



# MCH3301

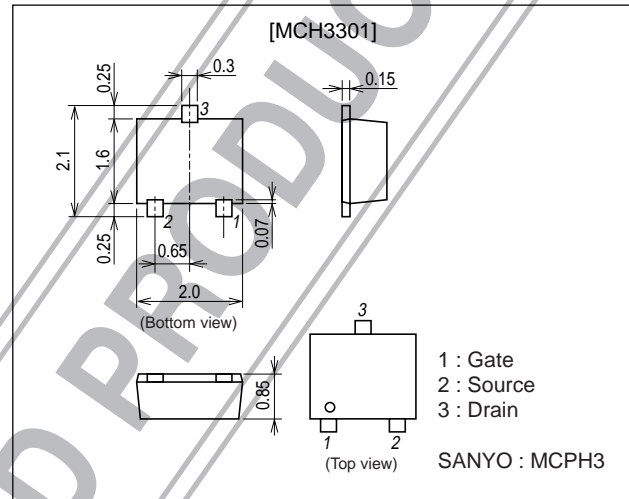
## Ultrahigh-Speed Switching Applications

### Features

- Low ON resistance.
- Ultrahigh-speed switching.
- 2.5V drive.

### Package Dimensions

unit : mm  
2167A



### Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V <sub>DSS</sub>		-20	V
Gate-to-Source Voltage	V <sub>GSS</sub>		±10	V
Drain Current (DC)	I <sub>D</sub>		-1	A
Drain Current (Pulse)	I <sub>DP</sub>	PW≤10μs, duty cycles≤1%	-4	A
Allowable Power Dissipation	P <sub>D</sub>	Mounted on a ceramic board (900mm <sup>2</sup> X0.8mm)	1	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 <sub>(BR)DSS</sub>	I <sub>D</sub> =-1mA, V <sub>GS</sub> =0	-20			V
Zero-Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =-20V, V <sub>GS</sub> =0			-10	μA
Gate-to-Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±8V, V <sub>DS</sub> =0			±10	μA
Cutoff Voltage	V <sub>GS(off)</sub>	V <sub>DS</sub> =-10V, I <sub>D</sub> =-1mA	-0.4		-1.4	V
Forward Transfer Admittance	y <sub>fs</sub>	V <sub>DS</sub> =-10V, I <sub>D</sub> =-500mA	0.9	1.3		S
Static Drain-to-Source On-State Resistance	R <sub>DS(on)1</sub>	I <sub>D</sub> =-500mA, V <sub>GS</sub> =-4V		400	520	mΩ
	R <sub>DS(on)2</sub>	I <sub>D</sub> =-300mA, V <sub>GS</sub> =-2.5V		600	840	mΩ

