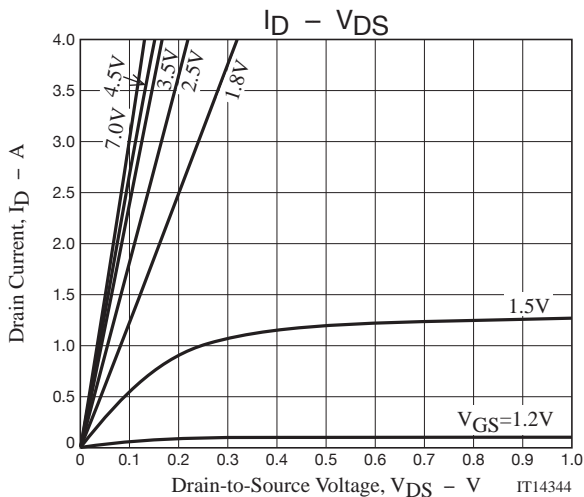
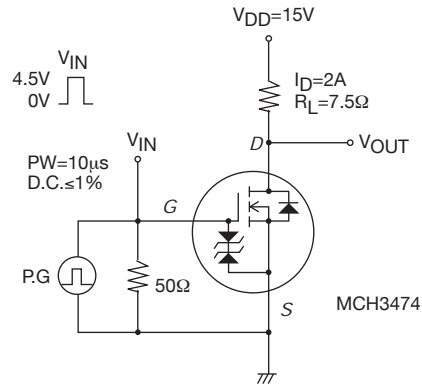
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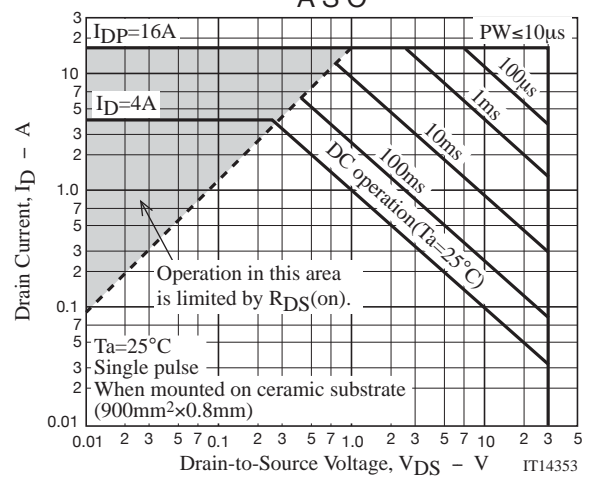
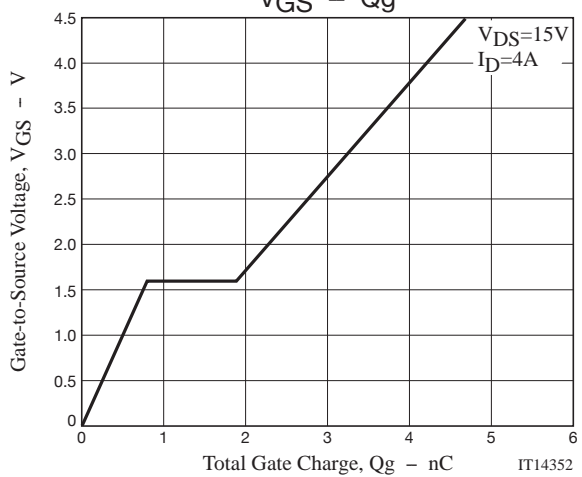
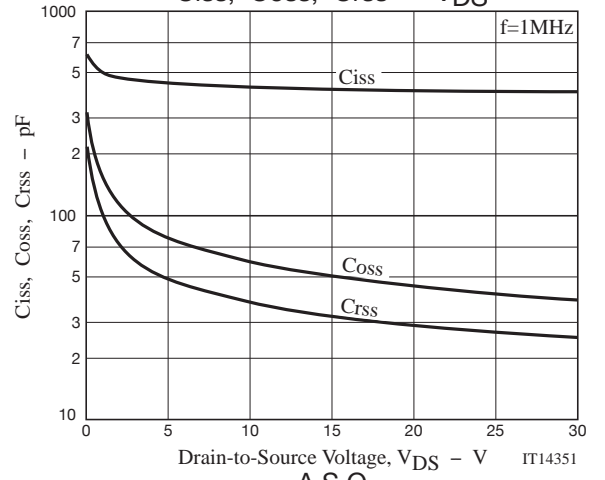
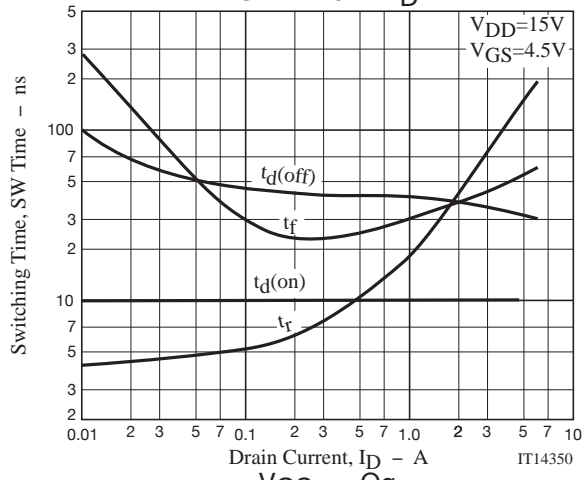
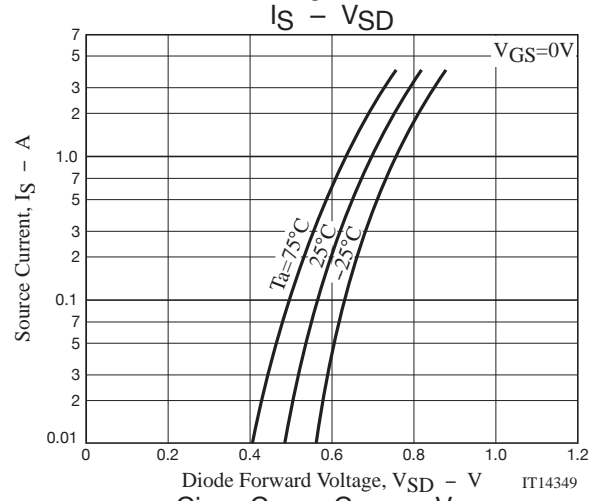
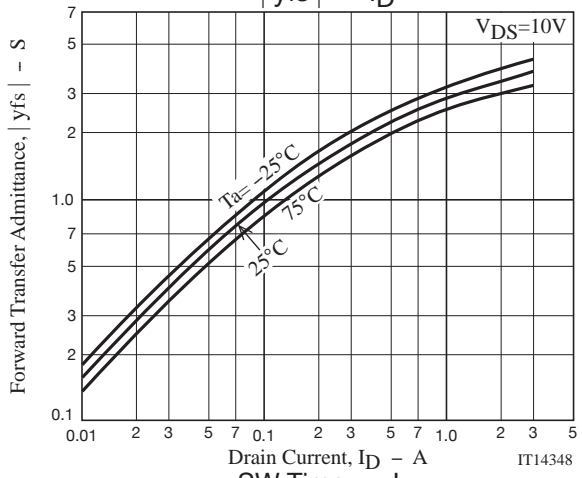
