

## P-channel 4V (G-S) MOSFET

### FEATURES

- Low On Resistance
- Ultra High Speed Switching
- -4V Driving
- EU RoHS Compliant, Pb Free

### APPLICATIONS

- Switching

### PRODUCT NAME

PRODUCT NAME	PACKAGE	ORDER UNIT
XP202A0003MR-G	SOT-23	3,000/Reel

\* The "-G" suffix denotes Halogen and Antimony free as well as being fully EU RoHS compliant.

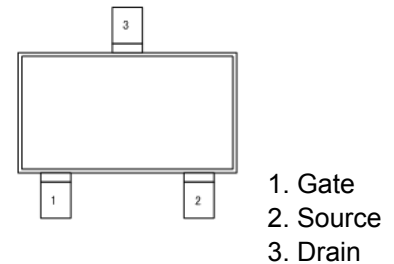
### ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	RATINGS	UNITS
Drain-Source Voltage	$V_{DS}$	-30	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Drain Current (DC)	$I_D$	-3	A
Drain Current(Pulse) <sup>(*1)</sup>	$I_{DP}$	-12	A
Channel Power Dissipation <sup>(*2)</sup>	$P_d$	1	W
Channel Temperature	$T_{ch}$	+150	°C
Storage Temperature	$T_{stg}$	- 55 ~ +150	°C

(\*1) $PW \leq 10 \mu s$ , duty cycle  $\leq 1\%$

(\*2)Ceramic Board (900mm2 × 0.8mm) Mounting

### PIN CONFIGURATION

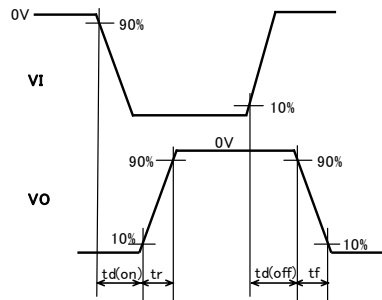
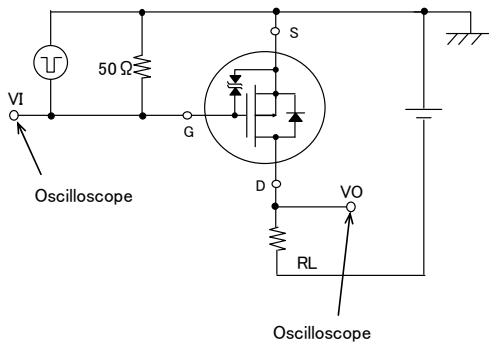


SOT-23(TOP VIEW)

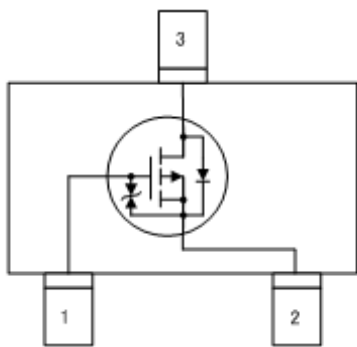
### ELECTRICAL CHARACTERISTICS

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNITS
			MIN.	TYP.	MAX.	
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = -1mA, V_{GS} = 0V$	-30	-	-	V
Drain-Source Cut-Off Current	$I_{DSS}$	$V_{DS} = -30V, V_{GS} = 0V$	-	-	-1	$\mu A$
Gate-Source Leakage Current	$I_{GSS}$	$V_{GS} = \pm 16V, V_{DS} = 0V$	-	-	$\pm 10$	$\mu A$
Gate-Source Cut-Off Voltage	$V_{GS(off)}$	$V_{DS} = -10V, I_D = -1mA$	-1.2	-	-2.6	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS} = -10V, I_D = -3A$	-	8.0	-	S
Drain-Source ON Resistance	$R_{DS(ON)1}$	$I_D = -1.5A, V_{GS} = -10V$	-	45	-	m $\Omega$
	$R_{DS(ON)2}$	$I_D = -1.0A, V_{GS} = -4.5V$	-	67	-	m $\Omega$
	$R_{DS(ON)3}$	$I_D = -1.0A, V_{GS} = -4V$	-	76	-	m $\Omega$
Input Capacity	$C_{iss}$	$V_{DS} = -10V, f = 1MHz$	-	435	-	pF
Output Capacity	$C_{oss}$	$V_{DS} = -10V, f = 1MHz$	-	110	-	pF
Feedback capacity	$C_{rss}$	$V_{DS} = -10V, f = 1MHz$	-	85	-	pF
Turn on Delay time	$t_{d(on)}$	$I_D = -1A$	-	6	-	ns
Rise Time	$t_r$	$I_D = -1A$	-	12	-	ns
Turn off Delay Time	$t_{d(off)}$	$I_D = -1A$	-	28	-	ns
Fall Time	$t_f$	$I_D = -1A$	-	10	-	ns
All Gate Charge Amount	$Q_g$	$V_{DS} = -15V, V_{GS} = -10V, I_D = -3A$	-	10	-	nC
Gate Source Charge Amount	$Q_{gs}$	$V_{DS} = -15V, V_{GS} = -10V, I_D = -3A$	-	1.2	-	nC
Gate Drain Charge Amount	$Q_{gd}$	$V_{DS} = -15V, V_{GS} = -10V, I_D = -3A$	-	2.2	-	nC
Diode Forward Voltage	$V_{SD}$	$I_S = -3A, V_{GS} = 0V$	-	-0.8	-1.2	V

