Ordering number : ENA0857

SANYO Semiconductors
DATA SHEET

P-Channel Silicon MOSFET

MCH3374 — General-Purpose Switching Device Applications

Features

- Low ON-resistance.
- Ultrahigh-speed switching.
- 1.8V drive.

Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		−12	V
Gate-to-Source Voltage	V_{GSS}		±8	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 (900mm²×0.8mm)	1.0	W
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		−55 to +150	°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}=0V	−12			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=−12V, V_{GS}=0V			−10	μA
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}=±6.4V, V_{DS}=0V			±10	μA
Cutoff Voltage	V_{GS}(off)	V_{DS}=−6V, I_D=−1mA	−0.4		−1.4	V
Forward Transfer Admittance	$\|yfs\|$	V_{DS}=−6V, I_D=−1.5A	2.7	4.5		S
Static Drain-to-Source On-State Resistance	R_{DS}(on)1	I_D=−1.5A, V_{GS}=−4.5V		54	70	mΩ
	R_{DS}(on)2	I_D=−0.8A, V_{GS}=−2.5V		80	115	mΩ
	R_{DS}(on)3	I_D=−0.3A, V_{GS}=−1.8V		125	215	mΩ

Marking : QF

Continued on next page.

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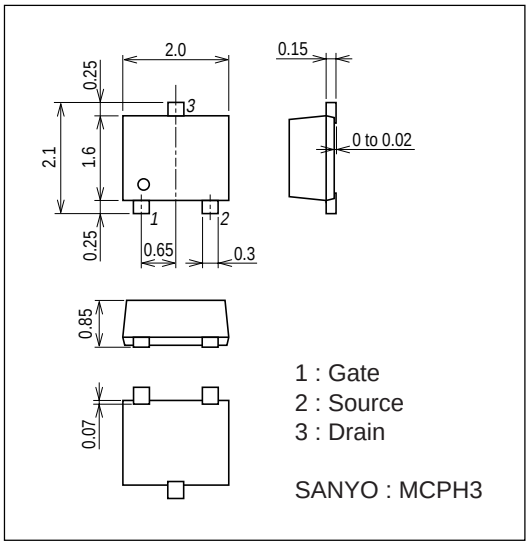
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	V_{DS}=−6V, f=1MHz		405		pF
Output Capacitance	Coss	V_{DS}=−6V, f=1MHz		145		pF
Reverse Transfer Capacitance	Crss	V_{DS}=−6V, f=1MHz		100		pF
Turn-ON Delay Time	t_{d}(on)	See specified Test Circuit.		8.8		ns
Rise Time	t_{r}	See specified Test Circuit.		80		ns
Turn-OFF Delay Time	t_{d}(off)	See specified Test Circuit.		41		ns
Fall Time	t_{f}	See specified Test Circuit.		50		ns
Total Gate Charge	Qg	V_{DS}=−6V, V_{GS}=−4.5V, I_{D}=−3A		5.6		nC
Gate-to-Source Charge	Qgs	V_{DS}=−6V, V_{GS}=−4.5V, I_{D}=−3A		0.7		nC
Gate-to-Drain “Miller” Charge	Qgd	V_{DS}=−6V, V_{GS}=−4.5V, I_{D}=−3A		1.6		nC
Diode Forward Voltage	V_{SD}	I_{S}=−3A, V_{GS}=0V		−0.85	−1.2	V

