N-Channel 100V(D-S) MOSFET

Product summary		
V_{DS}	100	V
$R_{DS(ON)}$(at V_{GS}=10V) Typ.	95	mΩ
$R_{DS(ON)}$(at V_{GS}=4.5V) Typ.	100	mΩ
I_D(T_A=25℃)	3	A

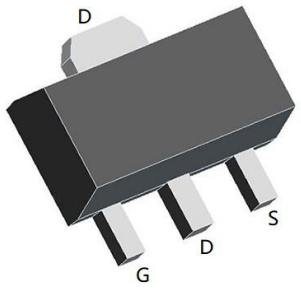
Features

- High density cell design for low $R_{DS(ON)}$
- Trench Power MV MOSFET technology
- RoHS Compliant

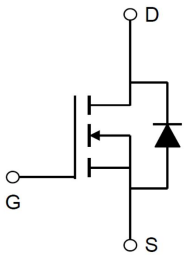
Applications

- DC-DC Converters
- Power management functions

Pin Configuration



SOT-89



Packing Information

Device	Marking	Reel Size	Quantity(Min. Package)
ECDL03N10A	1003.	7″	1000pcs

Absolute Maximum Ratings (at TA=25℃ Unless Otherwise Noted)

Symbol	Parameter		Rating	Units
V_{DS}	Drain-Source Voltage		100	V
V_{GS}	Gate-Source Voltage		±20	V
I_D	Continuous Drain Current at V_{GS}=10V	T_A=25℃	3	A
		T_A=70℃	2.4	A
I_{DM}	Pulse Drain Current Tested [A]		12	A
P_D	Power Dissipation	T_C=25℃	1.5	W
T_J,T_{STG}	Junciton and Storage Temperature Range		-55 to +150	℃

Thermal Characteristics

Symbol	Parameter	Typical	Units
$R_{\theta JA}$	Thermal Resistance-Junction to ambient [B]	83	℃/W

Electrical Characteristics (at T_J =25℃ Unless Otherwise Noted)

Symbol	Parameter	Condition	Min.	Typ.	Max.	Units
Static Parameters						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V,I_D=250uA	100	--	--	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=100V,V_{GS}=0V	--	--	1	uA
I_{GSS}	Gate-Body Leakage Current	V_{DS}=0V,V_{GS}=±20V	--	--	±100	nA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS},I_D=250uA	1.0	1.8	3.0	V
$R_{DS(ON)}$	Drain-Source On-State Resistance	V_{GS}=10V,I_D=3A	--	95	110	mΩ
		V_{GS}=4.5V,I_D=2.4A	--	100	120	mΩ
V_{SD}	Forward Voltage	I_{SD}=3A,V_{GS}=0V	--	--	1.2	V
Dynamic Parameters						
C_{iss}	Input Capacitance	V_{GS}=0V,V_{DS}=50V f=1MHZ	--	790	--	pF
C_{oss}	Output Capacitance		--	39	--	pF
C_{rss}	Reverse Transfer Capacitance		--	31	--	pF
Switching Parameters						
Q_g	Total Gate Charge	V_{DS}=50V,I_D=3A V_{GS}=10V	--	16	--	nC
Q_{gs}	Gate-Source Charge		--	2.5	--	nC
Q_{gd}	Gate-Drain Charge		--	2.6	--	nC
$t_{D(on)}$	Turn-on Delay Time	V_{DD}=50V R_L=6.4Ω,R_{GEN}=3Ω, V_{GS}=10V	--	5.5	--	nS
t_r	Turn-on Rise Time		--	42	--	nS
$t_{D(off)}$	Turn-off Delay Time		--	22	--	nS
t_f	Turn-off Fall Time		--	8	--	nS