## SWITCHING-TIME TEST CIRCUIT

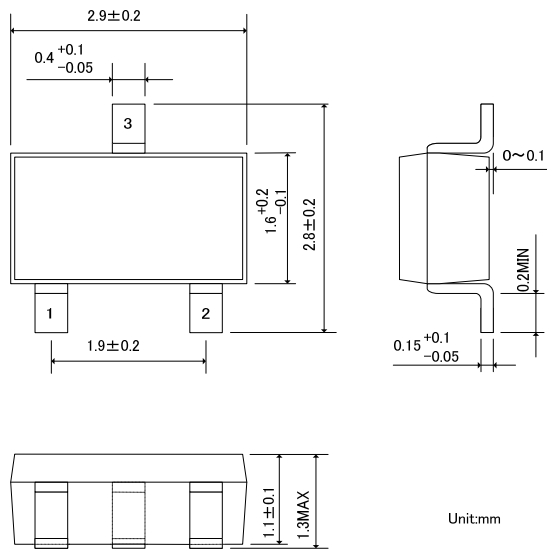


## EQUIVALENT CIRCUIT



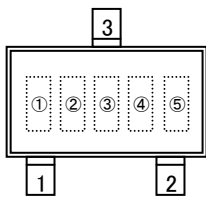
## PACKAGING INFORMATION

### SOT-23



Unit:mm

## MARKING RULE



① represents product series

MARK	PRODUCT SERIES
6	XP202*****-G

② ③ represents product group and number

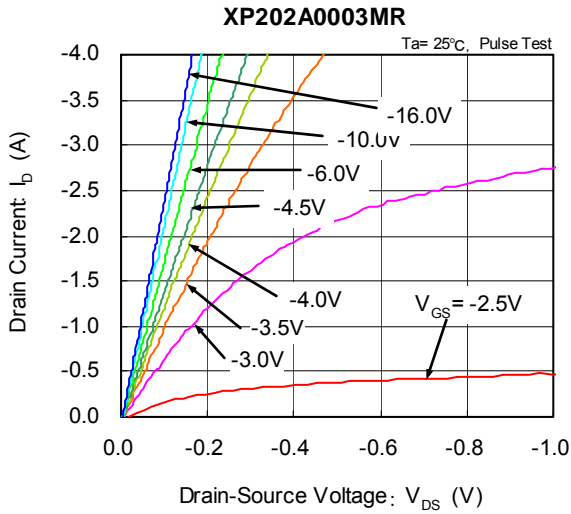
MARK		PRODUCT GROUP	PRODUCT NUMBER	PRODUCT SERIES
②	③			
A	D	00	03	XP202A0003**-G

④, ⑤ represents production lot number

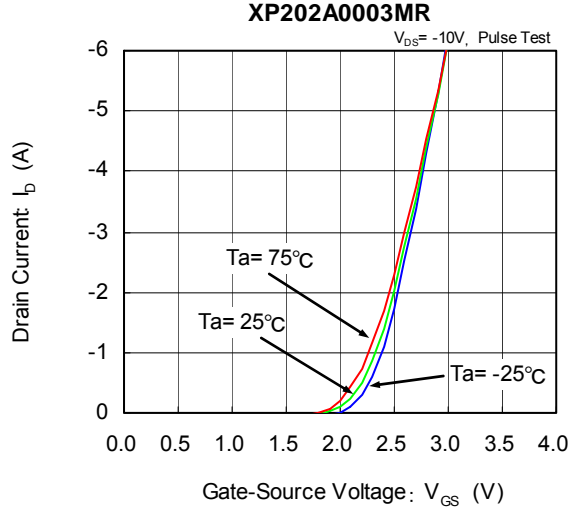
01 to 09, 0A to 0Z, 11 to 9Z, A1 to A9, AA to Z9, ZA to ZZ repeated (G, I, J, O, Q, W excluded)

