N-Channel 30V(D-S) MOSFET

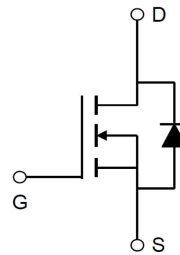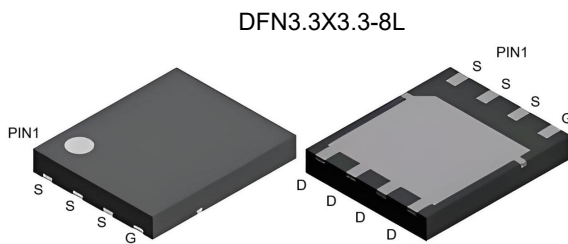| Product summary		
V_{DS}	30	V
$R_{DS(ON)}$(at V_{GS}=10V) Typ.	8	mΩ
$R_{DS(ON)}$(at V_{GS}=4.5V) Typ.	10	mΩ
I_D(Tc=25℃)	30	A

Features

● High density cell design for low $R_{DS(ON)}$
● Trench Power LV MOSFET technology

Applications

● Load switching
● High current load applications
● Uninterruptible power supply

Pin Configuration

DFN3.3X3.3-8L

Packing Information

Device	Package	Reel Size	Quantity(Min. Package)
ECAL30N03A	DFN3.3X3.3-8L	13″	3000pcs/5000pcs

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

Symbol	Parameter		Rating	Units
V_{DS}	Drain-Source Voltage		30	V
V_{GS}	Gate-Source Voltage		±20	V
I_D	Continuous Drain Current at V_{GS}=10V [A]	T_C=25℃	30	A
		T_C=100℃	21	A
I_{DM}	Pulse Drain Current Tested [B]		115	A
E_{AS}	Single Pulse Avalanche Energy [C]		112	mJ
P_D	Power Dissipation		21	W
T_J,T_{STG}	Junciton and Storage Temperature Range		-55 to +175	℃

Thermal Characteristics

Symbol	Parameter	Typical	Units
$R_{\theta JC}$	Thermal Resistance-Junction to Case [A]	7.1	℃/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	30	--	--	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=30V,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	1.5	2.5	V
$R_{DS(ON)}$	Drain-Source On-State Resistance [B]	V_{GS}=10V,I_D=15A	--	8	10.5	mΩ
		V_{GS}=4.5V,I_D=15A	--	10	14	mΩ
V_{SD}	Forward Voltage	I_S=15A,V_{GS}=0V	--	--	1.2	V
I_S	Maximum Body-Diode Continuous Current		--	--	30	A
Dynamic Parameters [D]						
C_{iss}	Input Capacitance	V_{GS}=0V,V_{DS}=15V f=1MHZ	--	950	--	pF
C_{oss}	Output Capacitance		--	204	--	pF
C_{rss}	Reverse Transfer Capacitance		--	121	--	pF
Q_g	Total Gate Charge	V_{DS}=15V,I_D=30A V_{GS}=10V	--	28	--	nC
Q_{gs}	Gate-Source Charge		--	7	--	nC
Q_{gd}	Gate-Drain Charge		--	5	--	nC
$t_{D(on)}$	Turn-on Delay Time	V_{DS}=20V I_D=2A,R_L=1Ω, V_{GS}=10V,R_{GEN}=3Ω	--	8	--	nS
t_r	Turn-on Rise Time		--	15	--	nS
$t_{D(off)}$	Turn-off Delay Time		--	27	--	nS
t_f	Turn-off Fall Time		--	7	--	nS

