Ordering number : EN6458B

SANYO Semiconductors

DATA SHEET

P-Channel Silicon MOSFET

MCH6601 — General-Purpose Switching Device Applications

Features

- Low ON-resistance.
- Ultrahigh-speed switching.
- 1.5V drive.
- Composite type with 2 MOSFETs contained in a single package, facilitating high-density mounting.

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}		±10	V
Drain Current (DC)	I_D		−0.2	A
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	−0.8	A
Allowable Power Dissipation	P_D	Mounted on a ceramic board (900mm²×0.8mm) 1unit	0.8	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	−30			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=−30V, V_{GS}=0V			−1	μA
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}=±8V, V_{DS}=0V			±10	μA
Cutoff Voltage	V_{GS}(off)	V_{DS}=−10V, I_D=−100μA	−0.4		−1.4	V
Forward Transfer Admittance	|yfs|	V_{DS}=−10V, I_D=−50mA	80	110		mS
Static Drain-to-Source On-State Resistance	R_{DS}(on)1	I_D=−50mA, V_{GS}=−4V		8	10.4	Ω
	R_{DS}(on)2	I_D=−30mA, V_{GS}=−2.5V		11	15.4	Ω
	R_{DS}(on)3	I_D=−1mA, V_{GS}=−1.5V		27	54	Ω
Input Capacitance	Ciss	V_{DS}=−10V, f=1MHz		7.5		pF
Output Capacitance	Coss	V_{DS}=−10V, f=1MHz		5.7		pF
Reverse Transfer Capacitance	Crss	V_{DS}=−10V, f=1MHz		1.8		pF

Marking : FA

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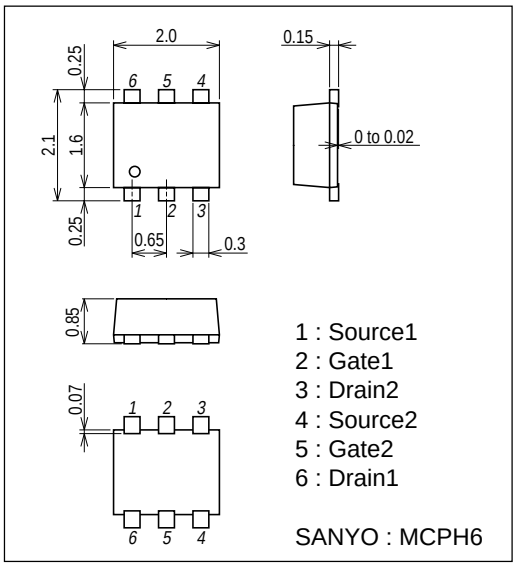
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		24		ns
Rise Time	t_r	See specified Test Circuit.		55		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		120		ns
Fall Time	t_f	See specified Test Circuit.		130		ns
Total Gate Charge	Qg	V_{DS}=–10V, V_{GS}=–10V, I_D=–100mA		1.43		nC
Gate-to-Source Charge	Qgs	V_{DS}=–10V, V_{GS}=–10V, I_D=–100mA		0.18		nC
Gate-to-Drain “Miller” Charge	Qgd	V_{DS}=–10V, V_{GS}=–10V, I_D=–100mA		0.25		nC
Diode Forward Voltage	V_{SD}	I_S=–100mA, V_{GS}=0V		–0.83	–1.2	V

