100V N-Channel Mosfet

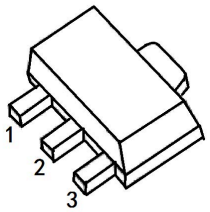
FEATURES

- $R_{DS(ON)}$ ≤ 140mΩ (110mΩ Typ.) @V_{GS}=10V
- $R_{DS(ON)}$ ≤ 300mΩ (160mΩ Typ.) @V_{GS}=4.5V

APPLICATIONS

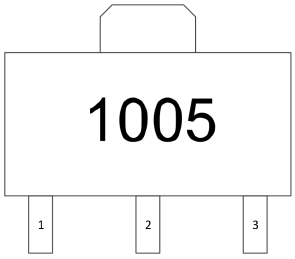
- Consumer electronic power supply
- Motor control
- Synchronous-rectification
- Isolated DC/DC convertor
- Invertors

SOT-89-3L



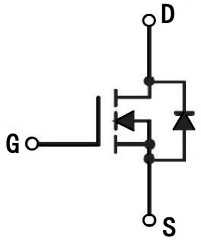
1. GATE
2. DRAIN
3. SOURCE

MARKING



1005: Device Code

N-CHANNEL MOSFET



MAXIMUM RATINGS (Ta=25°C unless otherwise noted)

Symbol	Parameter	Max.	Units
V_{DS}	Drain-Source Voltage	100	V
V_{GS}	Gate-Source Voltage	±20	V
I_D	Drain Current – Continuous	5	A
I_{DM}	Drain Current – Pulsed1	30	A
P_D	Power Dissipation (T_C=25℃)	2.6	W
$R_{\theta JA}$	Thermal Resistance Junction to ambient	47.4	℃/W
T_{STG}	Storage Temperature Range	-50 to 150	℃
T_J	Operating Junction Temperature Range	-50 to 150	℃

MOSFET ELECTRICAL CHARACTERISTICS Ta=25 °C unless otherwise specified

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Off Characteristic						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS} = 0V,I_D = 250μA	100	110	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} = 100V, V_{GS} = 0V, T_J = 25℃	-	-	1	μA
I_{GSS}	Gate to Body Leakage Current	V_{GS} = ±20V,V_{DS} = 0V	-	-	±100	nA
On Characteristics						
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} =V_{GS},I_D = 250μA	1	1.8	3	V
$R_{DS(on)}$	Static Drain-Source On-Resistance	V_{GS} =10V, I_D =3A	-	110	140	mΩ
		V_{GS} =4.5V, I_D =2A	-	160	300	mΩ
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS} =50V, V_{GS} = 0V, f = 1.0MHz	-	206	-	pF
C_{oss}	Output Capacitance		-	29	-	pF
C_{rss}	Reverse Transfer Capacitance			1.4	-	pF
Q_g	Total Gate Charge	V_{DS}=50V, I_D=3A, V_{GS}=10V	-	4.3	-	nC
Q_{gs}	Gate-Source Charge		-	1.5	-	nC
Q_{gd}	Gate-Drain(“Miller”) Charge		-	1.1	-	nC
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time	V_{GS} = 10V, V_{DS}=50V, R_G =2Ω, I_D=3A	-	14.7	-	ns
t_r	Turn-On Rise Time		-	3.5	-	ns
$t_{d(off)}$	Turn-Off Delay Time		-	20.9	-	ns
t_f	Turn-Off Fall Time		-	2.7	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
I_S	Maximum Continuous Drain to Source Diode Forward Current		-	-	5	A
V_{SD}	Drain to Source Diode Forward Voltage	V_{GS} = 0V, I_{SD}=3A, T_J = 25℃	-	-	1.2	V

