



SANYO Semiconductors

## DATA SHEET

# MCH6331 — P-Channel Silicon MOSFET

## General-Purpose Switching Device Applications

### Features

- Low ON-resistance.
- 4V drive

### Specifications

**Absolute Maximum Ratings** at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V <sub>DSS</sub>		-30	V
Gate-to-Source Voltage	V <sub>GSS</sub>		±20	V
Drain Current (DC)	I <sub>D</sub>		-3.5	A
Drain Current (Pulse)	I <sub>DP</sub>	PW≤10μs, duty cycle≤1%	-14	A
Allowable Power Dissipation	P <sub>D</sub>	When mounted on ceramic substrate (1200mm <sup>2</sup> ×0.8mm)	1.5	W
Channel Temperature	T <sub>ch</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-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) <sub>DSS</sub>	I <sub>D</sub> =-1mA, V <sub>GS</sub> =0V	-30			V
Zero-Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =-30V, V <sub>GS</sub> =0V			-1	μA
Gate-to-Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±16V, V <sub>DS</sub> =0V			±10	μA
Cutoff Voltage	V <sub>GS(off)</sub>	V <sub>DS</sub> =-10V, I <sub>D</sub> =-1mA	-1.2		-2.6	V
Forward Transfer Admittance	y <sub>fs</sub>	V <sub>DS</sub> =-10V, I <sub>D</sub> =-1.5A	1.68	2.8		S
Static Drain-to-Source On-State Resistance	R <sub>DS(on)1</sub>	I <sub>D</sub> =-1.5A, V <sub>GS</sub> =-10V		75	98	mΩ
	R <sub>DS(on)2</sub>	I <sub>D</sub> =-0.75A, V <sub>GS</sub> =-4.5V		122	171	mΩ
	R <sub>DS(on)3</sub>	I <sub>D</sub> =-0.75A, V <sub>GS</sub> =-4V		142	199	mΩ

Marking : YF

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**SANYO Semiconductor Co., Ltd.**

TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

# MCH6331

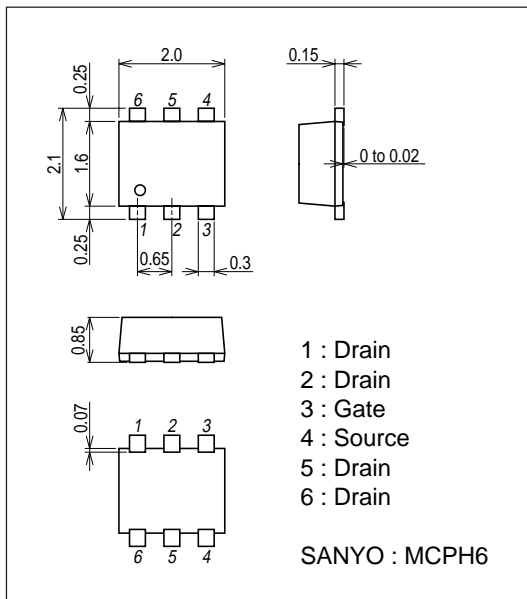
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	V <sub>DS</sub> =-10V, f=1MHz		250		pF
Output Capacitance	Coss	V <sub>DS</sub> =-10V, f=1MHz		65		pF
Reverse Transfer Capacitance	Crss	V <sub>DS</sub> =-10V, f=1MHz		46		pF
Turn-ON Delay Time	t <sub>d(on)</sub>	See specified Test Circuit.		5.4		ns
Rise Time	t <sub>r</sub>	See specified Test Circuit.		12		ns
Turn-OFF Delay Time	t <sub>d(off)</sub>	See specified Test Circuit.		26		ns
Fall Time	t <sub>f</sub>	See specified Test Circuit.		19		ns
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =-10V, V <sub>GS</sub> =-10V, I <sub>D</sub> =-3.5A		5.0		nC
Gate-to-Source Charge	Q <sub>gs</sub>	V <sub>DS</sub> =-10V, V <sub>GS</sub> =-10V, I <sub>D</sub> =-3.5A		1.0		nC
Gate-to-Drain "Miller" Charge	Q <sub>gd</sub>	V <sub>DS</sub> =-10V, V <sub>GS</sub> =-10V, I <sub>D</sub> =-3.5A		1.2		nC
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =-3.5A, V <sub>GS</sub> =0V	-0.86		-1.5	V

