

Dual N-Channel 30V(D-S) MOSFET

Product summary		
V_{DS}	30	V
$R_{DS(ON)}$ (at $V_{GS}=10V$) Typ.	21	m Ω
$R_{DS(ON)}$ (at $V_{GS}=4.5V$) Typ.	27	m Ω
I_D ($T_C=25^\circ C$)	5.6	A

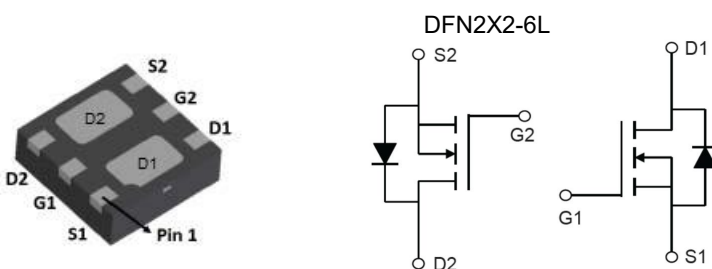
Features

- Fast switching speed
- Low gate charge
- RoHS and Halogen-Free compliant

Applications

- Load switch
- Power management

Pin Configuration



Packing Information

Device	Marking	Reel Size	Tape Width	Quantity
EC4110	Q3404	7"	8mm	3000pcs

Absolute Maximum Ratings (at $T_A=25^\circ C$ 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 $V_{GS}=10V$	$T_C=25^\circ C$	5.6
		$T_C=70^\circ C$	4.5
I_{DM}	Pulse Drain Current Tested ^A	30	A
P_D	Power Dissipation	2.0	W
T_J, T_{STG}	Junction and Storage Temperature Range	-55 to +150	$^\circ C$

Thermal Characteristics

Symbol	Parameter	Typical	Units
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient ^B	56	$^\circ C/W$

Electrical Characteristics (at $T_J = 25^\circ\text{C}$ Unless Otherwise Noted)

Symbol	Parameter	Condition	Min.	Typ.	Max.	Units
Static Parameters						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	30	--	--	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=30V, V_{GS}=0V$	--	--	1	μA
I_{GSS}	Gate-Body Leakage Current	$V_{DS}=0V, V_{GS}=\pm 20V$	--	--	± 100	nA
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	1.0	1.5	2.2	V
$R_{DS(on)}$	Drain-Source On-State Resistance	$V_{GS}=10V, I_D=5.6A$	--	21	29	m Ω
		$V_{GS}=4.5V, I_D=5.0A$	--	27	40	m Ω
V_{SD}	Forward Voltage	$I_S=5.6A, V_{GS}=0V$	--	--	1.2	V
I_S	Maximum Body-Diode Continuous Current		--	--	5.6	A
Dynamic Parameters						
C_{iss}	Input Capacitance	$V_{GS}=0V, V_{DS}=15V$ $f=1\text{MHz}$	--	490	--	pF
C_{oss}	Output Capacitance		--	92	--	pF
C_{rss}	Reverse Transfer Capacitance		--	68	--	pF
Switching Parameters						
Q_g	Total Gate Charge	$V_{DS}=15V, I_D=5.6A$ $V_{GS}=10V$	--	5.2	--	nC
Q_{gs}	Gate-Source Charge		--	0.9	--	nC
Q_{gd}	Gate-Drain Charge		--	1.3	--	nC
$t_{D(on)}$	Turn-on Delay Time	$V_{DD}=15V$ $I_D=1A, R_{GEN}=2.8\Omega,$ $V_{GS}=4.5V$	--	4.5	--	nS
t_r	Turn-on Rise Time		--	2.5	--	nS
$t_{D(off)}$	Turn-off Delay Time		--	14.5	--	nS
t_f	Turn-off Fall Time		--	3.5	--	nS

A. Pulse Test: Pulse Width $\leq 300\mu s$, Duty cycle $\leq 2\%$.

B. $R_{\theta JA}$ is the sum of the junction-to-case and case-to-ambient thermal resistance, where the case thermal reference is defined as the solder mounting surface of the drain pins.

