



SANYO Semiconductors

## DATA SHEET

# 3LP03M — P-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>		-0.25	A
Drain Current (Pulse)	I <sub>DP</sub>	PW≤10μs, duty cycle≤1%	-1	A
Allowable Power Dissipation	P <sub>D</sub>		0.15	W
Channel Temperature	T <sub>ch</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-55 to +150	°C

(\*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		-1.4	V
Forward Transfer Admittance	y <sub>fs</sub>	V <sub>DS</sub> = -10V, I <sub>D</sub> = -120mA	0.24	0.4		S
Static Drain-to-Source On-State Resistance	R <sub>DS(on)1</sub>	I <sub>D</sub> = -120mA, V <sub>GS</sub> = -4V		1.5	1.9	Ω
	R <sub>DS(on)2</sub>	I <sub>D</sub> = -60mA, V <sub>GS</sub> = -2.5V		2.0	2.8	Ω
	R <sub>DS(on)3</sub>	I <sub>D</sub> = -10mA, V <sub>GS</sub> = -1.5V		4.0	8.0	Ω
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> = -10V, f=1MHz		40		pF
Output Capacitance	C <sub>oss</sub>	V <sub>DS</sub> = -10V, f=1MHz		8		pF
Reverse Transfer Capacitance	C <sub>rss</sub>	V <sub>DS</sub> = -10V, f=1MHz		4.5		pF

Marking : XG

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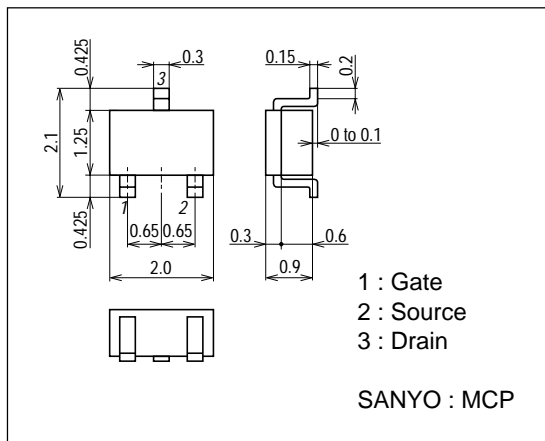
# 3LP03M

