

General Description

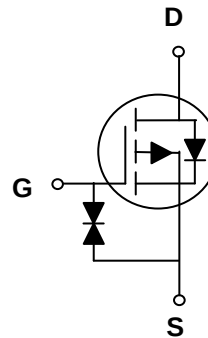
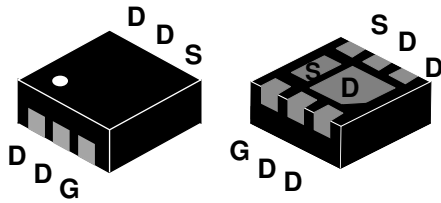
These P-Channel enhancement mode power field effect transistors are using trench DMOS technology. This advanced technology has been especially tailored to minimize on-state resistance, provide superior switching performance, and withstand high energy pulse in the avalanche and commutation mode. These devices are well suited for high efficiency fast switching applications.

Features

V_{DS}	-20V
I_D (at $V_{GS}=-4.5V$)	-8.0A
$R_{DS(ON)}$ (at $V_{GS}=-4.5V$)	17m Ω (Typ)

ESD protected

DFN2X2-6L



Absolute Maximum Ratings $T_A=25^{\circ}C$ unless otherwise noted

Parameter		Symbol	Maximum	Units
Drain-Source Voltage		V_{DS}	-20	V
Gate-Source Voltage		V_{GS}	± 10	V
Drain Current-Continuous	TC=25 $^{\circ}C$	I_D	-8.0	A
	TC=100 $^{\circ}C$	I_D	-5.1	A
Maximum Power Dissipation		P_D	1.3	W
Drain Current – Pulsed1		I_{DM}	-32	A
Junction and Storage Temperature Range		T_J, T_{STG}	-55 To 150	$^{\circ}C$

Thermal Characteristics

Parameter	Symbol	Typ	Max	Unit
Thermal Resistance junction-case	$R_{\theta Jc}$		1.1	$^{\circ}C/W$
Thermal Resistance junction-to-Ambient	$R_{\theta JA}$		60	$^{\circ}C/W$

Electrical Characteristics (TJ=25°C unless otherwise noted)

Symbol	Parameter	Condition	Min	Typ	Max	Unit
STATIC PARAMETERS						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V I _D =-250μA	-20			V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =-20V, V _{GS} =0V			1	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} =±10V, V _{DS} =0V			±10	μA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =-250μA	-0.45	-0.55	-1.0	V
R _{DS(ON)}	Drain-Source On-State Resistance	V _{GS} =-4.5V, I _D =-7.0A		17	21	mΩ
		V _{GS} =-2.5V, I _D =-5.0A		22	27	mΩ
		V _{GS} =-1.8V, I _D =-3.0A		29	45	mΩ
DYNAMIC PARAMETERS						
C _{iss}	Input Capacitance	V _{DS} =-10V, V _{GS} =0V, F=1.0MHz		1900		pF
C _{Oss}	Output Capacitance			240		pF
C _{rss}	Reverse Transfer Capacitance			190		pF
SWITCHING PARAMETERS						
t _{d(on)}	Turn-on Delay Time	V _{DD} =-10V, I _D =-1A, V _{GS} =-4.5V, R _G =3Ω		9.5		nS
t _r	Turn-on Rise Time			17		nS
t _{d(off)}	Turn-Off Delay Time			140		nS
t _f	Turn-Off Fall Time			80		nS
Q _g	Total Gate Charge	V _{DS} =-10V, I _D =-4A, V _{GS} =-4.5V		27		nC
Q _{gs}	Gate-Source Charge			2.3		nC
Q _{gd}	Gate-Drain Charge			7.6		nC
V _{SD}	Diode Forward Voltage	V _{GS} =0V, I _{SD} =-1A		0.72	1.2	V

Note:

1. Repetitive Rating : Pulsed width limited by maximum junction temperature.
2. The data tested by pulsed , pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
3. Essentially independent of operating temperature.