# TYPICAL PERFORMANCE CHARACTERISTICS

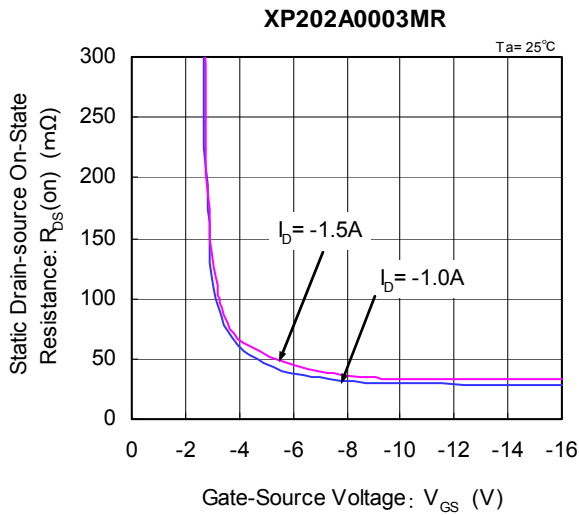
(1) Drain Current vs. Drain-Source Voltage



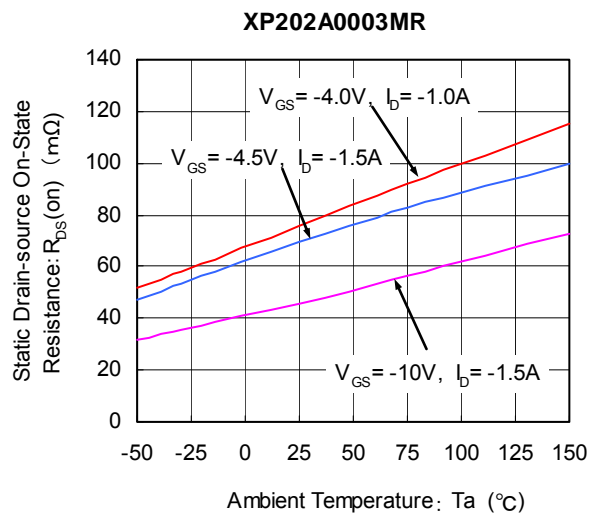
(2) Drain Current vs. Drain-Source Voltage



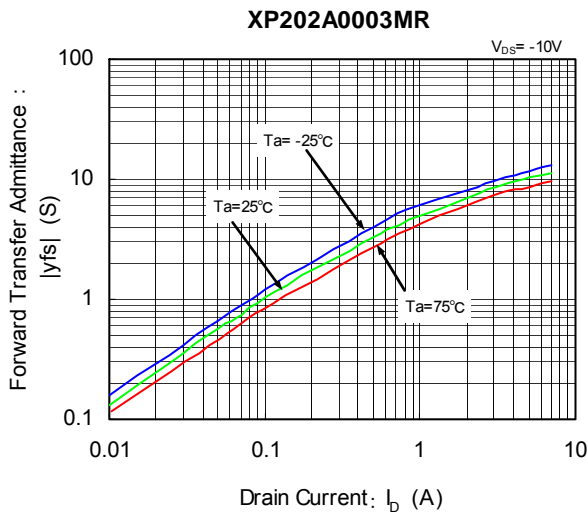
(3) Drain-Source On-State Resistance vs. Gate-Source Voltage



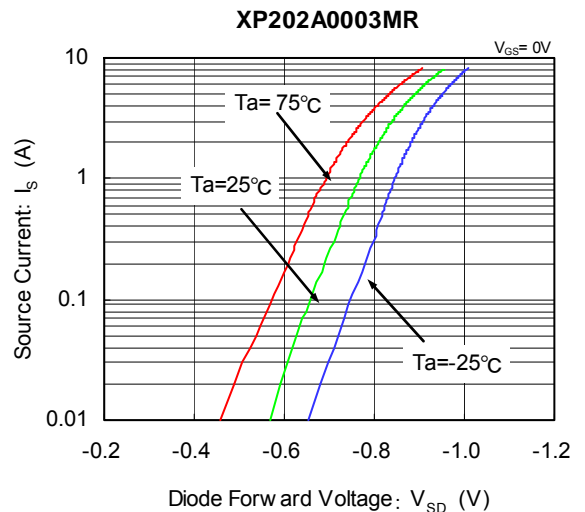
(4) Drain-Source On-State Resistance vs. Ambient Temperature



