Ordering number:ENN6369

P-Channel Silicon MOSFET

MCH3302

Ultrahigh-Speed Switching Applications

Features

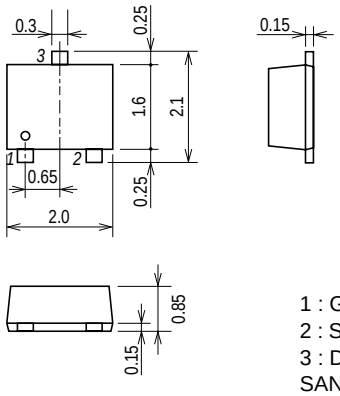
- Low ON resistance.
- Ultrahigh-speed swithcing.
- 4V drive.

Package Dimensions

unit:mm

2167

[MCH3302]



1 : Gate
2 : Source
3 : Drain
SANYO : MCPH3

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_{GSS}		±20	V
Drain Current (DC)	I_D		–1	A
Drain Current (pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	–4	A
Allowable Power Dissipation	P_D	Mounted on a ceramic board (900mm²×0.8mm)	1	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}=0	–30			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=–30V, V_{GS}=0			–10	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	–1.0		–2.5	V
Forward Transfer Admittance	| yfs |	V_{DS}=–10V, I_D=–500mA	670	950		mS
Static Drain-to-Source On-State Resistance	R_{DS}(on)1	I_D=–500mA, V_{GS}=–10V		350	460	mΩ
	R_{DS}(on)2	I_D=–300mA, V_{GS}=–4V		680	950	mΩ
Input Capacitance	Ciss	V_{DS}=–10V, f=1MHz		90		pF
Output Capacitance	Coss	V_{DS}=–10V, f=1MHz		50		pF
Reverse Transfer Capacitance	Crss	V_{DS}=–10V, f=1MHz		20		pF

Marking : JB

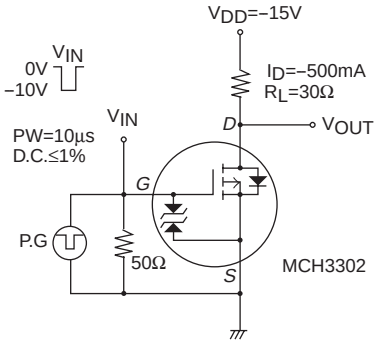
Continued on next page.

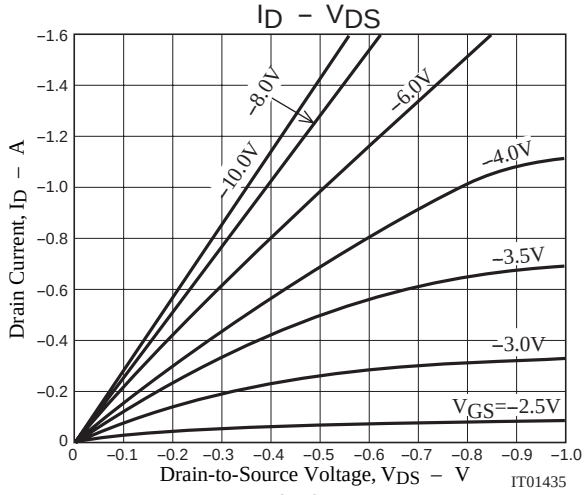
SANYO Electric Co.,Ltd. Semiconductor Company
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

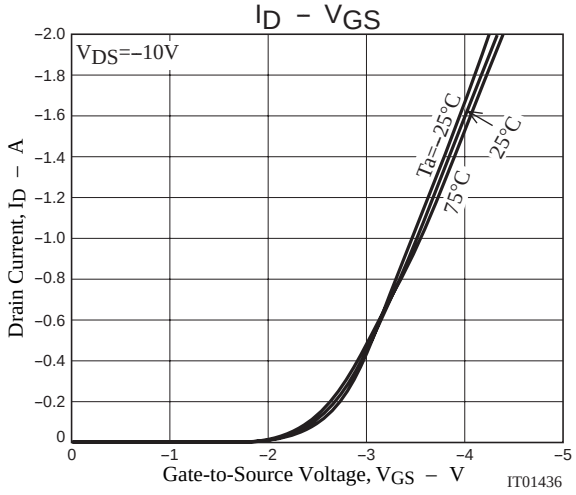
Continued from preceding page.

