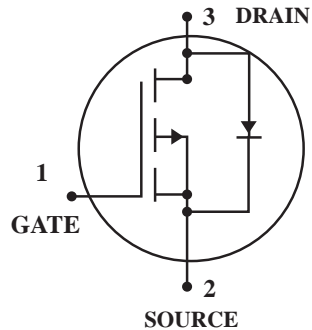


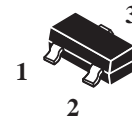
Power MOSFET P-Channel

Features:

- *Low On-Resistance : 0.35Ω
- *Low Input Capacitance: 130 PF
- *Low Out put Capacitance : 120 PF
- *Low Threshold : 1.7V(TYE)
- *Fast Switching Speed : 2.5ns



SOT-23



Maximum Ratings (TA=25°C Unless Otherwise Specified)

Rating	Symbol	Value	Unit
Drain-Source Voltage	V_{DSS}	20	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current (TA=25°C)	I_D	750	mA
Pulsed Drain Current ⁽¹⁾ ($t_p \leq 10\mu s$)	I_{DM}	2000	mA
Power Dissipation (TA=25°C)	P_D	400	mW
Thermal Resistance Junction-to-Ambient	$R_{\theta JA}$	300	°C/W
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55 to 150	°C

Device Marking

MGSF1P02=PC

Note 1:
Pulse Width Limited by Maximum Junction Temperature

Electrical Characteristics (T_A=25 °C Unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
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Static

Drain-Source Breakdown Voltage V _{GS} =0V, I _D =10 uA	V _{(BR)DSS}	20	-	-	V
Gate-Threshold Voltage V _{DS} =V _{GS} , I _D =250 uA	V _{GS(th)}	1.0	1.7	2.4	V
Gate-body Leakage Current V _{GS} =±20V, V _{DS} =0V	I _{GSS}	-	-	±100	nA
Zero Gate Voltage Drain Current V _{DS} =20V, V _{GS} =0V V _{DS} =20V, V _{GS} =0V, T _j =125 °C	I _{DSS}	-	-	1.0 10	uA
Static Drain-to-Source On-Resistance V _{GS} =10V, I _D =1.5A V _{GS} =4.5V, I _D =0.75A	r _{DS(on)}	-	0.235 0.375	0.350 0.500	Ohms

Dynamic Characteristics

Input Capacitance V _{DS} =5.0V	C _{iss}	-	130	-	PF
Output Capacitance V _{DS} =5.0V	C _{oss}	-	120	-	
Transfer Capacitance(See FIG.6) V _{DG} =5.0V	C _{rss}	-	60	-	

Switching Characteristics⁽²⁾

Turn-On Delay Time	(V _{DD} =15V, I _D =1.0A, R _L =50Ω)	t _{d(on)}	-	2.5	-	nS
Rise Time		t _r	-	1.0	-	
Turn-Off Delay Time		t _{d(off)}	-	16	-	
Fall Time		t _f	-	8.0	-	
Gate Charge		Q _T	-	6000	-	pC

Source-Drain Diode Characteristics

Continuous Current	I _S	-	-	0.6	A
Pulsed Current	I _{SM}	-	-	0.75	
Forward Voltage ⁽²⁾	V _{SD}	-	1.5	-	V

Note:

1. Pulse Test: Pulse Width ≤ 300us, Duty Cycle ≤ 2%.
2. Switching characteristics are independent of operating junction temperature.

