



## Ultrahigh-Speed Switching Applications

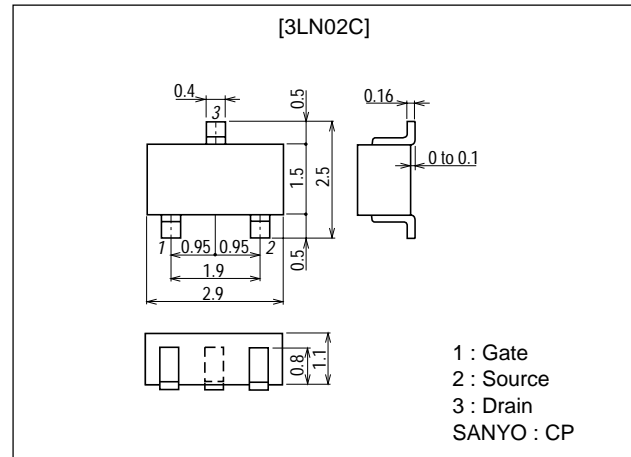
### Features

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

### Package Dimensions

unit:mm

2091A



### 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)	$I_D$		0.3	A
Drain Current (pulse)	$I_{DP}$	$PW \leq 10\mu s$ , duty cycle $\leq 1\%$	1.2	A
Allowable Power Dissipation	$P_D$		0.25	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	$V_{(BR)DSS}$	$I_D=1mA$ , $V_{GS}=0$	30			V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=30V$ , $V_{GS}=0$			10	$\mu A$
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 8V$ , $V_{DS}=0$			±10	$\mu A$
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=10V$ , $I_D=100\mu A$	0.4		1.3	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=10V$ , $I_D=150mA$	0.4	0.56		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=150mA$ , $V_{GS}=4V$		0.9	1.2	$\Omega$
	$R_{DS(on)2}$	$I_D=80mA$ , $V_{GS}=2.5V$		1.2	1.7	$\Omega$
	$R_{DS(on)3}$	$I_D=10mA$ , $V_{GS}=1.5V$		2.6	5.2	$\Omega$

