

**CPH3313**

## Ultrahigh-Speed Switching Applications

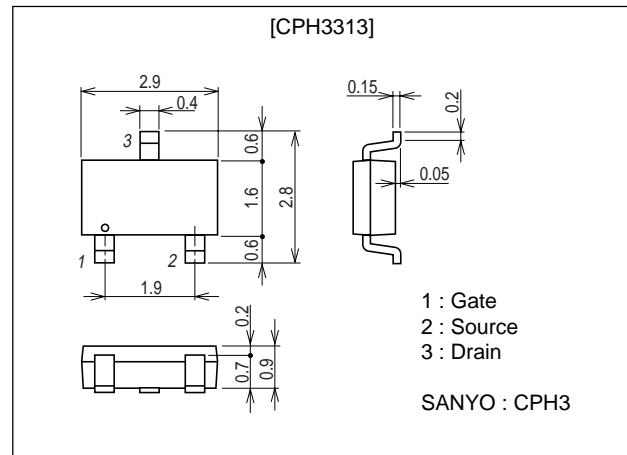
### Features

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

### Package Dimensions

unit : mm

2152A



### Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	$V_{DS}$		-20	V
Gate-to-Source Voltage	$V_{GS}$		$\pm 10$	V
Drain Current (DC)	$I_D$		-1.6	A
Drain Current (Pulse)	$I_{DP}$	$PW \leq 10\mu s$ , duty cycle $\leq 1\%$	-6.4	A
Allowable Power Dissipation	$P_D$	Mounted on a ceramic board (900mm <sup>2</sup> X 0.8mm)	1	W
Channel Temperature	$T_{ch}$		150	°C
Storage Temperature	$T_{stg}$		-55 to +150	°C

### Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = -1mA$ , $V_{GS} = 0$	-20			V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = -20V$ , $V_{GS} = 0$			-1	$\mu A$
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS} = \pm 8V$ , $V_{DS} = 0$			$\pm 10$	$\mu A$
Cutoff Voltage	$V_{GS(off)}$	$V_{DS} = -10V$ , $I_D = 1mA$	-0.4		-1.3	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS} = -10V$ , $I_D = 0.8A$	1.6	2.3		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D = -0.8A$ , $V_{GS} = -4V$		180	235	m $\Omega$
	$R_{DS(on)2}$	$I_D = -0.4A$ , $V_{GS} = -2.5V$		240	340	m $\Omega$
Input Capacitance	$C_{iss}$	$V_{DS} = -10V$ , $f = 1MHz$		290		pF
Output Capacitance	$C_{oss}$	$V_{DS} = -10V$ , $f = 1MHz$		40		pF
Reverse Transfer Capacitance	$C_{rss}$	$V_{DS} = -10V$ , $f = 1MHz$		25		pF