A. Pulse Test: Pulse Width≤300us,Duty cycle ≤2%.

B. Device mounted on FR-4 PCB, 1 inch x 1 inch x 0.062 inch.

Typical Characteristics

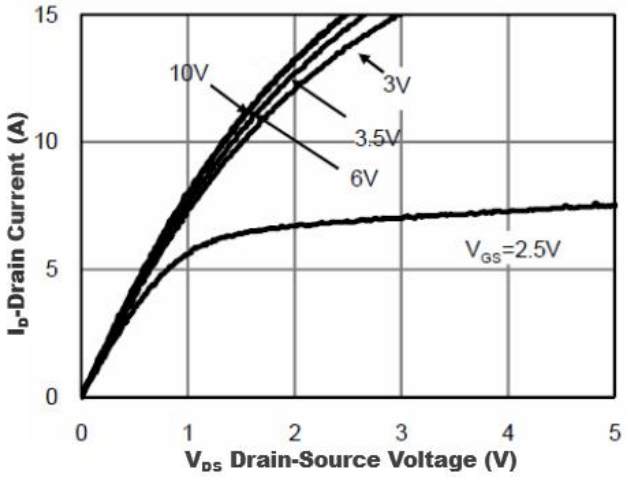


Figure1. Output Characteristics

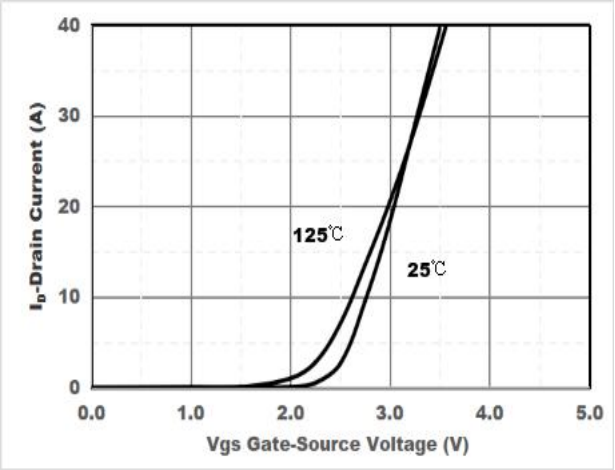


Figure2. Transfer Characteristics

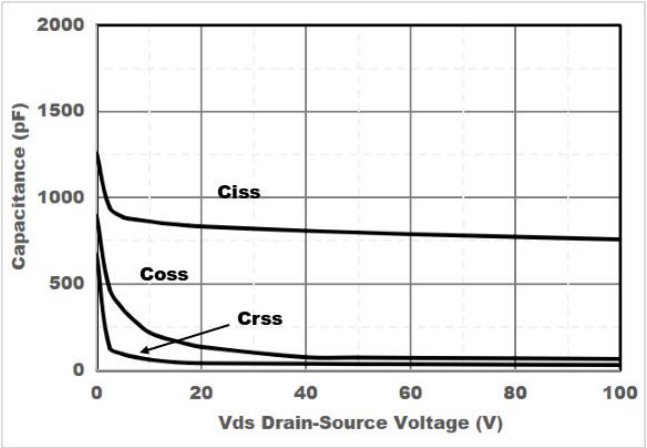


Figure3. Capacitance Characteristics

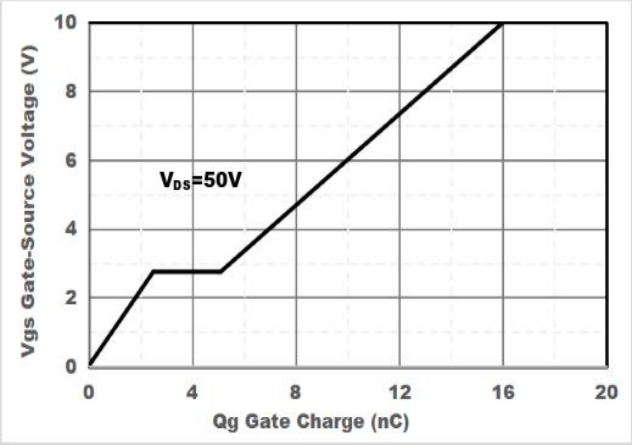


Figure4. Gate Charge

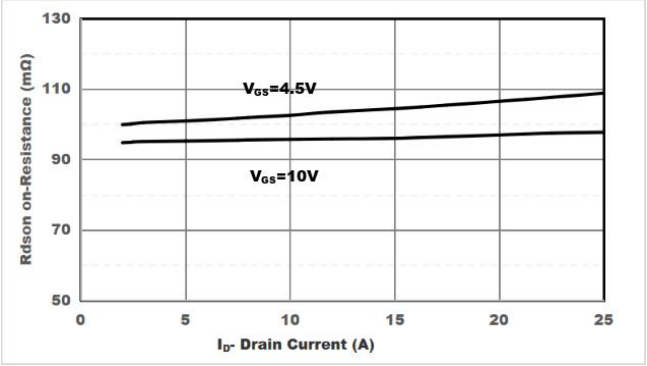


Figure5. Drain-Source on Resistance

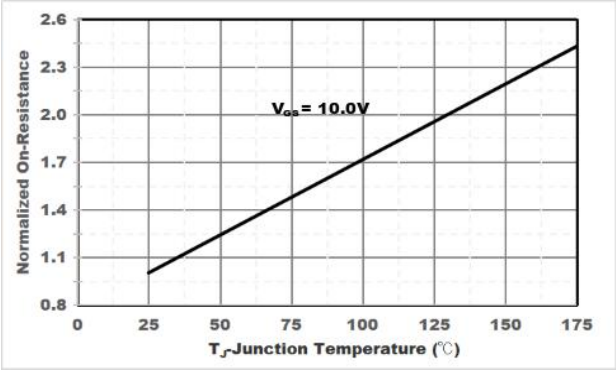


