P-Channel 30V(D-S) MOSFET

Product summary		
V_{DS}	-30	V
$R_{DS(ON)}$(at V_{GS}=-10V) Typ.	16	mΩ
$R_{DS(ON)}$(at V_{GS}=-4.5V) Typ.	21	mΩ
I_D(T_A=25℃)	-10	A

Features

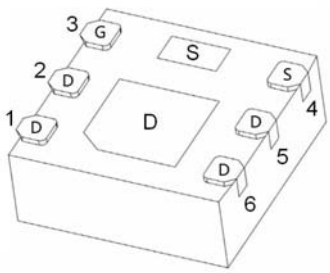
- Trench Power LV MOSFET technology
- Low $R_{DS(ON)}$
- RoHS and Halogen-Free compliant

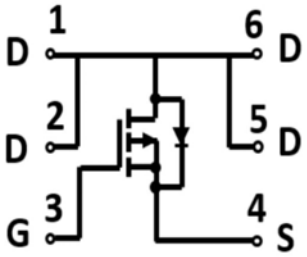
Applications

- Load switch
- Battery charge

Pin Configuration

DFN2X2-6L





Packing Information

Device	Reel Size	Quantity(Min. Package)
EC4101	7″	3000pcs

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	T_A=25℃	-10	A
		T_A=70℃	-8.2	A
I_{DM}	Pulse Drain Current Tested [A]		-30	A
P_D	Power Dissipation		2.8	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]	45	℃/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	-1.6	-2.5	V
$R_{DS(ON)}$	Drain-Source On-State Resistance	V_{GS}=-10V,I_D=-8A	--	16	21	mΩ
		V_{GS}=-4.5V,I_D=-6A	--	21	34	mΩ
V_{SD}	Forward Voltage	I_S=-1A,V_{GS}=0V	--	--	-1.0	V
I_S	Maximum Body-Diode Continuous Current		--	--	-10	A
Dynamic Parameters						
C_{iss}	Input Capacitance	V_{GS}=0V,V_{DS}=-15V f=1MHZ	--	530	--	pF
C_{oss}	Output Capacitance		--	114	--	pF
C_{rss}	Reverse Transfer Capacitance		--	75	--	pF
Switching Parameters						
Q_g	Total Gate Charge	V_{DS}=-15V,I_D=-8A V_{GS}=-10V	--	12	--	nC
Q_{gs}	Gate-Source Charge		--	1.8	--	nC
Q_{gd}	Gate-Drain Charge		--	3	--	nC
$t_{D(on)}$	Turn-on Delay Time	V_{DD}=-15V R_L=1.8Ω,R_{GEN}=3Ω, V_{GS}=-10V	--	7.7	--	nS
t_r	Turn-on Rise Time		--	5.5	--	nS
$t_{D(off)}$	Turn-off Delay Time		--	26.3	--	nS
t_f	Turn-off Fall Time		--	11.5	--	nS