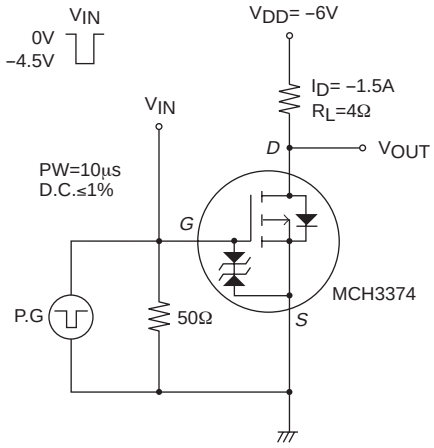
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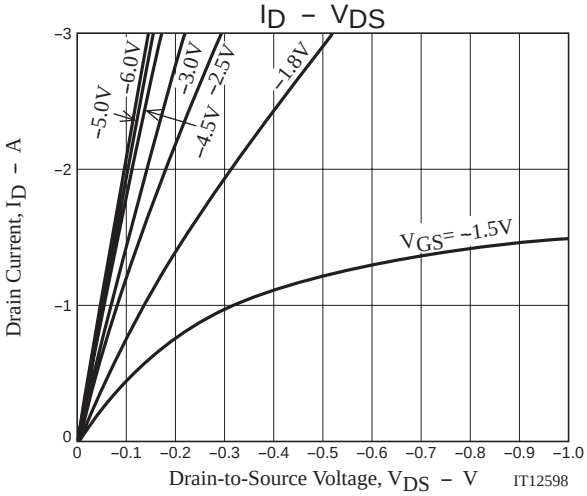
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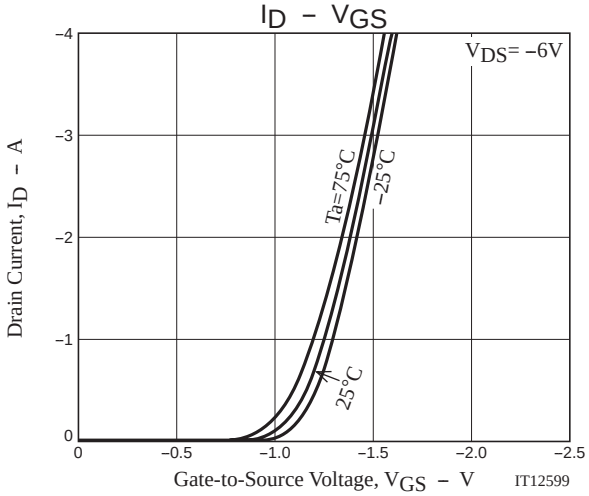
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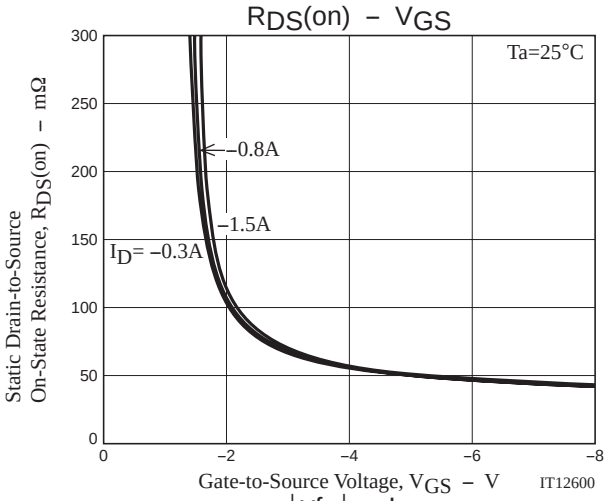


