



SANYO Semiconductors

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 _{DSS}		30	V
Gate-to-Source Voltage (*1)	V _{GSS}		10	V
Drain Current (DC)	I _D		0.35	A
Drain Current (Pulse)	I _{DP}	PW≤10μs, duty cycle≤1%	1.4	A
Allowable Power Dissipation	P _D		0.15	A
Channel Temperature	T _{ch}		150	A
Storage Temperature	T _{stg}		-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 _{(BR)DSS}	I _D =1mA, V _{GS} =0	30			V
Zero-Gate Voltage Drain Current	I _{DSS}	V _{DS} =30V, V _{GS} =0			1	μA
Gate-to-Source Leakage Current	I _{GSS}	V _{GS} =8V, V _{DS} =0			1	μA
Cutoff Voltage	V _{GS(off)}	V _{DS} =10V, I _D =100μA	0.4		1.3	V
Forward Transfer Admittance	y _{fs}	V _{DS} =10V, I _D =180mA	0.36	0.6		S
Static Drain-to-Source On-State Resistance	R _{DS(on)1}	I _D =180mA, V _{GS} =4V		0.7	0.9	Ω
	R _{DS(on)2}	I _D =90mA, V _{GS} =2.5V		0.8	1.15	Ω
	R _{DS(on)3}	I _D =10mA, V _{GS} =1.5V		1.6	2.4	Ω
Input Capacitance	C _{iss}	V _{DS} =10V, f=1MHz		30		pF
Output Capacitance	C _{oss}	V _{DS} =10V, f=1MHz		7		pF
Reverse Transfer Capacitance	C _{rss}	V _{DS} =10V, f=1MHz		3.5		pF

Marking : YG

Continued on next page.

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3LN03M

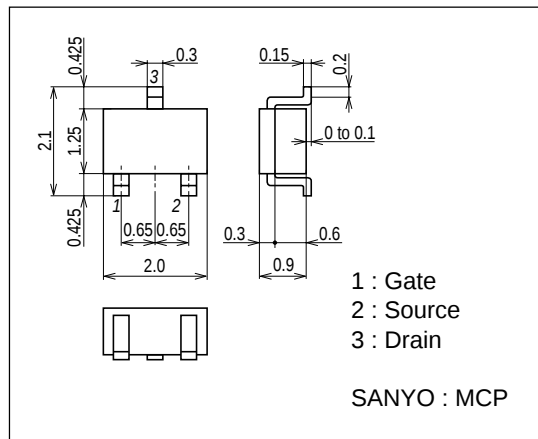
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		8		ns
Rise Time	t_r	See specified Test Circuit.		4.5		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		11		ns
Fall 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