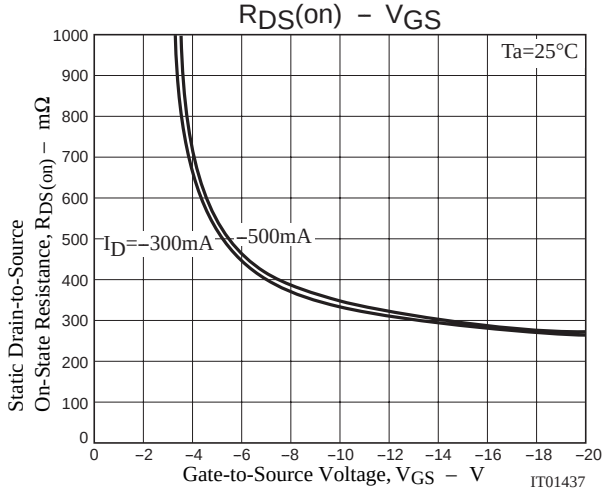
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Turn-ON Delay Time	t_d(on)	See specified Test Circuit		6		ns
Rise Time	t_r	See specified Test Circuit		9.5		ns
Turn-OFF Delay Time	t_d(off)	See specified Test Circuit		20		ns
Fall Time	t_f	See specified Test Circuit		16		ns
Total Gate Charge	Qg	V_{DS}=–10V, V_{GS}=–10V, I_D=–1A		4		nC
Gate-to-Source Charge	Qgs	V_{DS}=–10V, V_{GS}=–10V, I_D=–1A		1		nC
Gate-to-Drain "Miller" Charge	Qgd	V_{DS}=–10V, V_{GS}=–10V, I_D=–1A		1		nC
Diode Forward Voltage	V_{SD}	I_S=–1A, V_{GS}=0		–0.9	–1.5	V