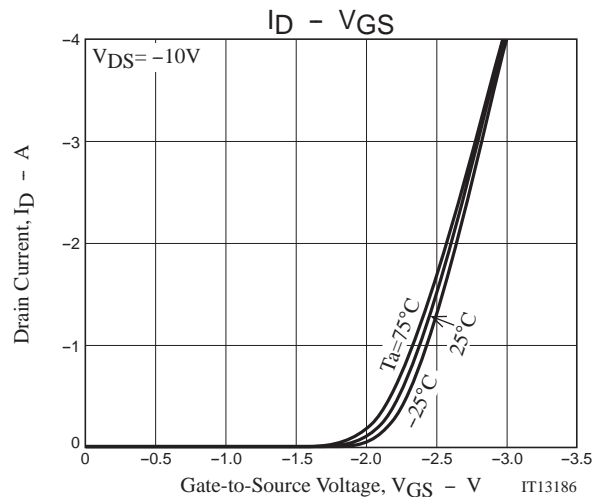
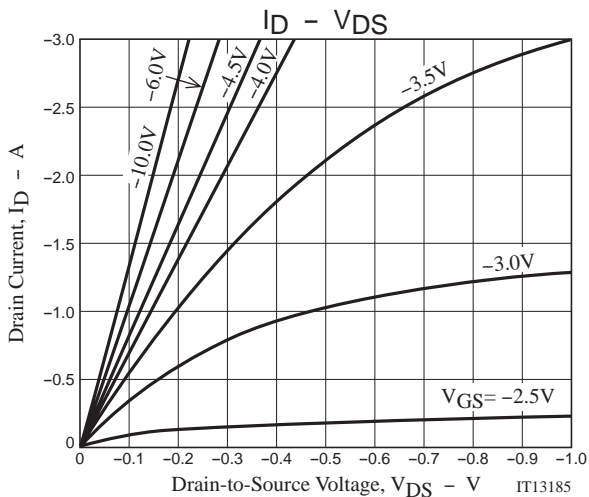
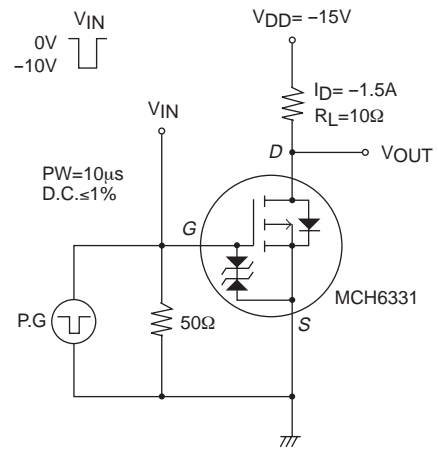
## Package Dimensions

unit : mm (typ)