Marking : JA

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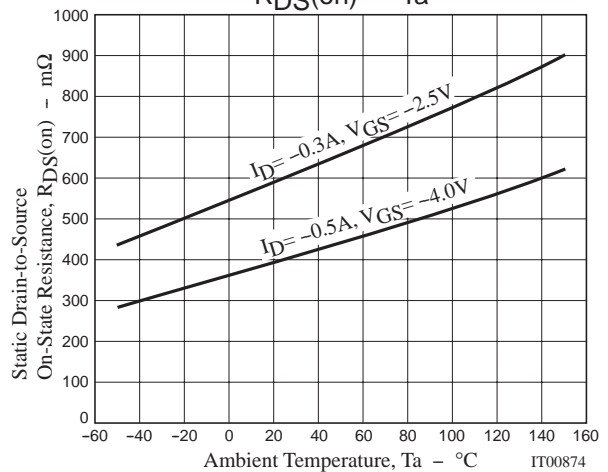
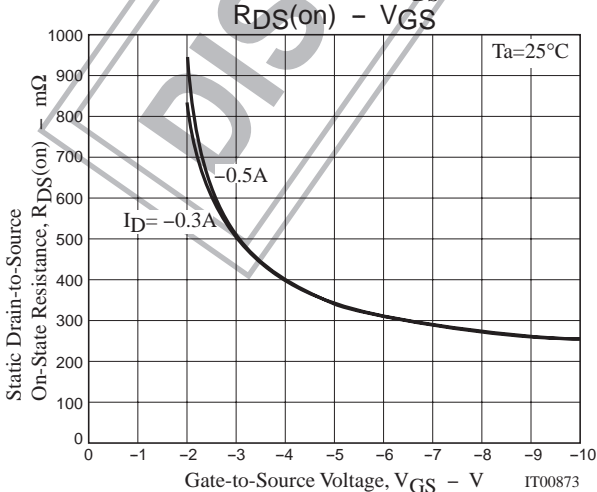
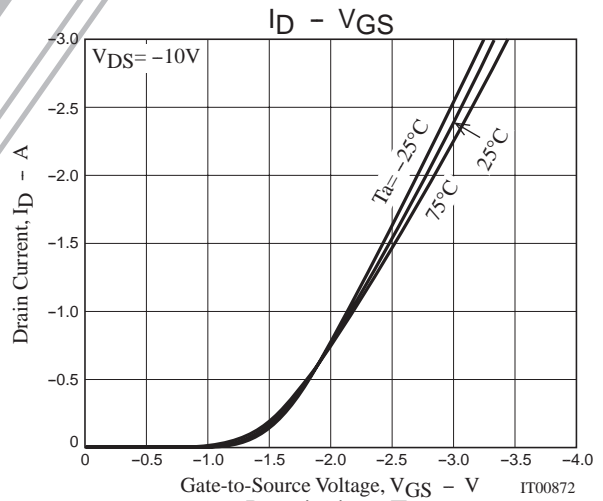
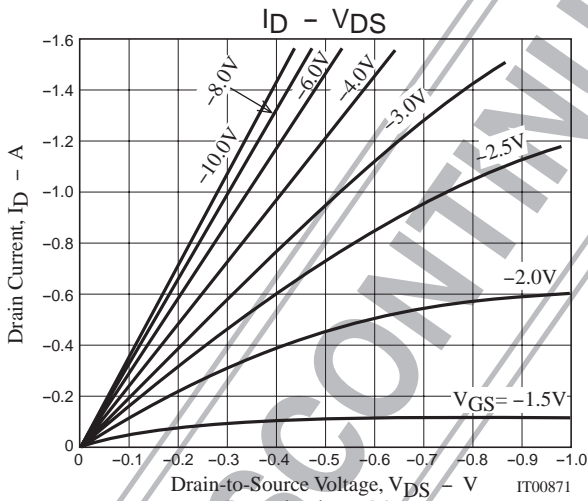
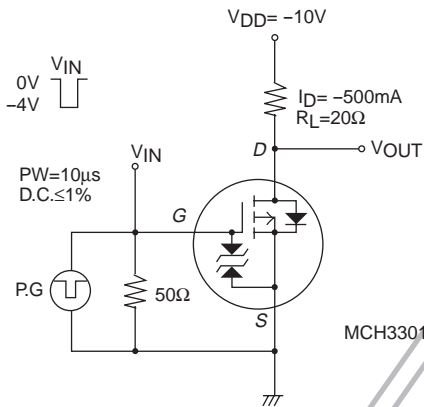
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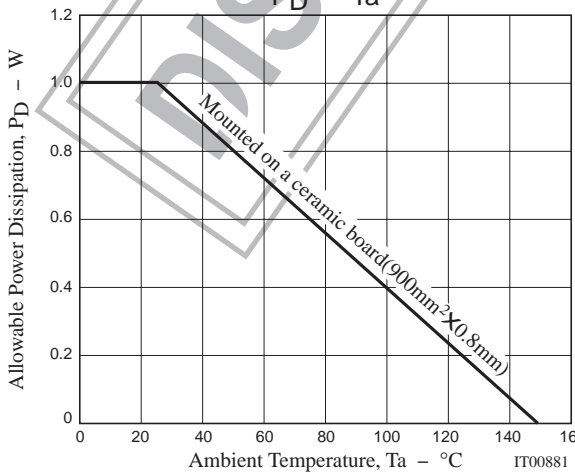
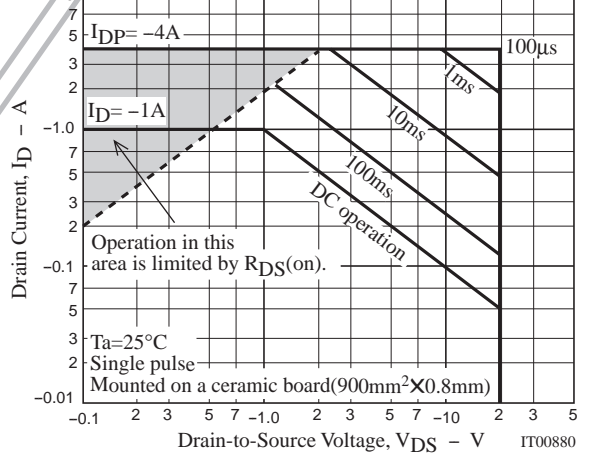
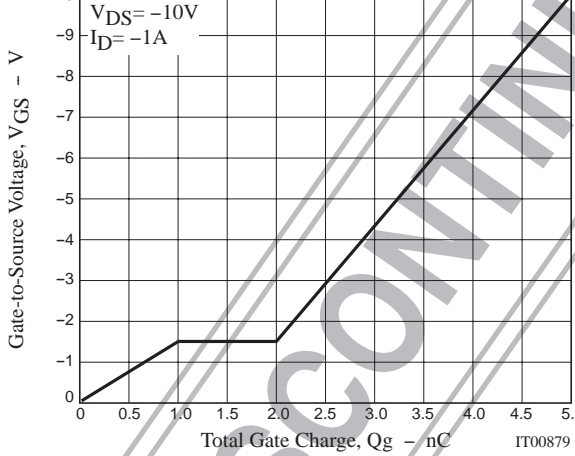
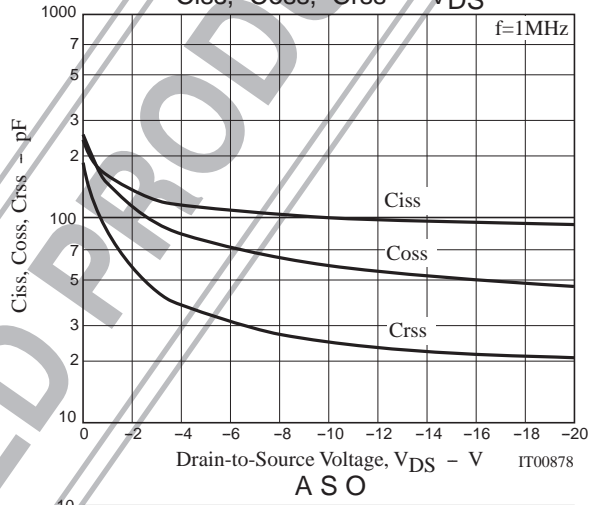
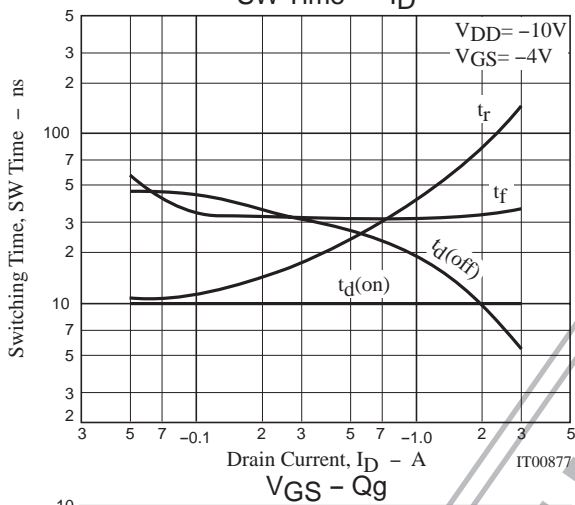
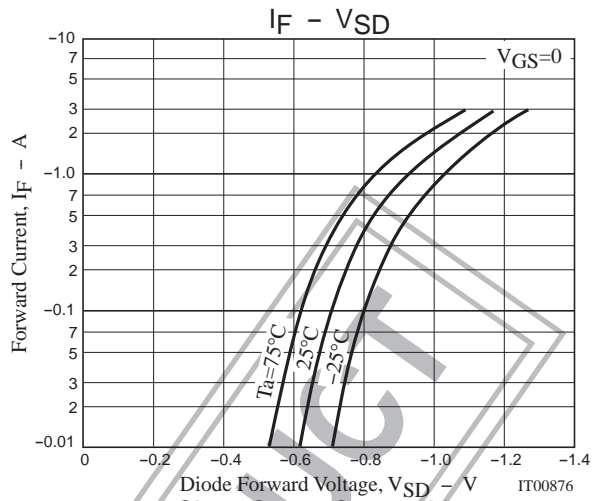
