



ON Semiconductor®

**ON Semiconductor**  
**DATA SHEET****3LN03M** — N-Channel Silicon MOSFET  
**General-Purpose Switching Device Applications****Features**

- Low ON-resistance.
- High-speed switching.
- 2.5V drive.
- High ESD Voltage (TYP 300V)  
[Built-in one side diode for protection between Gate-to-Source].

**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 (*1)	V <sub>GSS</sub>		10	V
Drain Current (DC)	I <sub>D</sub>		0.35	A
Drain Current (Pulse)	I <sub>DP</sub>	PW≤10μs, duty cycle≤1%	1.4	A
Allowable Power Dissipation	P <sub>D</sub>		0.15	A
Channel Temperature	T <sub>ch</sub>		150	A
Storage Temperature	T <sub>stg</sub>		-55 to +150	W

(\*1) : Note, when designing a circuit using this product, that it has a gate (oxide film) protection diode connected only between its gate and source.

**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	30			V
Zero-Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =30V, V <sub>GS</sub> =0			1	μA
Gate-to-Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =8V, V <sub>DS</sub> =0			1	μA
Cutoff Voltage	V <sub>GS(off)</sub>	V <sub>DS</sub> =10V, I <sub>D</sub> =100μA	0.4		1.3	V
Forward Transfer Admittance	y <sub>fs</sub>	V <sub>DS</sub> =10V, I <sub>D</sub> =180mA	0.36	0.6		S
Static Drain-to-Source On-State Resistance	R <sub>DS(on)1</sub>	I <sub>D</sub> =180mA, V <sub>GS</sub> =4V		0.7	0.9	Ω
	R <sub>DS(on)2</sub>	I <sub>D</sub> =90mA, V <sub>GS</sub> =2.5V		0.8	1.15	Ω
	R <sub>DS(on)3</sub>	I <sub>D</sub> =10mA, V <sub>GS</sub> =1.5V		1.6	2.4	Ω
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =10V, f=1MHz		30		pF
Output Capacitance	C <sub>oss</sub>	V <sub>DS</sub> =10V, f=1MHz		7		pF
Reverse Transfer Capacitance	C <sub>rss</sub>	V <sub>DS</sub> =10V, f=1MHz		3.5		pF