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

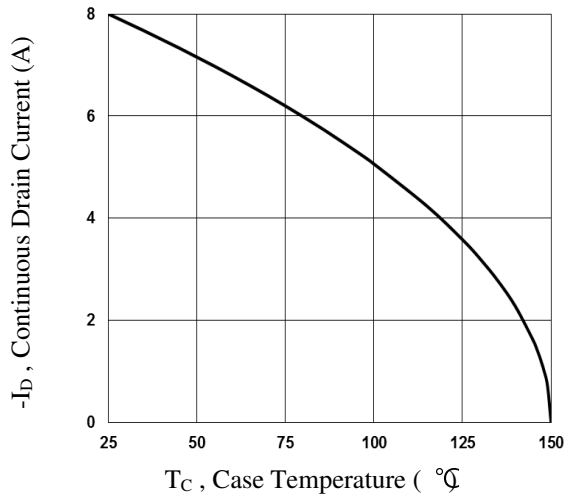


Fig.1 Continuous Drain Current vs. T_C

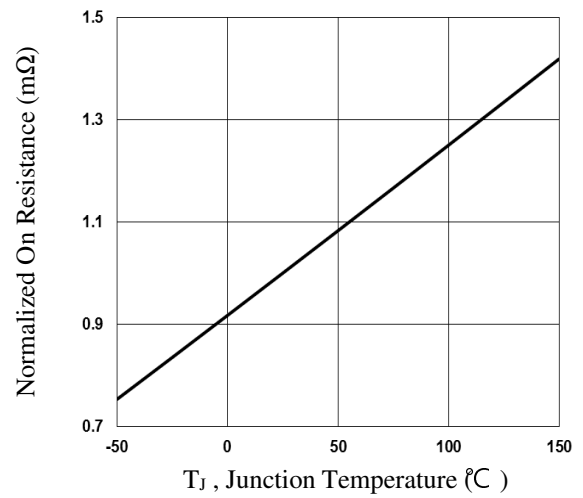


Fig.2 Normalized $R_{DS(on)}$ vs. T_J

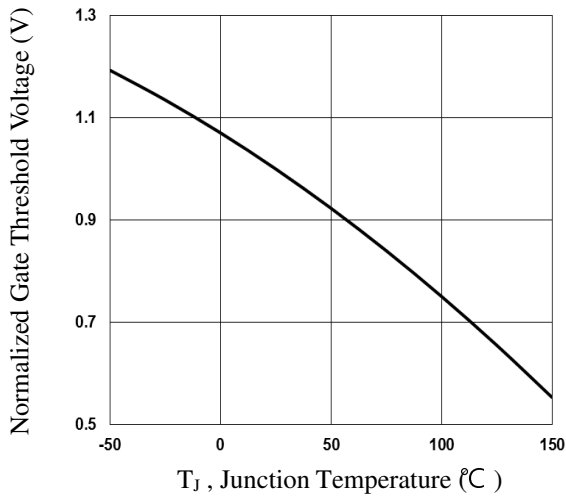


Fig.3 Normalized V_{th} vs. T_J

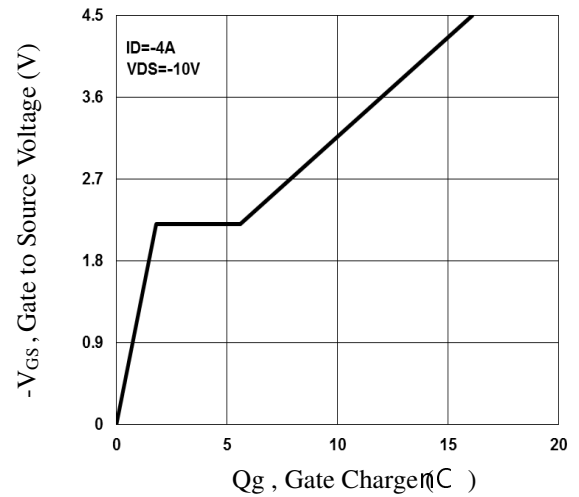


Fig.4 Gate Charge Waveform

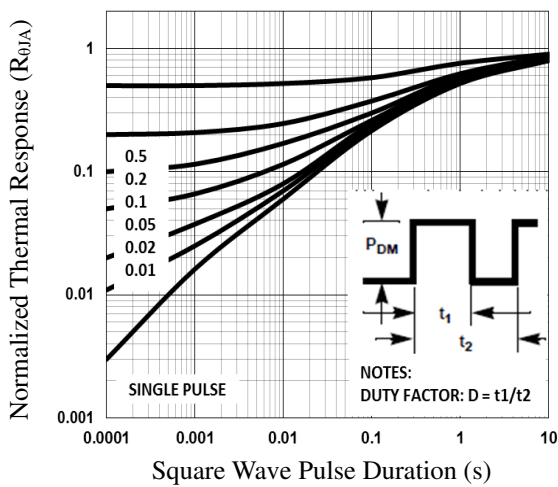


Fig.5 Normalized Transient Impedance