Marking : YD

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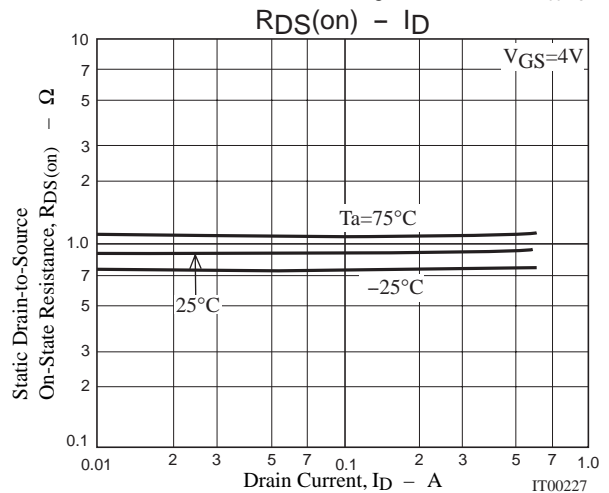
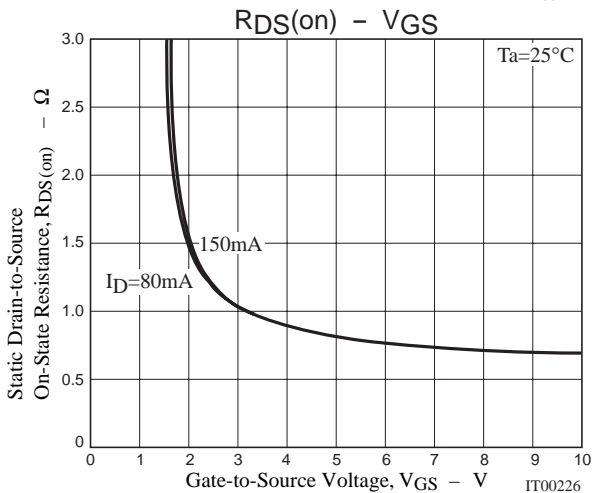
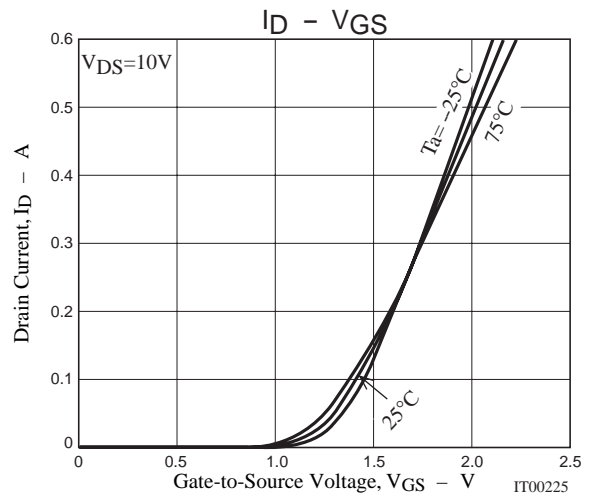
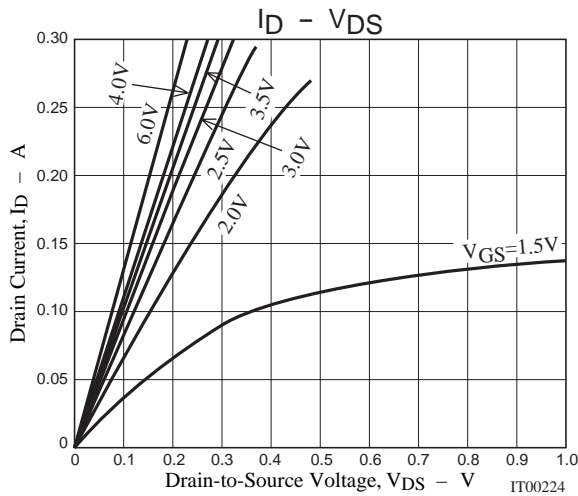
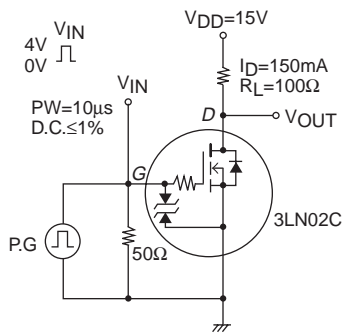
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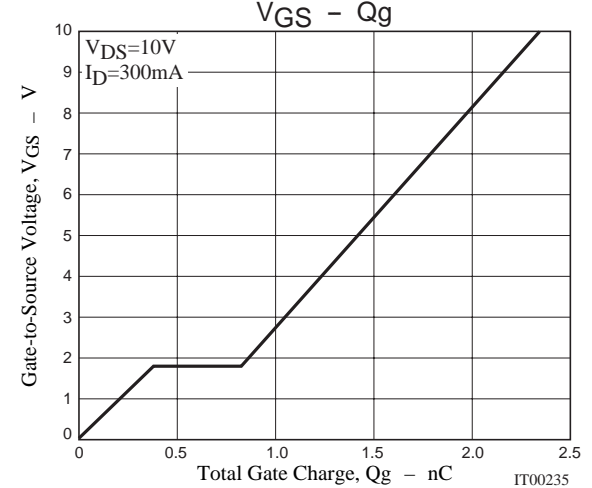
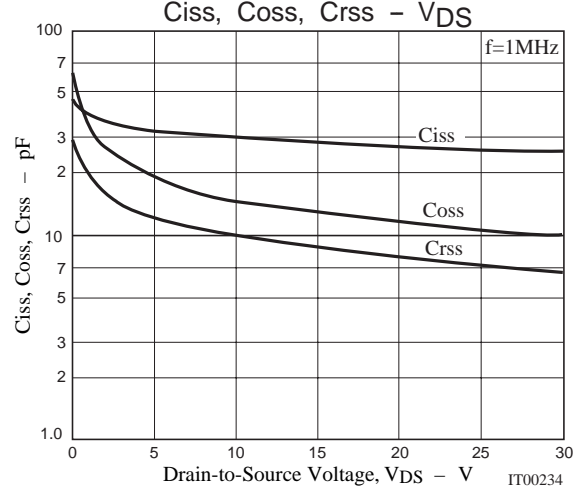
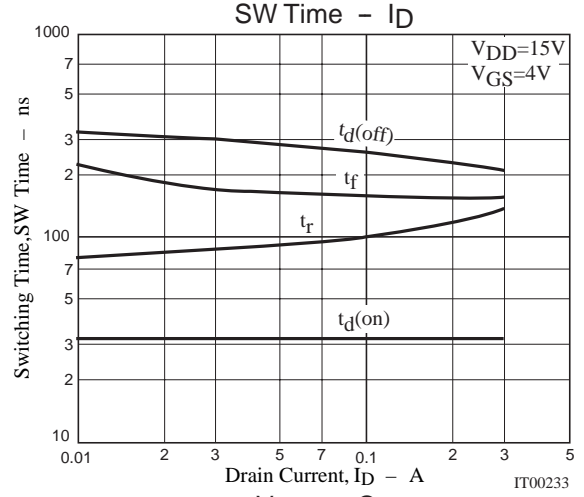
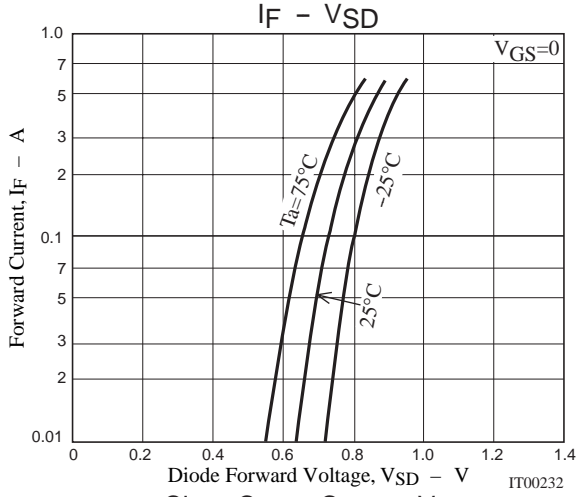
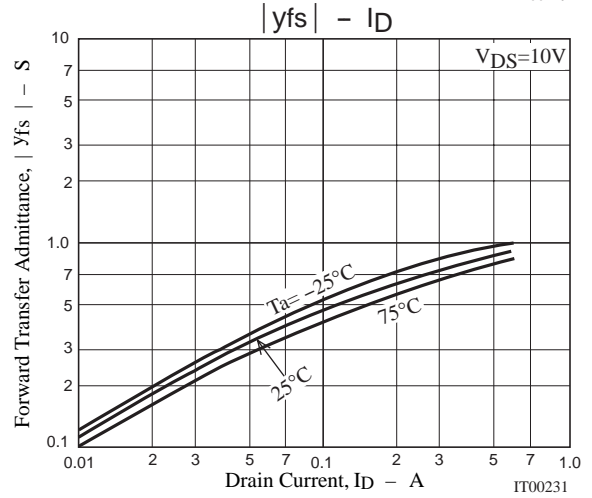