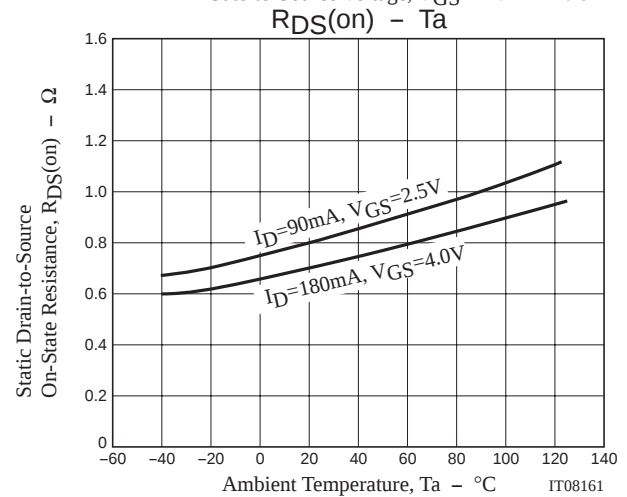
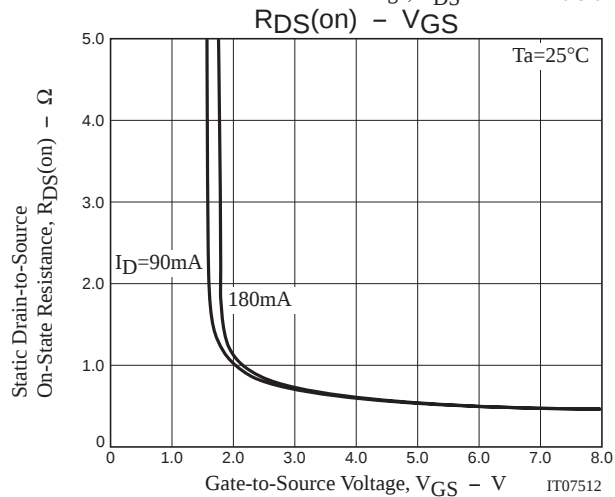
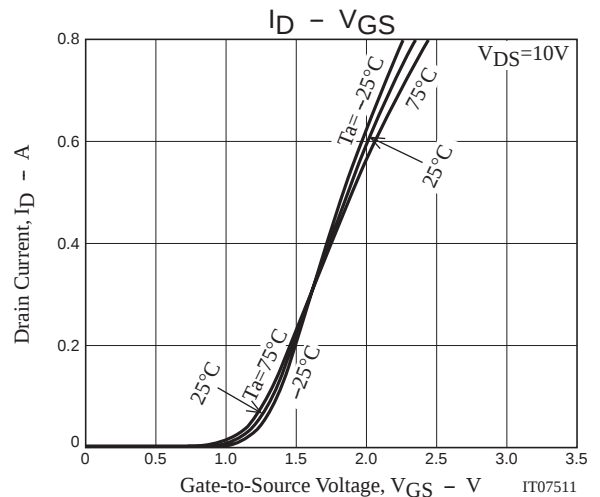
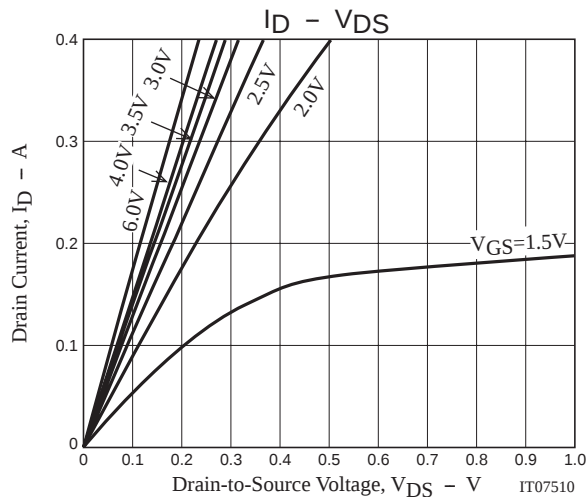
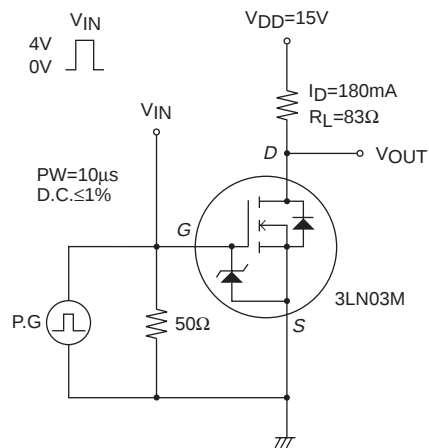
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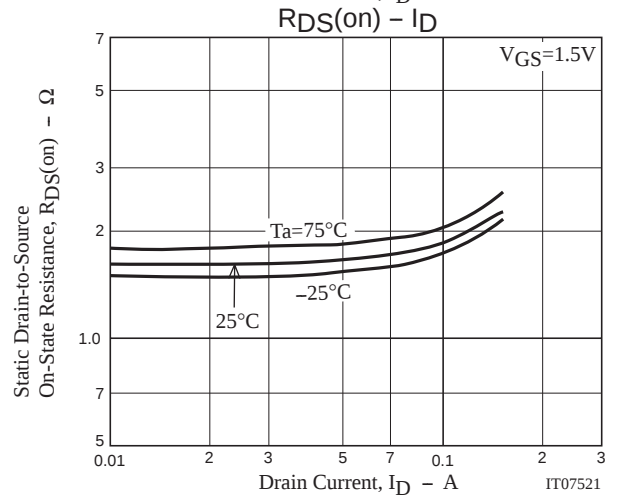