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

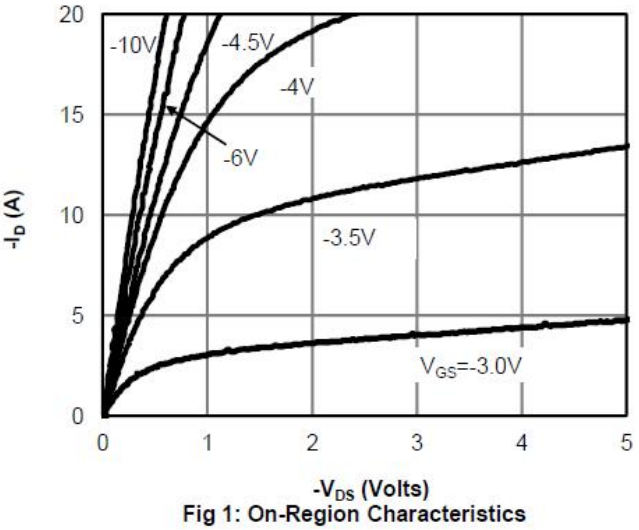


Fig 1: On-Region Characteristics

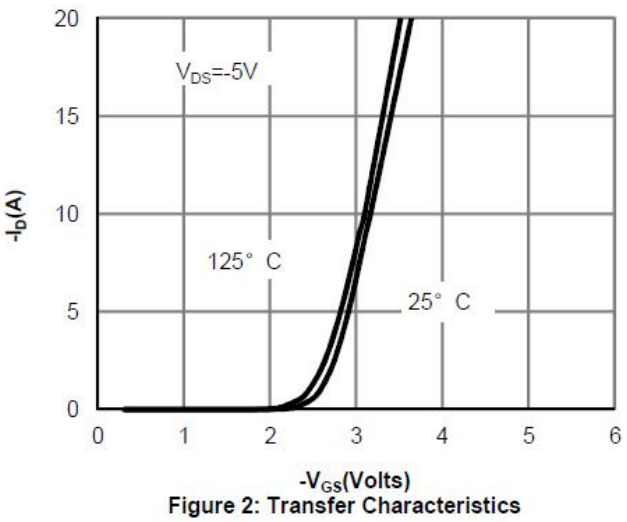


Figure 2: Transfer Characteristics

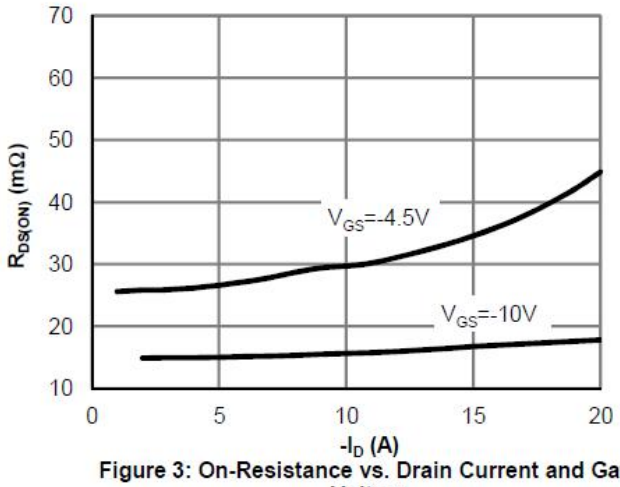


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

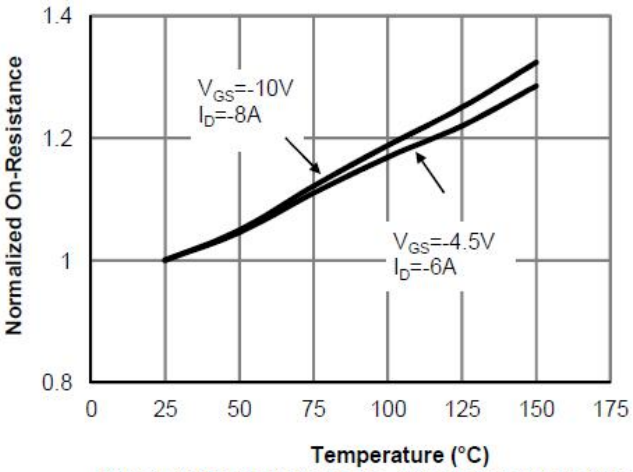