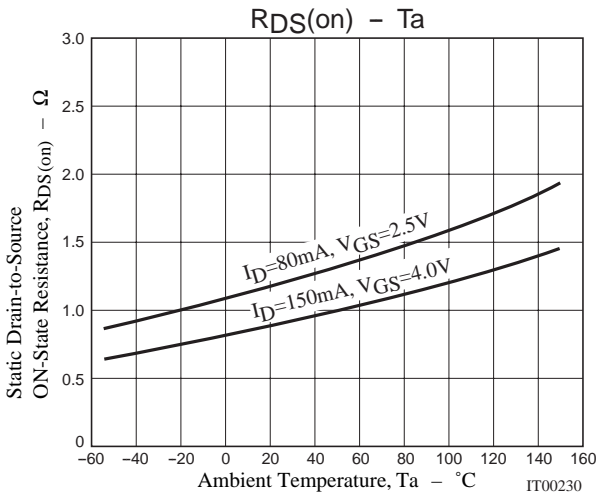
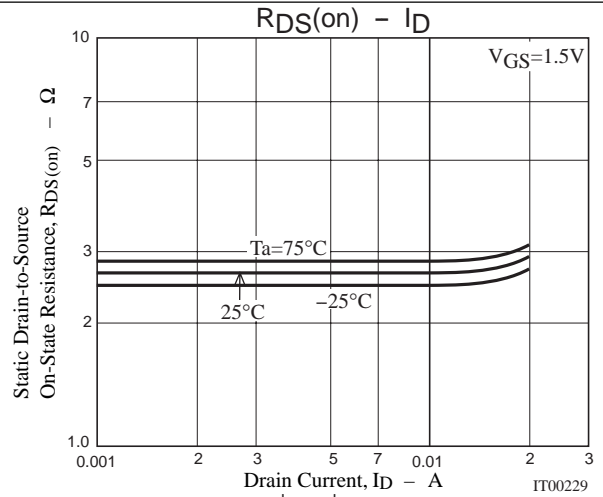
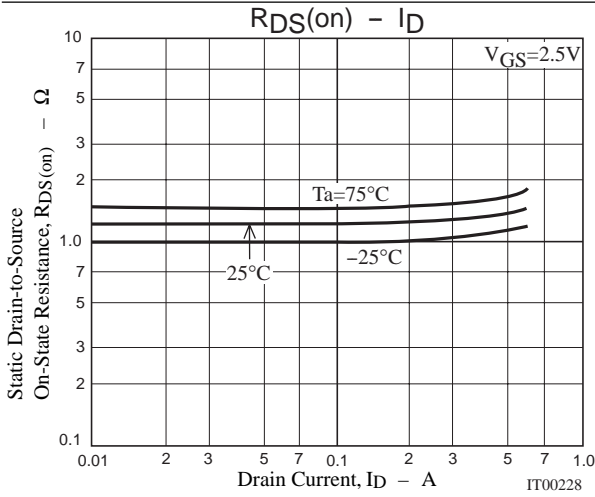
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	$V_{DS}=10V, f=1MHz$		30		pF
Output Capacitance	Coss	$V_{DS}=10V, f=1MHz$		15		pF
Reverse Transfer Capacitance	Crss	$V_{DS}=10V, f=1MHz$		10		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit		32		ns
Rise Time	$t_r$	See specified Test Circuit		110		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit		250		ns