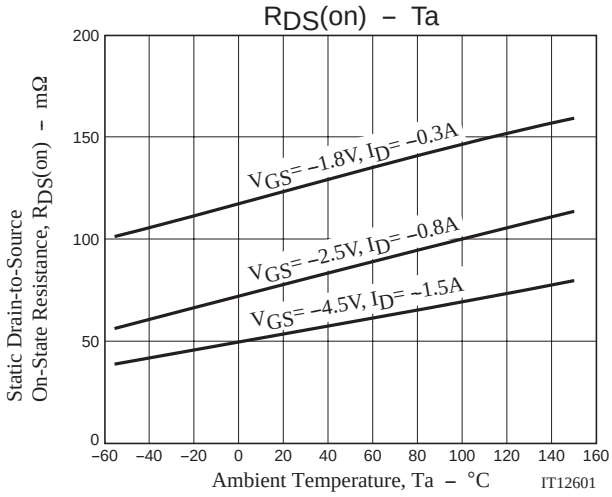
Switching Time Test Circuit

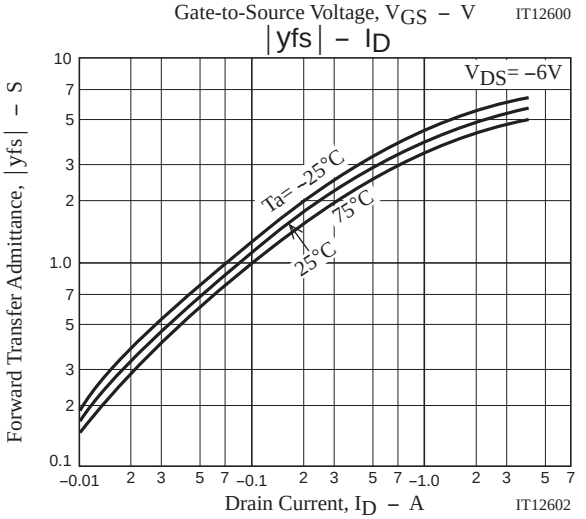


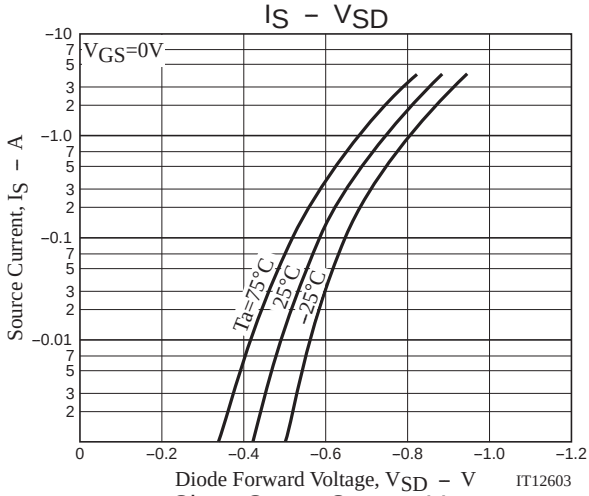


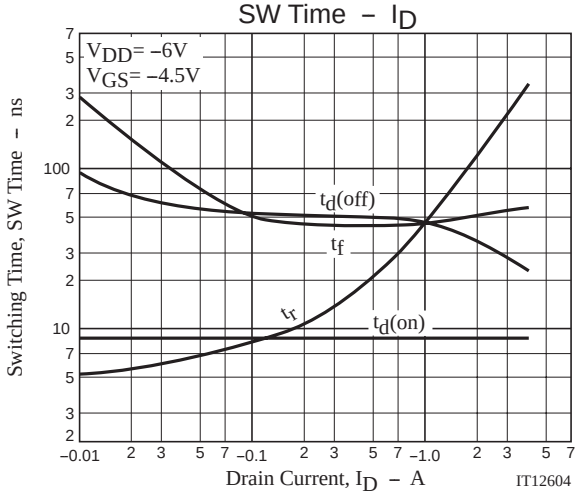


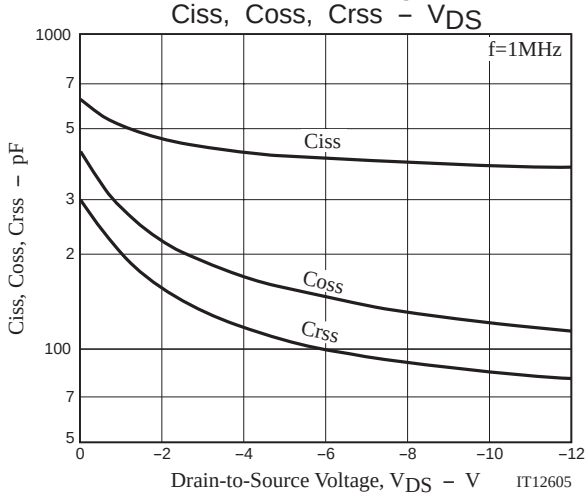

RDS(on) – VGS
Ta=25°C
–0.8A
–1.5A
ID= –0.3A
Static Drain-to-Source On-State Resistance, RDS(on) – mΩ
Gate-to-Source Voltage, VGS – V
IT12600

