Product Summary

V$_{(BR)DSS}$	R$_{DS(on)TYP}$	I$_D$
100V	110mΩ@10V	3A

Feature

- V$_{DS}$ 100V
- I$_D$ 3.0A
- R$_{DS(ON)}$(at V$_{GS}$=10V) < 140 mohm
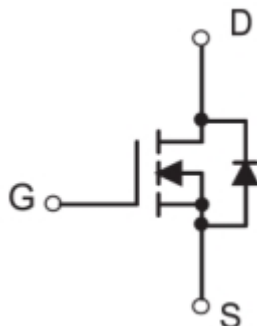
Application

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

Package

SOT-89-3L
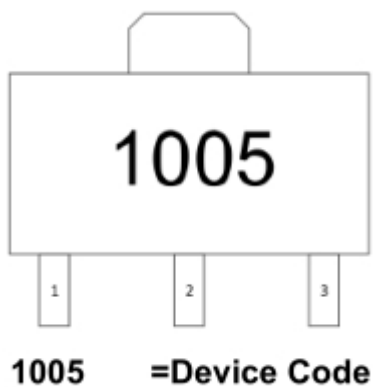
Circuit diagram

Marking

1005　　=Device Code

Absolute maximum ratings

(T$_a$=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V$_{DS}$	100	V
Gate-Source Voltage	V$_{GS}$	±20	V
Drain Current-Continuous	I$_D$	3	W
Drain Current – Pulsed [1]	I$_{DM}$	21	A
Power Dissipation (T$_C$=25℃)	P$_D$	2.6	W
Thermal Resistance Junction to ambient	R$_{θJA}$	47.4	℃/ W
Storage Temperature Range	T$_{STG}$	-55～ +150	℃
Operating Junction Temperature Range	T$_{J,}$	-55～ +150	℃

Electrical characteristics

(T_A=25℃, unless otherwise noted)

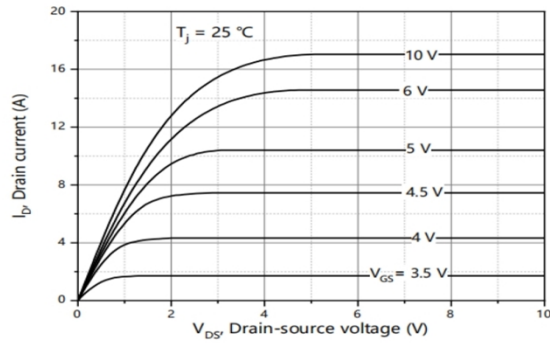| Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	BV_{DSS}	V_{GS} = 0V, I_D =250μA	100	110		V
Drain-Source Leakage Current	I_{DSS}	V_{DS} =100V,V_{GS} = 0V			1	uA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	1	1.8	3	V
Gate-Source Leakage Current	I_{GSS}	V_{GS} =±20V , V_{DS}=0V			100	uA
Static Drain-Source on-Resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =3A		110	140	mΩ
		V_{GS} =4.5V, I_D =2A		160	300	
Dynamic characteristics[4]						
Total Gate Charge	Q_g	V_{GS}=10V, V_{DS}=50V, I_D=3.0A		4.3		nC
Gate-Source Charge	Q_{gS}			1.5		
Gate-Drain Charge	Q_{gd}			1.1		
Turn-On Delay Time	$T_{d(on)}$	V_{GS}=10V, V_{DD}=50V, I_D=3.0A, R_{GEN}=2Ω		14.7		nS
Rise Time	T_r			3.5		
Turn-Off Delay Time	$T_{d(off)}$			20.9		
Fall Time	T_f			2.7		
Input Capacitance	C_{iss}	V_{DS}=50V,V_{GS}=0V, f=1MHz		206		pF
Output Capacitance	C_{oss}			29		
Reverse Transfer Capacitance	C_{rss}			1.4		
Drain-Source Diode Characteristics						
Continuous Source Current	I_S	V_G=V_D=0V , Force Current			5	A
Diode forward voltage	V_{SD}	V_{GS}=0V, I_S=3A , T_J=25℃			1.2	V