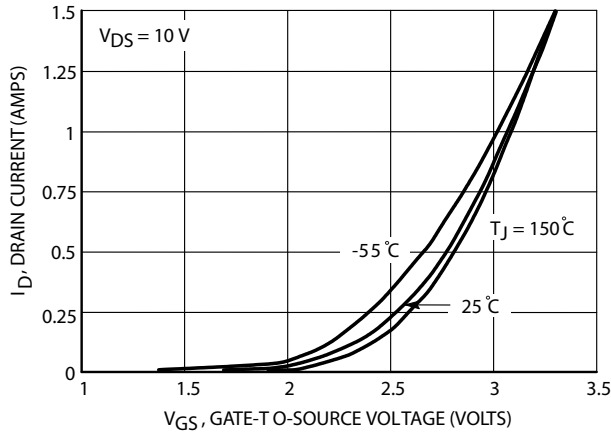


FIG.1 Transfer Characteristics

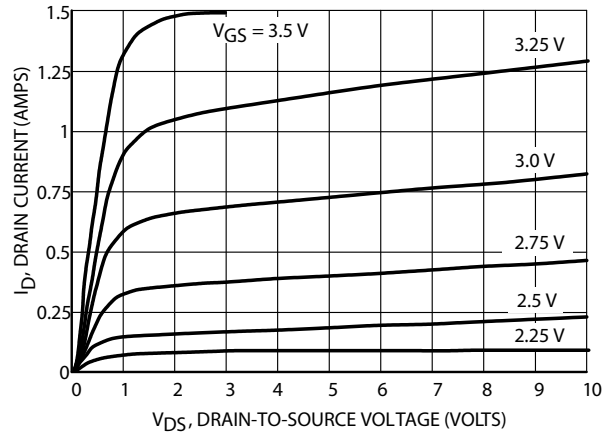


FIG.2 On-Region Characteristics

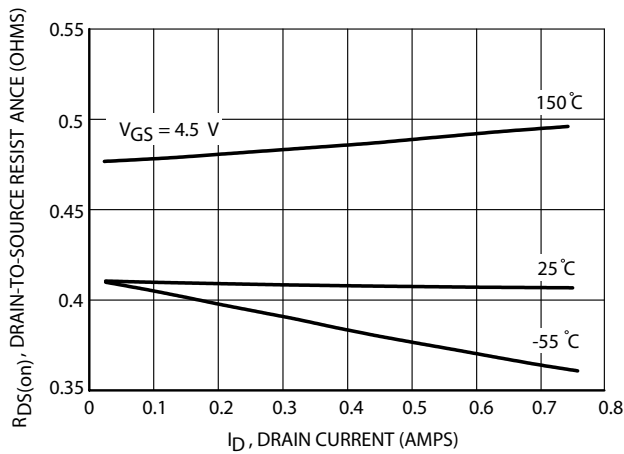


FIG.3 On-Resistance versus Drain Current

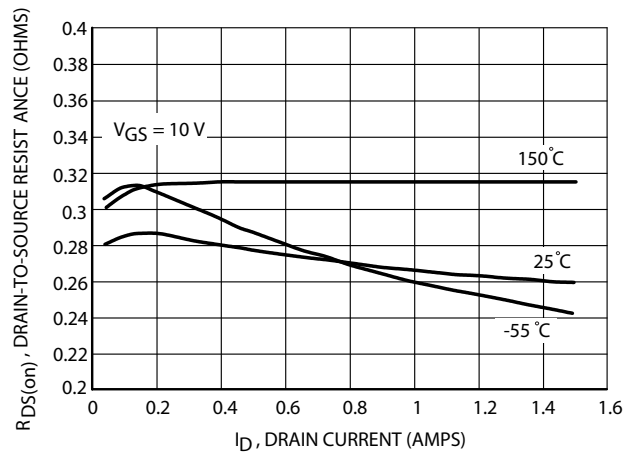


FIG.4 On-Resistance versus Drain Current

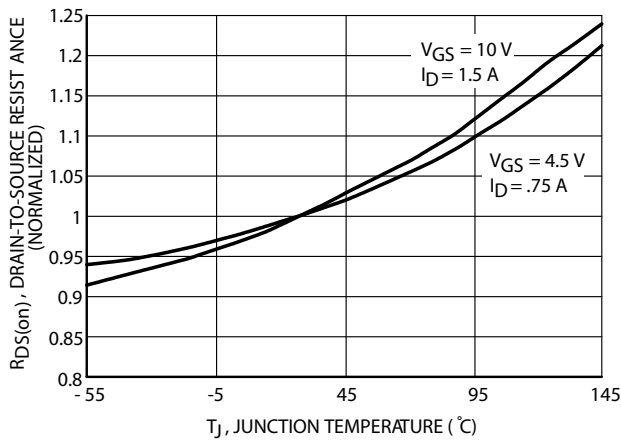


FIG.5 On-Resistance Variation with Temperature