TYPICAL PERFORMANCE CHARACTERISTICS

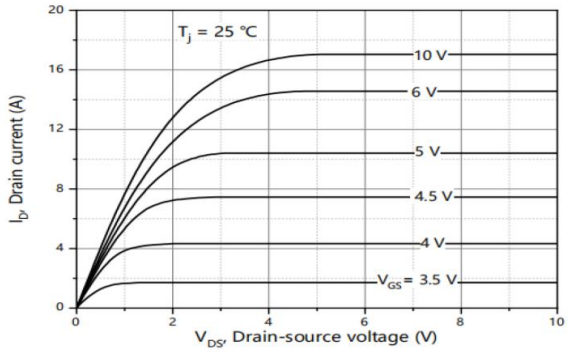


Figure1. Output Characteristics

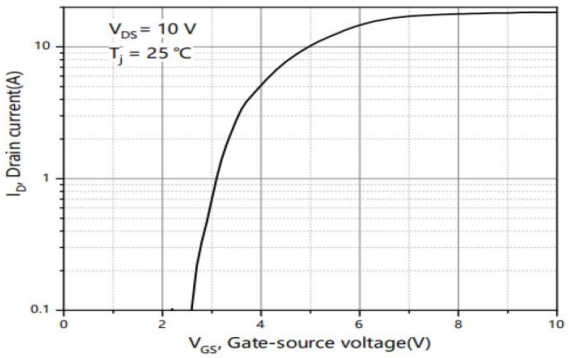


Figure2. Transfer Characteristics

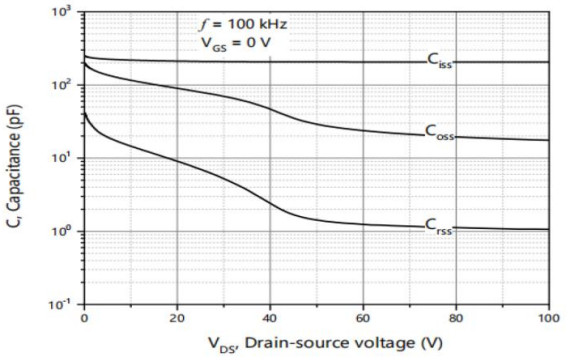


Figure3. Capacitance Characteristics

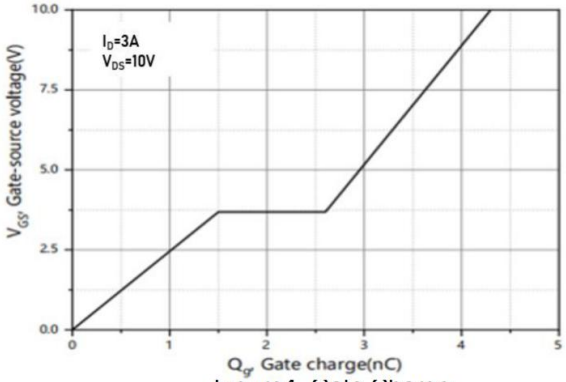
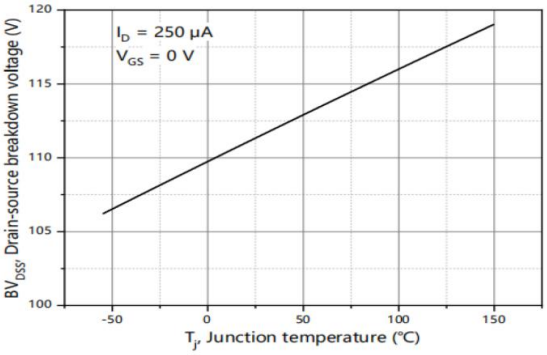
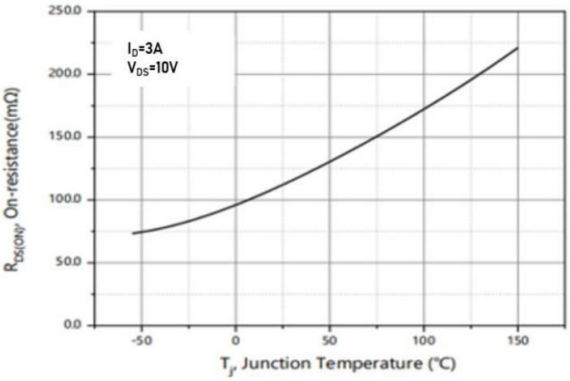


Figure4. Gate Charge





TYPICAL PERFORMANCE CHARACTERISTICS (cont.)