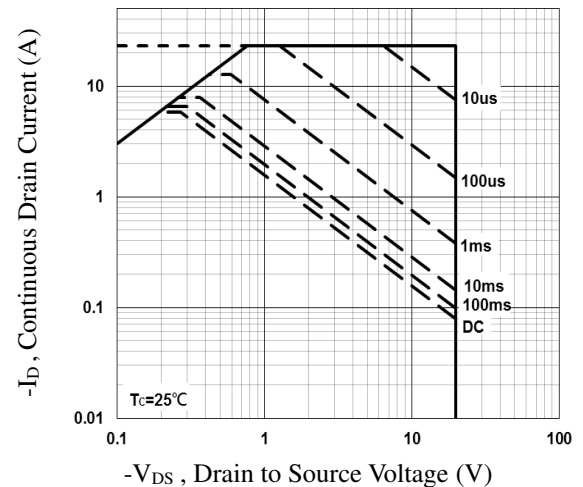
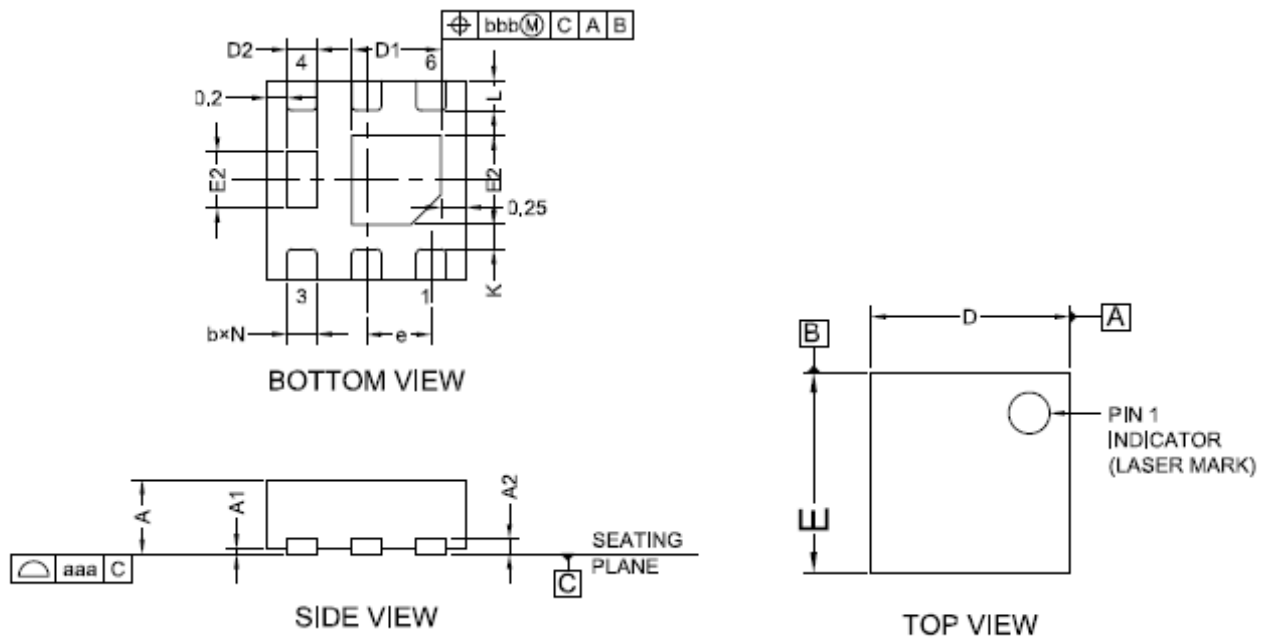


Fig.6 Maximum Safe Operation Area

DFN2X2-6L PACKAGE INFORMATION



Symbol	Dimensions In Millimeters		
	Min	Typ	Max
A	0.50	0.55	0.60
A1	0.00	0.02	0.05
A2	0.152REF		
b	0.25	0.30	0.35
D	1.95	2.00	2.05
D1	0.80	0.90	1.00
D2	0.25	0.30	0.35
E	1.95	2.00	2.05
E1	0.80	0.90	1.00
E2	0.46	0.56	0.66
e	0.65BSC		
L	0.25	0.30	0.35
J	0.40BSC		
K	0.20MIN		
N	6.00		
aaa	0.08		
bbb	0.10		