Fall Time	$t_f$	See specified Test Circuit		160		ns
Total Gate Charge	Qg	$V_{DS}=10V, V_{GS}=10V, I_D=300mA$		2.34		nC
Gate-to-Source Charge	Qgs	$V_{DS}=10V, V_{GS}=10V, I_D=300mA$		0.38		nC
Gate-to-Drain "Miller" Charge	Qgd	$V_{DS}=10V, V_{GS}=10V, I_D=300mA$		0.45		nC
Diode Forward Voltage	$V_{SD}$	$I_S=300mA, V_{GS}=0$		0.8	1.2	V

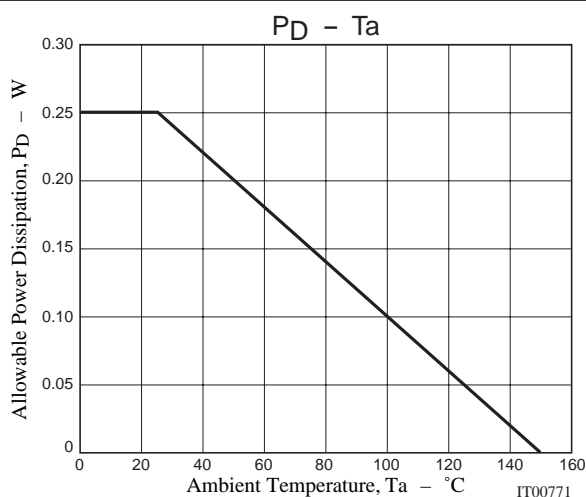
## Switching Time Test Circuit



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## 3LN02C



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