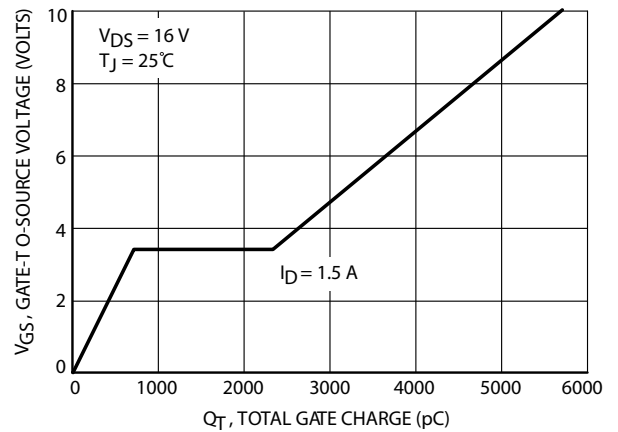


FIG.6 Gate Charge

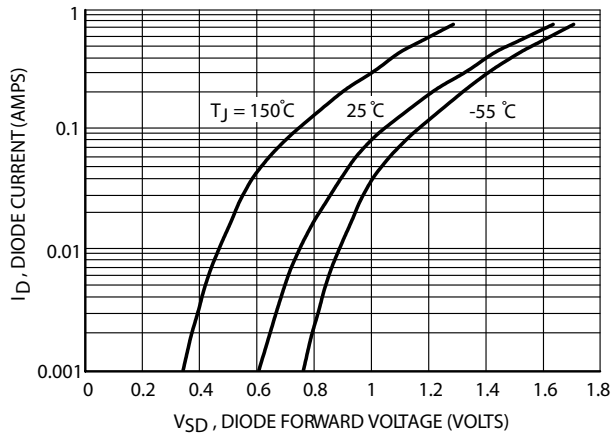


FIG.7 Body Diode Forward Voltage

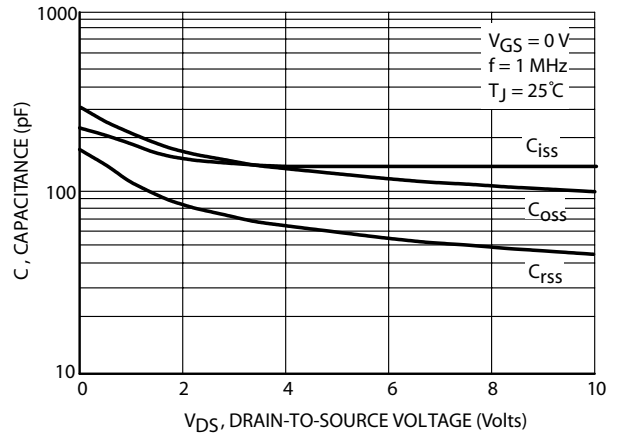
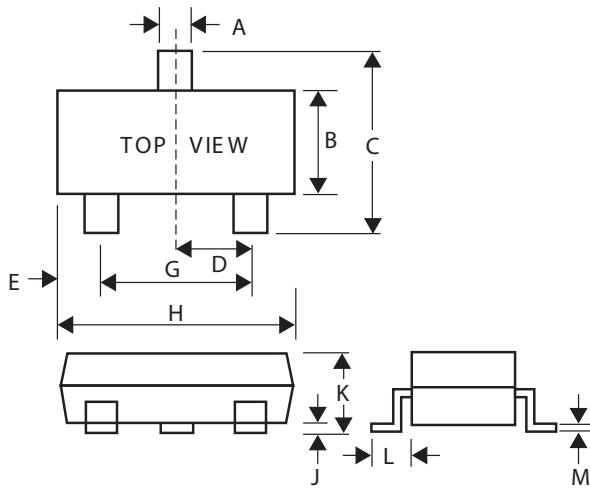


FIG.8 Capacitance

SOT-23 Package Outline Dimensions

Unit:mm



Dim	Min	Max
A	0.35	0.51
B	1.19	1.40
C	2.10	3.00
D	0.85	1.05
E	0.46	1.00
G	1.70	2.10
H	2.70	3.10
J	0.01	0.13
K	0.89	1.10
L	0.30	0.61
M	0.076	0.25