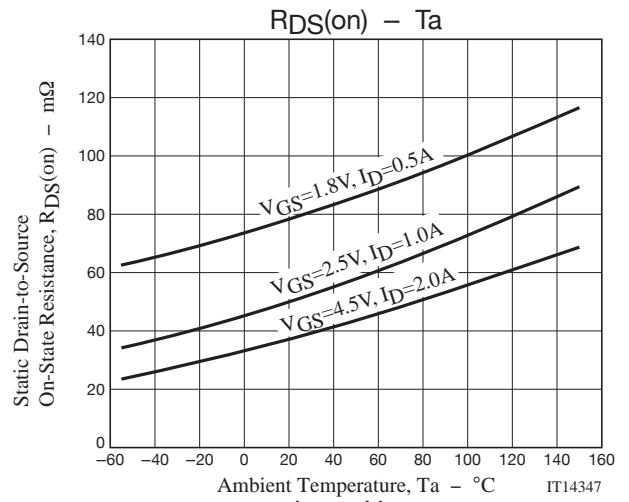
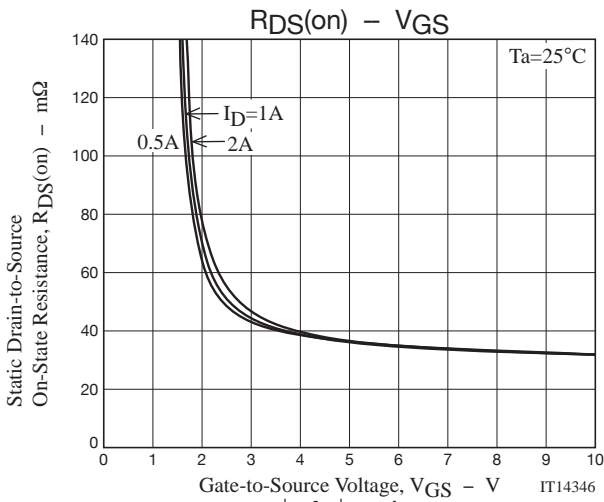
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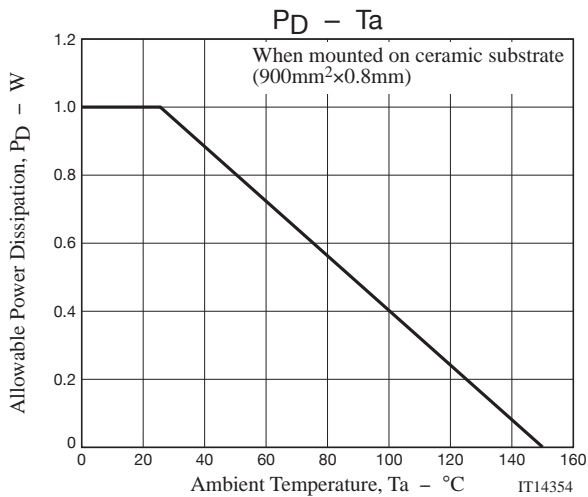
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Switching Time Test Circuit







Note on usage : Since the MCH3474 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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