Marking : YG

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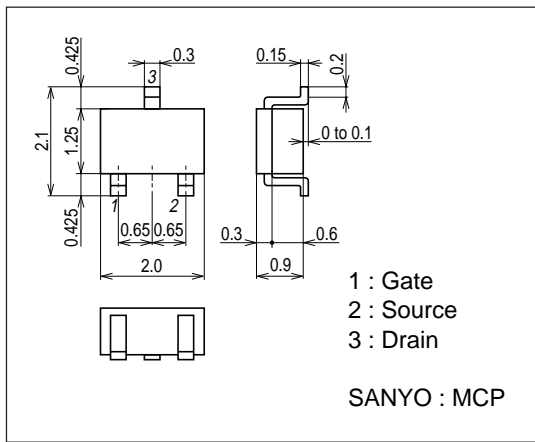
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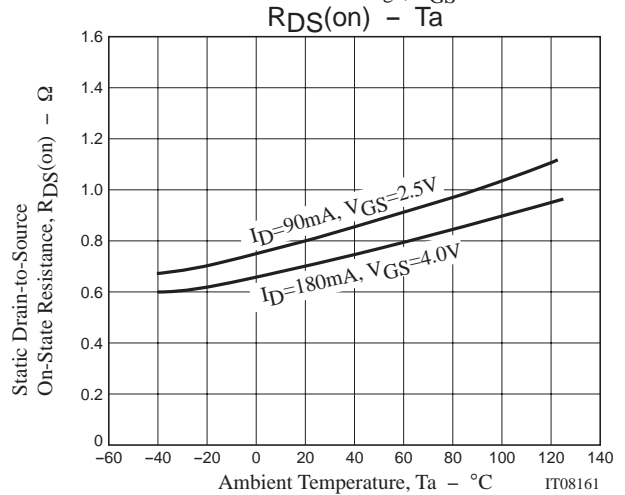
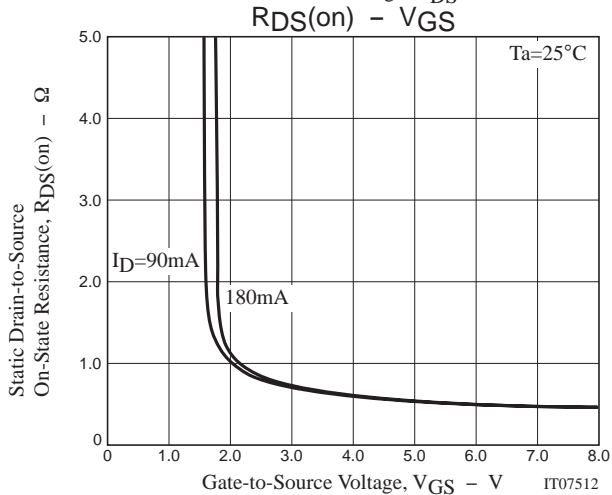
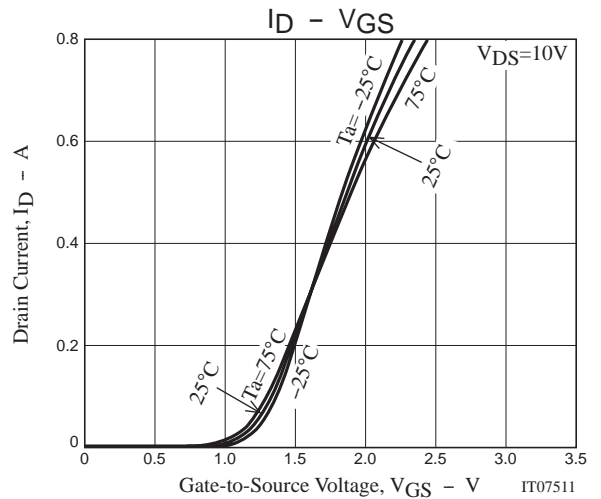
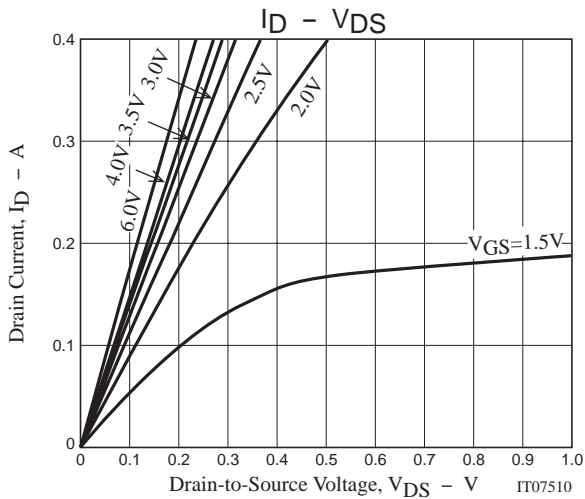
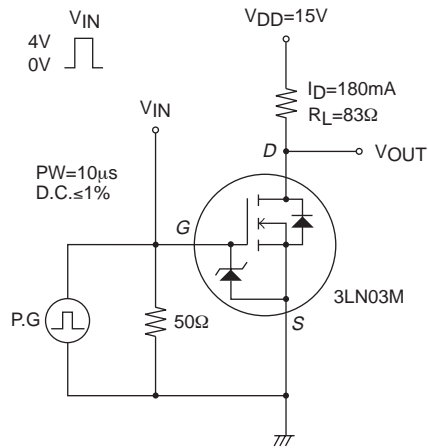
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		8		ns
Rise Time	$t_r$	See specified Test Circuit.		4.5		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		11		ns
Fall Time	$t_f$	See specified Test Circuit.		6		ns
Total Gate Charge	$Q_g$	$V_{DS}=10V, V_{GS}=4V, I_D=350mA$		1		nC
Gate-to-Source Charge	$Q_{gs}$	$V_{DS}=10V, V_{GS}=4V, I_D=350mA$		0.4		nC
Gate-to-Drain "Miller" Charge	$Q_{gd}$	$V_{DS}=10V, V_{GS}=4V, I_D=350mA$		0.2		nC
Diode Forward Voltage	$V_{SD}$	$I_S=350mA, V_{GS}=0$		0.88	1.2	V