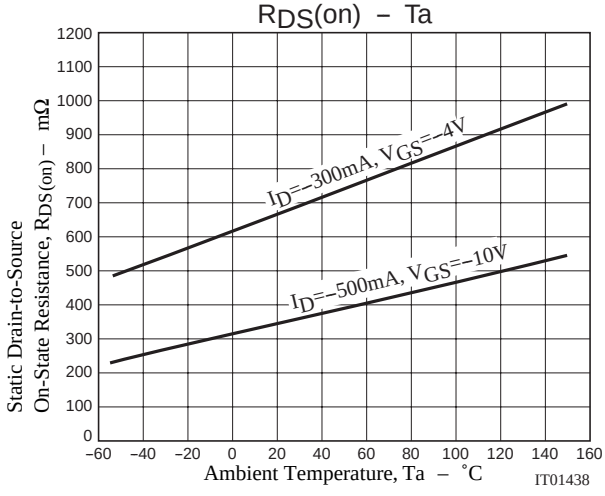
Switching Time Test Circuit

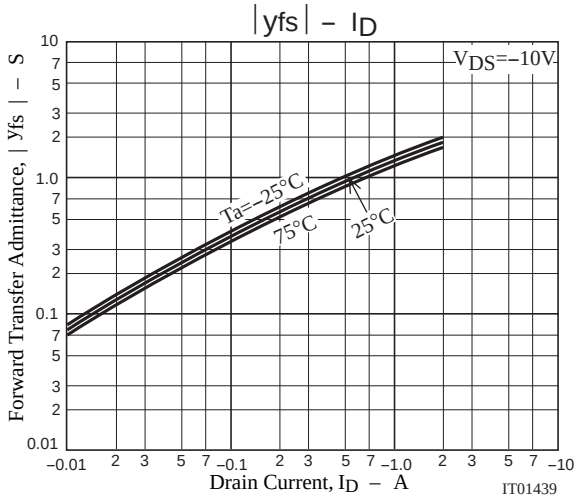


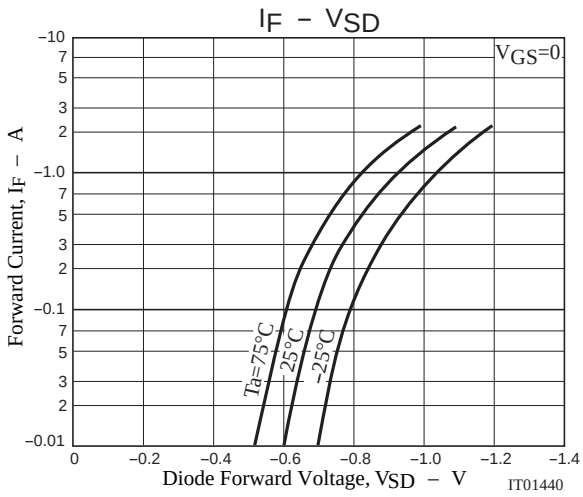


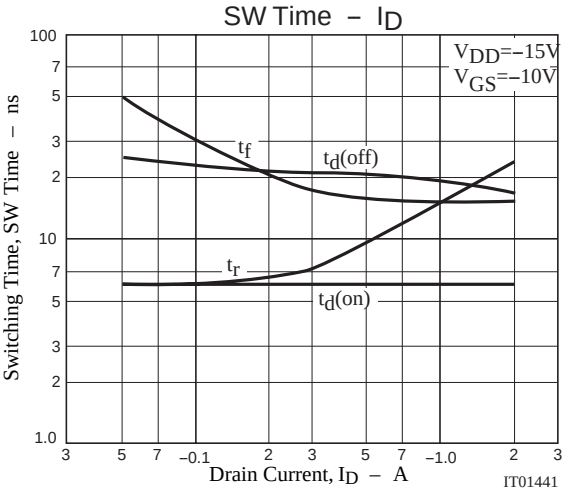


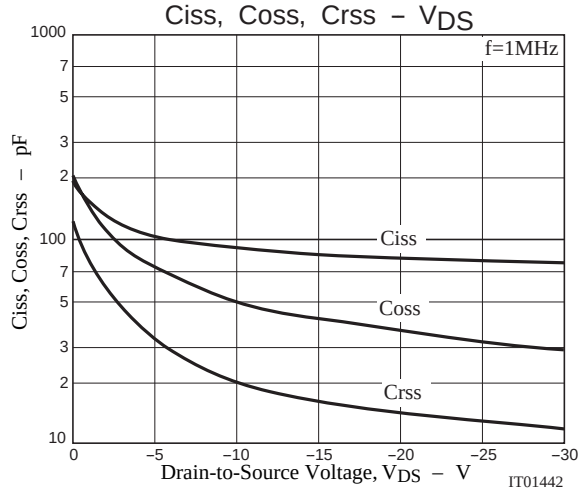


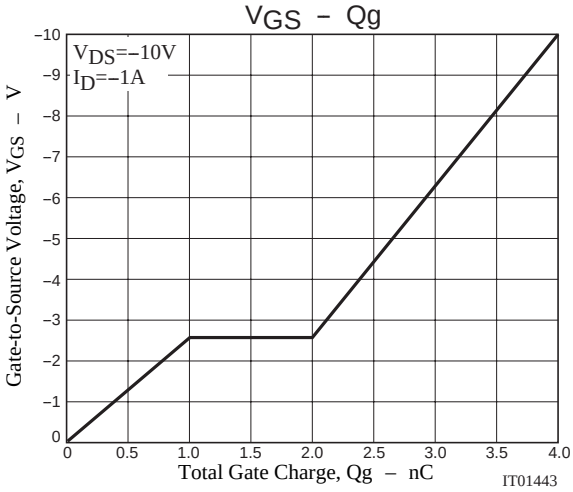


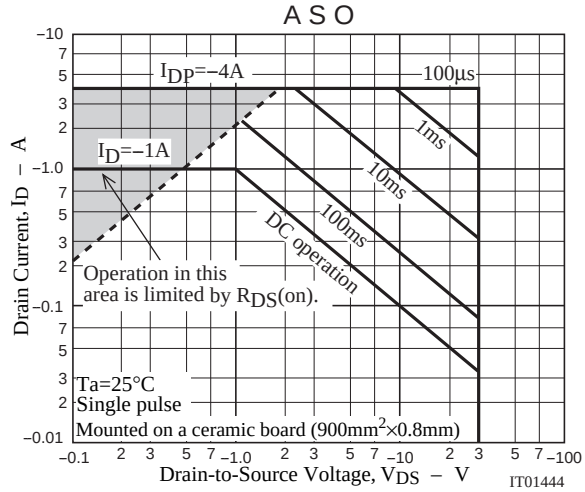

|yfs| – ID
VDS=–10V
Ta=–25°C
75°C
25°C
Forward Transfer Admittance, |yfs| – S
Drain Current, ID – A
IT01439

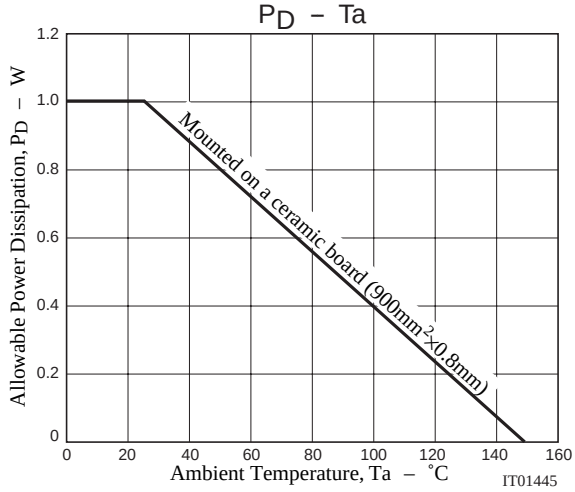

IF – VSD
VGS=0
Ta=75°C
25°C
–25°C
Forward Current, IF – A
Diode Forward Voltage, VSD – V
IT01440


SW Time – ID
VDD=–15V
VGS=–10V
tf
td(off)
tr
td(on)
Switching Time, SW Time – ns
Drain Current, ID – A
IT01441


Ciss, Coss, Crss – VDS
f=1MHz
Ciss
Coss
Crss
Ciss, Coss, Crss – pF
Drain-to-Source Voltage, VDS – V
IT01442


VGS – Qg
VDS=–10V
ID=–1A
Gate-to-Source Voltage, VGS – V
Total Gate Charge, Qg – nC
IT01443


A S O
IDP=–4A
100µs
1ms
10ms
100ms
DC operation
ID=–1A
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
IT01444


PD – Ta
Mounted on a ceramic board (900mm2×0.8mm)
Allowable Power Dissipation, PD – W
Ambient Temperature, Ta – °C
IT01445