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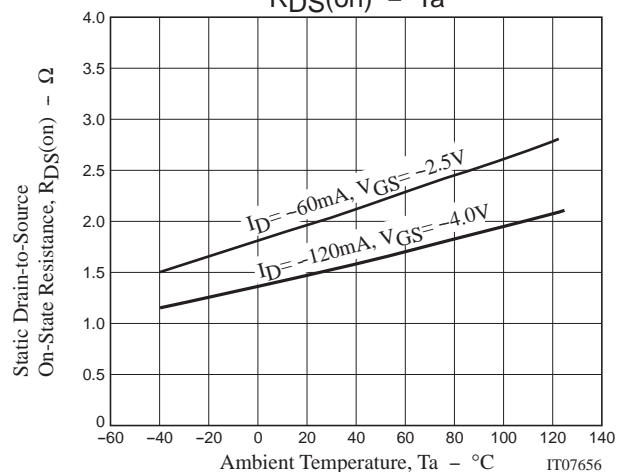
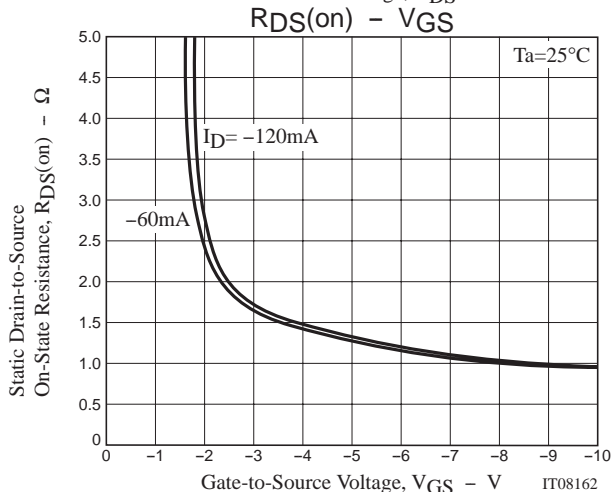
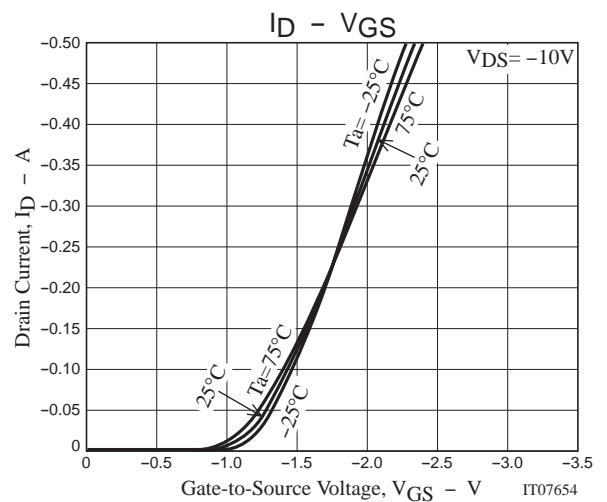
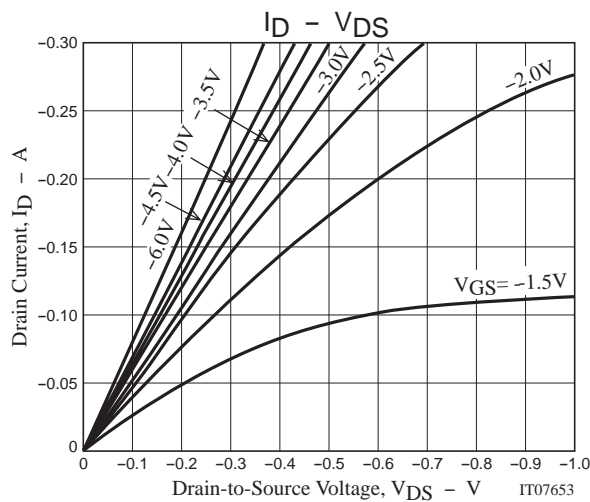
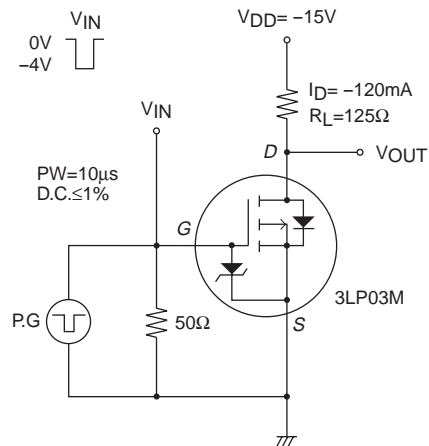
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		9.5		ns
Rise Time	$t_r$	See specified Test Circuit.		5		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		15		ns
Fall Time	$t_f$	See specified Test Circuit.		13		ns
Total Gate Charge	$Q_g$	$V_{DS} = -10V, V_{GS} = -4V, I_D = -250mA$		0.8		nC
Gate-to-Source Charge	$Q_{gs}$	$V_{DS} = -10V, V_{GS} = -4V, I_D = -250mA$		0.3		nC
Gate-to-Drain "Miller" Charge	$Q_{gd}$	$V_{DS} = -10V, V_{GS} = -4V, I_D = -250mA$		0.2		nC
Diode Forward Voltage	$V_{SD}$	$I_S = -250mA, V_{GS} = 0$		-0.9	-1.2	V