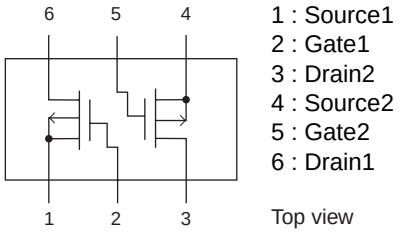
Package Dimensions

unit : mm

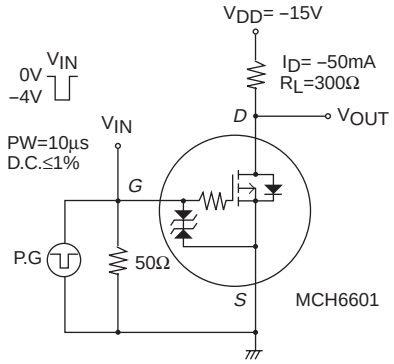
7022A-006

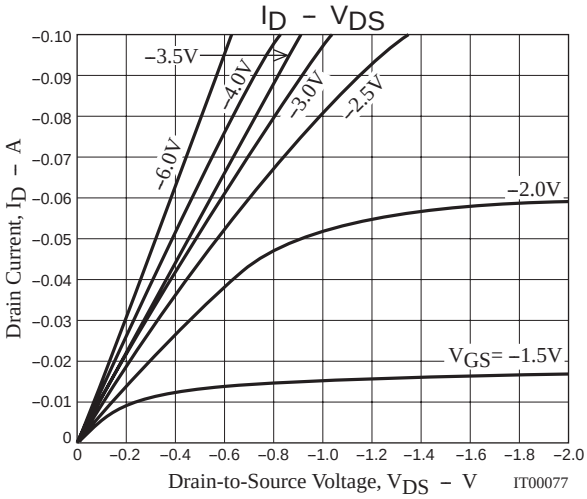


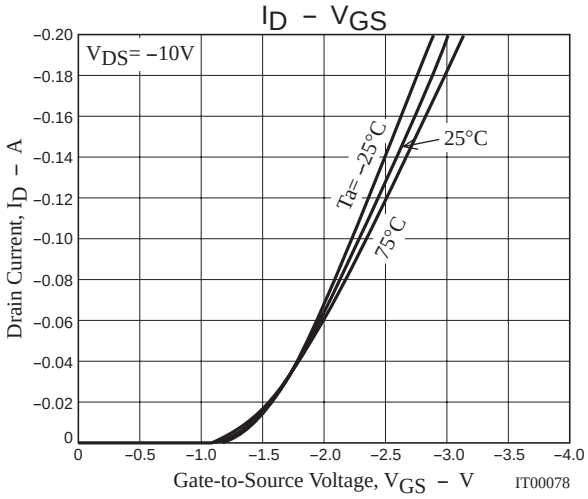
Electrical Connection

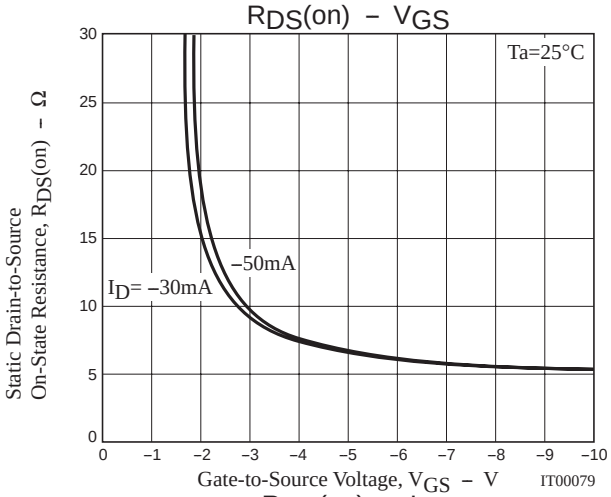


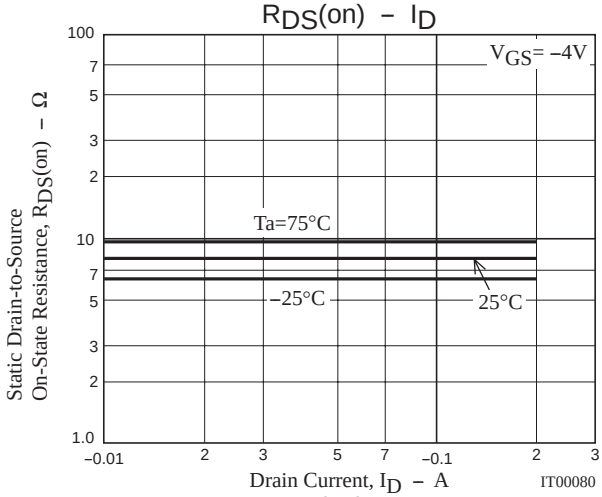