Typical Characteristics

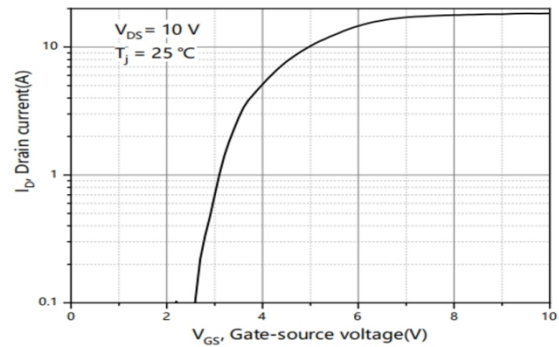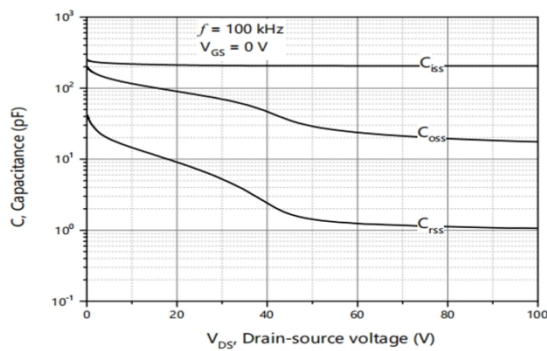Figure1. Output Characteristics

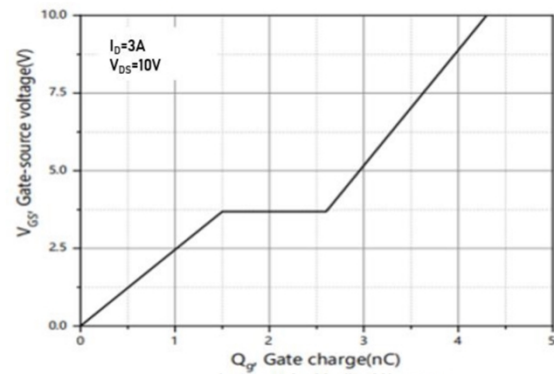Figure2. Transfer Characteristics

Figure3. Capacitance Characteristics
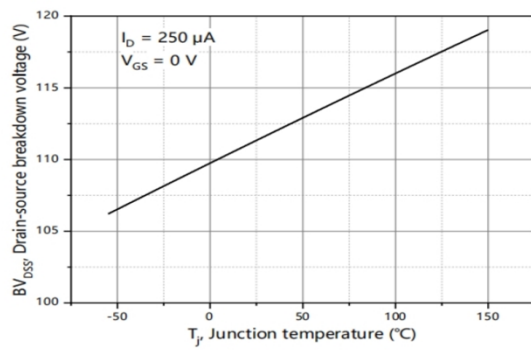

Figure4. Gate Charge

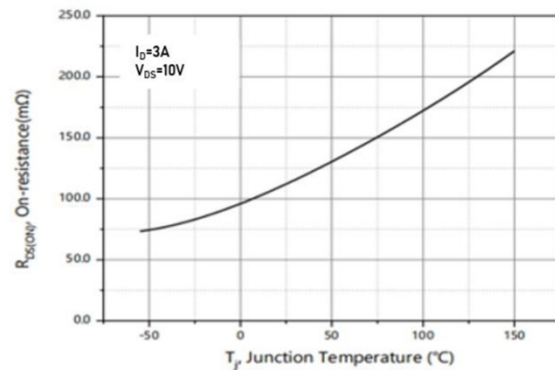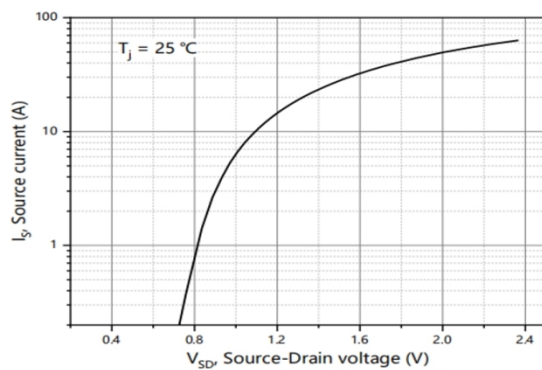Figure5. Drain-Source breakdown voltage