A. The data tested by surface mounted on a 1 inch[2] FR-4 board with 2OZ copper.

B. The data tested by pulsed , pulse width≦300us , duty cycle≦2%.

C. The EAS data shows Max. rating . The test condition is V_{DD}=20V,V_{GS}=10V,L=0.5mH,R_g=25Ω.

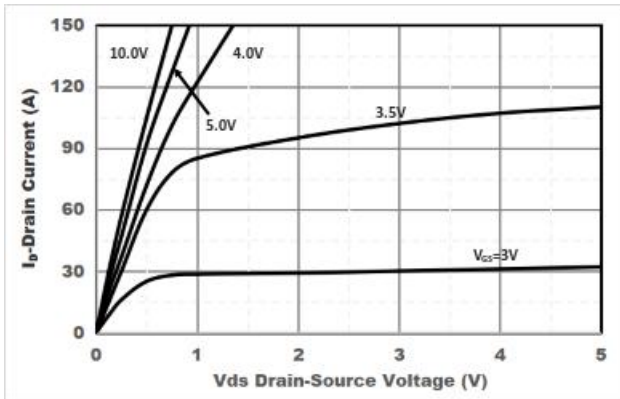D. Guaranteed by design, not subject to production testing.

Typical Characteristics
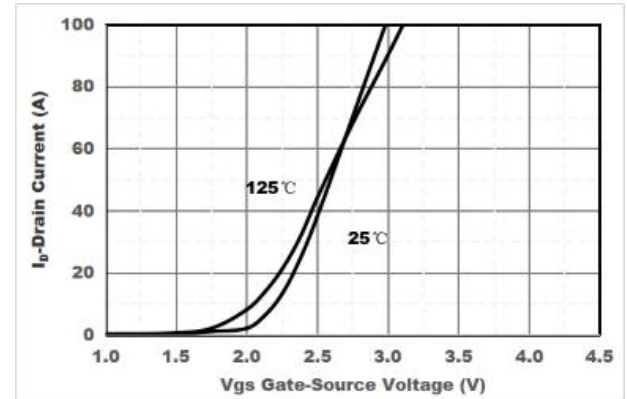
Figure1. Output Characteristics
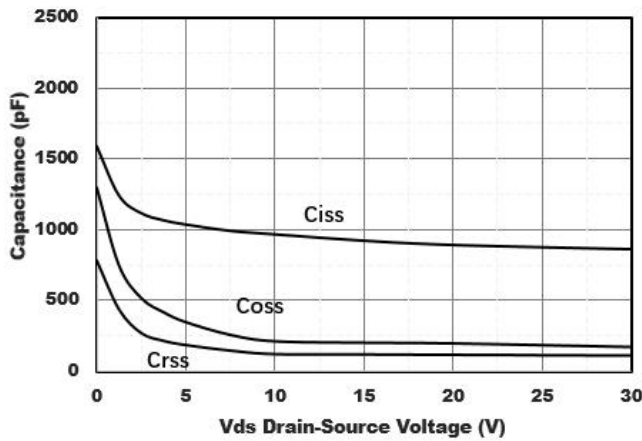
Figure2. Transfer Characteristics
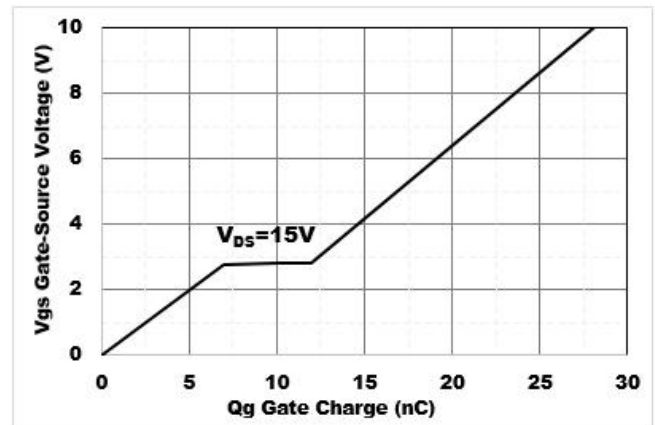
Figure3. Capacitance Characteristics
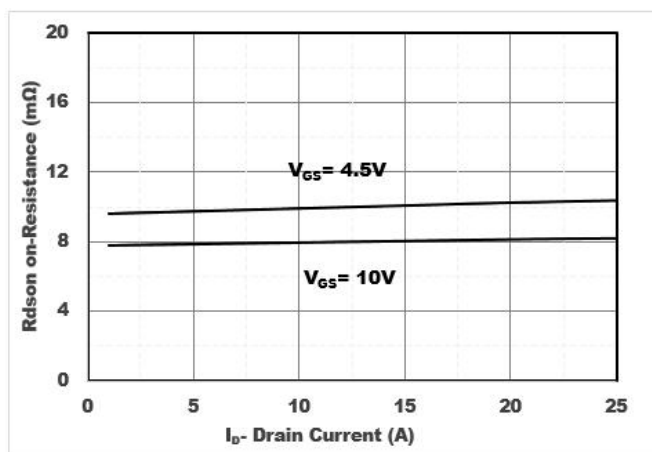
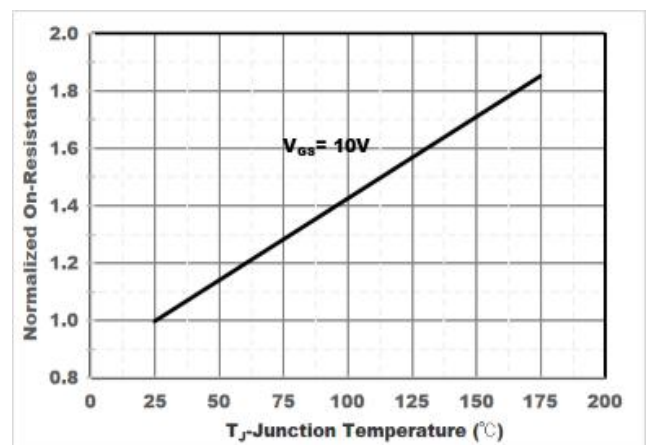Figure4. Gate Charge