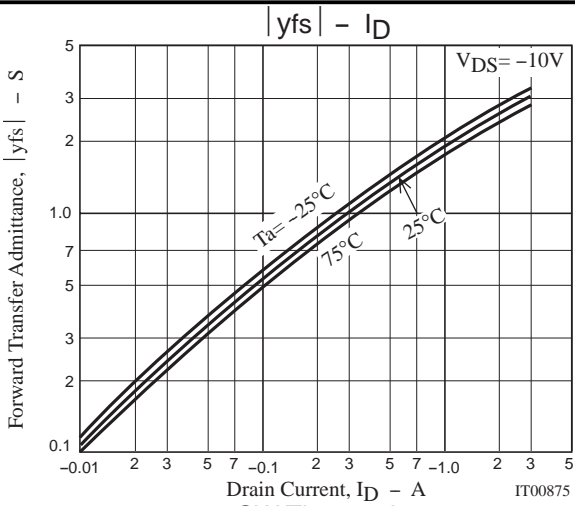
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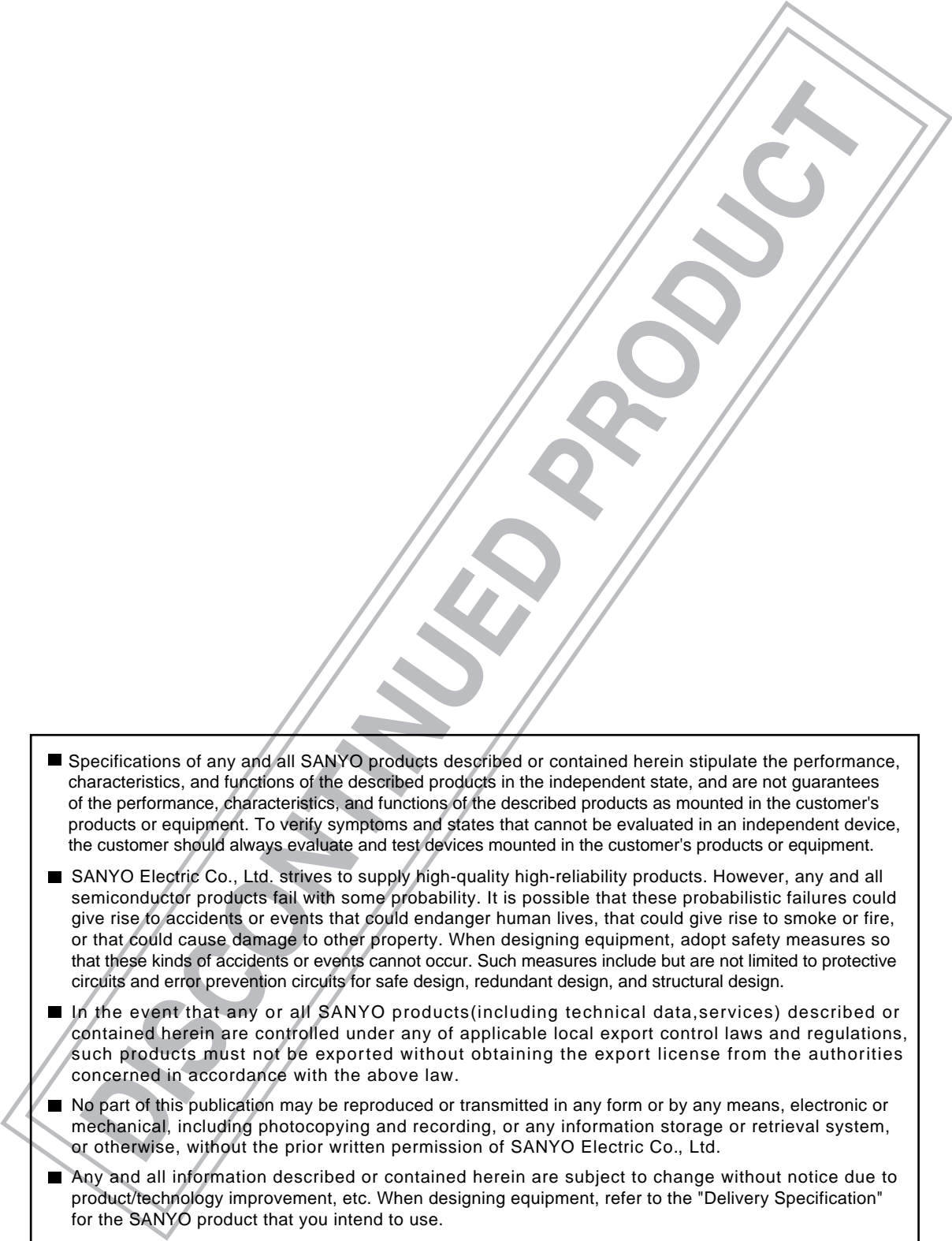
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	V <sub>DS</sub> =-10V, f=1MHz		100		pF
Output Capacitance	Coss	V <sub>DS</sub> =-10V, f=1MHz		60		pF
Reverse Transfer Capacitance	Crss	V <sub>DS</sub> =-10V, f=1MHz		25		pF
Turn-ON Delay Time	t <sub>d(on)</sub>	See specified Test Circuit.		10		ns
Rise Time	t <sub>r</sub>	See specified Test Circuit.		25		ns
Turn-OFF Delay Time	t <sub>d(off)</sub>	See specified Test Circuit.		27		ns
Fall Time	t <sub>f</sub>	See specified Test Circuit.		32		ns
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =-10V, V <sub>GS</sub> =-10V, I <sub>D</sub> =-1A		5		nC
Gate-to-Source Charge	Q <sub>gs</sub>	V <sub>DS</sub> =-10V, V <sub>GS</sub> =-10V, I <sub>D</sub> =-1A		1		nC
Gate-to-Drain "Miller" Charge	Q <sub>gd</sub>	V <sub>DS</sub> =-10V, V <sub>GS</sub> =-10V, I <sub>D</sub> =-1A		1		nC
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =-1A, V <sub>GS</sub> =0	-0.9		-1.5	V

## Switching Time Test Circuit





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