Figure6. Drain-Source on Resistance
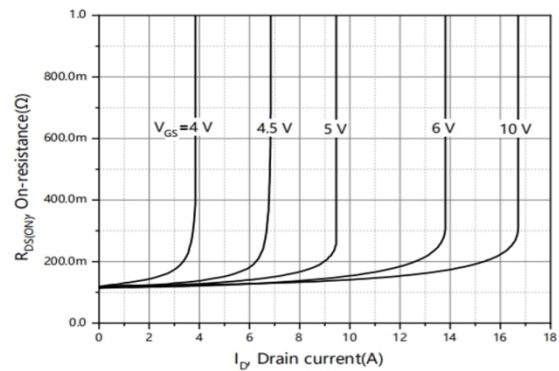

Figure7. Forward characteristic of body diode

Figure8. Drain-source on-state resistance

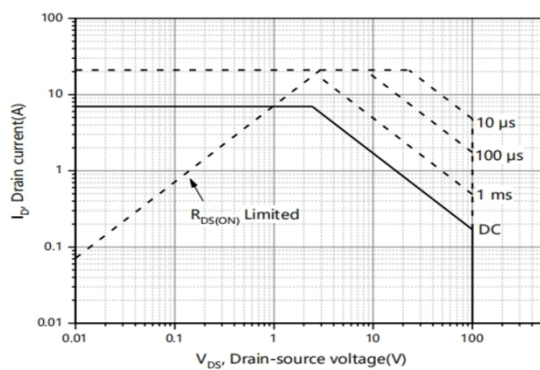Figure9. Safe Operation Area T$_A$=25 ℃

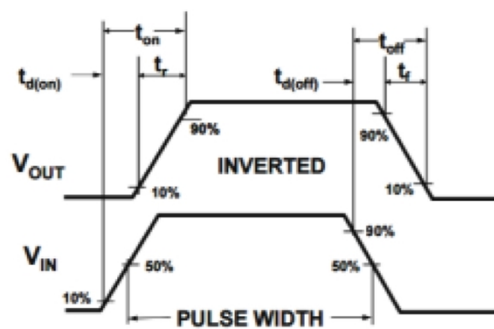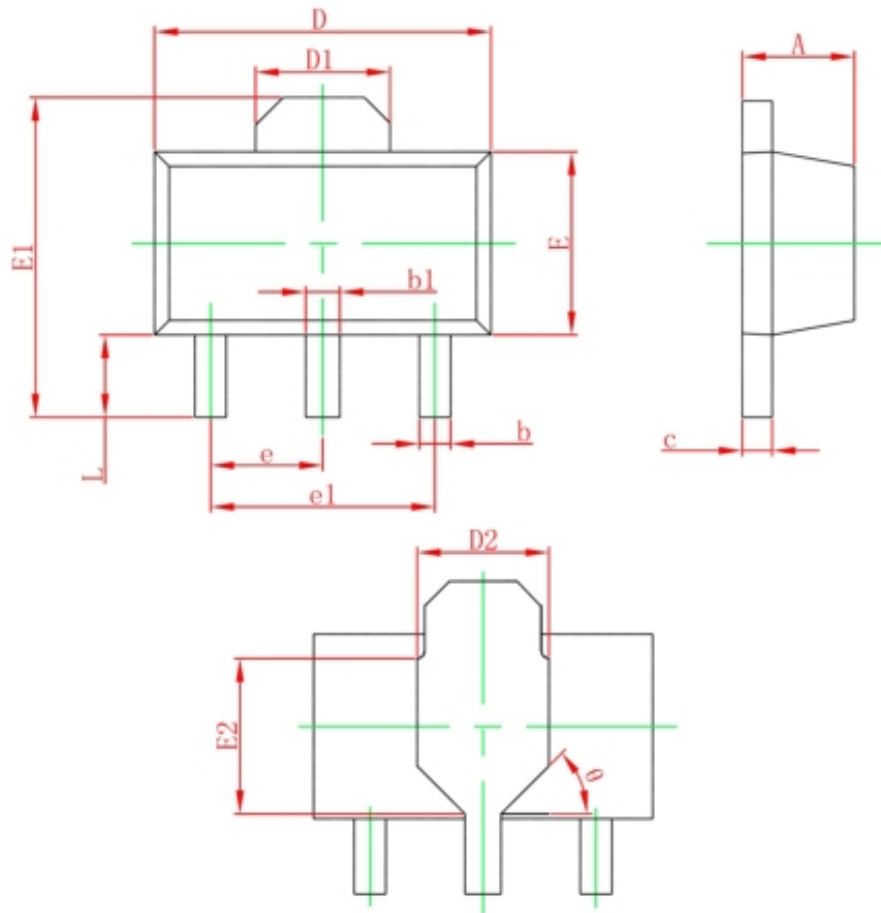Figure10. Switching wave

SOT-89-3L Package Information

Symbol	Dimensions In Millimeters	
	Min.	Max.
A	1.400	1.600
b	0.320	0.520
b1	0.400	0.580
c	0.350	0.440
D	4.400	4.600
D1	1.550 REF.	
D2	1.750 REF.	
E	2.300	2.600
E1	3.940	4.250
E2	1.900 REF.	
e	1.500 TYP.	
e1	3.000 TYP.	
L	0.900	1.200
θ	45°	