Typical Characteristics

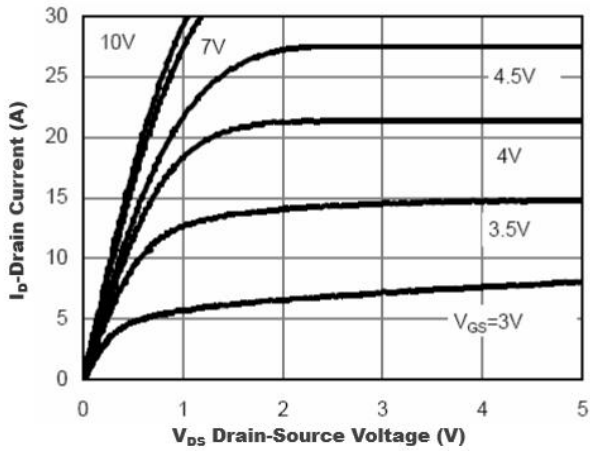


Figure1. Output Characteristics

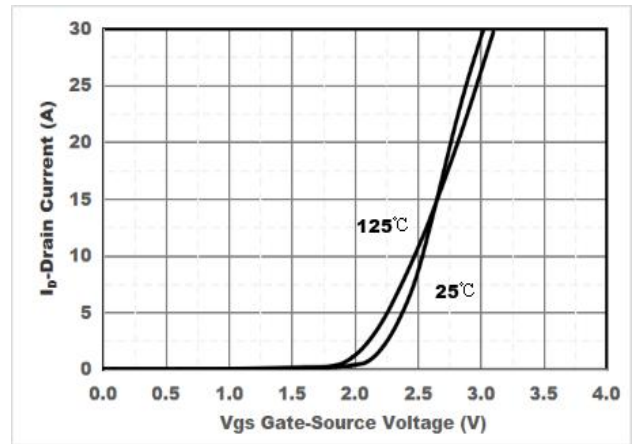


Figure2. Transfer Characteristics

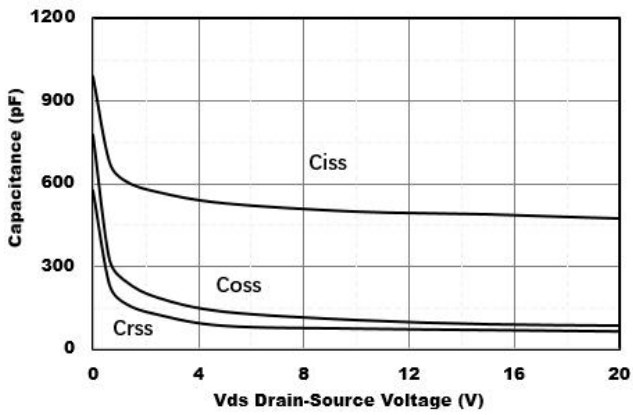


Figure3. Capacitance Characteristics

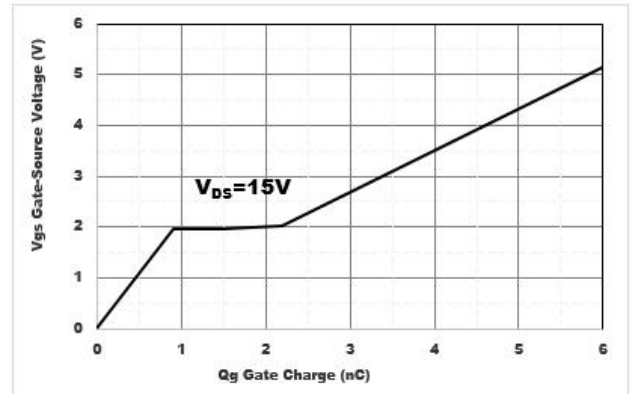


Figure4. Gate Charge

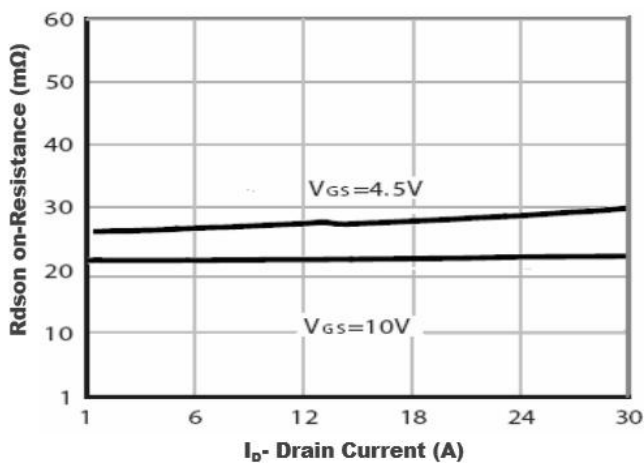