Figure5. Drain-Source breakdown voltage

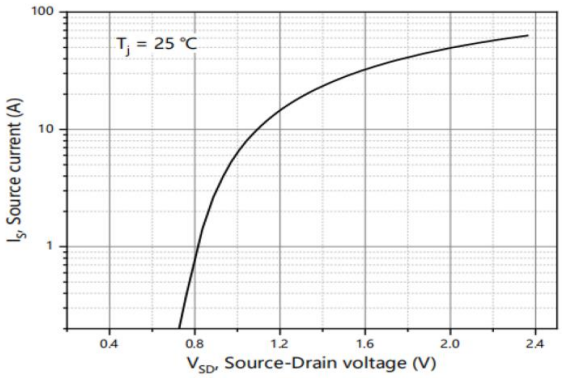


Figure6. Drain-Source on Resistance

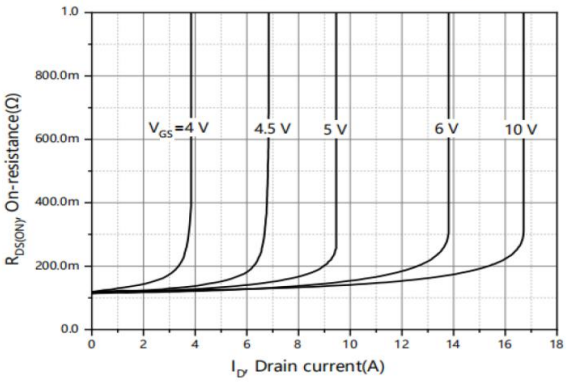
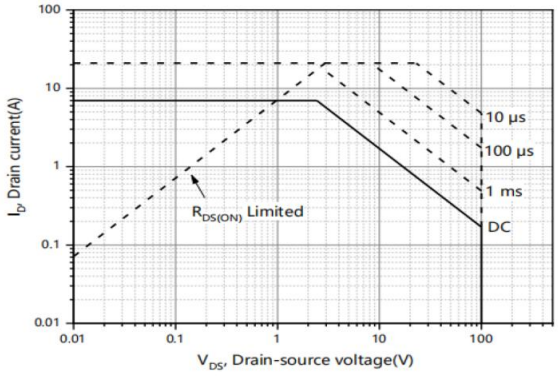


Figure7. Forward characteristic of body diode

Figure8. Drain-source on-state resistance



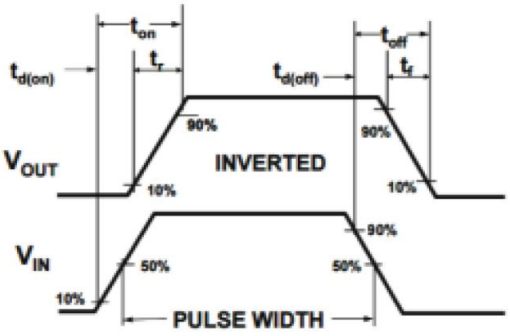
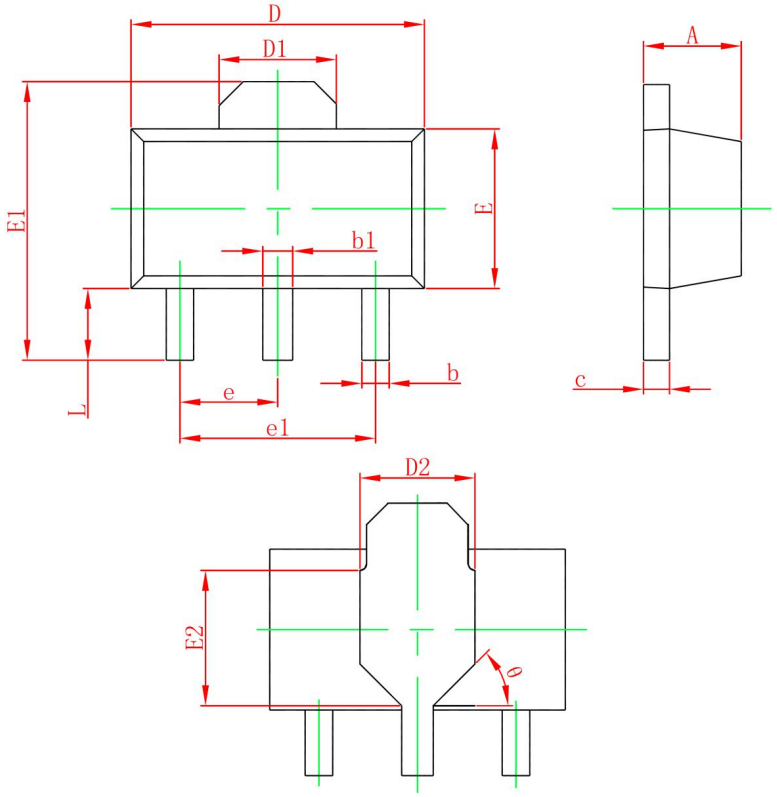


Figure9. Safe Operation Area T_A=25 ℃

Figure10. Switching wave

SOT-89-3L PACKAGE OUTLINE DRAWING



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.400	1.600	0.055	0.063
b	0.320	0.520	0.013	0.020
b1	0.400	0.580	0.016	0.023
c	0.350	0.440	0.014	0.017
D	4.400	4.600	0.173	0.181
D1	1.550 REF.		0.061 REF.	
D2	1.750 REF.		0.069 REF.	
E	2.300	2.600	0.091	0.102
E1	3.940	4.250	0.155	0.167
E2	1.900 TYP.		0.076 TYP.	
e	1.500 TYP.		0.060 TYP.	
e1	3.000 TYP.		0.118 TYP.	
L	0.900	1.200	0.035	0.047
θ	45°		45°	