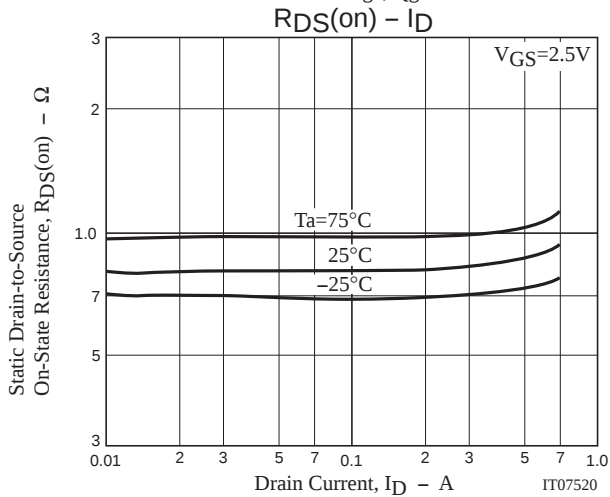
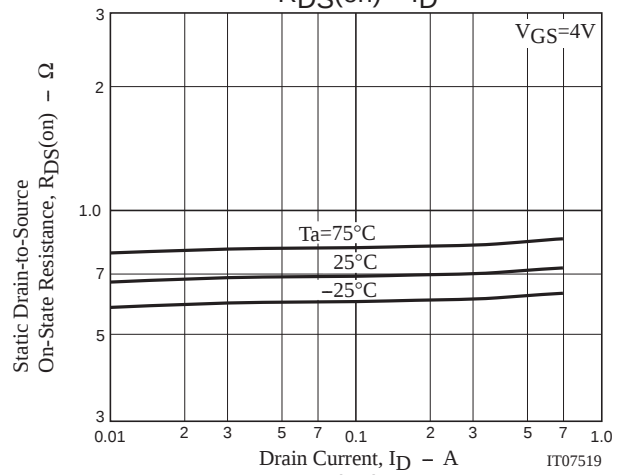
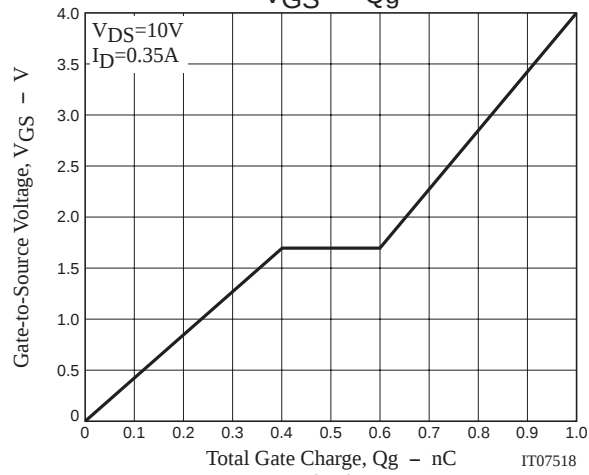
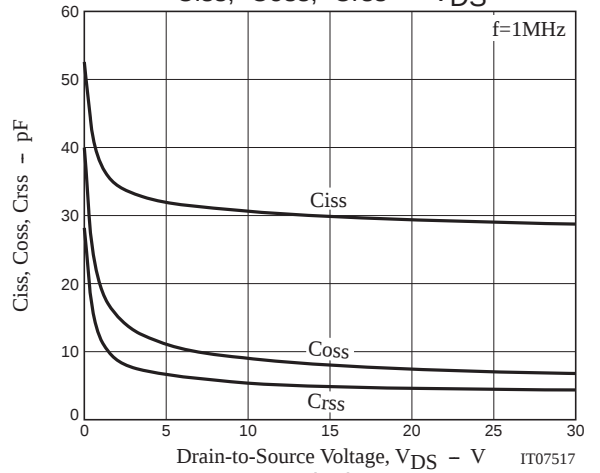
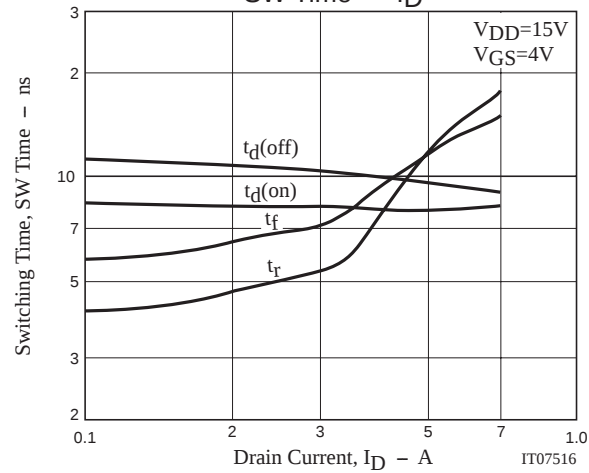
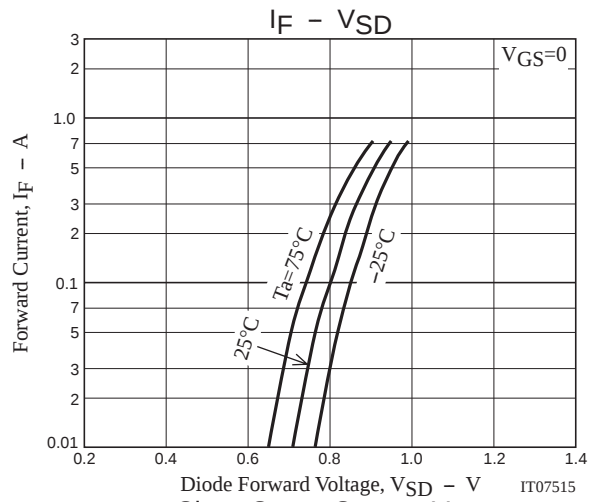
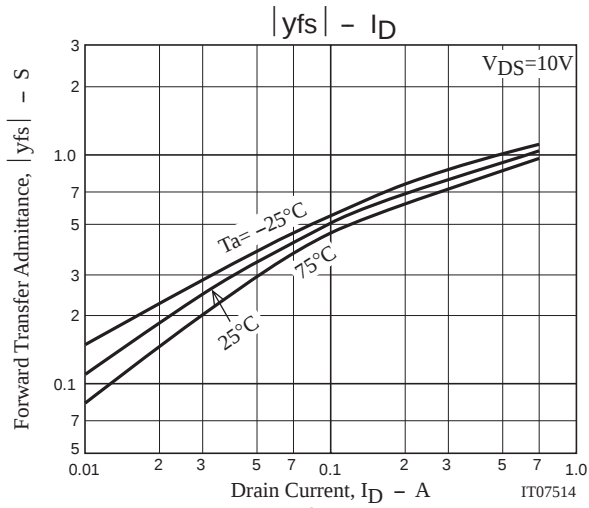
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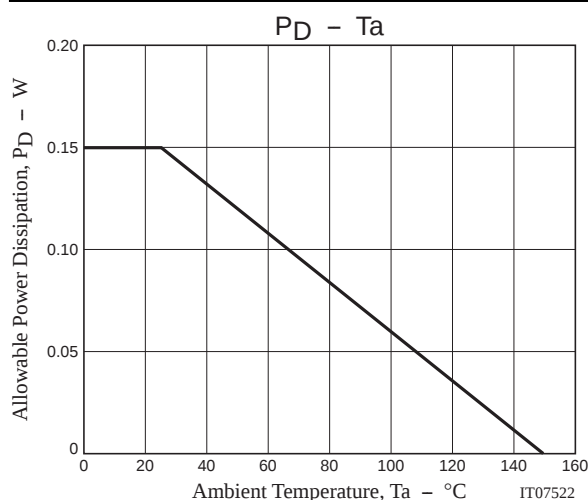
2158A



Switching Time Test Circuit







Note on usage : Since the 3LN03M is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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