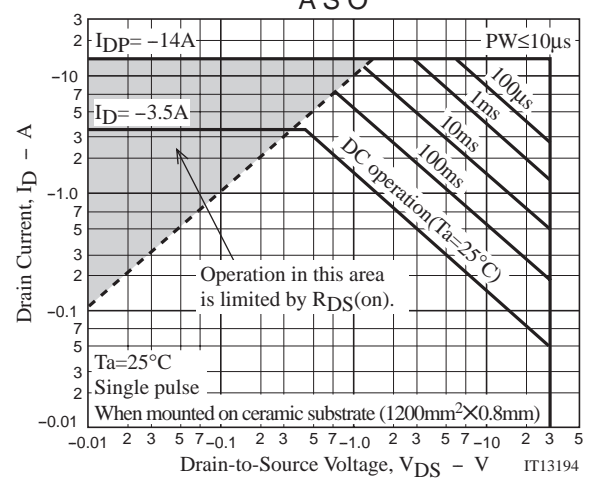
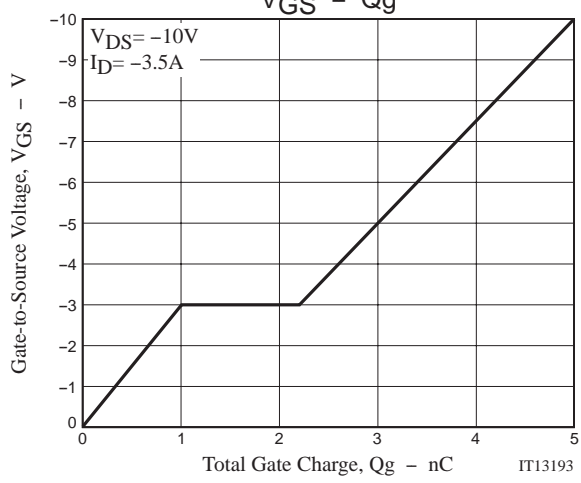
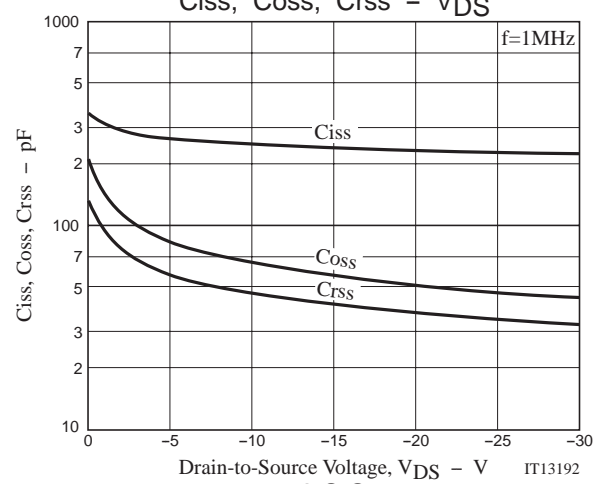
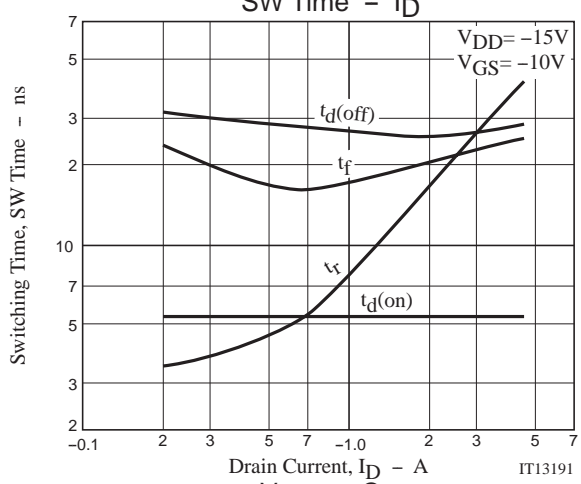
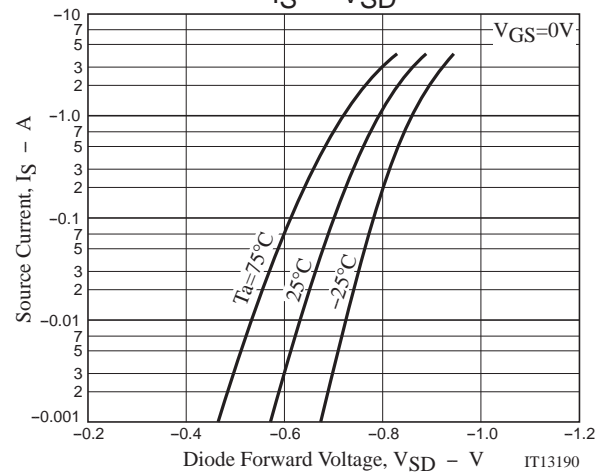
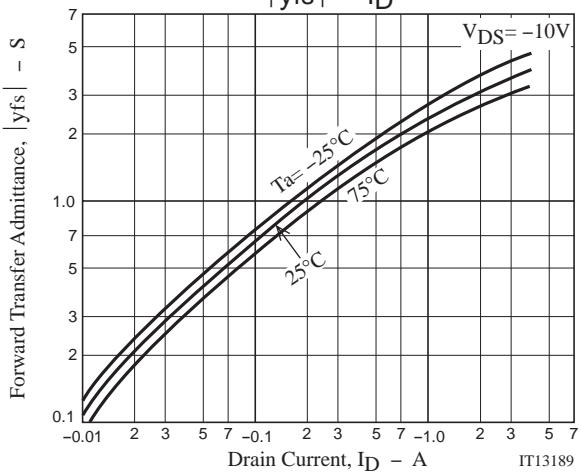
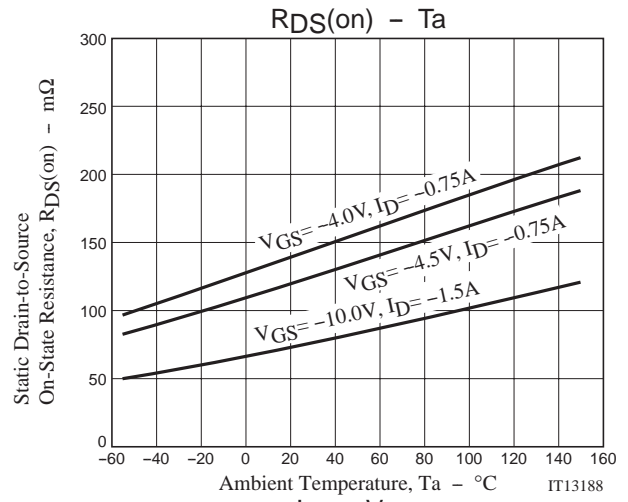