Marking : JN

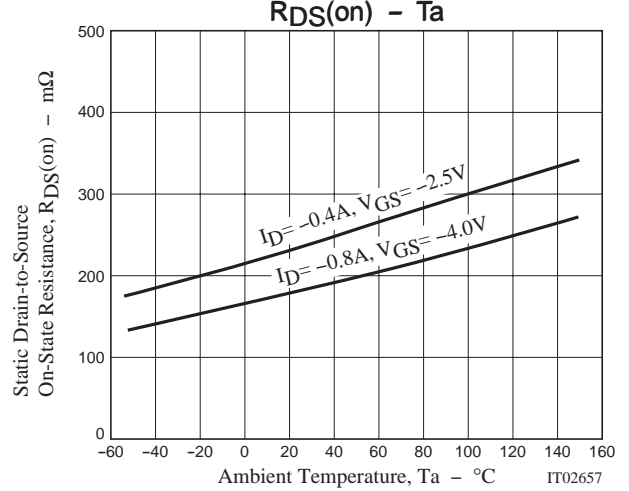
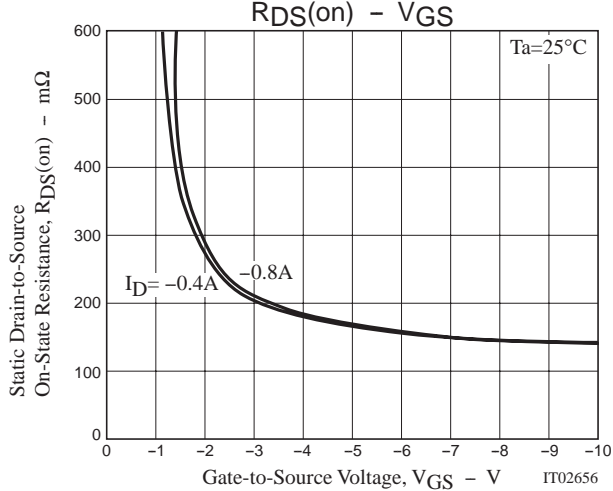
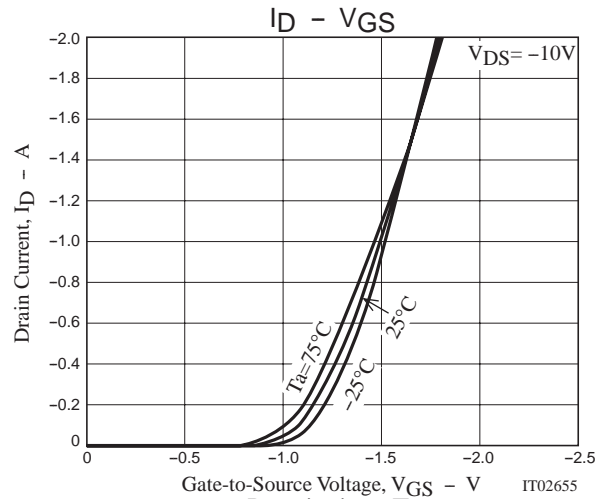
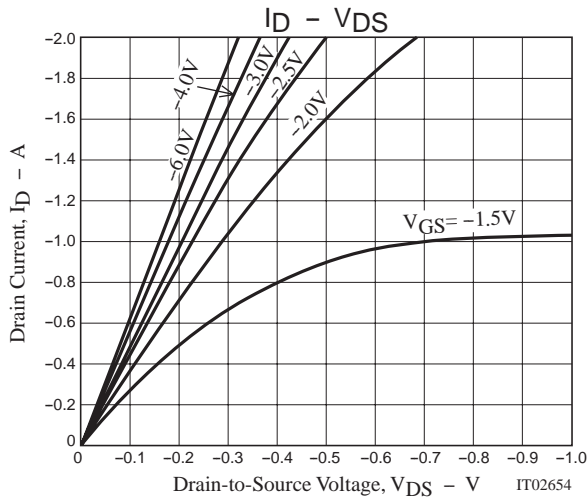
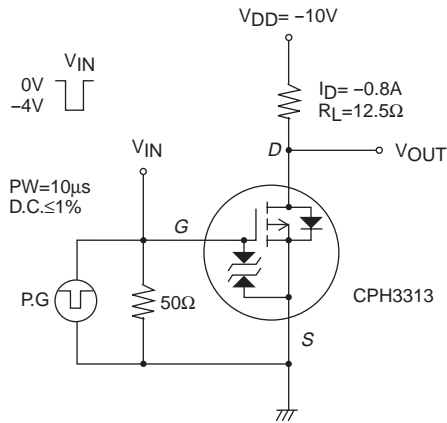
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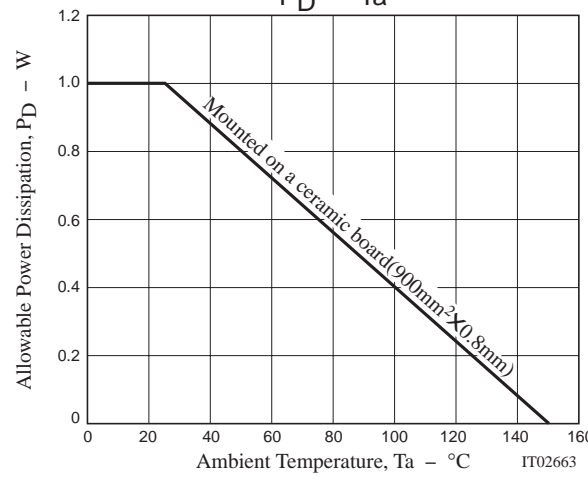
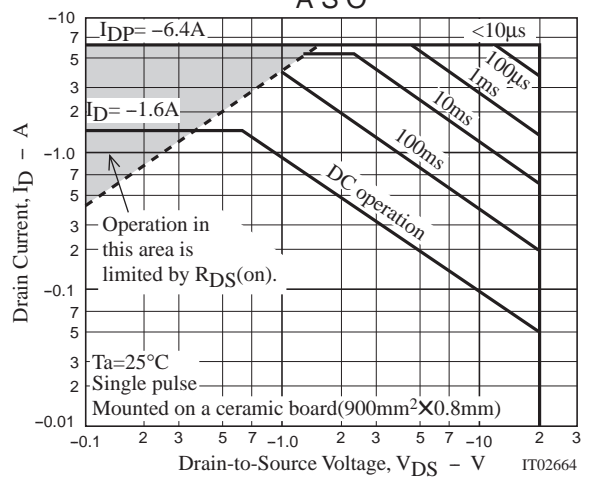
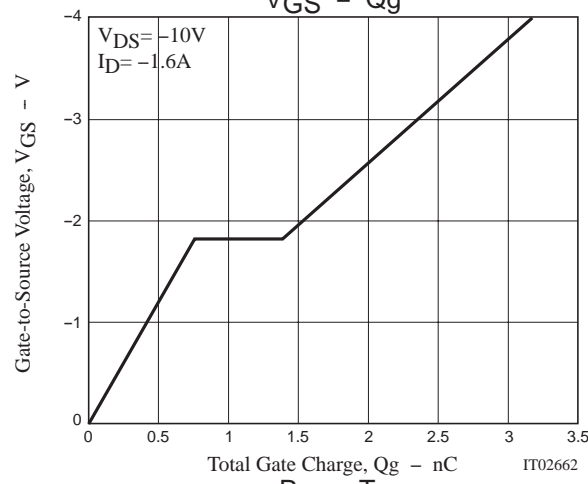
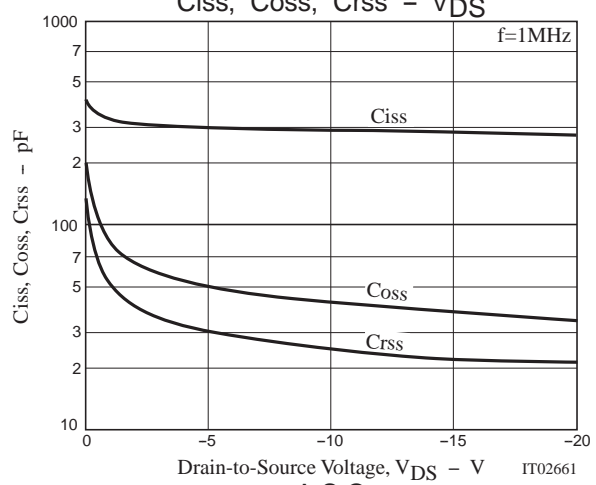
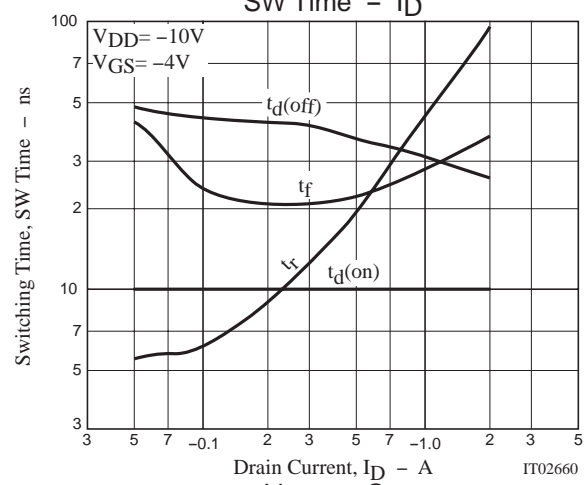
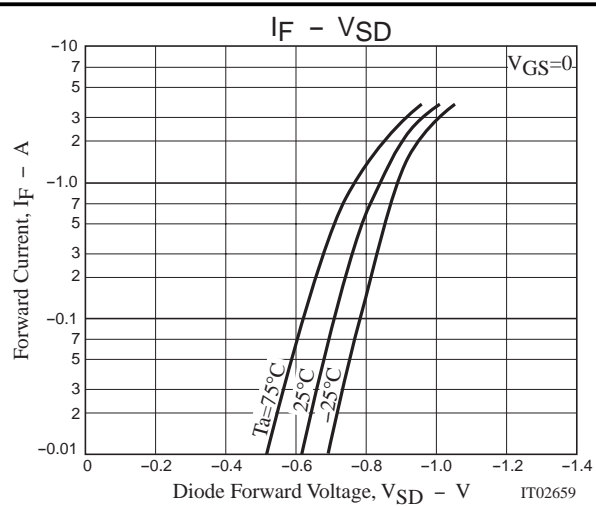
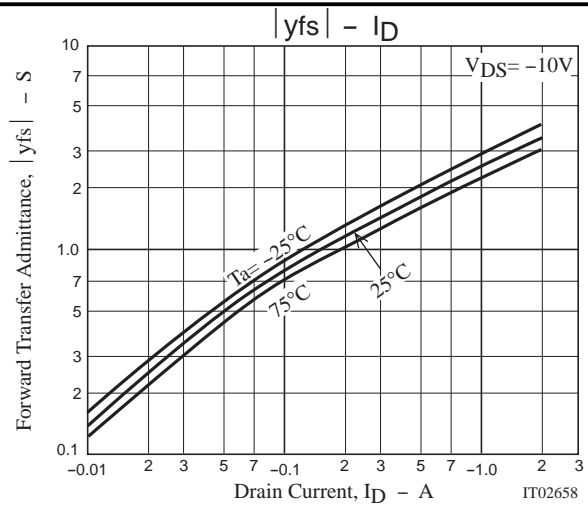
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit		10		ns
Rise Time	$t_r$	See specified Test Circuit		35		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit		32		ns
Fall Time	$t_f$	See specified Test Circuit		27		ns
Total Gate Charge	$Q_g$	$V_{DS}=-10V$ , $V_{GS}=-4V$ , $I_D=-1.6A$		3.2		nC
Gate-to-Source Charge	$Q_{gs}$	$V_{DS}=-10V$ , $V_{GS}=-4V$ , $I_D=-1.6A$		0.8		nC
Gate-to-Drain "Miller" Charge	$Q_{gd}$	$V_{DS}=-10V$ , $V_{GS}=-4V$ , $I_D=-1.6A$		0.6		nC
Diode Forward Voltage	$V_{SD}$	$I_S=-1.6A$ , $V_{GS}=0$		-0.88	-1.5	V

## Switching Time Test Circuit





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