Figure5. Drain-Source on Resistance

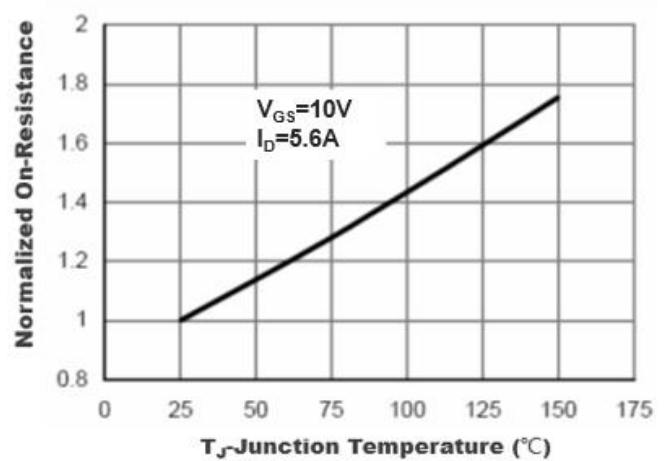


Figure6. Drain-Source on Resistance

Typical Characteristics

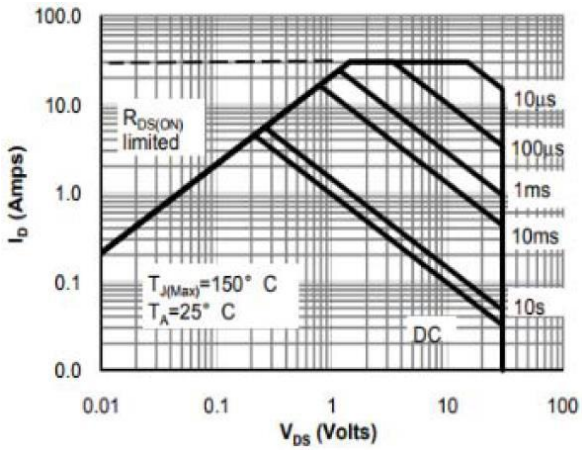


Figure7. Safe Operation Area

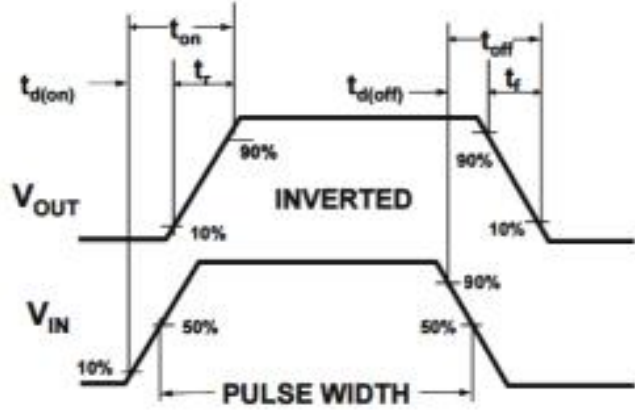
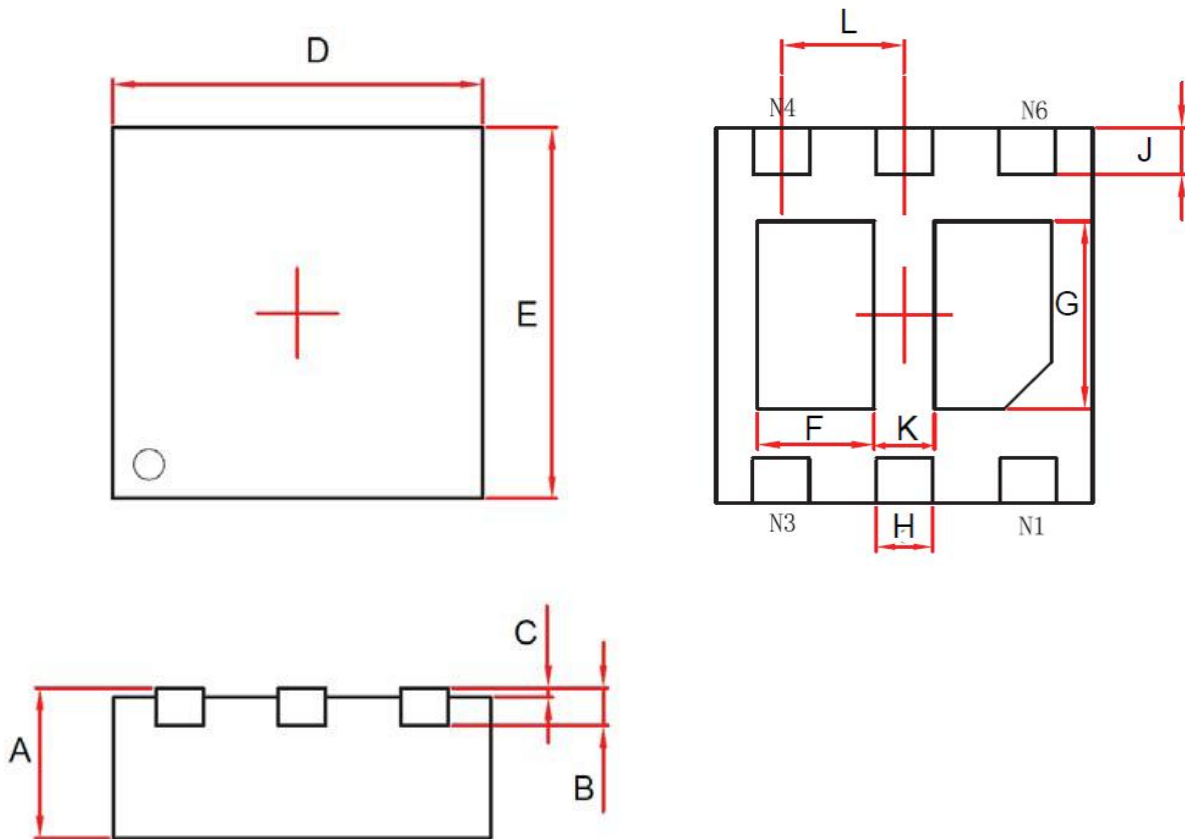


Figure8. Switching wave

DFN2X2-6L Package Information



Dimensions					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.030	.034	0.750	0.850	
B	0.008REF.		0.200REF.		
C	0.000	0.002	0.000	0.050	
D	0.077	0.081	1.950	2.050	
E	0.077	0.081	1.950	2.050	
F	0.017	0.027	0.440	0.690	
G	0.033	0.043	0.840	1.090	
H	0.010	0.014	0.250	0.350	
J	0.007	0.015	0.175	0.375	
K	0.010	0.014	0.250	0.350	
L	0.026TYP.		0.650TYP.		