Figure 4: On-Resistance vs. Junction Temperature

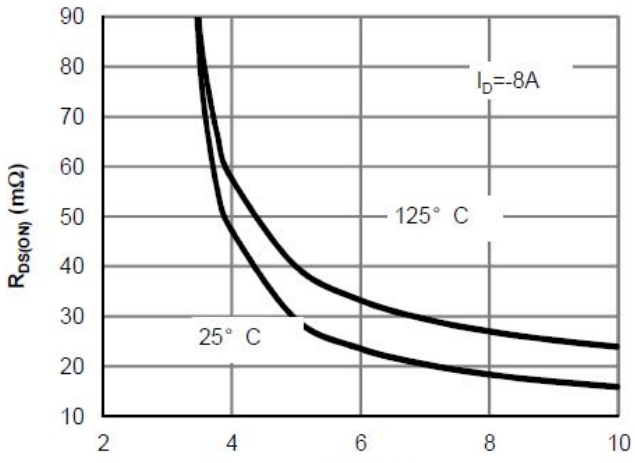


Figure 5: On-Resistance vs. Gate-Source Voltage

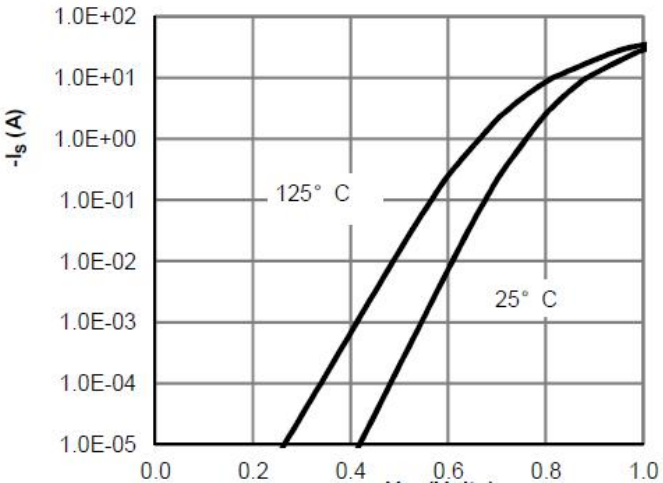


Figure 6: Body-Diode Characteristics

Typical Characteristics

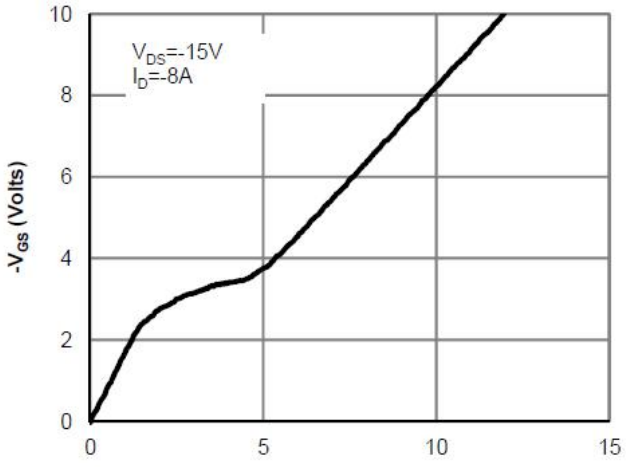


Figure 7: Gate-Charge Characteristics

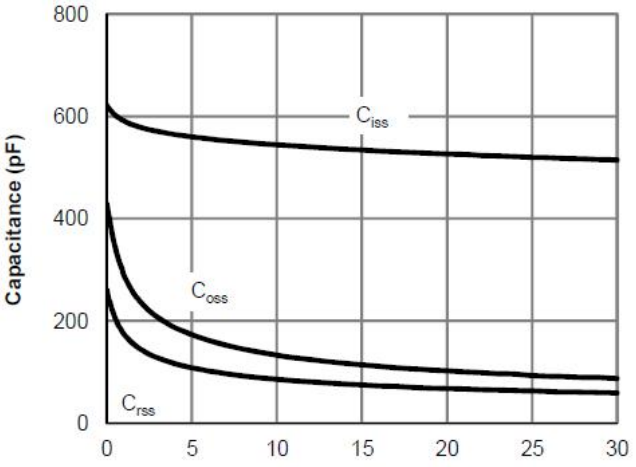