(5) Forward Transfer Admittance vs. Drain Current

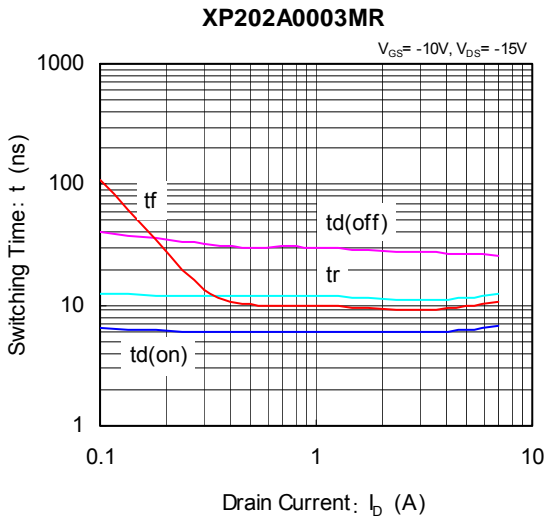


(6) Source Current vs. Diode Forward Voltage

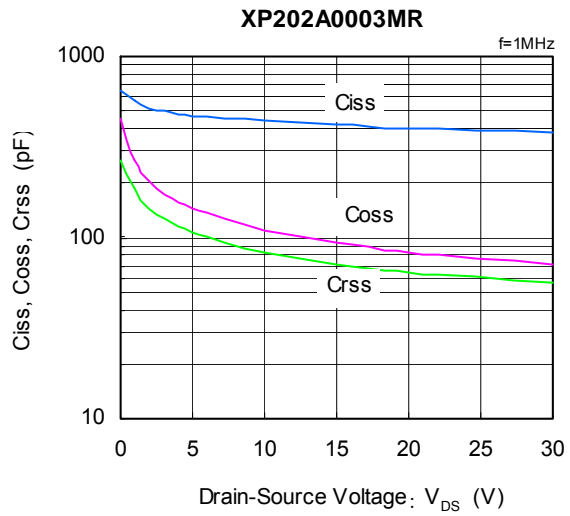


## TYPICAL PERFORMANCE CHARACTERISTICS

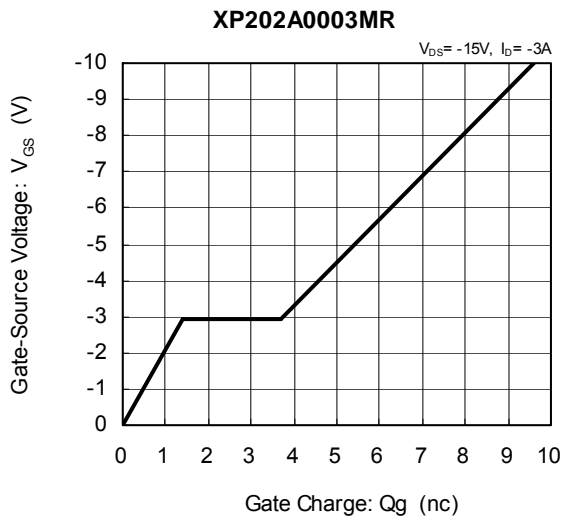
(7) Switching Time vs. Drain Current



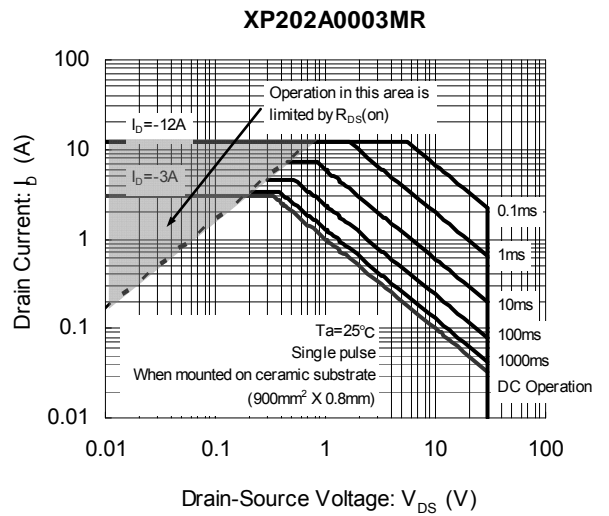
(8)  $C_{iss}, C_{oss}, C_{rss}$  vs. Drain-Source Voltage



(9) Gate-Source Voltage vs. Gate Charge



(10) Area of Safe Operation



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