Switching Time Test Circuit

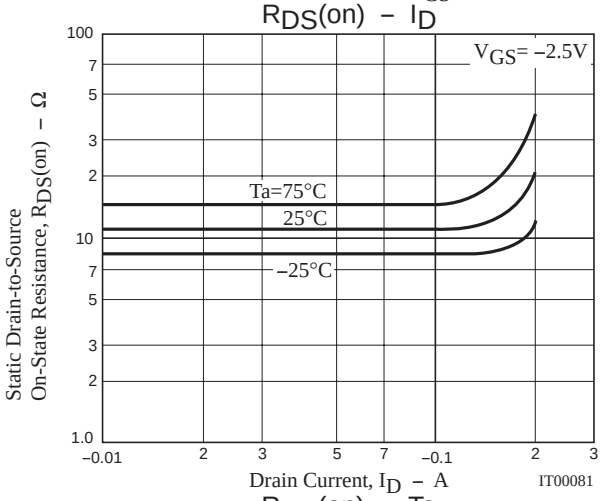


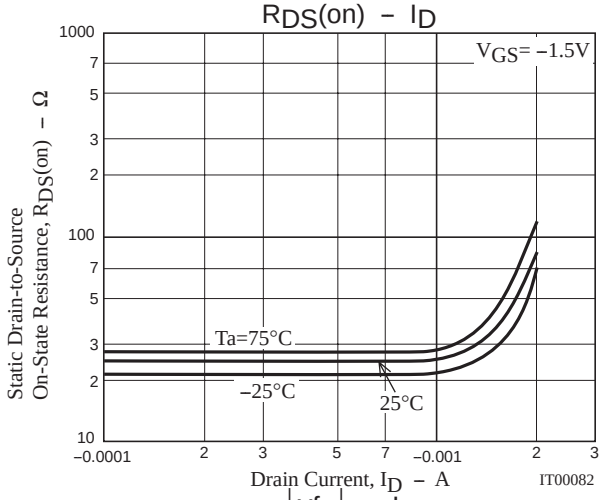


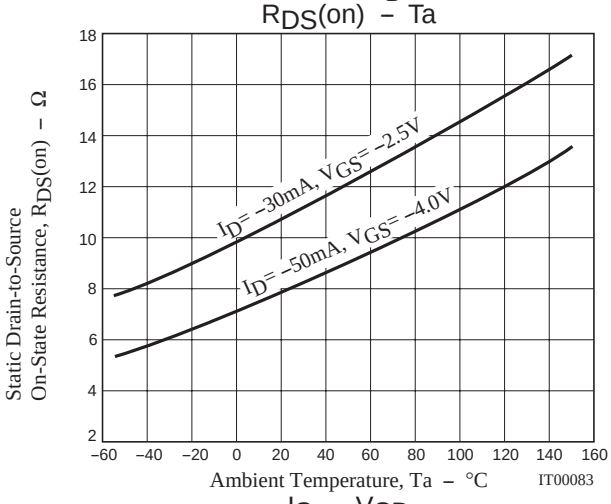


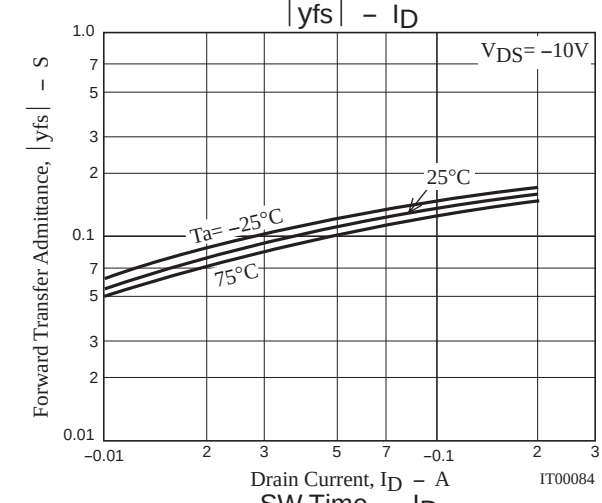

RDS(on) – VGS
Ta=25°C
ID= –30mA
–50mA
Static Drain-to-Source On-State Resistance, RDS(on) – Ω
Gate-to-Source Voltage, VGS – V
IT00079