## Package Dimensions

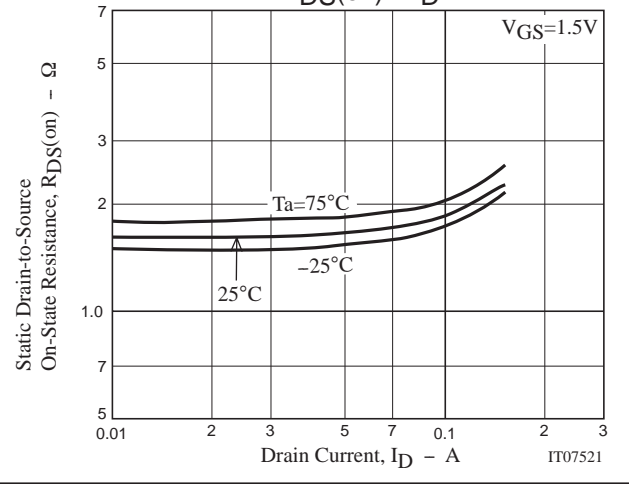
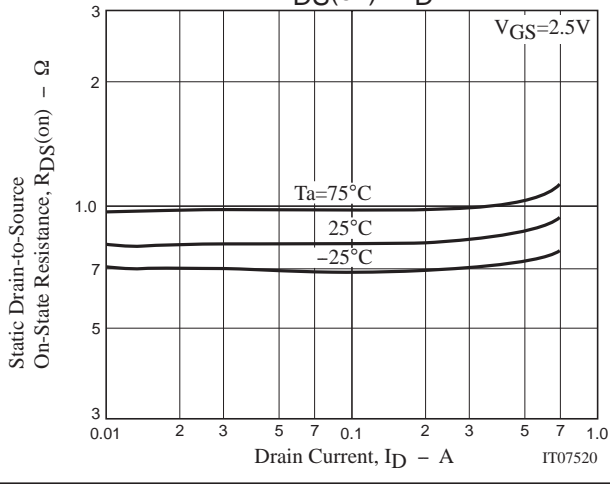
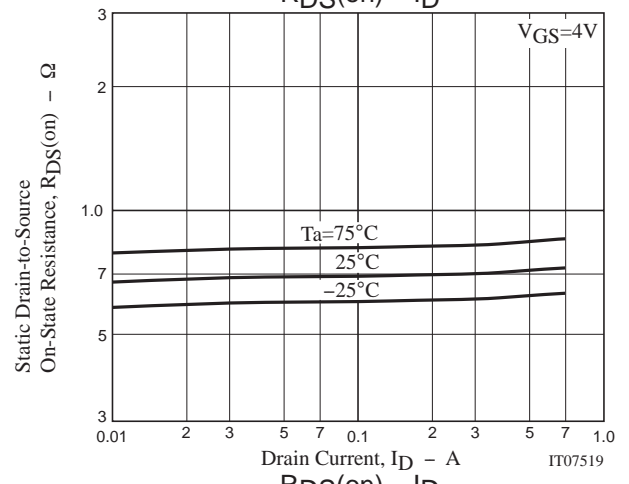
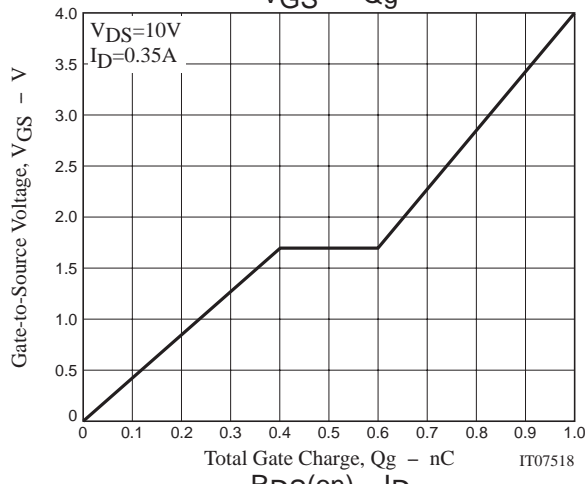
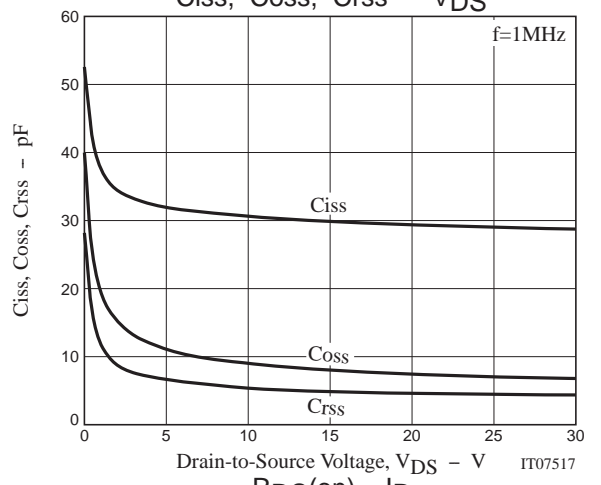
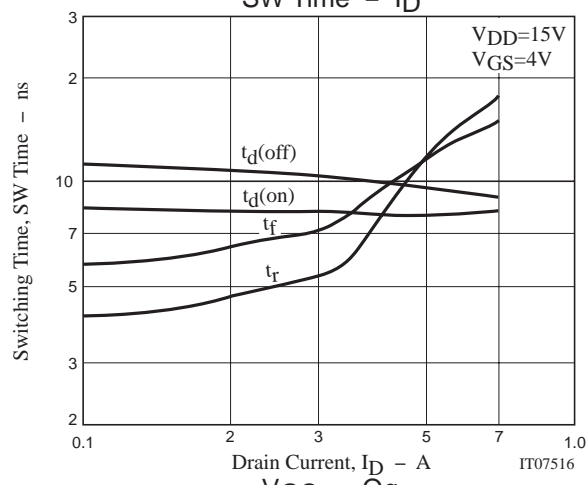