Figure5. Drain-Source on Resistance

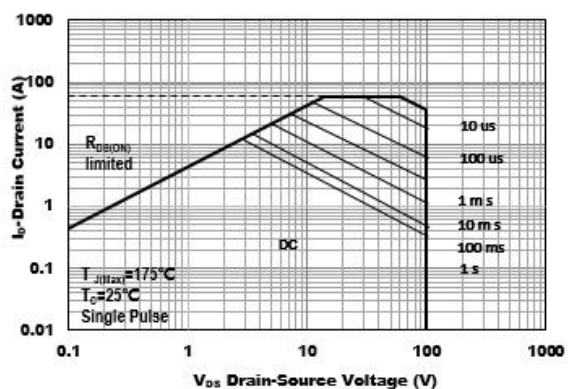Figure6. Drain-Source on Resistance

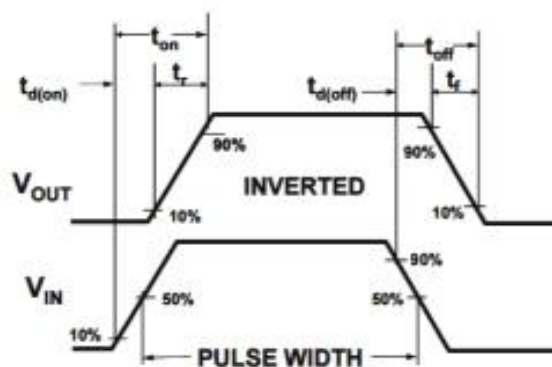## Typical Characteristics

Figure7. Safe Operation Area

Figure8. Switching wave

DFN3.3X3.3-8L Package Information

A	B	C	C1
3.25±0.05	3.25±0.05	0.8±0.05	0.2±0.02
C2	D	E	F
0.05Max	1.9±0.1	2.35±0.15	0.45±0.05
G	H	e	
0.3±0.05	0.35±0.05	0.65±0.05	
单位：mm			