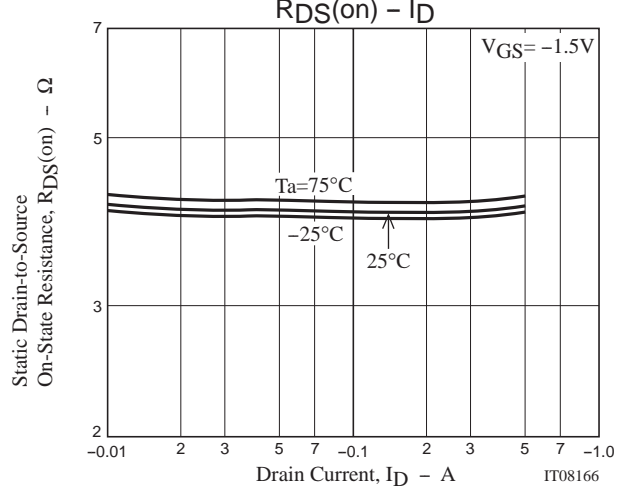
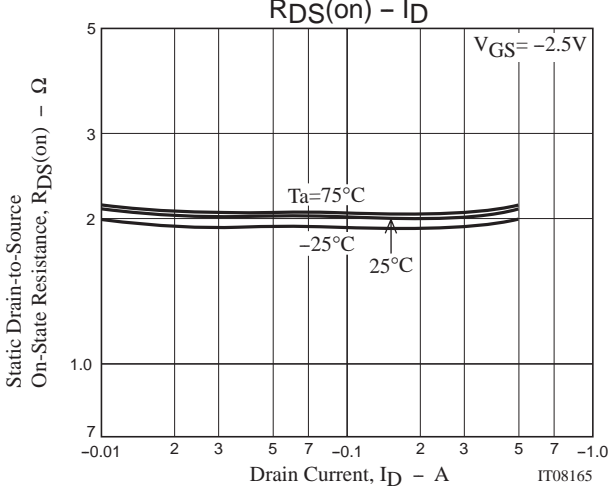
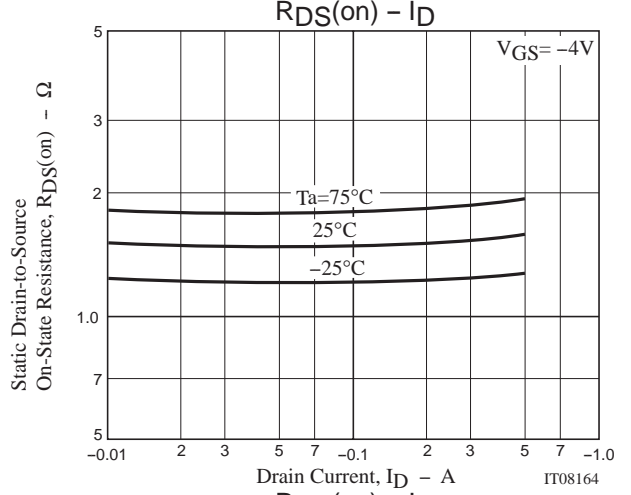
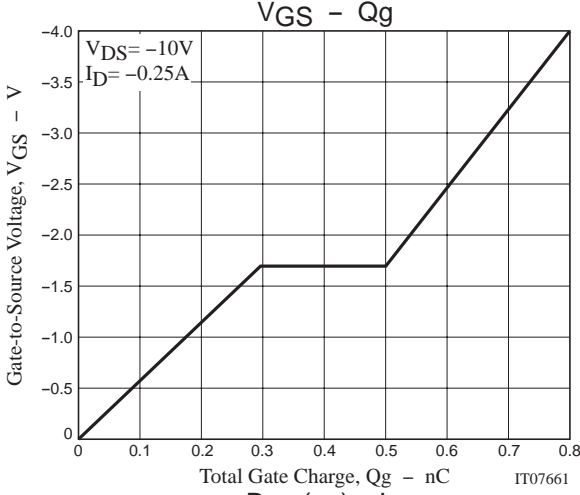
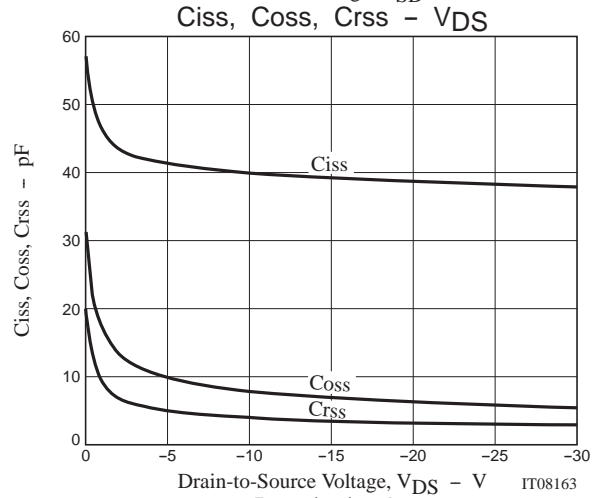
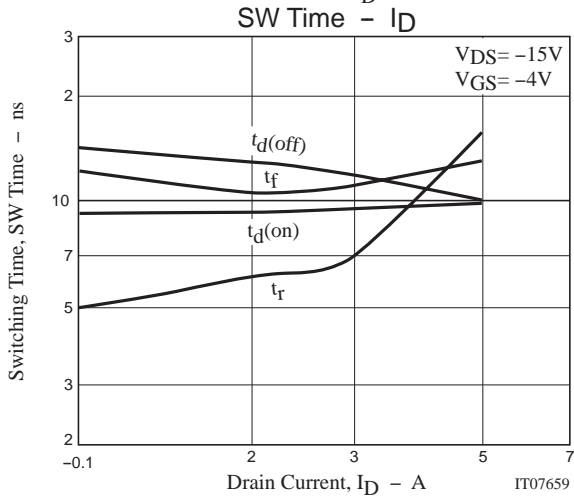
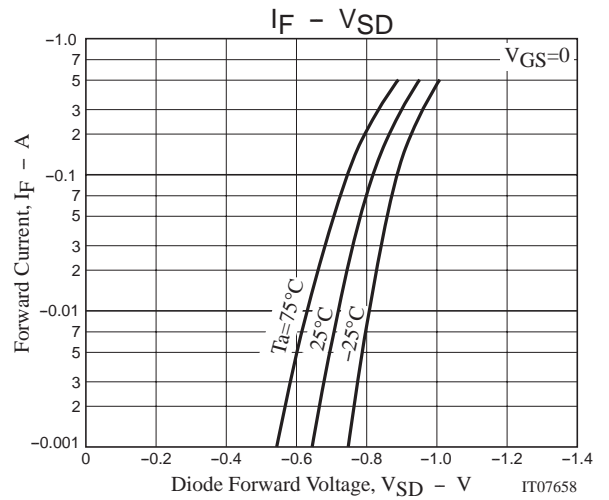
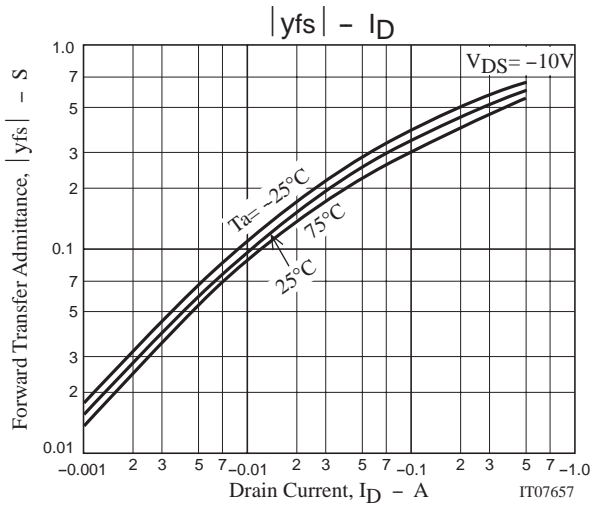
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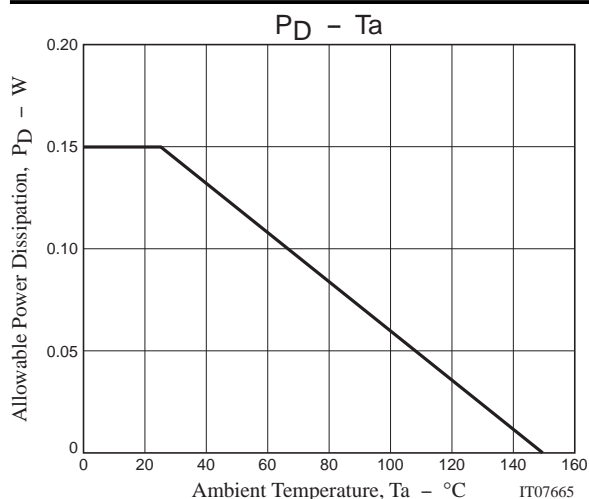
unit : mm  
2158A



## Switching Time Test Circuit







Note on usage : Since the 3LP03M is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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