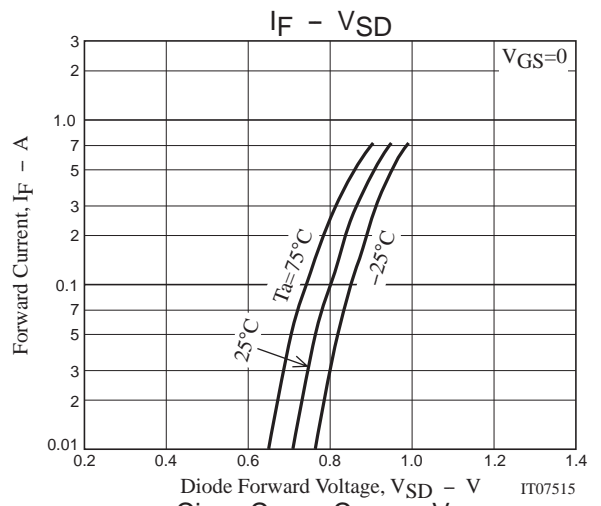
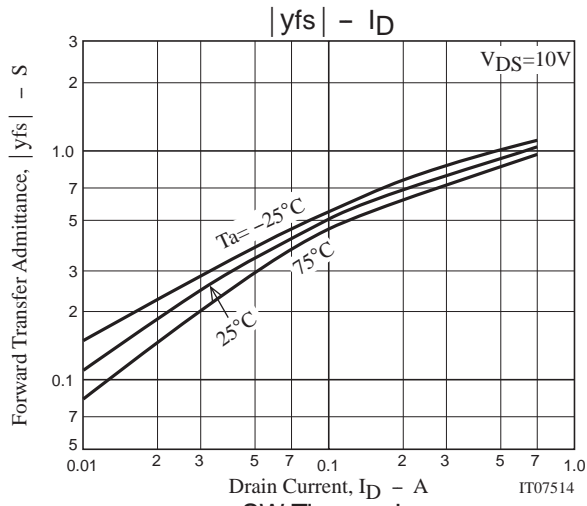
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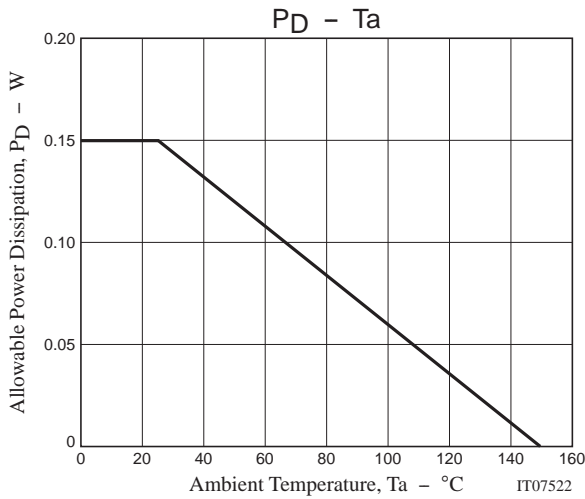
## Switching Time Test Circuit



# 3LN03M



# 3LN03M



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