Figure6. Drain-Source on Resistance

Typical Characteristics

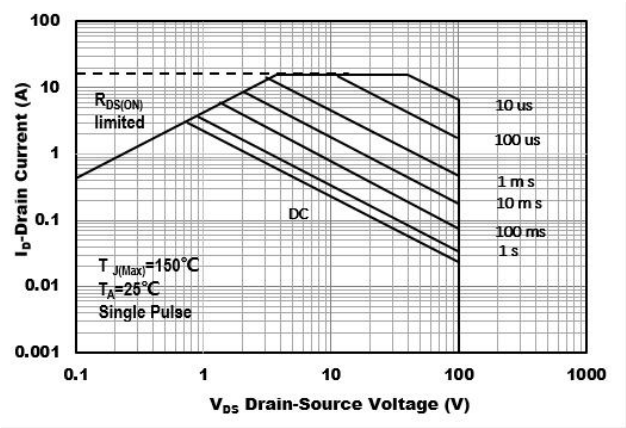


Figure7. Safe Operation Area

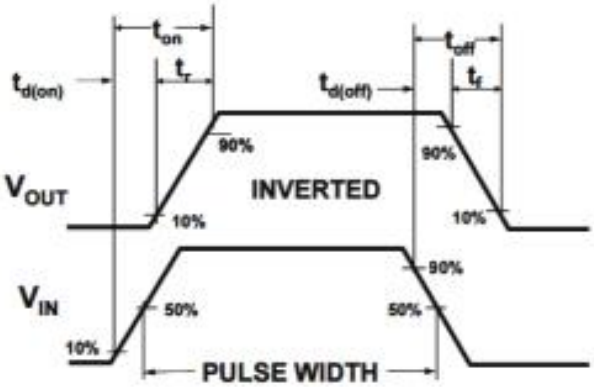
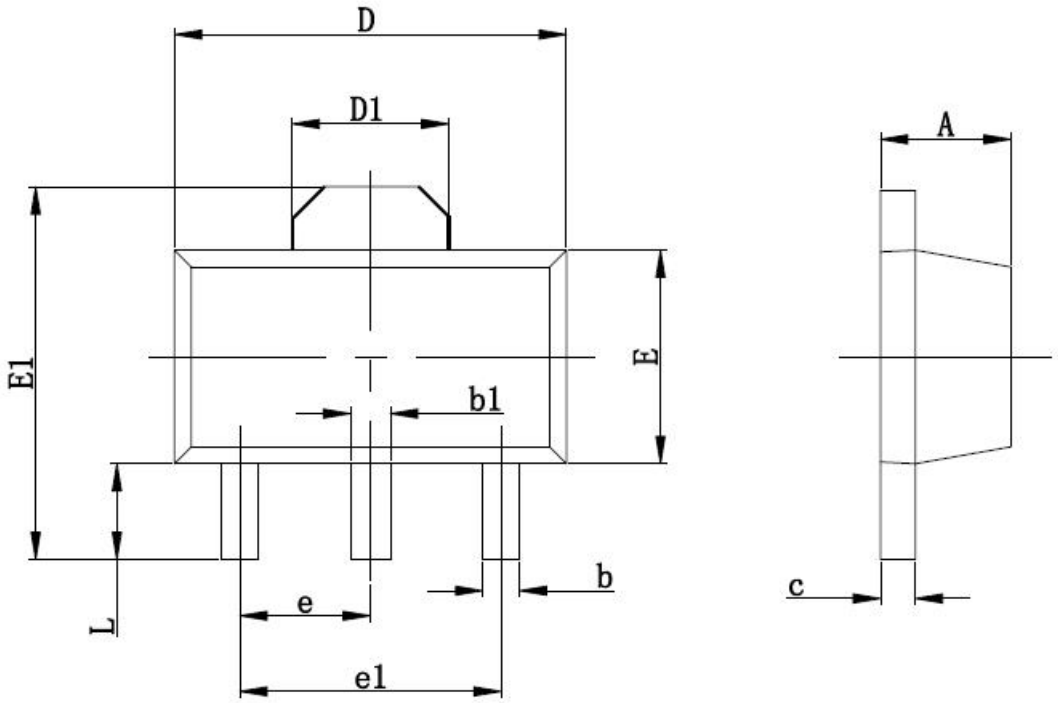


Figure8. Switching wave

SOT-89 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.400	1.600	0.055	0.063
b	0.350	0.520	0.013	0.197
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	
E	2.350	2.550	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.500 TYP		0.060TYP	
e1	3.000 TYP		0.118TYP	
L	0.900	1.100	0.035	0.047