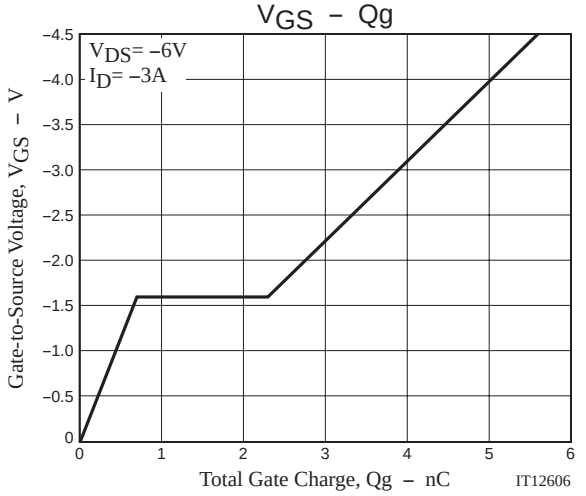

RDS(on) – Ta
VGS= –1.8V, ID= –0.3A
VGS= –2.5V, ID= –0.8A
VGS= –4.5V, ID= –1.5A
Static Drain-to-Source On-State Resistance, RDS(on) – mΩ
Ambient Temperature, Ta – °C
IT12601

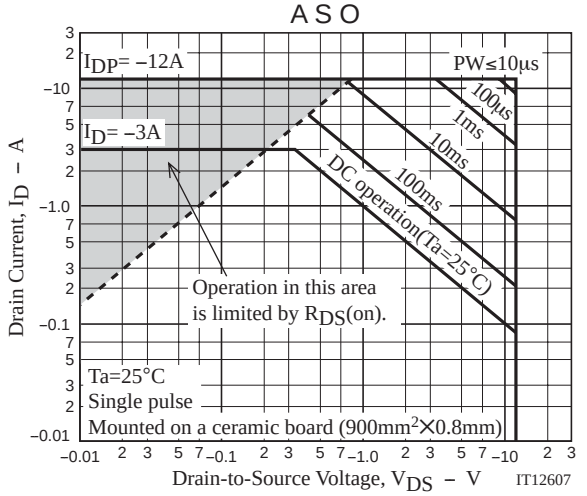

|yfs| – ID
VDS= –6V
Ta= –25°C
75°C
25°C
Forward Transfer Admittance, |yfs| – S
Drain Current, ID – A
IT12602

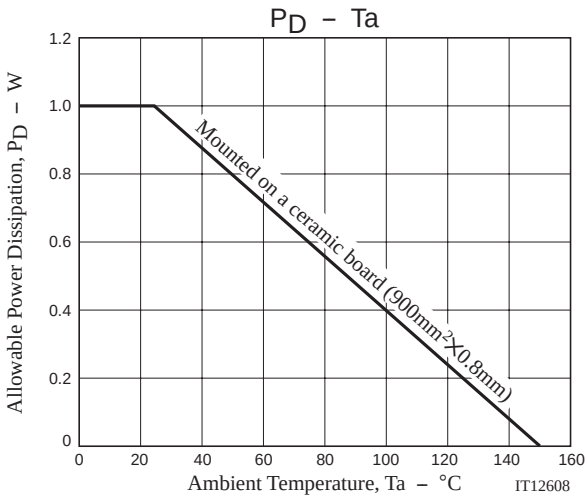

IS – VSD
VGS=0V
Ta=75°C
25°C
–25°C
Source Current, IS – A
Diode Forward Voltage, VSD – V
IT12603


SW Time – ID
VDD= –6V
VGS= –4.5V
td(off)
tf
tr
td(on)
Switching Time, SW Time – ns
Drain Current, ID – A
IT12604


Ciss, Coss, Crss – VDS
f=1MHz
Ciss
Coss
Crss
Ciss, Coss, Crss – pF
Drain-to-Source Voltage, VDS – V
IT12605


VGS – Qg
VDS= –6V
ID= –3A
Gate-to-Source Voltage, VGS – V
Total Gate Charge, Qg – nC
IT12606


A S O
IDP= –12A
PW≤10μs
100μs
1ms
10ms
100ms
DC operation(Ta=25°C)
ID= –3A
Operation in this area is limited by RDS(on).
Ta=25°C
Single pulse
Mounted on a ceramic board (900mm2×0.8mm)
Drain Current, ID – A
Drain-to-Source Voltage, VDS – V
IT12607



Note on usage : Since the MCH3374 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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