



# 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	VDSS		30	V
Gate-to-Source Voltage (*1)	VGSS		10	V
Drain Current (DC)	۱D		0.35	А
Drain Current (Pulse)	IDP	PW≤10µs, duty cycle≤1%	1.4	А
Allowable Power Dissipation	PD		0.15	А
Channel Temperature	Tch		150	Α
Storage Temperature	Tstg		-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			
			min	typ	max	Unit
Drain-to-Source Breakdown Voltage	V(BR)DSS	ID=1mA, VGS=0	30			V
Zero-Gate Voltage Drain Current	IDSS	V <sub>DS</sub> =30V, V <sub>GS</sub> =0			1	μΑ
Gate-to-Source Leakage Current	IGSS	VGS=8V, VDS=0			1	μΑ
Cutoff Voltage	VGS(off)	V <sub>DS</sub> =10V, I <sub>D</sub> =100µA	0.4		1.3	V
Forward Transfer Admittance	yfs	V <sub>DS</sub> =10V, I <sub>D</sub> =180mA	0.36	0.6		S
Static Drain-to-Source On-State Resistance	RDS(on)1	ID=180mA, VGS=4V		0.7	0.9	Ω
	R <sub>DS</sub> (on)2	ID=90mA, VGS=2.5V		0.8	1.15	Ω
	R <sub>DS</sub> (on)3	ID=10mA, VGS=1.5V		1.6	2.4	Ω
Input Capacitance	Ciss	V <sub>DS</sub> =10V, f=1MHz		30		pF
Output Capacitance	Coss	V <sub>DS</sub> =10V, f=1MHz		7		pF
Reverse Transfer Capacitance	Crss	V <sub>DS</sub> =10V, f=1MHz		3.5		pF

Marking : YG

Continued on next page.

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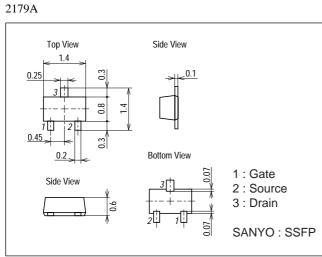
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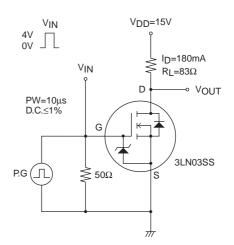
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	Unit
Turn-ON Delay Time	td(on)	See specified Test Circuit.		8		ns
Rise Time	tr	See specified Test Circuit.		4.5		ns
Turn-OFF Delay Time	td(off)	See specified Test Circuit.		11		ns
Fall Time	tf	See specified Test Circuit.		6		ns
Total Gate Charge	Qg	V <sub>DS</sub> =10V, V <sub>GS</sub> =4V, I <sub>D</sub> =350mA		1		nC
Gate-to-Source Charge	Qgs	VDS=10V, VGS=4V, ID=350mA		0.4		nC
Gate-to-Drain "Miller" Charge	Qgd	V <sub>DS</sub> =10V, V <sub>GS</sub> =4V, I <sub>D</sub> =350mA		0.2		nC
Diode Forward Voltage	V <sub>SD</sub>	IS=350mA, VGS=0		0.88	1.2	V

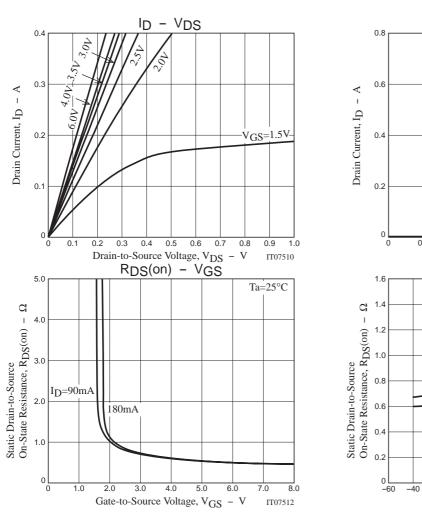
#### Package Dimensions

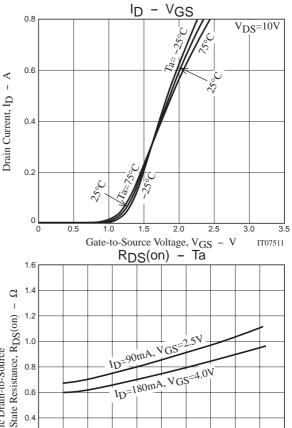
unit : mm



#### **Switching Time Test Circuit**







20 40 60

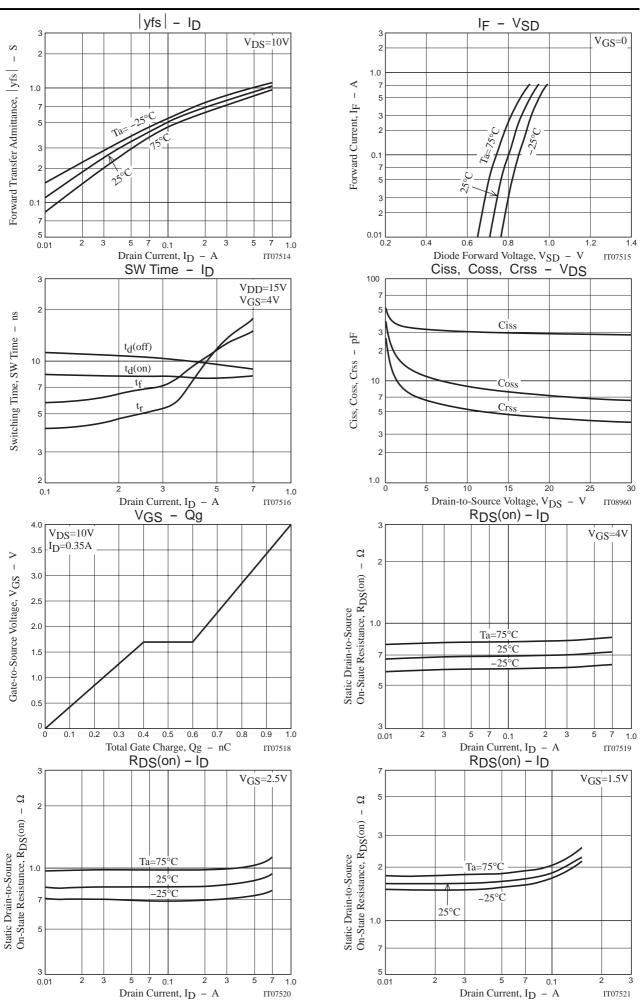
Ambient Temperature, Ta - °C

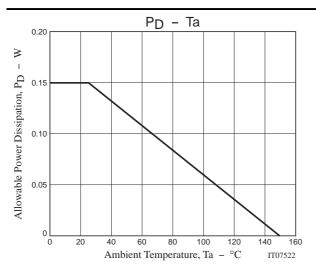
-20 0

120 140

IT08161

80 100





# Note on usage : Since the 3LN03SS is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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