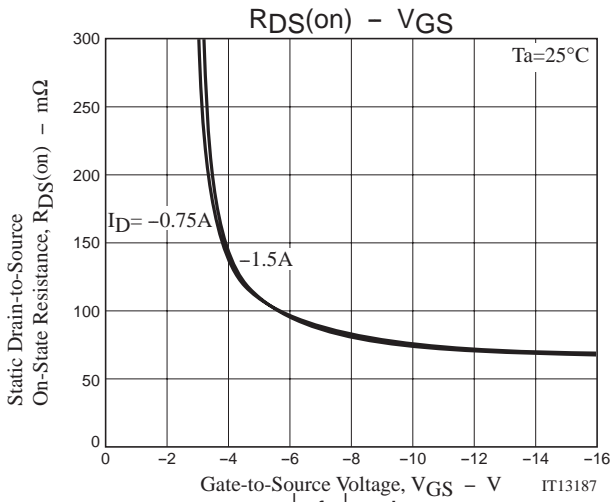
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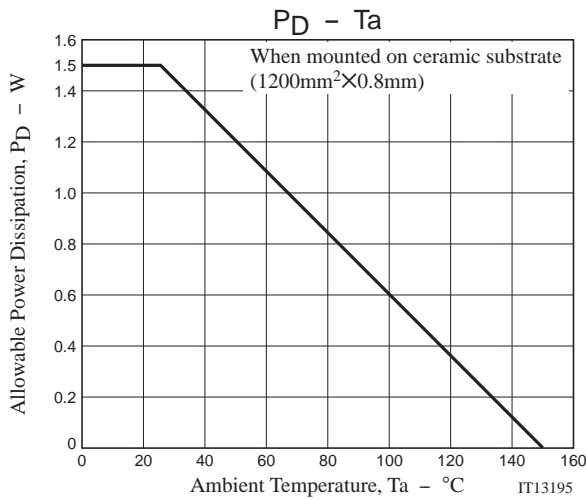


## Switching Time Test Circuit



# MCH6331





Note on usage : Since the MCH6331 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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