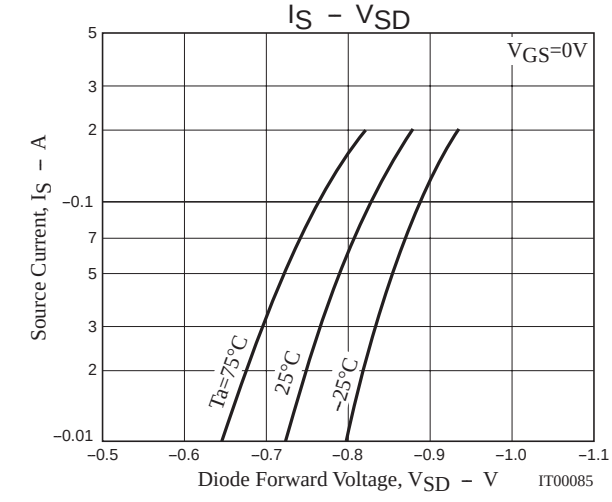

RDS(on) – ID
VGS= –4V
Ta=75°C
–25°C
25°C
Static Drain-to-Source On-State Resistance, RDS(on) – Ω
Drain Current, ID – A
IT00080

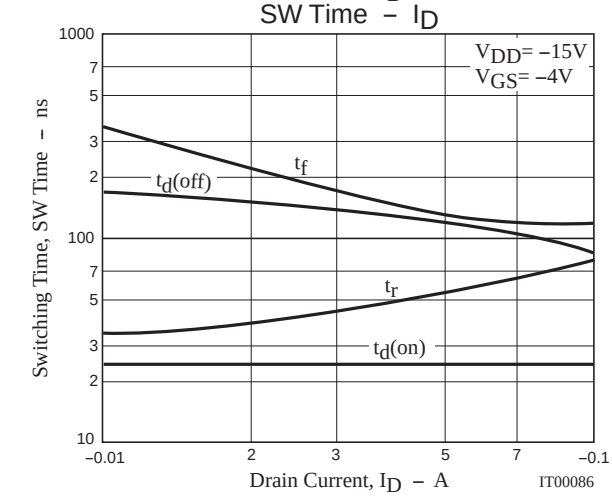

RDS(on) – ID
VGS= –2.5V
Ta=75°C
25°C
–25°C
Static Drain-to-Source On-State Resistance, RDS(on) – Ω
Drain Current, ID – A
IT00081

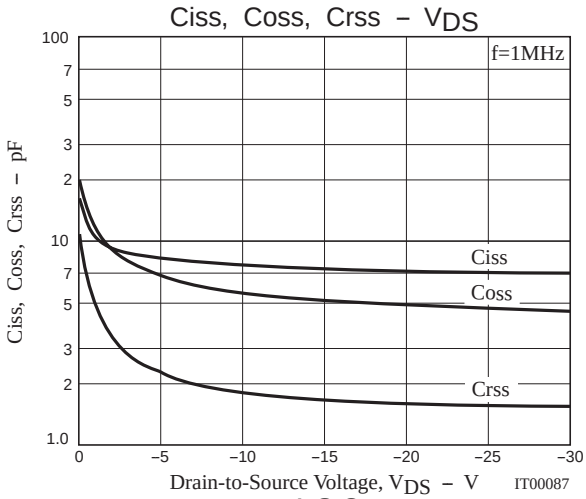

RDS(on) – ID
VGS= –1.5V
Ta=75°C
–25°C
25°C
Static Drain-to-Source On-State Resistance, RDS(on) – Ω
Drain Current, ID – A
IT00082