Figure 8: Capacitance Characteristics

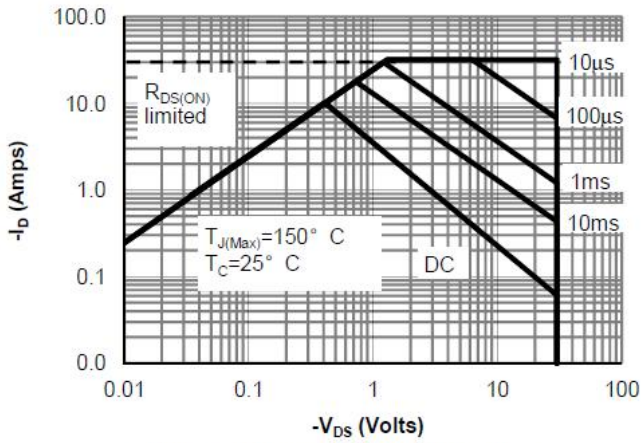


Figure 9: Maximum Forward Biased Safe Operating Area

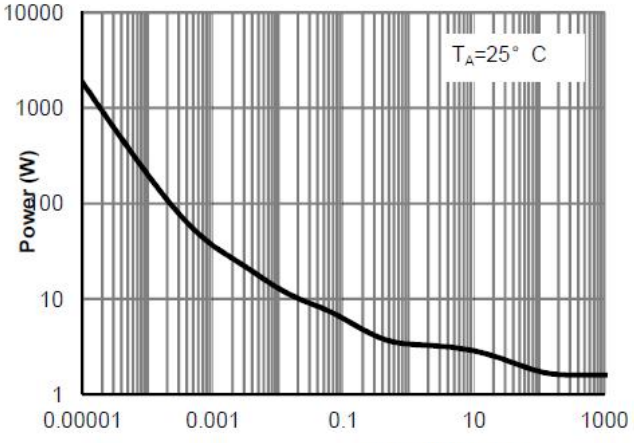


Figure 10: Single Pulse Power Rating Junction-to-A

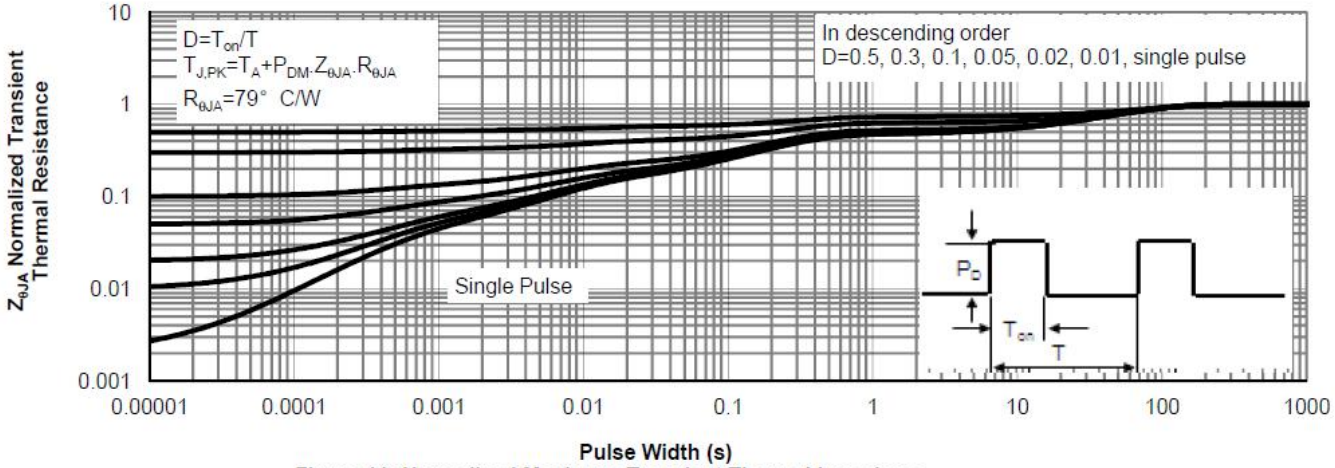


Figure 11: Normalized Maximum Transient Thermal Impedance

DFN2X2-6L Package Information