

RoHS Compliant Product
A suffix of "-C" specifies halogen and lead-free

DESCRIPTION

These miniature surface mount MOSFETs utilize a high cell Density trench process to provide low $R_{DS(on)}$ and to assure minimal power loss and heat dissipation.

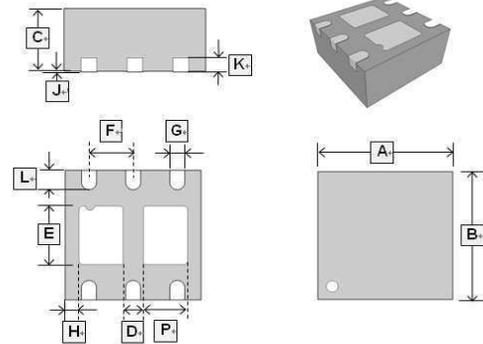
FEATURES

- Low $R_{DS(on)}$ provides higher efficiency and extends battery life.
- Low thermal impedance copper leadframe DFN2X2_6L saves board space.
- Fast switching speed.
- High performance trench technology.

APPLICATION

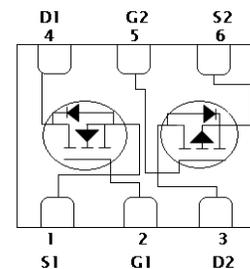
DC-DC converters and power management in portable and battery-powered products such as computers, printers, PCMCIA cards, cellular and cordless telephones.

DFN2x2-6L



REF.	Millimeter			REF.	Millimeter		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	2.00 BSC.			G	0.23	0.30	0.38
B	2.00 BSC.			H	0.65BSC		
C	0.675	0.75	0.80	J	0	-	0.05
D	0.25	0.30	0.35	K	0.15	0.20	0.25
E	0.81	0.86	0.91	L	0.25	0.30	0.35
F	0.65BSC			P	0.60	0.65	0.70

TOP VIEW



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Ratings		Unit	
		N-Channel	P-Channel		
Drain-Source Voltage	V_{DS}	20	-20	V	
Gate-Source Voltage	V_{GS}	± 8	± 8	V	
Continuous Drain Current ¹	I_D	$T_A=25^\circ\text{C}$	4.5	-4.5	A
		$T_A=70^\circ\text{C}$	4.5	-4.5	
Pulsed Drain Current ²	I_{DM}	8	-8	A	
Continuous Source Current (Diode Conduction) ¹	I_S	4.5	-4.5	A	
Power Dissipation ¹	P_D	$T_A=25^\circ\text{C}$	6.5		W
		$T_A=70^\circ\text{C}$	5		
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55 ~ +150		$^\circ\text{C}$	
Thermal Resistance Rating					
Parameter	Symbol	Typ	Max	Unit	
Maximum Junction to Ambient ¹	$R_{\theta JA}$	$t \leq 5 \text{ sec}$	52	65	$^\circ\text{C} / \text{W}$
		Steady State	12.5	16	

Notes:

1. Surface Mounted on 1" x 1" FR4 Board.
2. Pulse width limited by maximum junction temperature.

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise specified)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Gate-Threshold Voltage	N-Ch	V _{GS(th)}	1	-	-	V	V _{DS} =V _{GS} , I _D =250uA
	P-Ch		-1	-	-		V _{DS} =V _{GS} , I _D = -250uA
Gate-Body Leakage Current	N-Ch	I _{GSS}	-	-	100	uA	V _{DS} = 0 , V _{GS} = 8 V
	P-Ch		-	-	-100		V _{DS} = 0 , V _{GS} = -8 V
Zero Gate Voltage Drain Current	N-Ch	I _{DSS}	-	-	1	uA	V _{DS} =16 V, V _{GS} =0
	P-Ch		-	-	-1		V _{DS} =-16V, V _{GS} =0
	N-Ch		-	-	10		V _{DS} =16V, V _{GS} =0 , T _J =55°C
	P-Ch		-	-	-10		V _{DS} = -16V, V _{GS} =0 , T _J =55°C
On-State Drain Current ¹	N-Ch	I _{D(on)}	5	-	-	A	V _{DS} = 5V, V _{GS} =4.5 V
	P-Ch		-5	-	-		V _{DS} = -5V, V _{GS} = -4.5 V
Drain-Source On-Resistance ¹	N-Ch	R _{DS(ON)}	-	-	58	mΩ	V _{GS} =4.5V, I _D = 1A
	P-Ch		-	-	112		V _{GS} =-4.5V, I _D = 1A
	N-Ch		-	-	82		V _{GS} =2.5V, I _D = A
	P-Ch		-	-	172		V _{GS} =-2.5V, I _D = -1A
Forward Transconductance ¹	N-Ch	g _{fs}	-	10	-	S	V _{DS} = 5V, I _D = 1A
	P-Ch		-	5	-		V _{DS} = -5V, I _D = 11A
Diode Forward Voltage ¹	N-Ch	V _{SD}	-	0.80	-	S	I _S = 1.05A, V _{GS} = 0
	P-Ch		-	-0.83	-		I _S = -1.05A, V _{GS} = 0
Dynamic ²							
Total Gate Charge	N-Ch	Q _g	-	7.5	-	nC	N-Channel V _{DS} =15V, V _{GS} = 4.5V, I _D = 2.7A
	P-Ch		-	3.8	-		
Gate-Source Charge	N-Ch	Q _{gs}	-	0.6	-	nC	P-Channel V _{DS} = -15V, V _{GS} = -4.5V, I _D = -3.1A
	P-Ch		-	0.6	-		
Gate-Drain Charge	N-Ch	Q _{gd}	-	1.0	-	nC	N-Channel V _{DD} = 15V, R _{GEN} = 15Ω, V _{GS} = 4.5V, I _D = 1A
	P-Ch		-	1.5	-		
Turn-on Delay Time	N-Ch	T _{d(on)}	-	5	-	nS	P-Channel V _{DD} = -15V, R _{GEN} = 15Ω V _{GS} = -4.5V, I _D = -1A
	P-Ch		-	5	-		
Rise Time	N-Ch	T _r	-	12	-	nS	
	P-Ch		-	15	-		
Turn-off Delay Time	N-Ch	T _{d(off)}	-	13	-	nS	
	P-Ch		-	20	-		
Fall Time	N-Ch	T _f	-	7	-	nS	
	P-Ch		-	20	-		

Notes:

1. Pulse test: PW ≤ 300us duty cycle ≤ 2%.
2. Guaranteed by design, not subject to production testing.