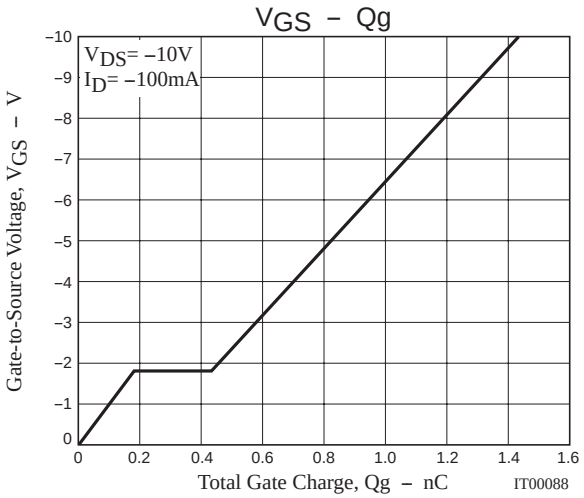

RDS(on) – Ta
ID= –30mA, VGS= –2.5V
ID= –50mA, VGS= –4.0V
Static Drain-to-Source On-State Resistance, RDS(on) – Ω
Ambient Temperature, Ta – °C
IT00083

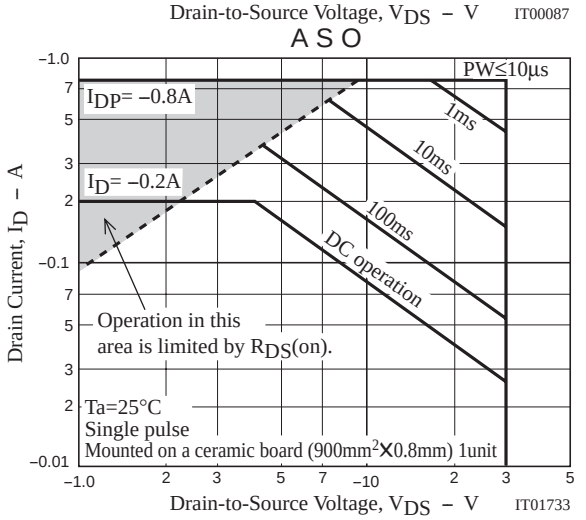

|yfs| – ID
VDS= –10V
25°C
Ta= –25°C
75°C
Forward Transfer Admittance, |yfs| – S
Drain Current, ID – A
IT00084

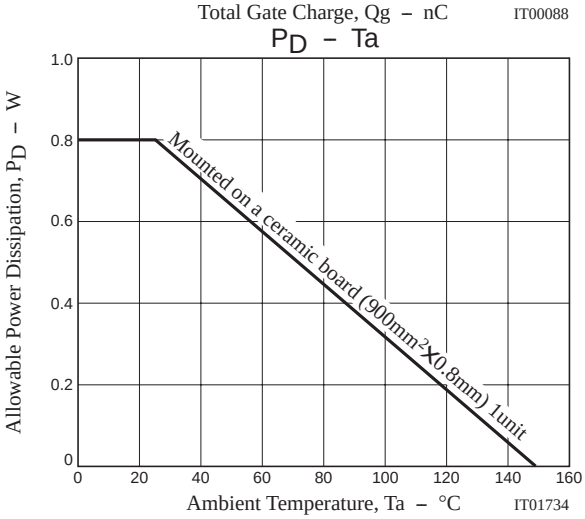

IS – VSD
VGS=0V
Ta=75°C
25°C
–25°C
Source Current, IS – A
Diode Forward Voltage, VSD – V
IT00085


SW Time – ID
VDD= –15V
VGS= –4V
tf
td(off)
tr
td(on)
Switching Time, SW Time – ns
Drain Current, ID – A
IT00086









Note on usage : Since the MCH6601 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.